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STILL I RISE: A CRITICAL UTOPIAN ACTION RESEARCH STUDY ON BLACK FEMME-IDENTIFYING AND GENDER EXPANSIVE EMERGING ADULTS IN TECHNOLOGY LEADERSHIP

By

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B.A., Temple University, 2010
M.A., Spalding University, 2013

A Dissertation
Submitted to the Faculty of the College of Education and Human Development of the University of Louisville in Partial Fulfillment of the Requirements for the Degree of

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University of Louisville
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DEDICATION

This dissertation is dedicated to my children, Lola and Clifford

And to Tim. It seems I’m never tired loving you

And to my mother, who was a computer programmer and didn’t even know it

And to my grandmothers, Lola and Grace, who were pioneering women in their time

And to The Fold. Still We Rise. Period.
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ABSTRACT

STILL I RISE: A CRITICAL UTOPIAN ACTION RESEARCH STUDY ON BLACK FEMME-IDENTIFYING AND GENDER EXPANSIVE EMERGING ADULTS IN TECHNOLOGY LEADERSHIP

Alisia McClain

May 10, 2024

This Critical Utopian Action Research (CUAR) study delves into the intersection of authentic leadership, Black Feminist Thought (BFT), and technology leadership development, focusing on the perspectives of emerging adult Black femme-identifying or gender-expansive individuals. Addressing two primary research questions, the study investigates their idealized visions for technology leadership programs and discerns key factors differentiating authentic leadership from models incorporating BFT. Through qualitative analysis of Future-Creating Workshop outputs and participant narratives, the study unveils multifaceted themes.

Participants articulate a vision of technology leadership development rooted in authenticity, intersectionality, and inclusivity. Their ideal programs prioritize celebrating complex identities, engaging through technology, and advocating for diversity in the tech industry. The narratives highlight the transformative power of supportive environments and mentorship in engaging diverse identities in leadership and innovation.

The study's theoretical implications underscore the necessity of integrating intersectionality into leadership models, particularly within tech education and industry.
Augmenting authentic leadership with BFT and intersectionality fosters more inclusive and empowering leadership practices. Furthermore, the research reveals a need for a nuanced approach to identity leadership, acknowledging the authenticity of intersectional identities within collective social identity.

Practical implications emphasize the importance of incorporating intersectionality into leadership development initiatives and fostering inclusive organizational cultures. Organizations should actively involve intersectional identities in co-creating initiatives to drive organizational development and innovation. Moreover, technology education initiatives must integrate intersectional perspectives into curriculum design and pedagogical approaches to provide students with a comprehensive understanding of the societal impact of technology.

In summary, this study contributes to both theoretical and practical domains by illuminating the transformative potential of authentic leadership informed by BFT and intersectionality. By centering the voices and experiences of marginalized individuals, organizations can cultivate inclusive leadership practices and foster innovation in the tech industry.
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INTRODUCTION

The U.S. Bureau of Labor Statistics (BLS) predicts that in the next ten years (2022 to 2032), there will be around 377,500 openings in computer and information technology per year (BLS, 2023). The median annual wage for Computer and Information Technology Occupations in 2022 was $100,530 per year, compared to the median annual wage for all occupations of $46,310 (BLS, 2023). Many computer and information technology jobs require a degree in computer science, but there exists a dearth of racial and gender diversity within the field, stemming from a lack of diversity within computer science (CS) degrees (Agarwal, Mittal, Katyal, Sureka, & Correa, 2016; Alvarado & Judson, 2014; Cohoon & Aspray, 2006). In 2018, of all of the computer and information sciences and support services graduates, 60 percent were White and 75 percent were male (National Science Foundation, 2018). As can be seen in Figure 1, where data is disaggregated by gender and race, computer science degrees are disproportionately awarded to White males, whose data representation is one percentage point away from making up all the other demographics combined.
Gender and ethnic diversity in the field of technology is a trending topic in industry, in education, and in academic research - as the demographic homogeneity that pervades the tech industry is now common knowledge, there are many initiatives to change the paradigm of lack of gender and racial diversity in the field (Agarwal, Mittal, Katyal, Sureka, & Correa, 2016; Alvarado & Judson, 2014; Cohoon & Aspray, 2006). These initiatives include programs to spark the interest of underrepresented groups in computer science, programs to mitigate issues of self-efficacy, and modification of existing programs to better support a more inclusive environment.

There are three important reasons for more women and ethnic minorities to enter the field: The first is that from a practical standpoint, technology jobs continue to go unfilled. Additionally, jobs in the technology sector are typically high-paying, high status, and in high demand (Lockard & Wolf, 2012; Scott & White, 2013). Therefore, from a market standpoint, it makes sense to expand and diversify the supply chain to meet the demand for labor.
The second reason is that technological advancement and innovation are integral to solving many social and environmental problems that the world is facing today. Because of the complexity of the problems and the range of demographics affected, bringing diversity of thought and backgrounds to the table is paramount to the success of future problem-solving (Nemeth & Wachtler, 1983; Gassmann, 2001). Diversity has been shown to increase innovation within organizations – if an inclusive environment is fostered, particularly among leadership, then diverse backgrounds lead to more diverse perspectives leads to broader ideas, creativity, intelligence, and better decision-making (Antonio et al, 2004; Gassmann, 2001; Nemeth & Wachtler, 1983; Page, 2007; Woolley, Chabris, Pentland, Hashmi, & Malone, 2010).

The third rationale is both practical and critical. Technologies meant to protect may unintentionally harm, with marginalized groups frequently suffering most from unethical tech deployment. The rise of generative AI highlights this issue, as biases from prejudiced historical data may continue in AI outputs. Leading AI ethicists Joy Buolamwini, Timnit Gebru, and others have illuminated AI's potential harm to these groups. For instance, facial recognition technology has shown inaccuracies in identifying people with darker skin tones, often mislabeling gender and failing to differentiate individuals (Buolamwini & Gebru, 2018; Raji et al., 2020). The consequences are serious; as law enforcement adopts this technology, the risks of misidentification increase, leading to possible wrongful arrests, convictions, and, in the worst cases, deaths.

Thus, the technology sector and society at large benefit tremendously from the inclusion of a more diverse set of backgrounds and perspectives, particularly those of historically underrepresented groups. We live in an increasingly complex world with
complex issues and our technological advancements are increasing exponentially. Because marginalized groups are disproportionately affected by social and technical issues, their unique voices and experiences should be seen as assets to addressing our societal needs.

From an economic equity standpoint, marginalized groups serve to benefit by gaining greater access to a stable and high-paying job (Lockard & Wolf, 2012). Moreover, by understanding and embracing technology as a conduit to addressing issues relevant to their lives, marginalized groups harness the power of a means of production, one that lends itself well to not just economic equity, but also community, social, and individual equity and empowerment (Scott & White, 2013).

Realizing this, there are many initiatives that strive to mitigate those issues with programs that seek to spark interest, build self-efficacy, and ultimately increase representation of women and ethnic minorities in the field of computer science and it could be argued that these efforts have been at least somewhat fruitful (see Figure 2 below).

However, as can be seen in Figure 2 below, degrees obtained by Black women continue to be low, even as the number of White women, Black men, Latino men, Asian women, and Hispanic women continue to rise.
This is occurring even as the representation of women of color is increasing in nearly every other STEM field (Hodari, Ong, Ko, & Kachchaf, 2014). This means that Black women are missing out on an opportunity to be part of an innovative, stable, creative, flexible, and high-paying vocation. Moreover, the technology industry will continue to lack this very important voice that could contribute to enhanced problem-solving and innovation.

Interestingly, many of the programs designed to increase participation and interest of marginalized groups are not lacking Black female participation. On the contrary, they are often participants in the programs and initiatives designed to increase interest and self-efficacy of marginalized groups. Yet, while these interventions arguably seem to be working at least somewhat for their non-Black female and Black male counterparts, these interventions are not translating to actual CS/technology enrollment increases for Black women, as their enrollment in computer science majors is declining (Ong, Wright,
Many of these interventions are short and designed with either women or ethnic minorities in mind (Scott, Martin, McAlear, & Koshy, 2017) and they do not consider the unique identity and experiences of Black women (Crenshaw, 1989).

There are commonalities and differences between the experiences of Black women and other women in the field of computer science. While the literature on Black female motivations and experiences in computer science is not substantive, common themes emerge: Black women report a lack of identification with the field of computer science (Benyo & White, 2009; Ong, Wright, Espinosa, & Orfield, 2011), which is consistent with reported experiences of other women in technology spaces.

However, CS self-efficacy is not as major of a deterrent for Black women as it is for other women (Johnson, Phillips, & Stone, 2008; Lent et al., 2005). Instead, the two factors of computers as a tool for social good and encouragement from others to go into the field are core tenets of their interest in participation in technology (Zarrett & Malanchuk, 2005). This is important to consider because if generalizable, we are compelled to modify the way we educate Black young women, considering encouragement and projects that incorporate social good as core tenets of any CS educational experience.

To better understand the unique phenomenon of being both Black and female, Kimberlé Crenshaw (1989) expresses the intersection of race and gender as “intersectionality”. As Black people who are not male and women who are not White, their lives and communities are unique - facing the double disadvantage of being both Black and female - and for this reason, their experiences do not parallel those of their
White female counterparts nor are they concurrent with their Black male counterparts. 

Sans careful consideration of this critical group as their own entity and community, in the push for increased diversity and reduced discrimination, Black women risk being left behind (Crenshaw, 1989).

While intersectionality compels us to include Black women in the focus to reduce discrimination, Black Feminist Thought (BFT) (Collins, 1989) instructs us how to do it, by centering the fight for social, political, and economic equality of Black women in a deep and full love for their ideas, minds, and experiences (Collins, 1989; Cooper, 2018; King, 1988; Lorde, 2012). BFT compels us to understand the complexities of Black women and seek to uplift and empower the voices and experiences of their knowledge, borne of their unique experiences, by recognizing their community as unique. Because of this uniqueness, BFT establishes the acceptance of their knowledge as a valid epistemology, worthy of contribution to the larger theoretical and practical body of scholarship (Collins, 1989; Cooper, 2018). BFT recognizes the understanding and positionality of Black women as its own source of knowledge, exclusive of the experiences and communities of non-Black women and Black men.

In our consideration of the unique identity of Black women in the field of computer science, we must consider this unique group at the highest levels of technology industry – leadership. Black women hold comparatively few leadership positions in technology (Equal Employment Opportunity Commission, 2018). When they are in a leadership position in technology, many report having to stifle their identity to not be seen as stereotypical (McGee, 2018; Taylor, 2002). However, some reported embracing their identity and confronting stereotypes and biases head-on, with success (McGee,
Neither way, it is important to address the role of identity and leadership if the issues of diversity in technology spaces are to be adequately addressed, and it is important to give authentic leadership opportunities for underrepresented groups such as Black women at a young age (Redmond & Dolan, 2016).

There are many opportunities for improvement in developing leadership in young people. Leadership development in young people is typically spoken of in the future tense – they are being developed to be leaders in the future, but not given meaningful opportunities to lead while they are youth. Additionally, they are studied from the standpoint of their potential for leading in the future, rather than a focus on their current leadership qualities and experiences (Redmond & Dolan, 2016). Specifically, they are being developed to be leaders in the future, but not given meaningful opportunities to lead in the present. Furthermore, youth leadership roles can sometimes represent 'tokenism'—adults make the decisions while youth receive nominal titles suggesting leadership without actual influence (Redmond & Dolan, 2016).

Young people undertaking an authentic opportunity for leadership, one where the youth leader oversees making decisions that have real consequence, has been shown to increase their self-efficacy and interest, particularly in the domain of computer science (Clarke-Midura, Poole, Pantic, Hamilton, Sun, & Allan, 2018). In the case of this study, the identity/relatability of the near-peer leadership mentor in a domain was positively correlated with the self-efficacy of the mentee in computer science – the more the mentee could relate to the near-peer mentor, the higher their CS self-efficacy. This is important to note, and lends itself to another question – how does the identity of the mentor or youth leader impact their own leadership development, especially in the technology
sector? Also, what does that experience mean for marginalized groups? Ultimately, how would they describe their ideal technology leadership development, one that incorporates their identities and community?

**Intersectionality**

Current data on diversity in technology education and industry often adhere to a binary gender framework. To truly capture the landscape of diversity in technology, it is imperative to adopt gender-affirming classification methods. By purposefully embracing gender-inclusivity, the field will benefit from enhanced richness and a broader perspective. Therefore, I will expand my classification to include femme-identifying and gender-expansive individuals.

Based on the afore-mentioned problem of the downward trend of representation of Black women in computer science and technology, and in particular their relative absence from technology leadership, combined with the importance of meaningful technology leadership opportunities for marginalized youth, coupled with the need for embracing intersectionality in gender classification, the purpose of this study is to understand how Black femme-identifying emerging adults describe and develop their own technology leadership experience, as it relates to a summer technology program for marginalized youth called Technology Entrepreneurship to Create Change (TECC) Boss.

With this recognition of the importance of diverse and divergent perspectives within the computer science discipline and the significance of focusing on the underrepresented group of Black femme-identifying and gender-expansive emerging adults for their own leadership study, the following literature review synthesizes the pertinent context to situate my proposed study.
LITERATURE REVIEW

The purpose of this literature review will be twofold: First, to determine the current standpoint of initiatives focused on increasing diversity in the field and to identify the opportunities that exist for more research of the topic. Second, to gain an understanding of existing literature around technology leadership and Black Feminist Thought. By focusing specifically on Black femme-identifying and gender expansive individuals, I hope to identify how their needs are different from the needs of their counterparts within technology leadership.

Since there are few empirical studies focused on understanding the motivations and interests of Black femme-identifying and gender-expansive emerging adults in leadership in the field of computer science/technology, I will broaden my scope to include the following sectors: Empirical studies on high school/college initiatives designed to increase ethnic/gender participation in STEM fields generally and in the technology sector specifically, empirical studies on leadership development in late high school/college-age ethnic/gender minorities and in technology, and empirical studies on Black women in organizational experiences, in technology, in high school/college age women, and in leadership.

Women in technology

The following literature will focus on the experiences of women in technology. I will start with this because there have been noteworthy changes made in curriculum, research, and programming arguably resulting in changes in the number of women
graduating with a computer science degree. Holistically, there is a lot to be learned from how the problems were identified, how the research was carried out, how the programs and changes were implemented, and how they have longitudinally maintained the changes (see Figure 1). If this strategic approach could be used in the same way for a targeted focus of inclusion of Black women, it’s possible that we could start to see the same increases that are present in the trends of non-Black women. For this reason, the first body of literature relates to women in technology learning environments.

The disparity between the presence of male students and female students in CS courses is prevalent in high school. Among high-school students, girls are significantly less likely to take a computer programming class than boys (Shashaani, 1994; Schumacher & Morahan-Martin, 2001). They are also less likely to take the computer science Advanced Placement (AP) test than boys. Indeed, only 31% of AP CS students are female, a proportion which is lower than any other STEM field (Jagesic et al., 2020). Additionally, they report less interest in pursuing careers in computer science and engineering than boys (Weisgram & Bigler, 2006). By the time they enter college, men are already more than four times more likely to have an intention to major in computer science and engineering than women (National Science Foundation, 2017).

Of those women who do choose to major in computer science in college, they report issues of low self-efficacy. In a qualitative study on women in computer science at Carnegie Mellon University (CMU), one participant speculated that male counterparts perform better without very much effort (Margolis, Fisher, & Miller, 2000), leading this student to transfer out of the department, even though she loved computer programming. This sentiment was expressed repeatedly by other participants in the study.
Even with the same grades, women tend to self-report less confidence in their abilities than men in STEM fields, leading to a lack of confidence in their career choice. (Strenta et al., 1994; Margolis, Fisher, & Miller, 2000). It is important to note, however, that this is not the case in career fields where there is not an underrepresentation of women. For example, in the field of nursing, 85% of nurses and home health aides are women (Day & Christnacht, 2019). In the case of the nursing field, it is men that report a lack of positive role models and lower levels of career confidence and family support than women. (Twidwell, Dial, & Fehr, 2022).

While the CMU study found that many women enter undergraduate computer science with less CS experience than men, it also found no correlation within prior experience and success. Indeed, some of the most successful students in CMU’s CS major entered the program with little to no computer experience (Margolis, Fisher, & Miller, 2000).

This lack of self-confidence is unfortunate, as self-confidence is positively correlated with student persistence in CS programs (Redmond, Evans, & Sahami, 2013). Another study involving 567 first-year college students corroborated the idea that women have inaccurately low confidence in masculine domains, including CS, and this was a major deterrent to taking CS courses (Beyer, Rynes, & Haller, 2004).

The issue of self-efficacy is exacerbated by discrimination and stereotypes. Both men and women believe the stereotype that males are more proficient than women with computers (Margolis, Fisher, & Miller, 2000). Moreover, women in CS courses often report social situations where they are told they are only there because they are a woman, in addition to instances of imposter syndrome (Margolis, Fisher, & Miller, 2000), when
one doubts their achievements and fears that they haven’t achieved enough to deserve to be where they are - that they will be found out a fraud (Clance & Imes, 1978).

Women also encounter the negative stereotype that they are less competent in mathematics and science (Dar-Nimrod & Heine, 2006). For African American and Latina women, negative stereotypes may play an even greater role, as they are double stereotyped on the basis of both race and gender (Ong et al., 2011). Participating in a class or social setting where a student knows they are being negatively stereotyped can diminish interest in a subject (Cheryan, Ziegler, Montoya, & Jiang, 2016; Mëllstrom, 2009).

Cultural stereotypes act as gatekeepers to more young women pursuing and persisting in computer science majors/fields. Young women are deterred from pursuing careers in computer science because of stereotypes associated with the culture of the field, perceiving it as male-oriented, socially isolating, and machinery-focused (Cheryan, Master, & Meltzoff, 2015).

Indeed, when students think of the type of person who should be interested in computer science, a stereotype of a “geeky” guy who is awkward in social settings and infatuated with technology comes to mind (Mercier, Barron, & O’Connor, 2006; Rommes et al., 2007). If their self-visualization does not fit that mold, it becomes very difficult to see themselves in that role or career. Because of this, girls report less interest in these fields than their male counterparts (Cheryan, Master, & Meltzoff, 2015; Mercier, Barron, & O’Connor, 2006; Master, Cheryan, & Meltzoff, 2016).

Interventions

To address the issues of self-efficacy and sense of belonging and the pervasive
presence of discrimination and stereotypes, initiatives have been taken within computer science that have yielded some positive results in broadening interest and increasing equity in the field for women in general. They include participating in computer science conferences for women (Alvarado & Judson, 2014), revising the curriculum (Fisher & Margolis, 2002), and informal and formal learning initiatives at the middle and high school level (King, Gardner-McCune, Vargaz, & Jimenez, 2014), designed to spark interest in the field.

**College Participation in Female-centered and Female-led Conferences.**

Alvarado and Judson (2014) praise Harvey Mudd College (HMC) as a beacon of hope in their undertaking to attract and retain more female computer science students (2014). They cite three changes that HMC made in their computer science (CS) program: (1) a revised introductory CS course, (2) CS research opportunities for female students after their first year, and (3) trips for first-year students to the Grace Hopper Celebration of Women in Computing (GHC) (Alvarado & Dodds, 2010). These measures have resulted in an increase from approximately 18% female CS majors historically to approximately 40%, where it has held steady since 2008 (Alvarado & Judson, 2014). They concluded that of the three changes, participation in the GHC, a short-term intervention in a student’s decision process (three to 18 months before declaring a major) can dramatically affect a student’s major, and hence likely career choice. This quantitative study is effective in its attention to inretention of women in computer science in undergraduate computer science courses, however, it does not incorporate descriptive statistics around race and ethnicity as sub-groups of gender.

**Changing the Culture of the College Curriculum.** U.S. News and World
Report continuously ranks Carnegie Mellon University (CMU) as one of the best computer science programs in the country (U.S. News and World Report, 2020). Its computer science master’s degree is currently listed as number one in the country, sharing the seat with Massachusetts Institute of Technology, Stanford University, and University of California – Berkeley. Its undergraduate CS program ranks second only to MIT (U.S. News and World Report, 2021).

CMU’s ranking success has a fascinating subplot. In the fall of 1995, 7.3% of students entering the undergraduate program in CS at CMU were women. CMU took deliberate steps to make this change, through the implementation of Fisher and Margolis’ action research project. One of the steps taken was to modify the culture of the curriculum, with the following approaches: (1) Interdisciplinary courses that bring students of diverse backgrounds together to work on multifaceted problems; (2) An undergraduate concentration in human computer interaction; (3) A course that engages students with non-profit groups in the local community and applies student skills to community issues (Fisher & Margolis, 2002). As a result, by 2000, 42% of the undergraduate students enrolled were women (Fisher & Margolis, 2002). Fisher and Margolis’ research project took place from 1995 until 2000, but CMU has maintained its high percentage of women in CS majors: in 2016, 48.5% of its CS students were women (“CMUs Proportion of Undergraduate Women”, 2016). The changes in curriculum were made to directly address the stereotype of what one must desire to do to be a computer scientist. Rather than a computer scientist being only someone who “hacks for the sake of hacking”, it is to show that there is space and need for hacking for change, hacking for social justice, hacking for the sake of making a better world. (In this case, “hacking” is
used without its illegal/negative connotation, just meaning programming). Indeed, Rosser (1990) implores, “insuring science and technology are considered in their social context may be the most important change that can be made in science teaching for all people, both male and female” (p. 72). This mixed methods action research study is the primary work that prompted the continued interest and investigation of the important topic of increasing female participation in the field. The proposed study seeks to narrow the scope to the experiences and interests of Black women, at a younger age.

**K-12 Learning Experiences.** To increase participation in college, girls must see the field as viable when they are in high school, middle school, and perhaps even as early as elementary school. As women in STEM is a trending topic, funding is readily available to programs seeking to increase participation, many of them in informal learning environments such as after-school and summer programs.

King, Gardner-McCune, Vargaz, and Jimenez (2014) integrated technology and history in a novel approach: the student creation of apps to express the experience of a plantation site visit. Through a program called WATCH: Workshop for Actively Thinking Computationally and Historically and using MIT’s drag and drop App Inventor, technology was used as a medium to explore historical identity over the course of seven sessions, 75 minutes each. In the first two sessions, the participants learned about historical thinking the third session was a plantation visit. The fourth session involved debriefing from the plantation visit and storyboarding the apps they would create. The following sessions involved using MIT’s App Inventor to learn about CS fundamental principles, computational thinking, and developing their mobile apps. The participants were 11 boys and 19 girls, and all identified as non-Asian minorities. All the students
were upcoming seniors at their perspective high schools and in their final year of a three-year residential summer enrichment program held at a mid-size research university in the southeast. The mission of the summer program was to increase the number of low-income African American and Latinx students attending and graduating from colleges in the state. Students were recruited from the five lowest achieving and underfunded high schools in the state.

Before the program, 78% reported no exposure to computer science or programming. Following the program, 86% expressed interest in creating another app. While this study did not particularly target girls, its results are important because the majority of the participants were female, and it took place with students from low socioeconomic backgrounds, another area of underrepresentation in the field. This quantitative study is important and more studies like this could yield important results. Additionally, a qualitative study centered around their identities as Black people visiting a plantation and then trying to encapsulate that experience in an app could yield rich data on the complexity and intersection of technology and critical race theory.

A quasi-experimental initiative sought to increase engagement in a middle school science class using e-textiles (Tofel-Grehl et. al., 2017). E-textiles utilize programmable conductive thread and LED lights that can then be sewn into clothing. Through this medium, students learn about programming, electricity, and circuitry in an engaging and personalized fashion. While the study did not yield statistically significant differences in the e-textile unit (treatment) compared to the traditional unit (control) in knowledge acquisition, the treatment group did report increased engagement and higher social connections with family, friends, and teachers. While the quantitative study was on a
short study (3 hours total), it hints at ways that relevant curriculum and activities can increase engagement.

Through a workshop for 21 girls in grades 5 through 8, Cakir et al. (2017) found increased interest and participation in the realm of computer science by using identity exploration through game-design. The workshop involved pre-programmed 2D game environments and simple script programming. They were also introduced to a computer lab at a local university that was used by students majoring in digital media and design. They found no statistical significance on positivity towards computing but acknowledged that this could be because it took place in a computing club for girls. There was no mean decrease in perceived difficulty of computing, however most participants responded positively to the program. These results indicate that further study is needed to understand whether identity is a viable lens through which we can learn about technology and if so, in what ways.

In summary, the current research gives perspective on this issue, in addition to examining some solutions. In the college realm, changes to the curriculum and participation in all-female technology conferences have shown promise for retention of women (Alvarado & Judson, 2014), once they decide to major in computer science. Unfortunately, this practice is not widespread and only addresses almost the end of the pipeline: if young women have already decided that computer science is a viable enough option to pursue, then some issues of self-efficacy and sense of belonging in the field have somehow already been addressed earlier or are not considerable enough to deter their interest. This is obviously a good problem to have but does not address the girls who never see themselves as computer scientists and therefore never even consider the
Further up the pipeline, there are some initiatives that seek to stimulate interest in computer science at an earlier stage of development, from developing drag and drop apps, Scratch, and e-textiles in formal school to identity-focused game-design workshops in informal learning environments. These initiatives are again noteworthy in their direct address of the goal of increasing interest in technology for a more diverse group. However, the workshops are usually short (none were found that were more than a weeklong) and/or they do not situate Black female identities in their methods. Within the results, only issues of computer self-efficacy are addressed, while discrimination and stereotypes and sense of belonging are typically not explored. In addition, while drag and drop websites, apps, and programming certainly have value as an introduction to the field, women are arriving in Introduction to CS courses under-prepared, as most of their male counterparts have experience in full programming in the domain.

The common thread is that to address these issues of self-efficacy, preparedness, discrimination and stereotypes, and sense of belonging in the domain of technology, young women need to see themselves represented in the environment in which they learn and work, in conferences, curriculum, and in the faces of their classmates and teachers. (Cheryan, Master, & Meltzoff, 2015; Fisher & Margolis, 2002). The environment in which they learn and interact with computers is directly correlated with their interest, self-efficacy, and persistence in the field. The next section moves into research around the technology learning environment, as it applies to Black women/girls.

Black Girls/Women and Technology Education

The following section discusses the current research landscape of the experiences
of Black women in technology education, outlining the barriers faced but also the causes for perseverance. The latter is as important as the former if we desire to increase participation.

In a qualitative study on Black women in US computing science higher education, intended to understand the experiences of Black women in computer science undergrad and grad school programs, all the participants spoke at length about how the CS environment was academically unwelcoming and socially isolating. Their expertise was questioned both by men and non-Black women, leading them to work with same-race women or independently (George, Jackson, Berhanu, and Amechi, 2014). This was their way of responding positively to the racist and sexist environment. Even more disconcerting, they reported biases not just among their peers but also among faculty, leading the researchers to call for faculty in the CS field to examine their own prejudices and biases toward women and ethnic minorities.

Still I rise. What leads Black women to succeed in computer science? Pulling from their own experiences and seeing technology as a medium for problem-solving. In a study on women of color who actualize success (Charleston, George, Jackson, Berhanu, & Amechi, 2014), seventeen women participated in a focus group around their experiences in CS and how they motivated themselves in the face of such a difficult climate. There were two Black female graduate students in the study, and both spoke to using computer science to address issues from their personal lives. One student developed her dissertation topic around energy consumption in low-income neighborhoods, based on her experiences growing up rich initially, and then poor later. The other student based her dissertation around reading, because she had a younger
cousin who couldn’t read. She said her realization that this is a real issue in her community led her to think about how she could use her technological knowledge to solve problems in her own community. This study raises the question: What would the trend of Black women in computer science look like if we introduced technology as a medium for community problem-solving from a young age?

In a quantitative longitudinal study (n = 508), Zarrett and Malanchuk (2005) describe the differences between predictors of IT career aspirations. There were both noteworthy differences and similarities between race and gender and their intersection. Enjoyment of computers was a key component in pursuing IT-related fields for both Black women and White women. Positive computer schema, example item “Computers can solve social problems”, answered with Likert scale, was a key component in pursuing IT-related fields for both Black women and Black men. If we used an additive approach to Black female identity, we would conclude that Black women would have the factor of positive computer schema in common with other Black people, and enjoyment of computers in common with other women, and therefore we could conclude that statistically significant factors that influence the pursuit of IT-related fields for Black women would be enjoyment of computers (female participants) + positive computer schema (Black participants) and stop there.

But we cannot. Or at least we should not. What this study found that Black women did not have in common with their counterparts is noteworthy. While for Black males, the higher the educational achievement of their parents, the more likely they were to pursue an IT-related field, the opposite was true for Black women – the higher the educational aspirations of the Black female participants’ parents, the less likely the Black
female participants were to go into CS. Additionally, the more education Black women themselves expected to attain, the less likely they were to go into an IT-related field. And perhaps most importantly, Black women were the only demographic that registered encouragement from others as a statistically significant predictor of pursuit of IT-related fields.

The results from this study support the necessity of continued research around understanding the intersectionality of race and gender, separate from race by itself and gender by itself. It also compels us to resist the common misconception that Black female identity can be reduced to an additive construct: the experience of being Black plus the experience of being female. Their identity is separate, warrants its own consideration, and most importantly, the experience, communities, voices, and research of Black women are rich sources of knowledge that are necessary contributors to the larger fount of empirical, conceptual, and practitioner knowledge (Crenshaw, 1989; Collins, 1980).

As it pertains to computer science education, Black women’ understanding of their identity must be tracked continually as activities in computer science are completed. If they cannot see a parallel between multiple elements of their cultural identity, their motivation and identification with the field can decrease over time (Cheryan & Plaut, 2010; Scott & White, 2013).

With this in mind, Scott and White’s (2013) action research study, Culturally responsive computing and its effect on girls of color is innovative in its approach. The foundation is an understanding that the results of efforts to increase interest rarely account for and examine how the complexities of identity intersect and shape the process
of an individual’s developing consciousness (Gilborn & Youdell, 2009). In response to the lack of research around the complex intersection of identity and interest, they started COMPUGIRLS, whose program revolved around identifying a social/community issue to research. The action research approach required that the participants develop a research question, must have at least one RQ, peer-reviewed references, primary data, analysis, and implications of their findings. Then they used digital media to convey their findings. For their own research, Scott and White posed the following research questions:

RQ1: What features motivated participants to enroll and remain in the program?
RQ2: How did the culturally relevant experience affect their perception of self as future technologists and maturing women of color?

Forty-one participants, 30 Latina and 11 African American, participated in the program, which consisted of over 500 hours of in-person instructional time. Over the course of two years, the researchers collected qualitative data in the form of interviews, student journals, focus groups, document review, observations, and surveys. Their results found that “their [the participants’] marginalization has not depressed their technical acuity, commitment to social justice, advocacy in their communities, or belief in self” (p. 681). They also found that culturally responsive computing practices as enacted through COMPUGIRLS context seem to facilitate the process of transformation for social justice ends, concluding that “the lack of tech exposure does not mean individuals are unable to see the value of technology, and their use of technology as a medium to address community issues contributed to seeing themselves as potential participatory members of the digital community” (p. 681).
This study is innovative in its implementation of an action research project to give voice to marginalized women in computer science. Opportunities to build on this initiative include disaggregating the experience to only Latinx women or only Black women. There are differences in the way Black women and Latinx women experience technology experiences – a study of this type with Black women only or at least Black women in the majority could illuminate further theoretical and practical implications. Also, the program is very high in research rigor, but it stops at teaching digital media. While digital media is certainly technology, it does not involve the computational thinking and logic that would be necessary to further prepare them for the field of computer science, should they want to pursue it. From a technological pedagogy perspective, it would be beneficial to consider a similar model that keeps the idea of technology as a medium for social change while simultaneously increasing the computer science span and rigor.

In a similar study that goes further into computational thinking, Vakil (2014) employs situated cognition as a conceptual framework to understand cognitive engagement in a high school after-school technology program that combines critical pedagogy with computational literacy. The sample was very small \((n = 4)\), three Black female participants and one Black male participant, but noteworthy in its approach. Using a critical pedagogy approach, the four participants researched a community need and then as a team developed an app to address the issue.

This approach and framework are critical if we are to move forward in engaging marginalized groups in the field of technology. However, there are a few problems with this study. First, all four participants were required to agree on one app, even though
they had varying interests. One of the participants, Mayra, was in an arts high school and was not particularly interested in the app coding component. I see this as a missed opportunity – what level might her engagement have been if her interest in art was nurtured through a technology experience? When I think about social justice and community engagement, protest music and art come immediately to mind. If the goal is an intersectional approach to technology that engages the identity of the participants, we must allow them to pursue what relates to their individual identities and interest and not force them into one box. As educators, in the case of Mayra, our guiding question and framework should be: How can we facilitate an experience for Mayra that combines art, social justice, and technology? What ideas might Mayra have around this? As educators, we need to provide opportunities that allow students the flexibility and freedom to find themselves in the content, and this is especially important for marginalized groups (Howard-Hamilton, 2003).

Nonetheless, Vakil’s (2014) final thoughts are compelling:

I argue that computational fluency as a civil rights and social justice issue further expands this notion by posing the following questions: Design what, for whom, and for which purposes? I propose critical pedagogy as a powerful tool that social justice educators can use with urban students to both ask and answer these questions. Finally, we may be able to redefine the “digital divide” as the gap in possibilities between what we are currently achieving in urban schools with the nation’s poorest children and what is possible through a commitment that prioritizes the development of critical along with computational literacies (p. 44).
Indeed, the understanding and enactment of technology as a tool for activism is a major factor influencing the persistence of women of color in an unwelcoming environment. This use of technology as a medium for change can lead to sustained interest and pursuit of the field of computer science. In their qualitative study on the experiences of women of color in computing, Hodari, Ong, Ko, and Kachchaf (2014) describe two major themes that emerged as factors reported by women of color that helped them to persist in their pursuit of a CS degree: technology for activism and being mentored in computing. In their research around other STEM fields, they found evidence of women of color enacting activism, such as STEM-focused volunteer work, but it was only in the field of technology where the women used the disciplinary knowledge itself to engage with activism. For example, Shaundra Daily, a Black female computer scientist who graduated from MIT, started a company that helps African American students incorporate dance and technology – the students learn a certain dance and then program a virtual partner to dance with them.

In addition, the participants in the study cited mentorship as a second major factor in sustaining their interest. For one Black female, just the presence of others who looked like her was enough. Mandy, a postdoctoral scholar in information science, said the following about attending a computing event where she described seeing people that looked like her:

Well first of all, it’s a beautiful [event]. I can tell you that I’ve never gone to an event and said, “These people look like me.” I mean literally people look like me. We could be cousins. I love that about the [event] (p. 87).

The common thread between all these studies is that more concentrated efforts are required to foster equitable and inclusive learning environments. Even among those
Black women who actualized success, they were forced to do so in the face of incredible adversity, both from their colleagues and their professors (Charleston, George, Jackson, Berhanu, & Amechi, 2014). These studies were important in their address of gender and race-specific nuances. Thinking in these terms is likely to benefit up and down the pipeline, as we seek to increase diversity and examine the effectiveness of programs.

**Technology leadership in Workforce**

While the former section outlines gendered experiences in education, this section will move into the current empirical research of women and Black women in technology careers. Part of the literature will explore gender differences without disaggregating further into intersectionality. This zoom out/zoom in framework gives us a more robust understanding of the similarities and differences between Black and non-Black women.

**Gender Differences, Identity, and Attraction to the Field.** Women and men come to an interest in computer science in different ways. While men reported loving the computer from the first time they touched it, women reported an interest stemming from its usefulness in helping to better society (Margolis, Fisher, & Miller, 2000). Women have a stronger interpersonal orientation than men (Beyer, Rynes, & Haller, 2004), and stereotypes of the field as being communicatively cold and lacking creativity act as deterrents to women entering the field (Beyer, Rynes, & Haller, 2004; Margolis, Fisher, & Miller, 2000; Cohoon, 2002). Female students interviewed at Carnegie Mellon University contextualized their interest in computer science in a broader sense, understanding it as a contextual component to solving larger problems:

“What I would really like to do is teach...would like to minor in education and how computers affect education and what is the most efficient way to use them in education.”
“I really wanted to get people together…how can this change the world as we see it today. You can get people together. You can provide information.”
“I think with all this newest technology there is so much we can do with it to connect it with the science field, and that’s kind of what I want to do (study diseases). Like use all this technology and use it to solve the problems of science we have, the mysteries.”
“You tend to think of computer scientists as people that sit in front of computers all day…doing netscaping, that sort of thing. I can’t stand doing that. I have to be actually making something, something productive, or I get depressed.” (Fisher, Margolis, & Miller, 1997, p. 203).

Interestingly, this study reported that the researchers heard older male students express the same sentiment as they progressed through the computer science program. While males were not initially drawn to the field for the same reason women were, as they progressed in their understanding of computer science, they began to align with what drew women initially to the field, (e.g. its ability to change the world, to solve a problem, to help people).

The problem-solving that sparked interest in women to pursue technology in the first place happens at the leadership levels in technology organizations – if women are not reaching those levels in the organization or are not starting their own organization where they can be the leader, they may feel compelled to leave the field. Indeed, although 80 percent of U.S. women working in STEM fields say they love their work, 32 percent also say they feel stalled and are likely to quit within a year (Williams, Phillips, & Hall, 2015).

**Women and Minorities in Tech Industry and in Leadership Positions.** The following section will outline the most recent report from the U.S. Equal Employment Opportunity Commission (EEOC) on Diversity in High Tech (EEOC, 2014), focusing specifically on leadership positions.

The EEOC uses the following definition of high tech:
“Industries that employ a high concentration of employees in science, technology, engineering and mathematics (STEM) occupations and the production of goods and services advancing the use of electronic and computer-based production methods.”

Figure 1 in the introduction demonstrated the college statistics - that the demographics of Computer Information and Science Support Service degrees were overwhelmingly white and male. Figure 3 below shows the continuation of that secondary school trend into the tech industry, where 68.5% of high tech industry positions are held by White workers and 64.3% are held by male workers (EEOC, 2014). As can be seen in Figure 3, compared to all industries, the tech sector is lagging in its representation of women and non-Asian minorities.

![Figure 3: Industry participation by gender, sex, and race groups, high tech vs all private industries. (EEOC, 2022). Employer Information Numbers may not add up to totals due to rounding. TOMR = two or more races. (EEOC, 2022)](image-url)
While Figure 3 demonstrated the participation in the high tech field in general, Figure 4 demonstrates the glaring differences in high tech leadership vs all other industries. Leadership positions are defined by the EEOC as management positions and above, including executive and senior leadership positions (EEOC, 2014). The paucity of gender diversity continues to pervade, with women comprising only 20.44% of leadership positions in high tech as opposed to holding 28.81% of leadership positions in all private industries. Interestingly, as can be seen in Figure 4, Asian-Americans have more than double the leadership percentage in tech fields as held in all private industry. While the source of this data did not provide information disaggregating the data for subgroups within race and gender, we can conclude that if the statistics for Black people and women are 1.92% and 20.44% of leadership positions, respectively, that the situation for Black women in tech leadership positions must be even lower.

Indeed, approximately 45% of women entering tech leave within five years while only 17% of men leave (Barr, 2017). Women have fewer opportunities for advancement...
in the IT field and less mentoring/networking opportunities in IT than men (Trauth, Quesenberry, & Huang, 2009).

In a 2015 mixed-methods study that consisted of in-depth interviews of 60 women and surveys of 557 women in STEM, women reported issues of having to repeatedly prove themselves, a lack of sense of belonging, and the discrimination and stereotypes that mirror the experiences of women all along the CS pipeline (see Figure 5). Two-thirds of the women surveyed reported having to prove themselves repeatedly – their successes discounted, their expertise questioned. Three-fourths of Black women reported this paradigm – they were considerably more likely than other women to report having to deal with this type of bias (Williams, Phillips, & Hall, 2015).

As can be seen in Figure 5, there are striking disparities between the experiences of Black, Latina, Asian, and White women. Comparatively, White women must deal with the aggression and pressure of the trope of “office mother” or “dutiful daughter” moreso than their Black, Latina, and Asian counterparts, and Asian women must deal with the microaggressions of suggesting they work fewer hours after being a mother.
However, and importantly, they report being able to count on the support of other women in their work environment. Indeed, Latínx women felt the most supported by other women of all four of the ethnicities surveyed.

Comparatively, as can be seen in Figure 5, Black women report having to provide more evidence of competence, being mistaken for administrative/custodial staff more often, and do this with much less support from other women. This report speaks to the unique experience of Black women as their identity both connects and disconnects them with the experiences of other women. This paradigm of higher levels of oppression from without compounded with lower levels of support from within provides yet another compelling reason that the study of the experiences of Black women warrants additional focus and research.

Many women in leadership roles do not feel empowered to embrace their identity as women (McGee, 2018). Moreover, they are underrepresented in technology and even moreso in technology leadership (EEOC, 2018). This is problematic because what draws women to the field of technology is its ability to solve problems, to help people, and to better society (Margolis, Fisher, & Miller, 2000). Not being promoted into leadership roles, where decisions are made and problems are solved, coupled with not being able to embrace their identity as women if they are in leadership positions could lead to a disconnection with the field, which could explain the high turnover rates of women in the technology field. Because of this research, we turn our focus to how we can incorporate more leadership opportunities for Black girls in tech, to develop their leadership self-efficacy. This way, they are prepared for leadership opportunities in an organization. If the technology industry will not recognize them and promote them as leaders in their
organization, they will be equipped with skills that could lead them to start their own technology organization. Indeed, there were 2.4 million African American women-owned businesses in 2018, most owned by women 35 to 54, and Black women were the only racial or ethnic group with more business ownership than their male peers, according to the Federal Reserve (Hannon, 2018).

**Leadership for Marginalized Youth.** Participating as a youth leader has been shown to enhance the social, moral, emotional, physical, and cognitive development of young people (Katzel, LaVant, & Richards, 2010). The development of youth leadership skills is important and leads to higher self-esteem (Kress 2006; Taylor, 2012). Moreover, professionals that work with youth must ensure that leadership opportunities are available to youth.

Providing leadership opportunities is especially impactful for marginalized groups. College women rate themselves lower in their leader efficacy than male peers regardless of actual leadership capacity, as measured by how many leadership opportunities they have had in the past (Dugan & Komives, 2007; McCormick, Tanguma, & López-Forment, 2002). This is important because leadership self-efficacy was found to be highly related to the frequency with which a person reported attempting to assume a leadership role given the opportunity, meaning that more authentic opportunities in leadership are paramount to identifying as a leader (McCormick, Tanguma, & López-Forment, 2002).

Leadership’s faulty association with masculinity exacerbates the issue of women seeing themselves as leaders (Ayman & Korabik, 2010; Eagly & Chin, 2010). As shown earlier, these findings around leadership are concurrent with the race and gendered
assumptions of who should be a computer scientist (Beyer, Rynes, & Haller, 2004; Margolis, Fisher & Miller, 2002). This is problematic because both leadership capacity and leader self-efficacy are associated with benefits that affect career and leadership aspirations, academic and work-related performance, the ability to combat stereotype threat, adaptability, and perseverance in the face of complex challenges (Day et al., 2009; Hannah et al., 2008; Machida & Schaubroeck, 2011) that may assist women in navigating barriers within STEM environments.

For these reasons it is necessary to provide authentic leadership opportunities to marginalized groups in general, and in technology, specifically. Additionally, Black women are virtually absent in formal technology leadership (EEOC, 2015).

In a qualitative study involving primarily African American youth aged 7 to 19 in the Washington DC area, Sheridan, Clark, and Williams (2013) describe the transition of the youth from participant (year 1) to assistant and eventually taking on the role of designer and implementer of instruction (year 4). The program, called Game Design through Mentoring and Collaboration (GDMC), was a partnership between the George Mason University College of Education and Development and a public urban technology high school. The participants learned 2D interactive game design, 3D printing, and animation. The study sought to understand the process of the students seeing themselves as viable leaders and to create their own leadership roles. They posit that this approach is key to engaging underrepresented groups in the domain of computer science and technology.

The Sheridan, Clark, and Williams study employed culturally relevant computing practices as central tenets to the learning process and the organizational model:
When youth have opportunities to design with technology, to become mentors that develop new strategies to teach technology to their peers, and to introduce new technologies and instructional approaches they become designers of their education. Through attentiveness to opportunities to support students in expressing greater agency and autonomy in a program, the program becomes increasingly culturally relevant as it embodies the perspectives of those who become increasingly designers of it (p. 737).

As the program continued, gradually the former students replaced the teachers as both designers and facilitators of the program. Figure 6 shows their table of how representation changed from year 1 to year 4.

<table>
<thead>
<tr>
<th>Table 2. Numbers and Roles of Participants in the GDMC Program by Year.</th>
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<tbody>
<tr>
<td>Year 1</td>
</tr>
<tr>
<td>Adult instructors</td>
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<tr>
<td>Youth Instructors</td>
</tr>
<tr>
<td>Youth mentors</td>
</tr>
<tr>
<td>Total youth participants</td>
</tr>
<tr>
<td>Percent of youth participants in a leadership role</td>
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</tbody>
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Figure 6. Numbers and Roles of Participants in the GDMC Program by Year. (Sheridan, Clark, & Williams, 2013).

In the first year, the mentors took care of administrative tasks. Many showed up late or not at all, sitting in the corner of the class, listening to music. However, the second year, they were asked to come back as paid mentors. As the program continued, the instructors started to serve as resources rather than as facilitators, by facilitating open-ended questions to help the youth design the session. This study did not provide gender demographics of the 15 youth mentors, which is unfortunate – since the original teachers
were all males, it would be helpful to understand the gender and racial demographics of those who became mentors. Also missing are the starting and ending demographics of the participants. The program appears to have fewer and fewer participants each year – it would be good to know what factors affected that.

This program and the subsequent research could serve as a framework when we think about how we educate youth in technology. Opportunities for further research include a longitudinal study of the participants to see what the impact of taking on a leadership role in technology had on their future leadership roles, both inside and outside of the technology field. Also, all the initial instructors were males – what effect might female instructors have on the participants and their belief and embrace of leadership opportunities? Moreover, what if the instructors were Black women? What effect could that have on the leadership efficacy of the women in the group? Additionally, what effect could Black female leaders have on the gendered assumptions of males in the group? It is possible that a female technology leader in an educational paradigm might mitigate some of the stereotypes presented before about who can be a computer scientist and who can be a leader and the intersection of those two.

Concurrent with, or perhaps transcending, these questions are the results of the study which indicated that because the youth took on a meaningful leadership role where they proposed and carried out solutions, the program became more individually, socially, and culturally relevant (Sheridan, Clark, & Williams, 2013). These program results support broader context that culturally-relevant pedagogy is directly tied to asset-building, and is key to unearthing new knowledge and new ways of thinking (Hilliard, 2003; Howard, 2003; Lee, 2007)
The results of this study support the idea that if an inclusive environment is fostered, particularly among leadership, then diverse backgrounds lead to more diverse perspectives and ultimately broader ideas, creativity, intelligence, and better decision-making (Antonio et al, 2004; Gassmann, 2001; Nemeth & Wachtler, 1983; Page, 2007; Woolley, Chabris, Pentland, Hashmi, & Malone, 2010).

Ultimately, from their youth, marginalized groups need to see themselves not just as consumers of technology but also as creators of technology. They need to be given opportunities to be innovators and leaders in the field of technology - they need to understand how their identity is an asset to their leadership authenticity rather than a component that needs to be suppressed. And within these opportunities for authentic leadership, youth should be given the opportunity to define what an ideal leadership experience is, as it relates to their identities and communities.

With this recognition of the downward trend of Black women receiving CS degrees, the issues of low self-efficacy, low sense of belonging, and discrimination and stereotypes that pervade women at the college level and in the tech industry, the important symbiotic relationship between inclusion and technology, the lack of women and ethnic minorities in high tech leadership positions, the importance of providing more authentic leadership opportunities for Black youth, and the importance of a gender-expansive approach to research, the purpose of this critical utopian action research project is to understand how Black femme-identifying emerging adults describe and envision a technology leadership program that incorporates their identities and communities. This project will be framed by an intersectional model of authentic leadership and Black Feminist Thought.
When Black femme-identifying students do not see themselves represented within the institutional structure or classroom environment and all students seem to be treated from a “one size fits all” frame of reference, there is a loss of individualism as well as gender and cultural constructs (Howard-Hamilton, 2003). Therefore, understanding and incorporating the experiences of Black femme-identifying and gender expansive emerging adults into the development of a tech leadership program for themselves will be an important contribution to the broader fount of academic knowledge and research about leadership theory as it intersects with identity. Practically, it helps us understand how the identities and communities of Black femme-identifying/gender expansive emerging adults affects their leadership development in a technology context.

Therefore, I propose the following research questions:

1. How do emerging adult Black femme-identifying or gender-expansive people describe an ideal technology leadership development program that incorporates their communities and identities?

2. Based on the results, what are the key factors that emerge which differentiate authentic leadership from a leadership model that incorporates Black Feminist Thought?
METHODS

Introduction

The purpose of this chapter is to explain the methodology and framework for this action research study that seeks to understand how Black femme-identifying and gender-expansive emerging adults describe an ideal technology leadership development program that incorporates their communities and identities. Black Feminist Thought (BFT) and authentic leadership are discussed as conceptual frameworks for the responses of the participants in this study, and a new, integrated framework is introduced as a tool for reporting those responses. The research plan, methodology, participant selection, procedures, organization, data collection and data analysis are included in this section.

Research Purpose/Conceptual Framework

This study will employ a conceptual model that integrates authentic leadership development with Black Feminist Thought to gain a comprehensive understanding of leadership development as it intersects with the identities of Black women. The research method will be a Future-Creating Workshop (Jungk & Müllert, 1987), chosen for its relevance to the research question. These dual frameworks will guide the research and analysis, offering a multi-faceted view of the phenomena under study.

Authentic Leadership

Drawing from positive organizational behavior and transformational/full-range leadership, Luthans and Avolio (2003) define authentic leadership in organizations as “a process that draws from both positive psychological capacities and a highly developed
organizational context, which results in both greater self-awareness and self-regulated positive behaviors on the part of leaders and associates, fostering positive self-development” (p. 243). They propose that authentic values, beliefs, and behaviors of a leader can act as catalysts to the development of associates.

Figure 7. Authentic Leadership Development Model (Luthans & Avolio, 2003)

Authentic Leadership Development is seen as a lifelong dynamic process that includes recognizing and leveraging trigger events, which, contrary to traditional psychology's view of them as negative, can be positive according to positive behavioral psychology (Luthans et al., 2002). Luthans and Avolio suggest that these events can be intentionally created to spur development. In this critical utopian action research, a technology leadership workshop for Black femme-identifying and gender-expansive emerging adults within the TECH-Nique TECC Boss program serves as the planned trigger event. Participant input is crucial, as they will design a leadership program that is by and for them, significantly contributing to the TECC Boss program's organizational development.
My selection of authentic leadership is rooted in its focus on positive psychology and the concept of authenticity, which involves embracing one’s own experiences and acting in harmony with one's true self (Harter, 2002). This authenticity is especially critical for Black women, who often face societal pressures against expressing their true selves (HBR, 2015; McGee, 2018; Taylor, 2002). Furthermore, authentic leadership's integration of hope and optimism is vital for dismantling barriers faced by marginalized groups. By maintaining hope as a central principle, authentic leadership serves as a constant reminder that despite historical and present challenges, change is possible. *Still, we rise.*

Since this study is designed to understand how Black femme-identifying and gender expansive emerging adults critique current technology leadership ideals and opportunities and describe an ideal technology leadership development program that incorporates their communities and identities, I will also incorporate the theoretical lens of Black Feminist Thought.

**Black Feminist Thought**

Intersectionality insists on the inclusion of Black women to counteract discrimination, while Black Feminist Thought (BFT) instructs us to do so through a framework that centers a deep and profound love for Black women's ideas, minds, and lived experiences (Collins, 1989; Cooper, 2018; King, 1988; Lorde, 2012). This love is an act of resistance within a world that often exhibits coldness and hostility towards Black women. BFT celebrates the complexities of Black womanhood, recognizing their unique community and valuing their insights as essential epistemology that enriches the broader corpus of academic and applied knowledge (Collins, 1989; Cooper, 2018). It
acknowledges the standpoints and positionalities of Black women as a distinct source of understanding, independent from the lived realities of non-Black women and Black men.

Collins (2002) puts forth three key themes of Black Feminist Thought (BFT) theoretical framework:

a. Shaped and produced by the experiences Black women have encountered in their lives, even though others have documented their stories.

b. Although the stories and experiences of each woman are unique, there are intersections of experiences between and among Black women.

c. Although commonalities do exist among Black women, the diversity of class, religion, age, and sexual orientation of Black women as a group are multiple contexts from which their experiences can be revealed and understood.

The principle of Black Feminist Thought (BFT) that acknowledges the diversity among Black women—including class, religion, age, and sexual orientation—argues for the inclusion of Black femme-identifying and gender-expansive individuals. This principle highlights the varied contexts from which their experiences emerge and are understood, making the case for a more inclusive approach beyond the category of 'Black women' to encompass all who identify with the lived experiences and struggles of Black femininity.

I have refined the authentic leadership development framework to integrate Black Feminist Thought (BFT) and the Future-Creating Workshop. As illustrated in Figure 8, the positive psychological capacities from the authentic leadership model are tailored to resonate with BFT's principles: the distinct experiences of Black femme-identifying and gender expansive emerging adults and their confidence, hope, optimism, and resilience,
especially as these relate to the BFT Tech Leadership Future-Creating Workshop. The organizational context now reflects Black femme-identifying and gender expansive perspectives on vision, strategy, and culture within an organization that acknowledges their identity and community. Furthermore, the positive self-development outcome, an essential element of authentic leadership triggered by significant events, has been reimagined through the workshop's results. The workshop itself is a catalyst and a byproduct that promises to serve as a future catalyst (the ensuing leadership development program). This duality allows for an examination of positive self-development through both the product (the technology leadership development program they design) and the process (the workshop experience). Data analysis will explore how these themes correspond with positive self-development traits and their incorporation into the technology leadership program the participants developed. The modified BFT/authentic leadership development model can be seen below, in Figure 8:
Philosophical Assumptions

Guiding the design, implementation, and subsequent data analysis of this study are my own philosophical assumptions, characterized by my own ontology and epistemology. Whereas ontology is the study of being and how things really are, epistemology refers to ways of knowing and asks the question, “What is the nature of the relationship between the would-be knower and what can be known?” (Guba & Lincon, 1998, p. 108).

In the context of this study, my ontological position is nested in interpretivism, based on an understanding that the reality can only be known through the subjective lens and experiences of individuals. The epistemology of this study lies in Black Feminist Thought, which specializes in formulating and rearticulating the distinctive, self-defined standpoint of African American women (Collins, 1989). As traditional scholarship and epistemology have historically discounted the knowledge of Black women and instead...
are rooted in White patriarchy, it is necessary to center Black women in an epistemology that recognizes their scholarship as viable sources of knowledge (Collins, 1990).

Therefore, it becomes necessary to consider methodologies that work in tandem with the community, centering voice and scholarship in the knowledge and identity of Black women themselves. In the following paragraphs, I will detail the methodology chosen and the reasoning for those choices.

**Identity and Community**

The methodological framework of this study is deeply embedded in the principles of Black Feminist Thought and intersectionality as articulated by Crenshaw (1989, 1991). These perspectives assert that individual identities are best understood within the context of the communities that shape and are shaped by them (Collins, 2000). According to Black Feminist Thought, ‘identity’ and ‘community’ are co-constructed; the lived experience and social realities of Black women are products of their reciprocal relationship with their communities (Collins, 2000; Crenshaw, 1991). Within this framework, the research approach recognizes the intertwined nature of these concepts in examining the leadership development of Black femme-identifying and gender expansive emerging adults in the field of computer science. This intersectional lens, which is a cornerstone of Black Feminist Thought, is critical for understanding how communal ties and individual agency collectively inform leadership identities (Crenshaw, 1991; Hill Collins, 2000). Consequently, the methodology of this study is designed to explore this dynamic interplay, acknowledging that the professional growth and leadership potential of the participants unfolds within the rich tapestry of their community affiliations (Hill Collins, 2000; Crenshaw, 1991).
Complementing the insights offered by Black Feminist Thought, Social Identity Theory (SIT) provides another vital lens through which the study investigates the leadership development of Black femme-identifying and gender expansive emerging adults in computer science. Tajfel and Turner (1979) conceptualized SIT to understand how individual self-concept is intertwined with perceived group membership, suggesting that the groups to which people belong are an important source of pride and self-esteem. This theory is particularly relevant in exploring how the ‘community’ reinforces ‘identity’, especially within professional and educational settings where underrepresented groups often seek validation and a sense of belonging (Ashforth & Mael, 1989).

Within this study, SIT informs the methodology by highlighting the significance of group affiliations in shaping the participants’ self-perceptions and leadership aspirations. By identifying with a particular community, the participants’ identities are both individually nuanced and collectively informed (Ashforth & Mael, 1989; Tajfel & Turner, 1979). Therefore the study’s methods are designed to not only recognize the individuality of each participant’s experience but also to consider how these experiences are echoed, amplified, and validated within the communal narrative, which is central to their professional identity construction.

**Action Research**

The proposed study, intended to understand how Black femme-identifying and gender expansive emerging adults describe and develop a technology leadership program, is well-suited for an action research project. Action research is based on Freirian principles of critical pedagogy (Freire, 1968) and centered around an essential
understanding that communities should have power over their own learning and development.

While some of his depictions of the habits and personalities of the oppressed are problematic and stereotypical, Freire’s germinal work, Pedagogy of the Oppressed (1968) was academically groundbreaking. Freire stressed the importance of disrupting the societal power dynamic of the oppressed by teaching empowerment to the community. He theorized that the oppressed could overcome the inequitable power dynamics in which they are caught only when they are active participants in the struggle to free themselves (Freire, 1968).

Pedagogy of the Oppressed suggests two ideas: the notion that students should not be passive receptacles of knowledge and the notion that those who are not in the oppressed group should join forces with the oppressed to educate them in their fight for liberation (Freire, 1968). Through this lens, education is seen as a tool for empowerment in the fight for justice and freedom against the power of the oppressors.

Within this schema, called critical pedagogy (Freire, 1968), education is inherently and importantly a political act. Deliberately positioned towards action, the students are active participants in their learning as it applies to the empowerment of their community. Students might learn to write so that they can pen their names on a voting ballot; might learn carpentry for the purpose of building more sustainable housing within their community - every concept is directly applicable to community development and freedom from oppression and is taught for exactly that purpose.

The framework theorized by Paulo Freire in 1968 is considered the model for much of the community-based research that is in existence today. The concept “action
“research” was first introduced by Kurt Lewin in conjunction with his search for methods that were suitable for dealing with social problems (Ladkin, 2007; Reason & Bradbury, 2006a). Action research is defined as:

A participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory, and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities. (Reason & Bradbury, 2001, p. 1)

Action research is an overarching term for qualitative methodologies that prioritize engagement and collaborative meaning-making between the researcher and the practitioner. This approach marks a significant shift from quantitative methods where the researcher is an objective observer, external to the study.

In contrast, within action research, participatory action research takes collaboration deeper, involving iterative processes among scholars, practitioners, and participants. Influenced by Freire, these methods, including action research, participatory action research, youth participatory action research, and service learning, all aim to operate within and alongside communities. They focus on learning from these interactions to facilitate change and restructure the dynamics of power.

**Critical Utopian Action Research**

Action research lends itself well as a methodology because it gives participants ownership of process and product. While there are many methods that exist within the
paradigm of action research, a critical utopian action research project is a natural choice for this research as it hopes to elicit their voices, borne of their experiences as Black femme-identifying and gender expansive youth, in shaping the future of the leadership development component of TECH-Nique.

Critical utopian action research involves a combination of critique of the past and present conditions in a particular context with a utopian vision for the future (Bladt & Nielsen, 2013; Nielsen & Lyhne, 2016). The utopian horizon is necessary to overcome society’s current condition. It is an understanding and pursuit of what could be in light of what is. Since the current condition as it relates to this research is the relative absence of Black women in technology leadership and the lack of technology leadership development opportunities for Black young women, the utopian horizon of how they describe an ideal technology leadership program becomes critical.

Additionally, rather than attempting to remain objective, within action research the researcher is intentional in their efforts to draw out the richness of participant outlooks and experiences (Ladkin, 2007; Reason & Bradbury, 2006a). Action research also focuses on a more cyclical concept, with participants given the opportunity to both participate in and respond to the research, a process called member-checking. Since I am the leader of the organization that is providing the technology leadership training, as well as a Black woman, CUAR encourages my engagement in the research.

**Positionality**

My own positionality as the researcher is important to disclose, as it is the lens through which I will guide this study and analyze the results. I am Black, femme-identifying, and a PhD student whose dissertation will be based on this study. I am also
the founder of the organization, TECH-Nique, and the creator of the TECC Boss program. I am highly invested in seeing that it goes well, but I am also open to the feedback given by the participants – I know and understand the importance of data to guide future initiatives.

I have taken a few computer programming classes, both formally and informally. I took one class at the University of Louisville in my first year of my PhD program – Intro to Programming, where I learned C and C++. I enjoyed learning the mechanics of programming but thought it could be improved pedagogically. I say that not to disparage the professor or curriculum - he was friendly and always available to answer questions, but he also prided himself on how many students quit CS based on his introductory class. Specifically, he pointed out the many students who came back to tell him ‘Thank you’ for showing them that CS was not for them, which I found to be an appalling boast. Additionally, I experienced the same issues reported in the literature – every assignment I thought I would fail, I had no allies in the class, the content was overwhelming, and I had no personal or cultural connection to the assignments. One of the assignments consisted of building a program that could add, subtract, multiply, and divide, take percentages of numbers, and calculate remainders. This very simple program took me at least 10 hours to complete. And yet, it comes free with my phone. It would’ve been much more interesting for me if we began with an assignment around technology to solve a community problem or better society. While I see the importance of starting with a simple program to learn the basic elements of programming, I see tremendous opportunity for more interesting, identity- and community-based computer science pedagogy. I believe it was my research in this field and my age (I was 38 years old at the
time) that helped me to make it through, but I could only imagine what the experience would have been if I were 17 or 18.

Because of that experience and my ongoing research, I started a non-profit organization called TECH-Nique, with a framework of teaching and experiencing technology training methodology that used community-based problem-solving and asset-highlighting as the core tenets of the program. The inaugural summer (2019) I was able to raise $5000 to provide computers to all the participants that I then gave to them at the end of the program.

If I aspire to be an authentic leader, then my own positive leadership development is inextricably linked to the trigger event and thus, a parameter worthy of note. Rather than try to explain my positionality and separate it from the study, it would be more interesting to incorporate, albeit anecdotally, my personal and professional development into a Black woman in technology leadership.

**Context of the study**

*TECH-Nique*

TECH-Nique is a nonprofit in Louisville, Kentucky that I started in October 2018. It fuses the academic research I’ve been doing for my dissertation into a program that provides technology education for the purpose of empowering the communities of underrepresented groups in computer science. We think of technology first as a powerful tool to strengthen and empower our communities, and then, as a byproduct, a job skill. Our programs incorporate leadership development, project management, collaboration, creativity, and design with curriculum in data analytics, software development, digital marketing, and UX design for app development. While we welcome all demographics to
our programs, our design and methodology is specifically framed around what increases sense of belonging, self-efficacy, and hence, participation, of young adult Black women in computer science.

**Technology Entrepreneurship to Create Change (TECC) Boss Program.** In 2020, TECH-Nique received two major contracts, one from JCPS and one from KentuckianaWorks. Additionally, we secured a grant from Metro United Way and partnered with Kentucky Science and Technology Corporation in a grant application. In the first program in 2019, ten young women of color learned app development and built websites for community partners. In 2020, we added TECC Boss, (Technology Entrepreneurship to Create Change), a 210-hour program where youth explore how they can use technology to empower their identity and community, ultimately tasked with either developing an app or a website that addresses a community problem or highlights a community asset. In this iteration, through TECC Boss, we added a virtual option because of Covid-19, we also added entrepreneurship, including business model canvassing, pitch deck, and pitching, data analytics, UX, and digital marketing. That year we had 40 youth, majority Black girls.

In 2021, in addition to TECC Boss, we added the following two programs:

1. All That TECH! Conference for Girls - In partnership with JCPS we hosted a conference for 120 8 - 10th graders. This conference included keynote speakers from Google and local organizations. Additionally, there were 8 breakout sessions where past participants of TECH-Nique facilitated workshops on technology, including artificial intelligence, internet of things (IoT), website design, wearable technology, and coding.
2. Alo Le Mond! which means “Hello World” in French Creole, where youth from TECC Boss worked with youth from Jeramie, Haiti to use technology to create an IOT device. It also served as an opportunity for a cultural exchange between majority Black youth from the US and Black youth from Haiti.

In 2022, we added in a full week of AI and IoT, added in a Juneteenth STEM Festival to the All that TECH Conference, where community was invited to come in and have an interactive experience with technology that celebrates the past, present, and future of Black people.

In 2023, programmatically we will be adding the Butterfly Project, which brings technology training and data analytics project support to nonprofits (including survey design, analytics, and visualization).

The first iteration of TECC Boss took place in summer of 2020. In each summer of 2020, 2021, and 2022, 40 - 60 interns built an app that addressed a community need. Each team member served as either the UX designer, the data analyst, the software engineer, or the digital marketer on their app development team. Additionally, the interns learned/deployed a business model around their app, partnering with local entrepreneurs to receive feedback on their MVP. Eleven past participants of TECH-Nique programs were selected for leadership roles, serving as team leads for their app development team.

**Daily Schedule**

Each day, all 40 participants met online on a Zoom call, at 9am. We started each day with a morning blog prompt and then moved into the curriculum teams, where participants learned either UX design, coding in Python, data analytics, or digital
marketing through an online self-led curriculum by General Assembly. They did this on their own but used Slack to communicate with each other around problems they were having.

In the afternoon, whichever curriculum they chose in the morning, they became that role on their business team in the afternoon. Each business team had four members: one UX designer, one programmer, one data analyst, and one digital marketer, to apply what they learned in the morning on their curriculum team.

The program utilized a deliverables-based model - participants were paid based on completing their daily tasks and their work was checked by their team leads. (the role and selection of the team leads will be outlined below). A master spreadsheet tracked attendance and deliverables throughout the program. As can be seen in Figure 7, the demographics from 2020 were as follows: 85% of our participants identified as Black/AA, 71% identified as Female, and one person identified as non-binary. Disaggregation by race and gender shows the following:

![Race/gender demographics - TECC Boss 2020](image)

*Figure 9. Race/gender demographics, TECH-Nique TECC Boss program 2020. Source: Author*

Both of our facilitators were JCPS-certified technology teachers who identify as Black/African American, our IT consultant identifies as Black/American Samoan and
was a CS Masters' student in the Computer Engineering/Computer Science program at University of Louisville Speed School, and we also had speakers, two Black/African-American women who are UX designers at Google. We had 100% retention in our 2020 cohort - every intern who started our program, finished our program.

**Team Leads**

Each applicant for the program was required to fill out a survey. One of the survey items was “Do you have previous experience and so want to be considered for a team lead position?” If the applicant answered yes, they were interviewed for the position of team lead. We needed eleven team leads and eleven applicants checked yes, so all who applied were hired. All eleven team leads were college-age Black young women. Here is the job description that was posted on the website (the position title was later changed from Youth Leader Intern to Team Lead):

*The Youth Leader Intern is vital to the overall educational mission of TECH-Nique by ensuring quality programs and building a sense of community within the participant group.*

*While also moving through the program, the youth leader intern will facilitate discussions, provide motivation, and act as a liasion between other participants and the facilitators.*

*The youth leader will also keep a pulse on the members of their team, ensuring that fellow participants' needs are met and that they are comfortable in their learning. She will communicate concerns to the facilitator and program director.*

*The youth leader intern will also empower others in her group to lead and facilitate discussions and lead workshops. She will encourage and inspire the other members of her team.*

*The youth leader intern has experience in technology and is excited to learn new things!*  

*Sound like you? Then be sure you click YES on the question at the bottom of your application for the TECC BOSS summer program!*
Each team lead was paid $15/hour, which was $2/hour more than the non-leadership participants. Each team lead also received a new Macbook Air laptop to keep.

*Team leads daily tasks/responsibilities*

During the internship program the team leads were responsible for checking their team’s blog posts for completion and demonstrating that progress on a master spreadsheet, week one seen below in Figure 8. Initially, the daily goals were determined by the facilitators. As the weeks progressed, more and more responsibility for the team’s daily tasks was passed to the team leads. By week 6, the team leads were filling out the spreadsheet themselves, noting what each person on their business team would be doing, and then following up with checking if it was completed and if not, what progress was made, as can be seen in Figure 9 below.

*Figure 10.* Progress tracking master spreadsheet, week one. Source: Author.
The team leaders were also tasked with setting up weekly Zoom meetings between their team and the community mentors. Additionally, they communicated constantly with their team on Slack and in-person, providing feedback, encouragement, and tracking accountability for their team members.

Every Friday, team leaders had a meeting with me, where we discussed issues and victories they were experiencing with the program and specifically within their group. We also discussed what they should expect for the upcoming week.

**TECC Boss 2023 program**
In the summer of 2023, sixty interns designed an app prototype that addressed a community need around health equity. Each team member moved through a UX design curriculum to learn app prototyping. Within this business team, they worked together to identify either a problem that can be solved or a community asset that can be highlighted through technology. This resulted in the creation of an app prototype by their team.

Next, they learned how to deploy a business model canvas, and develop both a 60 second pitch and a 3 minute pitch for their app. The internship spanned six weeks, Monday - Thursday, 9a - 5p, for a total of 180 hours.

TECH-Nique has been fortunate to secure funding to pay 60 youth to go through this program, through KentuckianaWorks, which is the workforce board in Louisville, Kentucky.

Following are skills that were/will be learned through the TECC Boss internship:

- App development - PowerApps, Figma
- UX design - Customer discovery, affinity mapping
- Project Management - Trello, Slack
- Website development/deployment - WIX
- Community-based problem solving
- Business model canvassing
- Pitch deck development/presentation
- Survey development
- Blog/process reflection.

Additionally, the interns are taught to deploy a business model around their app, partnering with local entrepreneurs to receive feedback on their minimum viable product
(MVP), which is an early version of a product or idea that is just good enough to show its functionality and purpose. The intent is to have users interact with the product for purposes of understanding how to improve upon the initial design idea. Fifteen past participants of TECH-Nique programs will be selected for leadership roles, serving as team leads for their app development team.

All team leads from the summer 2020, 2021, 2022, and 2023 TECC Boss programs were invited to participate in this critical utopian action research study.

Relevance to research
As detailed in the Literature Review, particularly in Figures 3, 4, and 5, we are lacking Black women in leadership positions in technology and we are lacking opportunities for Black young women to have leadership experiences, much less leadership experiences in technology (Day et al., 2009; EEOC, 2014; Hannah et al., 2008; Machida & Schaubroeck, 2011). Realizing this, one of the core components of TECH-Nique’s organizational structure and strategy is the opportunity for youth from underrepresented backgrounds in technology to not only have the experience of creating with technology, but also the experience of leading in technology.

While TECH-Nique facilitates the ability for youth to have leadership opportunities, we have no real leadership training program. We have a couple of days before the summer program starts where we give an overview of what to expect and the logistics of enacting the summer program, but every year we find that the leaders say that they need more training in technology leadership.

From a theoretical standpoint, we do not currently have theories in place that consider the intersection of being Black, a young woman, a technologist, and a leader.
As proposed in the literature review, this is necessary for both practitioners and scholars to move our work forward with intentionality around diversity in technology education.

Data Sources

All project managers, team leads, and program managers from summer 2020, 2021, and 2022 were asked to participate in this study. They are all between the ages of 18 and 23, all Black, femme-identifying or gender expansive emerging. They were contacted by email, text, and phone call. In the invitation message, their participation was described in the following way: Because of your participation as a team lead in the TECC Boss 2020 program, 2021, 2022, or 2023 internship, I am writing to invite you to participate in my dissertation study. The purpose of the study is to understand how late high school/college-age Black femme-identifying and gender expansive people describe an ideal technology leadership development program that incorporates our communities and identities.

Data Collection

Approval from the Institutional Review Board (IRB) was pursued from the University of Louisville. Once the IRB process was approved, I contacted each of the team leads from the Summer 2020/2021/2022/2023 cohort and asked for their participation. Participants signed an informed consent document, then this document was reviewed with the participants at the start of data collection, in the Future-Creating Workshop. The entire Future-Creating Workshop was recorded, both audio and visual.

I conducted the entire Future-Creating process in-person, in one long session. Once the participants agreed to participate in the study, we set up a time for a Future-
creating workshop with the use of Padlet, as explained below. Within the session, we took the following steps, outlined in the next section.

**Procedures**

While there are multiple ways to deploy critical utopian action research, for the purpose of this study, we utilized Jungk’s future-creating workshop (Jungk & Mullert, 1987). This workshop has three phases: critique, utopian, realization. Critique phase sums up problems, utopian imagines the perfect situation, and then realization is collaborating to create it.

The first phase, the critique phase, is where participants brainstorm on the issues or problems they see within the current paradigm. In this phase, participants critiqued 3 paradigms: 1. Broadly, they were asked to critique current leadership development opportunities that are available to Black femme-identifying and gender expansive youth. 2. More specifically, their own experiences in leadership development opportunities that they have participated in outside of TECH-Nique, and finally 3. Their experiences as team leads in the summer of 2020/2021/2022/2023 TECC Boss program, critiquing both the leadership training and the program implementation.

The utopian phase was a second brainstorming session, when the participants expressed their ideal situation as it related to the context of the study. Within this phase of the workshop, the participants described in detail what the ideal or utopia was for a technology leadership training for Black femme-identifying and gender-expansive emerging adults.

The realization phase, then, is a continuation of the utopian phase, with an added focus of how those ideas can be realized, what barriers stand in the way, etc. It requires
understanding the themes that emerged from the critique and utopian phase and how they can be implemented in the future.

The future-creating workshop is based on the premise that the research takes place in a safe space where ideas can be fully expressed without retribution. Thus, for a project’s success to be realized, it becomes of utmost importance that ethics are considered, particularly around power and dynamics within the group (Brydon-Miller, 2008). For this reason, understanding my own positionality, as outlined above, becomes crucial.

**Future-Creating Workshops**

Step 1: Introduction to the study (10 minutes)

In conversational language,

1. Go over the purpose of my research, including an overview of the literature that supports the study.

2. Using conversational language, go over action research and its roots in critical pedagogy, with a focus on marginalized communities.

3. Explain the specific use of critical utopian action research in this study, including what a future-creating workshop is and why it is important in this study.

4. Talk about the importance of providing a free space for reflection. Incorporate my own positionality. Emphasize the importance of their individual and collective voices as Black young women in a technology leadership program.

5. Explain the three phases of the future-creating workshop - critique, utopia, realization. In the critique phase, we will be critiquing the current technology leadership programs that exist for Black young women (this includes TECH-
Nique); in the utopian phase we will be describing what a technology leadership program for Black young women looks like, being as free and imaginative as possible; and in the realization phase we will be thinking about the themes that have emerged in steps 1 and 2 and using them to define and create the actual technology leadership program to be implemented in the summer 2023 program.

I will also explain what participatory action research is and

6. Explain that at the end, we will use digital media to represent our ideas around the future-creating workshop, with two phases: “I am From”, a poetry exercise to draw out their identity and community, and “And I Rise” as a visual, creative portrayal of their ideas around the future-creating workshop and technology leadership.

Step 2: Critique Phase (Padlet roundtable) (1 hour)

To encourage the active participation of every participant, I deployed a modified “think-pair-share” model using Padlet. Think-pair-share is a pedagogical tool used to give students time to think about a topic or question (think), then talk about it with a partner (pair), then share with the group (share). It has been shown to increase participation and critical thinking (Kaddoura, 2013; Sampsel, 2013). In this context, I hoped to use it to give participants the space and time to think about their answers before they posted them, then look for connectivity between their answers and the answers of the other participants, and then lead to a rich discussion around the question. The modification was deployed in the following way (I call it a Padlet roundtable):

1. I explained the process of what I call a Padlet roundtable, emphasizing the importance of hearing their unique responses first: This is the explanation given:
a. First, we will answer the question on our own, individually posting our answers on Padlet. I will give as much time as participants need to fully express themselves and their responses:

i. **Click on the pink circle to post** a phrase (3-4 words) that captures the main theme of your comment and include a sentence or two to provide more detail. Please include your name in your post.

ii. Post as many comments as you like, but do try to keep each post about a single idea or issue.

iii. Please do not comment on others’ posts - either positively or negatively. The idea is to create as open a space as possible.

iv. Please do not edit anyone else’s posts.

v. **If you notice that our brainstorm field seems a bit crowded,** please hover over your post and drag it out towards the edge of your screen. This will expand our Padlet Wall canvas to provide a more open space.

2. Once all participants finished the first phase in written form, I then opened up the space for them to look at what others posted and comment on their posts by providing a written response on a padlet sticky.

3. Then they went back to their original posts and added in any ideas that were spurred by looking at what others posted.

4. Next, we had an open roundtable discussion about our responses - what we felt strongly about, experiences that we’ve had that support what we wrote, etc. I
made a note of which participants had not chimed in and asked what their thoughts were, ensuring that all voices were heard.

5. Next, on another Padlet page, we moved through the same TPS model but this time they described what they saw as the emergent themes in the previous conversations/Padlet responses. They first wrote out what they thought were the emergent themes, then looked/commented/ideated based on looking at others’ responses, and finally had a roundtable discussion to talk about what emerged. I made a note of which participants had not chimed in and asked for their thoughts.

6. In the share phase, they determined what they thought were the collective and individual themes that emerged from the critique phase.

Step 3: Utopia Phase (Padlet roundtable) (1 hour)

1. I did a quick refresher, going over the three phases of future-creating workshop - critique, utopia, realization. I explained that we are now moving to the utopian phase, re-emphasizing the importance of hearing their individual responses first.

2. I explained that we will follow the same procedure that we did before: First on their own, putting their answers on Padlet, second looking at the responses of others, then having a roundtable discussion on all the responses. I emphasized that it is important at this phase for them to go wild and be uninhibited in their responses to the question, “Describe a utopian technology leadership program that incorporates the communities and identities of Black young women.” The participants were encouraged to use their text, Google photos, song lyrics, poetry, or other mediums to express themselves.
3. Once all participants finished the first phase in written form, I then opened up the space to look at what others posted and comment on their posts, in written form.

4. Then they went back to their original posts and added in any ideas that were spurred by looking at what others posted.

5. Next, we had an open roundtable discussion about their responses - what they felt strongly about, experiences that they’ve had that support what they wrote, etc. I made a note of which participants had not chimed in and asked what their thoughts were, ensuring that all voices are heard. (10 minutes).

6. At the end of this workshop, the participants were asked to create a two-part digital media representation of their experience, using Canva, a graphic/media design platform. The first part was their iteration of the poem “I Am From”, which incorporated their identity and community, and the second part was called “Still I Rise” where they were asked to use photography and digital media to represent their ideas around the future-creating workshop, incorporating their responses from the padlet exercises. This was a response to the question of “Describe a utopian technology leadership program that incorporates the communities and identities of Black young women.”

Step 4: Realization Phase (Padlet roundtable) (1 hour)

1. At this point I explained that they went wild on the utopian phase and now we want to understand the themes that emerged from their responses. For example, maybe someone thinks that the ideal technology leadership program for Black young women is one where everyone gets a diamond necklace. While an actual diamond necklace might not be feasible, a theme that might be emerging is that
some sort of token/souvenir from the experience would enhance the experience and/or the memory of the experience. This was used as an example before moving on to step 2.

2. Next, on another Padlet page, they moved through the same TPS model but this time they described what they saw as the emergent themes in the previous conversations/Padlet responses. They first wrote out what they thought were the emergent themes, then looked/commented/ideated based on looking at others’ responses. In the share phase, they determined what they thought were the collective and individual themes that emerged from the utopian phase.

3. Next, they used their notes and ideas from Padlet to create the ideal technology leadership program, bringing the themes to fruition. They used a Padlet timeline to decide collectively what themes should go where in the timeline of the technology leadership program.

At the end, I asked if there is anything else they wanted to talk about, reflect upon, or add to what we collaborated on today. I also told them the next steps I will be taking in analyzing the data from an authentic leadership/BFT framework. I wanted them to understand the process of writing a dissertation, in case they consider that option in their own future.

After the data was collected, I enacted a member-checking process, where I contacted each study participant individually and offered to meet with them to see the analysis I performed. They were asked to provide feedback on accuracy and give feedback on misunderstandings and additions they would like to make to the analysis.

**Methodology**
This critical utopian action research study is designed to understand how Black femme-identifying emerging adults critique current technology leadership ideals and opportunities and describe an ideal technology leadership development program that incorporates their communities and identities.

There are two parts to this project: the process and the product. The product of the future-creating workshop is a technology leadership development program developed by Black femme-identifying or gender-expansive emerging adults that incorporates their identity and community. This component of the study was realized in collaboration with the participants. After the future-creating workshop was finished, I began the analysis of the process that the participants undertook as they developed the program. I analyzed this process using the integrated model outlined in Figure 8 above, and re-posted here:
Figure 12. Black Feminist Thought/Authentic Leadership Model for Technology Leadership Future-Creating Workshop. Source: Author

With the three themes of positive psychological capacities, positive organizational context, and positive self-development in mind, I compared and contrasted their responses, to understand the multiple contexts from which they speak. I wanted to be careful to not approach the analysis of a group of Black femme-identifying and gender expansive participants from a monolithic viewpoint, but rather to elicit those stories and experiences that are unique and think about how they relate to the group.

To describe the participants while also respecting their choices on confidentiality, the participants were asked to put the name that they would like to be referred by into the chat. This required some thoughtful consideration of their responses and close collaboration with the participants to ensure that confidentiality was maintained.

Once I aligned the themes that they generated and the themes that I generated, I sent a diagram of the full analysis to the participants for their review. Realizing this as an iterative process, I asked to incorporate their feedback into the data analysis by asking them to come back together for one hour in a virtual or in-person meeting. I gave them two options, one to meet with me, or otherwise to make comments in the margins of the
attached document. All participants said they were satisfied and pleased with the analysis performed and did not request a meeting or make changes in the margins. Ultimately, we came to a synthesis that involved the themes that collaboratively emerged in the workshop and the themes that I developed individually while analyzing the process of the workshop. This gave me a robust analysis of the results of understanding how they describe and develop a technology leadership development program that is inclusive of their identities and communities:

Selecting appropriate theories for understanding the needs of African American women should be based on their cultural, personal, and social contexts, which clearly differ significantly from those of men and women who have not experienced racial and gender oppression. Overall, the development and socialization of African American women have been molded and understood within the framework of perceptions and agendas of members of the dominant society (Howard-Hamilton, 2003, p. 21).

**Integrated Coding Process within the Future-Creating Workshop**

The methodological framework for this study is founded on the principles of Critical Utopian Action Research (CUAR), with a particular focus on participatory practices. Central to this approach was the Future-Creating Workshop, which served as both the site of data generation and analysis. This workshop was designed to involve Black femme-identifying or gender-expansive emerging adults in the active construction of their ideal technology leadership development experience.

During the workshop, the coding process unfolded in real time and was seamlessly integrated into the proceedings. Participants moved through the stages of critique, utopia creation, and realization without interruption, allowing for an organic and
fluid transition between phases. As the facilitator, my role was to guide the participants through each stage, ensuring that the process remained focused and productive while allowing the participants' insights and experiences to drive the analysis.

In the Critique phase, participants outlined the current state of technology leadership programs, setting the stage for envisioning a utopian alternative. The Utopian phase then enabled participants to articulate their aspirational visions freely and creatively. This was not just an exercise in imagination but a critical reflection on their lived experiences and a direct challenge to existing structures.

The Realization phase was where the participants, drawing on the utopian constructs, identified emergent themes. This was a collaborative effort that I facilitated, ensuring that all voices were heard and that the participants were able to see the connections between their individual contributions and the collective vision. Themes were not imposed but were rather recognized by the participants as reflective of the collective discourse and aligned with the overarching goals of CUAR.

This in-session thematic analysis was critical for maintaining the integrity and authenticity of the workshop experience. It allowed the participants to immediately see the relevance and application of their contributions and provided a powerful example of how collective action can lead to the co-creation of knowledge and the envisioning of new realities.

The coding process, therefore, was not a separate analytical phase but an integrated part of the workshop that honored the principles of participatory research. This approach ensured that the resulting themes were directly informed by and grounded in the
participants' collective vision for a future that is more inclusive, equitable, and reflective of Black Feminist Thought.

**Process Analysis Phase**

Following the integrated coding during the Future-Creating Workshop, I undertook a process analysis phase to interrogate and understand the mechanisms of interaction, dialogue, and consensus-building that occurred. This phase was instrumental in dissecting the collective action and thought processes of the participants, providing a deeper understanding of how their shared experiences and individual insights contributed to the construction of the themes.

In this phase, I used a dual analytic approach, applying both inductive and deductive reasoning to analyze the participants' responses. The inductive aspect involved a close examination of the raw data generated during the workshop to identify patterns, categories, and themes that naturally emerged from the participants' interactions. This approach allowed me to ground the analysis in the actual data, staying true to the participants' voices and perspectives.

Concurrently, deductive reasoning was used to map these emergent themes onto the theoretical framework I developed, which is a synthesis of Black Feminist Thought and Authentic Leadership models. This framework served as a lens through which the participants' narratives could be interpreted, allowing me to situate their lived experiences within a broader theoretical context. By applying this model, I could explore the ways in which the participants' visions for leadership and technology engagement resonated with or diverged from established concepts of leadership and feminist theory.

The iterative process of moving between inductive and deductive reasoning enabled a reflexive and comprehensive analysis. It ensured that while the emergent
themes were grounded in the data, they were also critically examined through the prism of a modified Black Feminist Thought/Authentic Leadership model. This model, which I meticulously developed for this research, acknowledges the nuances of Black femme identity and leadership in the technological sphere.

Through this process, I was able to not only validate the emergent themes but also enhance the robustness of the theoretical model with new insights drawn from the workshop. This reflective analysis also involved examining my role as a facilitator and researcher, considering how my interactions with participants might influence the data and being mindful to mitigate researcher bias.

In documenting this process analysis phase, I illustrate how the methodical application of both inductive and deductive reasoning within the established framework provided a multi-layered understanding of the data. This approach demonstrates a planned and thoughtful application of theory to practice, reinforcing the research's alignment with the principles of Critical Utopian Action Research and Black Feminist Thought.

In summary, this study wedds the principles of Critical Utopian Action Research with a participatory Future-Creating Workshop model to capture the unique voices and insights of Black femme-identifying and gender-expansive emerging adults. Through this innovative methodological approach, we not only sought to identify the current gaps in technology leadership opportunities but also, crucially, to co-construct a visionary model that is deeply informed by Black Feminist Thought and authentic leadership principles. This dual application of inductive and deductive reasoning within the research process underscores a commitment to an analytic rigor that is both grounded in participants' lived
experiences and elevated by the critical theoretical framework that I have carefully integrated. By doing so, this study aims to offer a nuanced, multi-dimensional exploration of the participants' conceptions of leadership that resonates with their community and identities, ultimately contributing to the formulation of an inclusive, empowering, and actionable leadership development program that embodies the transformative potential of their collective aspirations.
RESULTS/FINDINGS

The purpose of this Critical Utopian Action Research study was to understand how Black femme-identifying or gender-expansive emergent adults describe and develop their own technology leadership experience, as it relates to a summer technology program for marginalized emerging adults called Technology Entrepreneurship to Create Change (TECC) Boss. The research questions are the following:

1. How do emerging adult Black femme-identifying or gender-expansive emerging adults describe an ideal technology leadership development program that incorporates their communities and identities?

2. Based on the results, what are the key factors that emerge which differentiate authentic leadership from a leadership model that incorporates Black Feminist Thought?

A Critical Utopian Action Research methodology was chosen, and the research method used was the Future-Creating Workshop. This method allows for direct engagement with Black femme-identifying or gender-expansive emerging adults, enabling them to envision and articulate their own ideal technology leadership development program. By doing so, this process ensures that the program design reflects their specific needs, desires, and perspectives.
Importantly, this workshop format respects the tenets of Black Feminist Thought, which emphasizes the intersections of race, gender, and other social identities. Future-creating workshops facilitate the exploration of these complex intersections by incorporating lived experiences, wisdom, and understanding into a collective vision. This approach is empowering, providing a platform for participants to voice their unique experiences, needs, and visions, thereby fostering a sense of ownership, buy-in, and trust.

Moreover, the interactive nature of the workshop encourages discussion and negotiation among participants. This can lead to a shared understanding of authentic leadership within the context of Black Feminist Thought and helps identify key differentiating factors. This collective learning is particularly beneficial for the design of a leadership model incorporating Black Feminist Thought.

Future-creating workshops also stand out for their ability to produce tangible outcomes. This was very important in this instance because TECH-Nique has no technology leadership training. Because of this future-creating workshop, former participants who had served in leadership roles were able to not only express their critiques but also design their own technology leadership training. This facet transcends technology leadership by placing individuals in an organizational leadership context. Here, they move beyond leading a group to leading an organization and designing a system. This is the goal of Black Feminist Thought, as it seeks to bring not just voice but power to the decision-making table.

Furthermore, this method promotes reflexivity, encouraging participants to reflect on their current situations, imagine possible futures, and consider the steps necessary to
reach those futures. This emphasis on creative thinking stimulates participants to imagine new possibilities for technology leadership development and leadership models beyond existing frameworks and norms.

For those reasons, the experience of the Future-Creating Workshop became a utopic experience unto itself, as participants expressed that they had never been asked to create their own leadership experience. This and more will be addressed in the discussion section.

Once the future-creating workshop was over, multiple sources of data existed. The following section covers a description of the data sources that were collected and what will be used for analysis.

**Data Sources and Collection**

In this section, I will describe the multiple data sources that existed for the study. I will begin with a description of the participants themselves, including their background and how they were selected for the study. Next, I will talk about the themes that emerged from the future-creating workshop.

**Participants**

The participants were ten Black, femme-identifying or gender-expansive emerging adults between the ages of 18 and 23. All participants held a leadership role in TECH-Nique’s TECC Boss internship, either in summer of 2020, 2021, 2022, or 2023. They held the position of either a Project Manager (5), a Program Manager (4), or a Facilitator (1). A project manager leads a team of 4 interns in design of an app, a website, a technology workshop, and reports to the program manager. A program manager is responsible for the implementation of the TECC Boss internship and reports
to the Founder/Executive Director. A facilitator is someone who comes in and leads the interns in a workshop/discussion.

All of them have pursued some sort of technology (Computer Information Systems, Math/Science/Technology magnet in high school, Computer Science) or tech-adjacent field (i.e. Film Studies, Convergent Media, etc.).

I asked the participants to describe themselves, giving any information they found relevant, including pronouns, if they so chose. I also asked them to provide the name that they would like to be used for this study and invited them to choose a pseudonym if they would like. Here is how each participant self-described, including their names:

**Ra:** I’m Black. I don't like usually identify with pronouns because some days I'm feeling masculine, and I'll present masculine and then other days I'm feeling feminine. And I'll have like a beat face, maybe some painted nails. I had 86-inch braids one time, crazy. As far as sexuality goes, I'm just attracted to masculinity. Be it cisgendered or otherwise.”

**Sierra:** “I use she her pronouns. I'm a lesbian. Black.”

**Aysia:** “I use she her hers and I am straight and I am Black.”

**Seryn:** “My pronouns are she her. I am bisexual. I currently have a boyfriend and I’m Black.”

**Deborah:** “I use they them pronouns. I'm Black, and I identify as queer and non-binary.

**Kawaii:** “I identify as she/they. I am bisexual. And Black.”

**Shamia:** “I go by she/her. I'm Black.”

**Jade:** “I'm a Black woman. I identify as she her hers”

**Kiesha:** “I am Black and I go by she hers and I'm a lesbian.”
Hi everyone, I'm Dayy. I'm black. I use they them she her but I'm in the middle of figuring out which one I'm gonna stick with, because I can feel different ways different times. I'm non binary and I'm pansexual so attracted to all personalities and don't really limit myself in those areas.

The Future-Creating Workshop

The entire Future-Creating Workshop (FCW) happened over the course of 4 hours, in one session, on Zoom. There were three phases to the FCW, and multiple data sources arose from each phase. The following section outlines the data sources for each phase.

Critique Phase

Data sources for the critique phase include:

- The official Critique phase on Padlet, where participants responded to the prompt of “in this phase, we will be critiquing the current technology leadership programs that exist for Black femme-identifying or gender-expansive emerging adults, including TECH-Nique.
- The group discussion around the Critique phase, reacting to the initial responses on the Padlet, as recorded on Zoom.

Utopian Phase

Data sources for the Utopian phase include:

- The Utopian phase Padlet, where participants responded to the following prompt:
Describe a utopian technology leadership program that incorporates the communities and identities of Black, femme-identifying young people. Use text, Google photos, song lyrics, poetry, or other mediums to express yourself. GO WILD!
- The group discussion around the Utopian phase, reacting to the initial responses on the Padlet, as recorded on Zoom.
-The ‘Where I’m From’ poem (Lyon, n.d.), adapted to align with technology leadership as it is associated with identity and community. This was also located on Padlet. Here is the poem prompt:

*I am from *[a significant aspect of your personal identity or cultural background]*,  
*From *[another meaningful aspect of your identity]* and *[another one]*.

*I am from* *[the world of your profession or occupation]*,  
*[Adjective] [sensory detail]*, and *[another sensory detail]*.

*I am from* *[a belief or value passed down through generations]*,  
*[Description of how it shapes your worldview]*.

*I’m from* *[a formative experience or event that influenced your leadership style in technology]* and *[another one]*,  
*From *[an important lesson learned from a tech mentor or project]* and *[another valuable tech-related experience]*.

*I’m from* *[an identity-based tradition or ritual]* and *[another one]*,  
*From *[a memorable piece of advice or motto]* and *[another one]*.

*I’m from* *[a characteristic or attribute that defines your leadership approach in the tech industry]*,  
*[Further description of how your identity influences your tech leadership style]*.

*I’m from* *[a moment of overcoming a personal challenge]* and *[another instance of resilience]*,  
*From *[a deep-rooted sense of purpose or mission in the tech world]* and *[another one]*.

*From *[a supportive community that embraces your identity]* in the tech field,  
*[Description of the strength and empowerment you find within it]*.

*In *[a moment of making a positive impact on your tech team or organization]*,  
*[Another instance where your leadership has contributed to tech advancements and growth]*.
Realization Phase

Data sources for the Realization Phase included:

- Realization phase Padlet, where participants responded to the following prompt: *What were the emergent themes in the previous conversations/Padlet responses. We will first write out what we thought were the emergent themes, then look/comment/ideate based on looking at others’ responses. In the share phase, we will determine what we think are the collective and individual themes that emerged from the utopian phase.*

- The group discussion around the Realization phase, reacting to the initial responses on the Padlet, as recorded on Zoom.

- The TECH-Nique Tech Leadership Program Padlet timeline, where we identified the themes that came from the critique phase and the utopian phase and used those themes to craft a Tech Leadership Program.

- The “And I Rise” Padlet, where all participants created a Padlet together, based on the modified ‘Where I’m From’ (Lyon, n.d.) poem. I used ChatGPT to modify the prompts around what a technology training workshop that incorporates the identity and community of Black, femme-identifying or gender-expansive emerging adults could be in the future tense, vis a vis the Future-Creating Workshop. In this Padlet prompt, each stanza of the poem was a sub-section on the Padlet, and participants were encouraged to provide inspirational images, images and videos from their own life, poems, songs, etc., to fill each stanza. Here are those prompts:

  
  
  *I rise from [the strength and resilience of the Black, femme-identifying community], From [empowering experiences] and [another source of inspiration].*

  
  *I rise to create a technology training workshop that celebrates diversity and inclusion, [Adjective] [sensory detail], and [another sensory detail].*
I rise to nurture a safe space where identity and culture are embraced, [Description of how the workshop fosters a sense of belonging].

I rise to offer cutting-edge tech knowledge and hands-on experience, Empowering Black, femme-identifying emerging adults to [specific tech-related goals].

I rise to challenge the traditional norms of the tech industry, Guiding our participants to [break barriers and reshape tech culture].

I rise to invite respected tech mentors and role models, From diverse backgrounds to [share wisdom and provide support].

I rise to instill the value of collaboration and community, Encouraging participants to [form lasting connections and support networks].

I rise to cultivate an environment where [identity-based principles] and [tech-focused principles] harmonize, Creating well-rounded leaders who leverage their uniqueness in the tech world.

I rise to lead with [core values that prioritize equity and representation], [Further description of how these values shape the workshop’s curriculum].

I rise to provide opportunities for [personal growth and leadership development], Guiding our participants to [embrace their potential and lead with confidence].

I rise to witness the transformation of emerging Black, femme-identifying tech leaders, [A vision of their future impact and contributions to the tech industry].

In the future of this technology training workshop, Emerging adults will rise as trailblazers and innovators, Shaping a more inclusive and equitable tech landscape, Where diversity is celebrated, and everyone’s voice is heard.

And I rise, hand in hand with this community, Together, we will soar to new heights, Empowered, united, and determined, Creating a future where we all thrive.

The following section will detail the data analysis that was performed, eliciting the themes that emerged from the participants’ responses.

**Data Analysis**
The entire workshop was recorded on Zoom and automatically transcribed by Otter.ai, per IRB approval. Otter.ai is an artificial intelligence-based platform that transcribes spoken words into written text. It is commonly used in business meetings, interviews, lectures, and other settings where it's beneficial to have a written record of spoken conversation. It's also known for its ability to differentiate between different speakers in a conversation, making it easier to understand the context of the transcribed text. While Otter.ai is a powerful tool, it requires human oversight and careful review to make sure that its outputs are accurate. For this reason, when I began my data analysis I listened to the Zoom call while reviewing the transcript to make sure it was accurate, making corrections as I went.

**Critique Phase**

The critique phase lasted around 90 minutes and began with the following prompt: We will be critiquing the current technology leadership programs that exist for Black femme-identifying or gender-expansive youth (this includes TECH-Nique). The participants were invited to respond in written format on the Padlet, including any digital media that supported their expression. Next, they took a few minutes to read and respond to the comments each posted. After each phase, a roundtable discussion followed to elicit
more detail and feedback on their Padlet responses.

Figure 13. Critique phase screenshot. Source: Author

Multiple themes emerged from this session. They included the following critiques: Lack of tech/leadership opportunities, barriers to tech/leadership opportunities, lack of opportunity/ability to see ourselves as leaders; intersectionality, bringing our authentic selves, and how to “be”; leadership abilities and capacity questioned; TECH-Nique expectations, preparations, and reactive vs proactive. Thinking in terms of a loosely chronological pipeline to leadership opportunities in technology and ultimately TECH-Nique, I will contextualize them by outside or before the leadership opportunity (lack of tech/leadership opportunities, barriers to tech/leadership opportunities, lack of opportunity/ability to see ourselves as leaders) inside of the actual leadership opportunity (intersectionality, bringing our authentic selves, and how to “be”; leadership abilities and capacity questioned, non-TECH-Nique), and finally inside the tech leadership experience of TECH-Nique (expectations, preparations, and being reactive vs proactive).

Lack of Tech/Leadership Opportunities. Multiple participants expressed challenges in encountering tech and/or leadership opportunities in their youth, in middle school and elementary school, and high school. Their responses were unique and varied.
A few had encountered technology experiences or leadership opportunities, but never both. One participant, Sierra, noted on her Padlet responses, “It’s very difficult to find technology opportunities for Black fem identifying young people/not enough advertisement of these organizations and opportunities." This was corroborated by Deborah, who wrote, “Honestly, you could probably count the number of technology leadership programs aimed towards Black femme youth on your fingers. There simply aren’t enough for us to even take advantage of, and that’s not taking into consideration things like outreach, accessibility, and quality.” Another participant, Seryn, agreed, and talked about the lack of resources to support these types of programs, saying in her reply to Deborah, “I agree with this! The resources aren’t easily accessible for these programs to exist either. I would love for there to be hundreds more organizations across the country that teach black femme about technology.” Two others agreed, speaking within the context of TECH-Nique’s summer internship program. Shamia said, “Having the opportunity to advance my leadership roles within TECC Boss (from participant to team lead), but once the internship was over there were no more opportunities for me to continue my desire for leading.” Dayy agreed in a written response, writing, “I agree - I always feel this sense of sadness when TECC Boss ends, knowing that there are not many other leadership opportunities to explore during the year.”

One participant remembered her first leadership experiences, as early as elementary school. Seryn wrote, “My first leadership opportunity I can remember was with the future problem solving team in Elementary School. I was also selected by my elementary school principal to be a page for a Metro Council Meeting for Councilwoman Judy Green!” This same participant also noted that while she had several leadership
opportunities as a child, she had no technology leadership opportunities until
Empowered. Empowered was the program I developed and directed for another
nonprofit, and where I met many of the youth, that prompted me to start TECH-Nique.

Shamia talked about her experience in not being selected for leadership roles
previously, and identifying with the intersectionality of being disabled, Black, and
femme-identifying. “The reason why I left jobs was because I didn’t feel that I had an
opportunity to progress. When I worked at UPS there was a lot of leadership
opportunities to progress – they made people team leads and managers within six months.
One time a colleague wanted to progress into a leadership role. He had autism. I
remember my manager coming up to me and telling me he’s a good worker, he has a
great opportunity to progress, but we don’t how he would be dealing with people,
with his disability. I felt like, ‘You’re coming up to a disabled person talking down
another disabled person – and that person is a white male!’ So even when I’m able to
eliminate one factor from my life, like okay I can get that opportunity because I’m Black,
my disability is always another hurdle that I feel I have to worry about, when I want to
progress into a job.”

Jade began by first stating that she didn’t have any technology leadership
experience when she was younger, but in the next sentence wrote that she participated in
the Student Technology Leadership Program (STLP) when they she was in elementary
school, saying “And that was a cool experience because we learned how to navigate our
way through a computer and also helped our morning broadcast show with media tech.”
It's interesting that a program whose title is Student Technology Leadership Program
would not immediately evoke memories of technology leadership for this participant. For some reason, Jade is not associating STLP with a technology leadership experience.

**Barriers to Tech/Leadership Opportunities.** While the previous section’s theme highlights the lack of opportunities to participate in tech/leadership opportunities, this section highlights socioeconomic factors that contribute to an inability to participate in known opportunities. Responses highlighted barriers like familial responsibilities, financial limitations, and experiences of exclusion due to minor infractions, which prevented them from engaging in tech leadership opportunities. One participant, Kawaii, talked about her familial responsibilities impeding her ability to take on extra roles such as leadership in school. She says, “When I was little I was not able to have any leadership roles mostly because I wasn’t in school a lot cause I had to take care of my siblings.” Shamia corroborated this in a response to Kawaii’s Padlet response, noting, “This!! A friend of mine was always watching her younger siblings because her family had to work to pay bills but never had enough for childcare. My friend never had time for herself to grow up.”

In addition to familial responsibilities, other participants spoke about socioeconomic situations being prohibitive to their participation in STEM activities. Shamia said, “A teacher nominated me for a conference dedicated to young people interested in STEM, but I wasn’t able to go because it was out of town and my mom didn’t have the time or money to take me.” She feels that this stunted her growth in STEM, saying, “If I was able to go then I feel like I could’ve been further in my career path for STEM.” Wraparound services not being provided struck a chord with Seryn,
who responded by saying, “Oh wow. I feel if you were going to nominate me for the opportunity then the resources should’ve been provided for you to attend!”

There were also instances of exclusion from technology opportunities because of minor behavioral infractions. Seryn talked about her excitement about being a part of computer club, which had technology leadership opportunities in the form of helping other students with computers, and how she was ultimately denied the opportunity because of a behavioral infraction. “I do remember the first time I wanted to be a part of a club that had to do with technology. I was excited to apply because the teacher talked about taking a computer apart, how computers worked, and you would even have the opportunity to help other students during class. Being a kid, I drew on the teacher’s bulletin board and after apologizing for my actions she told me that I still wouldn’t be able join Computer club due to my vandalism.”

These responses critique how we as educators knowingly or unknowingly poke holes in the pipeline to diversity in technology. One by one, situation by situation, the participants were turned away from the field. These responses also underscore the necessity of wraparound services to mitigate the barriers to technology/leadership opportunities. Ultimately, teachers play an extremely important role in encouraging rather than discouraging all students, especially underrepresented groups, to participate in technology/leadership, so that opportunities are not lost.

**Lack of Ability to See Ourselves as Leaders.** The previous section elucidated the challenges to participation in tech/leadership programs. Another theme that emerged from the critique phase was that both without and within tech/leadership opportunities, they did not see themselves as leaders. This is spoken of in both contexts: seeing
leadership capacity within themselves and seeing people in tech/leadership who looked like them.

In the former context, they spoke about others not seeing leadership capacity within them. In her Padlet response, Kiesha wrote, “When I was younger I never had any opportunities for leadership positions. I wasn’t interested much in it because I never really felt like I personally could be in that position because I didn’t feel like people would view me as a leader.” Aysia corroborated this in the latter context, saying, “I will say my first technology experience, deep down I was really nervous because it’s hard to see someone of your color thriving in tech. But when we have someone to remind us to be authentically you, it helps.” Shamia concurred with Aysia’s experience, responding, “I had the same feeling when I was in my elementary tech club, but I saw that I actually did belong once I became an intern for TECC Boss.”

In the last three sections, the themes are categorized as critiques of lost opportunities to participate in tech/leadership experiences and opportunities. From a loosely chronological framework, this categorizes the journey into the leadership experience. The following sections will delve into the experience of being inside the tech/leadership experiences.

**How to “Be”: Intersectionality and Bringing Our Authentic Selves.** While the participants’ responses critiqued barriers to opportunities in tech/leadership, additional themes emerged regarding their experience within tech/leadership opportunities. One of the most salient themes that emerged was the idea of intersectionality and authenticity as they related to their experiences in technology/leadership positions. Participants described varied experiences where the intersection of their multiple marginalized
identities intensified their sense of underrepresentation and the discrimination or privilege they experienced.

Sierra’s Padlet response talked about the difficulty in finding tech/leadership opportunities that incorporated her intersectionality. She said, “The ones (tech opportunities) I did find were often not LGBT+ friendly (I didn’t feel like I was welcomed or accepted) and/or not open to those who weren’t actively interested in going into a tech career/major.” As a response under Sierra’s padlet, Kiesha agreed, saying it was difficult to find technology opportunities specifically for Black fem identifying people. Dayy further articulated the need for intersectional spaces, saying “I feel it is one thing or the other. Really wish there were more spaces that welcomed both my Blackness and queerness.”

Shamia discussed her intersectional experience as a Black, disabled, and femme-identifying individual. She critiqued the lack of opportunity when she stated, “Growing up I was looked at as someone who couldn’t do anything more than exist because of what people have seen on the outside. So I always found myself working 10x harder than the next person just to prove that I actually can be better or just as good.” Shamia’s perspective is compelling, highlighting that the confluence of race, gender, and ability can significantly shape individual experiences and perceptions of opportunities.

Ra, who is masc-identifying, Black, and homosexual, also illuminated a significant aspect of intersectionality and privilege. He reflected, “Though I identify as Black and queer, I am a cisgender male. I enjoy playing with gender expressions and sometimes express feminist through the way that I dress or interact with people. But it does not erase my privilege of being a cis gendered male.” Ra’s acknowledgement of
privilege within the layers of his intersectional identity adds a nuanced dimension to the understanding of intersectionality in our study.

Even so, Ra still talked about the frustration of having someone make him feel as though he doesn’t deserve to be there. He says, “I think it’s interesting that like once we actually get to be in these spaces, there’s always someone, usually a white person that makes it their mission to make you feel smaller, like you’re not technically supposed to be in that space. Even if that’s not their active mission, they still find some way to make people feel that way.”

While Ra’s initial critique referred to White people’s reaction to Black people in White spaces, Sierra, who is Black, masc-presenting, and homosexual, pushed the idea further, critiquing the difficulty of finding a safe space for both her race and her sexuality. In response to reading over all the responses, she said, “I think it was very interesting to see multiple people talk about the issue of being a queer person in these spaces, and then not being accepted. Like even in spaces where there are a lot of Black people and still having to face homophobia. Like you get out of racism and you still have another challenge to deal with. If it’s not racism, then it’s homophobia, and it’s like, I can’t win.”

When asked whether it’s Black spaces or non-Black spaces where she feels more homophobia, Sierra responded, “In my experience, it’s Black spaces where I feel more homophobia but it’s white spaces where I feel more racism. Like they both have their own little comment.” The theme of how intersectionality affects her ability to show up as her authentic self is highlighted here, when she says, “It makes me feel like I can’t like
really speak out against this because it’s gonna be a one man show against a whole bunch of other people.”

This theme of intersectionality continues with Seryn, who is Black, femme-presenting, and lesbian, who says, “I feel like a lot of Black people’s homophobia is also masked in ignorance, because they don’t really care to know much about the LGBTQ+ community and how it intersects. I honestly feel like they kind of tried to split us off from the rest of Black people. So being a bisexual Black woman, that is usually not the first thing that I tell someone.”

Deborah corroborated this experience and its negative effects when she said “During my undergraduate experience, I was on the executive board for my institution’s branch of the National Society of Black Engineers (NSBE). I thought I would be comfortable in the space, as everyone was Black and most of the board were women. However, I experienced a large amount of homophobia due to me identifying as non-binary, and I ended up quitting halfway through my term.”

The theme of “how to be” is a continuous one, where participants talked about the difficulty of balancing their authentic self with just getting the work done. Seryn says, “….sometimes it (my sexuality) has become a topic of interest, and that’s not what I’m here for, to talk about my sexuality. And then sometimes when you do want to include what your intersections are, people can’t respect that.” Sierra, who is a masc-presenting woman, doesn’t feel she has the luxury of hiding that aspect of her identity. “It’s not like something I can really hide or just something I can avoid in spaces because this is just how I am, it’s how I dress and how I present myself. So for me I feel like because of that factor I’m kind of an easy target basically.”
Deborah, who is Black and non-binary, felt that in their experience, it was necessary to downplay their authentic self, to not bring undue attention to their intersectionality, to those in charge. They said, “You’re kind of aware that you are being watched and there’s already attention on you due to the fact that there are probably not other Black women in the space.” They go on to articulate that the unfortunate consequence is “I feel like I’m not bringing my full and authentic self to the table.”

The matter of intersectional consequences created a compounding effect for Ra, who says, “Once I’ve been in a space that I don’t feel fully comfortable in where I’m constantly questioning whether something I’ve experienced was racism or homophobia. It makes it hard to step into the next space. It makes every space moving forward intimidating. And then it becomes hard to do your job almost. Especially if you’re leading other people and then it becomes this domino effect of you don’t know if you can be your authentic self and because you can’t be your authentic self like you can’t do your best work.” That compounding effect continues until, according to Ra, “You start to question well am I doing my best work? What are these people going to start thinking of the work that I’m doing?”

Sierra agreed, and further articulated the correlation between authenticity and the capacity to do her best work. She spoke about the tension between feeling safe in her intersectional identity while not making it a central issue. She reflected, “I don’t think sexuality should be a focal point. But I think that if we are seeing homophobia, if we are seeing racism, that we should feel safe enough to speak out against it.”

*Working in the Shadows: Leadership Abilities and Capacity Questioned*
Some participants who had leadership opportunities spoke about their experiences of their expertise being questioned. Experiences shared include feeling overshadowed despite holding leadership titles, being questioned, or dismissed in leadership roles, and feeling the need to work harder to prove themselves.

Dayy talked about their experience being one of three senior leaders of their high school technology magnet, where they were one of five Black girls in the entire tech program. Even with a proverbial seat at the table, she says, “I wish there was more thought around us being heard.” They further articulates what they mean by ‘heard’, when they say “I felt like my ideas and points of view were not really heard by my fellow classmates.” The marginalization was palpable for her. “I felt like I had the title of a leader but stood in the shadows of the other male senior leaders.”

Sierra’s experience mirrored that of Dayy’s, as she spoke about her own experience of her leadership capacity and potential being marginalized by adults around her. “When I was younger, I felt like although I would excel in a leadership position, I was often dismissed and excluded from them.” The soft bigotry of lowered expectations continued when she said, “Growing up, my abilities and intelligence were often downplayed or questioned by the usually white adults around me. They would choose my white peers over me when it came to leadership positions.” The unfortunate consequence of these experiences was a mounting insecurity for Sierra, as she says, “Now as a young adult, I feel more insecure about taking on leadership opportunities.”

Shamia talked about the difficulty of her potential being marginalized due to being a Black girl with a visible physical handicap. “Even with all my hard work I still
feel like I get the short end of the stick when it comes to just about everything in life, but especially finding a career path where I will be given an equal opportunity.’’

Kawaii also articulated how she tried to work harder and pick up more responsibilities to push back on her leadership capacities being questioned. “I felt like when I was in the leader role of my group I was questioned somewhat about my lead or my role by a certain member of my group and idk it made me feel like I wasn't doing enough so I would start to pick up the person's responsibility that was lacking in the group so I'd feel like my role couldn't be questioned in a way.”

Deborah talked about their experience at an ivy league university, serving as a team lead for a programming curriculum developed for middle and high school students. During this time, they were the only Black person in a lead position. They talked about the lack of patience and understanding that mistakes would be made. “With little guidance, and this being my first leadership position, I did make mistakes. These mistakes were harshly criticized by my (white) supervisors and the work environment quickly became hostile.”

**Leadership Experiences Within TECH-Nique, Leading Others.** Another theme that bubbled up was that even when trusted with the leadership position, in TECH-Nique, there were still difficulties in leading others who were unaccustomed to a Black femme lead. Aysia said, “At TECC Boss, the second year I was a program manager, we had more participants who identified as male than in years past. I feel like because the leaders were femme-identifying, the men were harder to control. I felt like they didn’t always take things seriously. It could be an age thing, but I don’t know, maybe it’s they don’t see women in power.” Aysia goes further, emphasizing how she is not just trying
to rule them but rather to empower them, and how they didn’t necessarily understand that. “Do they respect that I’m in a position that holds some type of power and that we’re trying to get A B and C done, we’re trying to get the deliverables done, we are trying to get the things to make you look guys look good, but do they respect the time and the effort that comes behind that and having someone in power that doesn’t look them?”

Sierra noticed the same thing in her experience with TECC Boss, saying she heard similar issues from other team leads as well. “I heard from other team leads their experience with leading the men in their group. They felt like they were doing the bulk of the work and that it was very hard to lead them because oftentimes the male participants wouldn’t do half as much work as what they were doing. And pushing them to do work was exhausting.” And then she articulated what other participants gave as their reaction to this dynamic: they worked more to pick up the slack. “So they would just take up the work themselves. And I had a guy in my group and he also didn’t do too much work.” To sum it up, Sierra said, “It feels like in these experiences often not only are we taken less seriously, but we’re expected to take on the majority of the work that the group is doing.”

This theme of capacity questioned leading to harder work is a salient one, one that must be taken seriously, even in environments like TECH-Nique, which brings an intentionality to identity and community and strives to be an uplifting experience for Black femme-identifying or gender-expansive emerging adults. There is still much work to be done.

**Working Environment of TECH-Nique.** Multiple participants talked about their experience with working in TECH-Nique as an environment that supported their
identity. Seryn highlighted feeling welcomed by a common theme of technology when she said, “When we first introduce ourselves, we were asked to give our pronouns, and you say thanks so much for being here. Like you’re just happy that everybody’s in the space for what we’re there for, which is technology, and it’s not how you want to present yourself or what you expect. And so I feel that you can come as your true authentic self and I think you also give us the space to put ourselves in our work. When we design our workshops, we’re there to mentor kids and you give us that freedom to be able to model those things after what we see.”

In 2016 when Shamia was selected for the first summer tech internship, I asked her if she wanted to talk about her disability to the group. I told her it was completely optional but that the space was there if she needed it. She did talk about it, and reflected on that experience in the study, saying, “I feel like you gave me an opportunity for me to be myself but you also gave me an opportunity for questions because I do know people have questions involving my disability and I love when people ask questions. I love when people give me a space to talk about my disability.”

Aysia spoke about how TECH-Nique’s policy on attire choice enabled a sense of comfort. “At TECC Boss we don’t require the participants to dress in an average business casual environment. People can wear what they want and feel comfortable expressing themselves.”

Kawaii spoke about the welcoming environment of TECH-Nique, particularly for her identity as bi-sexual. She contrasted it with her experience coming out to her aunt, who said, “You know what, no, that’s wrong. If you found a nice man, you’d be straight. If you pray that all away you wouldn’t be this way.” But at TECH-Nique, “It was very
welcoming. You asked our pronouns and respected how we felt and if we were they, him, she, we were all welcome.”

**TECH-Nique Expectations and Preparations.** The final theme that emerged were the expectations and preparation around training for TECC Boss. Participants had differing thoughts on the level of preparation for TECC Boss, and feedback on ways it could improve.

Dayy articulated that they found value in reflexivity in the moment. They said, “I think it is good to learn as we go and encounter problems that we can come back and analyze – that’s how you become a better leader.” Ra agreed with that sentiment, when he said “When someone is placed in a leadership role and not given too much training it allows them to sort of decide for themselves what it means to be a leader, which I feel like in some cases is more effective.”

Aysia furthered the point and brought in the idea of leadership styles and theory, saying, “One of the things that I remember saying about getting that position, the team lead position that year, was that leaders are not just people who take a leadership position, good leaders are also people who are followers.” She continued her insight with, “Because it takes a lot to know what the people that are looking to you for guidance want from you. But you also must respect what everyone else wants in the same instance.” She then agreed with Dayy and Ra, saying, “Not having a leadership training is helpful because people don’t think okay A, B, then C, this is how to be a leader. It’s more of like, well, in my mind, this is what I think a leader is. And I personally tailor it to be what I need it to be in that moment.”
As the discussion continued, many people did think that training would be helpful. Dayy said, “I feel that training before would be helpful as well. Being a program manager this year there was this pressure I felt from some participants when problems or they had questions and I couldn’t give immediate solutions or answers. So I believe having training to be a bit more prepared would help.” Shamia concurred, saying that expectations would help. “While being put in a leadership role is great, there also needs to be a meeting where the future leader understands what's expected of them taking on the role.” Deborah shared their experience with being a project manager in 2020. “While I was a team lead for TECC Boss in 2020, although there were staff I could go to if I needed support, I think more structure (1:1 mentorship where I could discuss goals, issues, etc. on a regular basis throughout the summer) would have been much more beneficial.”

Ra had a final thought for consideration, to move with intentionality when developing a leadership program. “If you were to implement a leadership training program for TECH-Nique, I would be cautious of its methodology. It feels as though that widely understood structures of information come from a positionally of white heteronormativity, whether it is in the tech world or any other social/economic/political setting. So widely understood concepts of being “a leader” tend to come from those white heteronormative perspectives that don’t serve everyone.”

**Conclusion of Critique Phase**

The reflections shared by the participants—Ra, Sierra, Aysia, Seryn, Deborah, Kawaii, Shamia, Jade, Kiesha, and Dayy—have provided critical insights into the lived experiences of Black femme-identifying or gender-expansive individuals in the tech
landscape. Their narratives have elucidated the multifaceted barriers they face, from the scarcity of opportunities to the questioning of their leadership capacities and the constant negotiation of their intersectional identities. Their responses provided tremendous value, painting a detailed picture of the current situation, and laying the groundwork for the subsequent, utopian phase. Now, as we transition into envisioning the future, we carry forward the powerful voices of our participants. Their critiques are not endpoints but catalysts for imagining a more inclusive and equitable tech world. In the next phase, I will shift my focus from the hurdles that have been to the possibilities that could be. The next phase is where the participants dare to dream, drawing from the honest appraisals of the present to build the foundations of a more promising, diverse, and accepting technological realm—one that not only welcomes but champions the richness of identity in all its forms.

Utopian Phase

Once the critique phase was finished, the utopian phase began, which lasted around 30 minutes, with the following prompt on Padlet: “Describe a utopian technology leadership program that incorporates the communities and identities of Black, femme-identifying young people. Use text, Google photos, song lyrics, poetry, or other mediums to express yourself. GO WILD!” The participants first responded on Padlet, then reviewed the others’ responses, and then the group discussed the results.

Once they were finished discussing the responses, the participants worked together to identify themes in the utopian phase. This was done verbally, while all were looking at the Padlet. The themes they saw were mentorship, travel, conferences, networking, collaboration, curricular activities, training, team-building activities, authenticity,
resources/further opportunities, variety, and one more that came from the ensuing
discussion, space.

The essence of the utopian vision from the participants led to a thoughtful
condensation of twelve themes into a core five. This wasn’t just reductionism but a
strategic distillation, capturing the essence of a tech leadership future that is uniquely
ours. It echoed a sentiment deeply rooted in the philosophy of scholars like Booker T.
Washington, who championed the idea of self-reliance within the Black community – a
community replete with its own riches and resources for development and success

For example, in the synthesis of the theme of mentorship, the participants spoke
of guidance from industry professionals (external to the leadership program) but also
internal mentorship, akin to ‘friendtorship’, a peer-driven support within the program.
This exemplifies the broader notion that within our very own enclave, we might find all
the necessary tools for advancement.

The dialogue on conferences, networking, collaboration, team-building,
authenticity, and the diversity of resources and opportunities revealed an intricate web of
of interconnected themes. Each one, while capable of standing alone, found greater
resonance and impact when viewed through the lens of community and collaborative
entrepreneurship. Therefore, I preserved the four other themes and encapsulated the
seven under the expansive theme of “Building a Web of Support: Fostering Community,
Collaboration, and Entrepreneurship.” This choice underscores the construct of an
internal community – a sanctuary of self-sufficiency – distinct from external influences.
In response to the participants’ emphasis on community and support across these facets, the research underpins the pivotal role of intra-community bonds. This focus on the internal framework serves to reinforce the idea that within our own collective, therein lies a wellspring of resources. Therefore, these twelve themes have been thoughtfully converged into five definitive categories: Space, Mentorship, Travel, “Building a Web of Support: Fostering Community, Collaboration, and Entrepreneurship”, and Curriculum and Training – each reflecting the collective power and potential ingrained within our community’s framework. The following section explores the analysis of each emergent theme.

A Dedicated Space for Tech/Leadership Engagement. Moving beyond critiques, the utopian phase envisioned transformative action. Participants imagined a program nested within the community, a haven for Black, femme-identifying youth. Seryn said, “A lot of us mentioned having a specific space for young people of color to be able to go in the community to access the technology that they may need to advance their skills. A specific space not just for acquiring technical skills, but fostering a sense of belonging.
Ra envisioned this space as a bridge, "making it easier for industry leaders to find the identities looking to get into the tech industry." Identity wouldn't be a barrier; it would be a beacon, illuminating a path towards connection and advancement.

**Personalized Mentorship.** The participants' utopian vision for the program resonated with the power of personalized mentorship. Deborah envisioned "1:1 mentorship program so that participants can talk with industry leaders, regular check-ins," ensuring consistent support and guidance tailored to individual needs and aspirations. This echoes Dayy's call for a "well-designed mentoring process" that offers "tailored skill development" and addresses "unique challenges," ultimately empowering participants to become "influential leaders" in the tech field.

Seryn's vision extended beyond individual mentorship, imagining a "community building with the tools necessary to practice skills" alongside mentors who "look like them and can also relate to them." This emphasis on shared identities and experiences aligns with research on the effectiveness of culturally responsive mentoring in fostering a sense of belonging and confidence for marginalized groups.

Ra's proposal further expands the network of support by suggesting "localized teams of tech enthusiasts and experts" who can connect with marginalized communities and introduce them to the diverse landscape of tech. This aligns with Deborah's idea of "Guest speakers to teach about the different intersections in tech (EdTech, FinTech, etc.)," ensuring participants gain a broader understanding of the field's potential and opportunities.

Together, these proposals weave a tapestry of personalized support that transcends traditional mentor-mentee relationships. They envision a program where
mentorship is not just a component, but a vital thread connecting participants with
industry leaders, diverse skill sets, and a supportive community. This holistic approach
holds immense potential for nurturing diverse and confident leadership within the tech
field, empowering Black, femme-identifying youth to become not just participants, but
active contributors to its innovative future.

Travel. The participants' utopian vision for the program transcended
geographical boundaries, embracing travel as a powerful tool for fostering personal
growth, building networks, and driving global collaboration.

Sierra envisioned a program that is "structured but also open, beginner-friendly
but challenging with a lot of variety," where travel plays a key role in "creating network
connections" and promoting inclusivity by showcasing "how non-tech careers could also
benefit from the inclusion of technology."

Kawaii echoed this sentiment, suggesting "travelling the world looking for more
minorities that want to work with tech or want to have a leadership opportunity to work
with TECC-BOSS and give them a chance to grow and learn more about tech."

Deborah's perspective focused on "travelling around the world to learn about how
technology is being used internationally," emphasizing the importance of exposure to
diverse tech innovations and applications.

Jade's proposal for a program "in a place that is known for its tech, like Dubai or
the Kingdom of Kush," further underscores the desire for immersive experiences in
vibrant tech hubs. She envisioned "extensive mentorship with tech leaders in these
places, specifically those who are used to implementing tech for people who look like
us," aiming to create meaningful connections and promote knowledge transfer between
established leaders and marginalized communities.

Jade's suggestion for a "cultural exchange or service learning component" further amplifies the program's potential for global impact. By actively engaging with local communities, participants can contribute their skills and knowledge while gaining valuable insights into different cultural contexts and challenges.

**Building a Web of Support: Fostering Community, Collaboration, and Entrepreneurship.** The participants' utopian vision for the program extended beyond individual skill development, emphasizing the power of community, collaboration, and entrepreneurship in fostering a thriving ecosystem for Black, femme-identifying youth in the tech field.

Building strong networks was a key theme, with Aysia advocating for "Experience more Tech Conferences" and Deborah proposing "an established alumni network" for ongoing support and skill-building. These proposals recognize the importance of connecting participants to the broader tech community, providing access to valuable resources, mentors, and networking opportunities.

Collaboration within the program itself was also a priority, with Ra suggesting "discussions around how different tech fields can work together for creative problem solving." This aligns with research on the benefits of interdisciplinary collaboration in driving innovation and encouraging participants to think beyond siloed tech disciplines.

Deborah further emphasized the crucial role of community, proposing "LOTS of bonding opportunities! Dinners after work, attending a concert together, things like that." These informal interactions allow participants to build trust, share experiences, and create
a sense of belonging, fostering a supportive network that extends beyond the classroom or mentorship sessions.

The entrepreneurial spirit also shone through, with Aysia and Kawaii recognizing the potential for program participants to develop their own ideas and businesses. Aysia's suggestion for "resources/further opportunities to be able to continue some of the great ideas from TECC Boss" echoes this sentiment, encouraging continued support for participants' entrepreneurial ambitions. This is supported by Kawaii's proposal for "maybe also if we did another app prototype people should also get a chance if they want to make their app" and further underscores the desire for continued hands-on learning and entrepreneurial skills.

The participants' utopian vision for community, collaboration, and entrepreneurship paints a picture of a technology leadership program that extends beyond technical skill development. It envisions a supportive network where individuals can connect, learn from each other, and push the boundaries of innovation, both within the program and beyond.

**Curriculum and Training.** The participants envisioned a tech leadership program that fostered not just technical proficiency but also equipped them with the tools to become confident leaders in the tech field. Their suggestions for curriculum and training focused on hands-on learning, inclusive collaboration, variety, and leadership training.

**Hands-on Learning.** Kawaii emphasized the need for active engagement beyond theoretical lessons, proposing "an activity after each lesson" to solidify understanding and bridge the gap between instruction and application.
**Inclusive Collaboration.** Shamia's call for "a lesson on navigating work with someone with a disability" speaks to a commitment to diverse and inclusive learning environments. Such training could equip participants with essential skills for collaborating effectively with individuals from various backgrounds and abilities.

Deborah envisioned a program that exposes participants to a wider spectrum of the tech field, suggesting "exploring multiple parts of technology, including hardware, electronics, and diverse software domains."

Several participants advocated for dedicated leadership training. Kawaii highlighted the importance of preparedness for unforeseen circumstances, proposing "backup leaders" to step up in case the main leader is unavailable. Kiesha envisioned "training for aspiring leaders to handle different team dynamics and overcome challenges effectively." Sierra sought a balance, suggesting "providing tools for leadership while allowing space for independent leadership styles." These suggestions point towards a tech leadership program that equips participants with practical skills like conflict resolution, delegation, and team motivation, while also nurturing their confidence and fostering independent leadership initiatives.

**Summary of Utopian Phase**

While not extravagantly utopian, the participants' vision for the tech leadership program offered a tangible blueprint for progress. It painted a vibrant picture of a tech leadership program woven from belonging, mentorship, travel, collaboration, and entrepreneurial spirit.

The participants imagined a space within their own community, a beacon for Black, femme-identifying youth. Seryn's vision of a place not just for technical skills but
for fostering belonging resonates deeply. Ra's bridge, connecting participants to industry leaders, highlights the tech leadership program's role in dismantling barriers and illuminating paths to advancement.

The participants sought a network of support that goes beyond traditional mentor-mentee relationships. Deborah's 1:1 mentorship program paired with Dayy's call for tailored skill development and Seryn's focus on shared identity weave a tapestry of support. Ra's localized teams of tech enthusiasts and Deborah's guest speakers further expand this network, ensuring exposure to diverse skill sets and opportunities.

Travel, in this utopian vision is a necessary and powerful tool for growth and collaboration. Sierra's inclusive program fostering global connections showcases the potential of technology to benefit beyond traditional tech careers. Kawaii's suggestion for connecting with minorities worldwide and Jade's focus on cultural exchange amplify the tech leadership program's potential for global impact.

The participants call for a tech leadership program that does not exist in a silo. Ra's call for interdisciplinary collaboration aligns with innovation, encouraging participants to think beyond boundaries. Deborah's emphasis on bonding opportunities fosters a sense of community, vital for success and support. Aysia and Kawaii's call for resources to nurture participants' entrepreneurial spirit recognizes the tech leadership program's potential to ignite changemakers.

The utopian phase offered a blueprint for a program that not only equips Black, femme-identifying youth with technical skills but also engages them to embrace that they are leaders, collaborators, and changemakers within the tech landscape and beyond. This
blueprint, informed by their lived experiences and aspirations, serves as a powerful guide for shaping a future where inclusivity and innovation are celebrated.

**Realization Phase**

Once the utopian phase was finished, the realization phase began, which lasted around 32 minutes, with the following prompt on Padlet: “What were the emergent themes in the previous conversations/Padlet responses. We will first write out what we thought were the emergent themes, then look/comment/ideate based on looking at others’ responses. In the share phase, we will determine what we think are the collective and individual themes that emerged from the utopian phase.”

At this point, the participants flipped back and forth between the Utopian Phase padlet and the realization phase tablet to capture the themes that they found in the Utopian phase. Those themes were then posted on the realization phase padlet. They were initially mentorship and collaboration, connections, a community space designed for young black femme identifying people, relatability, mentorship & bonding, training, networking, structure + freedom, conferences, travel, and safety. Upon further reflection and listening to the participants, I synthesized them into the following: bonding and expectations, mentorship, leadership training, and collaboration/team building.
Bonding and Expectations. Once the themes were identified by the participants, they began to plan out the realization of the Future-Creating Workshop – a tech leadership program called The Fold. I chose a timeline padlet to support the creation of the tech leadership program. I asked them what they thought should go first. Seryn suggested the networking and bonding, taking time to “identify what communities and identities are present within our cohort.” She suggested that this would help everyone to see who their allies are and learn a little more about each other. Ra agreed, saying “at bare minimum we should be comfortable in the space that we are learning.”

Deborah expanded on the idea of bonding to include expectations and level-setting. They found importance in “laying ground rules for the cohort to make sure everyone is comfortable.” Seryn agreed, and included, “expectations from each other and what people are expecting to get out of the program.” Shamia agreed, noting the duality of roles in a program when she said, “A role is two sided not just one side. It’s not about giving all your skills, it’s also what they can obtain from that role.”

Mentorship. Jade was asked what she thought the second part should be, to which she responded that mentorship would be great to see immediately, “just knowing that somebody else is there rooting for you.” I asked for clarification if those mentors should be industry mentors or past participants in TECH-Nique programs, and she said, “Initially it should be past participants because they already know what we’re going through and what they’re leading up to.” Ra added to this idea of mentorship by suggesting a supplementary skills approach, where participants could talk about what they’re comfortable with and what skills they are not comfortable with and then match
up with someone who is more comfortable than they are in that skill set, so “If I need help with this thing, I can come to this person.”

**Leadership Training.** Sierra suggested moving on to the third part, where she suggested training, but noted the tension between structure and freedom. She said, “There should be some type of structure with the training but I think that there should be freedom to navigate things on their own.” She gave an example of “this is conflict mediation. Here are the tools for that…if they get to the point where they have to use those tools, they’ll still be able to problem solve on their own to fix that situation.”

Deborah enunciated the need for participant autonomy by proposing that participants are asked, “What skills do you think that you need to be successful in this role? And then developing workshops and training accordingly.” Ra built on Deborah’s idea, emphasizing that there should be a variety of training methods/understanding on a topic, saying “not every system of information works for everyone.” He noted that systems of information, “come from a positionality of whiteness and heteronormativity and that doesn’t work for everybody”, going on to note that “as long as everyone knows there’s not a single way to solve a problem.” Shamia then compared that to the Tech Roots workshops that TECH-Nique participants gave at multiple community centers. In these workshops, the community center participants were tasked with coming up with a tech solution for violence prevention. Shamia compared this method to what Ra was saying when she said, “It was different ways to come up with a solution or work towards a common goal.

Sierra reflected on an experience at TECC Boss where “I was in a situation in my group where someone had things going on at home and because of that, they were
struggling to stay on task.” Therefore, she suggested the leadership training should encourage workshop participants to ask “what they may struggle with and to understand what things they may have going on in their life and then giving leaders tools to help with those situations” could help.

**Collaboration and Team Building.** Seryn talked about a formative time when she was at Empowered, through another nonprofit project that I led, where we collaborated with small Black businesses by providing them with websites. She said, “I wish that we could provide participants with opportunities where people will also utilize the work that we spent time creating.” Dayy, who was one of the facilitators for the Tech Roots program for community centers in 2023, concurred, siting the community center workshops. She said, “Could there be more opportunities like that?” Ra agreed, saying that The Fold participants could collaborate on planning the All That TECH Conference, deciding “This is what we feel like we should showcase. This is how we want it to go”.

Aysia provided an interesting idea around the combination of travel and pitching their app prototype idea, incorporating more entrepreneurship after TECC Boss, and finding leaders in the tech entrepreneurship field that can “give support to this person who’s trying to be a tech entrepreneur.”

Ra and Deborah suggested learning about the realities of the tech world and how they intersect with their identities. Deborah said there is a need for “explaining how overwhelming the tech world can be with long hours and hard deadlines, and that can add to the pressure you already face with being a Black femme-presenting person and talking about solutions.” Ra suggested mental wellness check ins for participants and mentors to
see how they are doing. He posited that “it would make people feel a lot more welcome too.”

Deborah suggested the idea that there should be consistent team building throughout the program. Shamia suggested tiered team building, where the mentors have team building and the mentees have a separate team building activity. She said, “Even though you’re a mentor, you can still learn from somebody else that’s in your position.”

**Summary of Realization Phase**

As the realization phase drew to a close, participants synthesized their collective vision for The Fold. Through an iterative process of reflection and dialogue, they identified key themes such as mentorship, leadership training, collaboration, and team-building – elements that are crucial for the program’s success. Seryn’s insights on networking and bonding as foundational steps, Deborah’s emphasis on setting expectations and comfortable spaces, Ra and Shamia’s practical approach to skill-based mentorship, and Aysia’s thoughts on tech entrepreneurship support set the stage for a program that values individuality and communal growth. Sierra highlighted the delicate balance between structured training and the autonomy necessary for leaders to navigate real-world challenges.

This phase underscored the participants’ desire for a program that not only imparts technical skills and leadership training but also fosters a strong sense of community and belonging. With these themes laid out, the path forward for The Fold is clear – create a nurturing environment that encourages personal and professional growth, incorporates identity and community, fosters collaboration, is flexible and iterative, and ultimately creates a strong sense of community and belonging.
Conclusion of Realization Phase

This Critical Utopian Action Research study was designed to answer the following research questions:

1. How do emerging adult Black femme-identifying or gender-expansive people describe an ideal technology leadership development program that incorporates their communities and identities?

2. Based on the results, what are the key factors that emerge which differentiate authentic leadership from a leadership model that incorporates Black Feminist Thought?

As part of describing how emerging adult Black femme-identifying or gender-expansive people describe an ideal technology leadership program that incorporates their communities and identities, I arrive at a pivotal juncture. The voices of the participants have outlined a stark contrast between existing technology leadership programs and the inclusive, identity-affirming spaces they envision. This study has not only surfaced the deficits in current offerings but has also birthed a participant-designed blueprint for a leadership development program that interweaves and celebrates their unique identities and communities.

The Future-Creating Workshop has served as an invaluable tool to capture the essence of participants’ critiques and channel them into a constructive framework for change. The emergent themes – ranging from the need for dedicated spaces to the power of mentorship, the creation of a supportive web, and opportunities to collaborate in service to their community – form the structural beams of a program that is envisioned by
those it seeks to serve. It is a program that embraces the multiplicities of Black femme identity and the richness of their lived experience.

In the spirit of action research, this analysis has not only focused on the critiques but has also catalyzed the conception of an authentic leadership model that resonates with Black Feminist Thought. The process of envisioning and co-creating this model has been as much a part of the product as the leadership program itself. Participants have not only articulated a need for change but have actively laid the foundation for its realization.

These findings resonate with the existing literature highlighted in the Literature Review section that highlights the underrepresentation and marginalization of Black femme-identifying people in technology spaces. Through this, it confirms the need for leadership development that is cognizant of and responsive to the intersectional beauty and challenges they experience.

In the next section, I will explore how the results of the study converge and diverge with the Black Feminist Thought/authentic leadership model described above.

**Black Feminist Thought/Authentic Leadership Model**

In the previous section, the product of the future-creating workshop was analyzed, which addressed the first research question, ‘How do emerging adult Black femme-identifying or gender-expansive people describe an ideal technology leadership development program that incorporates their communities and identities?’ In this section, I will explore the second research question: ‘What are the key factors that emerge which differentiate authentic leadership from a leadership model that incorporates Black Feminist Thought?’
I will use the responses from above, in addition to their ‘Still I Rise’ poems as the data to address these key factors: First, I will explore positive psychological capacities, as they relate to “What are those unique experiences as Black young women (femme-identifying or gender expansive) that inspire them to be leaders?” Additionally, “How were confidence, hope, optimism, and resiliency incorporated into their vision of a utopian technology leadership development program? How did it align with the critique of the current system?

Next, I will explore Positive Self-Development, answering the question, “How did the process of the future-creating workshop align with these traits of authentic leadership: Confident, hopeful, optimistic, resilient, transparent, moral/ethical, future-oriented, and associate building qualities?”

Finally, I will explore Positive Organizational Context, organizing the data around ‘How do Black young women (femme-identifying and gender expansive) describe the vision, strategy, and culture of an organization that incorporates their identity/community?’ Additionally, How are their life experiences, communities, and identities supported by an organization that incorporates their identity/community?
Positive Psychological Capacities

The participants spoke of multiple unique experiences that inspired them to be leaders, aligned with the tenets of “What are those unique experiences as Black young women (femme-identifying or gender expansive) that inspire them to be leaders?”

Additionally, “How were confidence, hope, optimism, and resiliency incorporated into their vision of a utopian technology leadership development program? How did it align with the critique of the current system?”

Unique Experiences that Inspired them to be Leaders

In an era where the technology sector is not just evolving in its capabilities but also in its consciousness, the narratives of Black femme-identifying and gender-expansive individuals stand as powerful testaments to the multifaceted nature of leadership. Their collective experiences, steeped in the rich diversity of their identities and life journeys, present an enlightening perspective that challenges the conventional paradigms of leadership development. Each story is a unique strand woven into a resilient and vibrant tapestry, depicting a journey of overcoming systemic barriers and embracing
innovation, while defiantly pushing against the boundaries defined by race, gender, and personal struggles. These voices, once marginalized, now resonate with a profound clarity, offering a blueprint for reimagining leadership in a manner that is as inclusive as it is transformative. The insights gleaned from these experiences not only question the status quo but also illuminate the path towards a leadership ethos that is rooted in empathy, empowerment, and the unyielding belief in the value of every individual's contribution to the tech landscape and beyond.

**Fostering Inclusivity, Advocating for Diversity, Leveraging Personal Growth to Inspire Change, and Embracing the Full Spectrum of their Identities.** Aysia articulates a profound source of leadership inspiration, stating, "From knowing to love someone else when they aren't able to love themselves and aspiring to inspire. From learning there are multiple to give a purpose to tech and encouraging others to use it.” This reflection highlights the compassionate foundation of her leadership, emphasizing the potential of technology as a means to inspire and uplift others.

In a similar vein of overcoming and asserting oneself, Kiesha describes her experiences in male-dominated spaces, "I'm from being in a group of men and not feeling heard and being talked over, from learning to take control and speak up when I need to about things that are incorrect. From years of friends who love me for who I am in the tech field.” Her narrative showcases a journey towards assertiveness and inclusivity, fostering a leadership model that champions speaking out and embracing one’s identity amidst challenges.

Dayy provides a multifaceted view of leadership inspired by their identity, beginning with, "I am from a place of intersectionality, From navigating the complexities
of being black, non-binary, and embracing both masculine and feminine aspects of myself, And from celebrating my pansexuality as a vital part of my identity.” This acknowledgment of their complex identity lays the groundwork for a leadership style that celebrates diversity and authenticity. Dayy further adds to their leadership journey by sharing, "I'm from the experience of being a program and project manager at TECC Boss, A transformative journey that brought me out of my shell, An environment that embraced all of me, including my diverse identities.” This experience underscores the importance of inclusive environments in nurturing personal and professional growth. Dayy continues, "From the motto, 'Be true to yourself, and greatness will follow,' Guiding me to stay authentic to who I am, regardless of the obstacles, And the advice, 'Your voice matters; make it heard,' inspiring me to advocate for inclusivity in tech.” These principles emphasize the role of authenticity and advocacy in their leadership ethos.

Ra reflects on his identity and its influence on his leadership, stating, "I am from blackness, From queerness that says black is queer, blackness is sound and silence, light and dark, love and despair.” This deep engagement with their identity informs a leadership style that embraces and explores the full spectrum of human experience. Ra further elaborates, "Because there are different ways of seeing, different ways of being black, being queer, being an artist.” And, "Where queerness is my guide to understanding, We are all different, see different, love different, think different, BE different, And that is okay.” These insights advocate for a leadership approach that values diversity and individuality.

Kawaii’s perspective adds another layer to the conversation about leadership, stating, "I'm from a crystal placed on top of each doorway and a bay leaf and each clothes
drawer with a powerful word on it. From being told just because I have a setback doesn't mean it's the end of the world and just because I present myself in a way people don't like doesn't mean I have to change.” This narrative emphasizes resilience and self-acceptance. Kawaii further shares her experience with TECH-Nique, "From TECH-Nique giving me the opportunity and push that made me rethink my career, I am from wanting to study Computer science or IT work. In making a website with people who actually wanted my examples and let me put my touch to the work, From talking about our app in front of important people.” And, "I'm from being told how I present myself is unprofessional and I'll never accomplish what I desire, I am an African-American Bisexual woman wanting to be heard and considered.” These experiences highlight a journey towards overcoming adversity, finding one’s passion in technology, and advocating for recognition and respect.

Jade's contribution to the dialogue on leadership focuses on the power of authenticity and engagement, "From TECH-nique in the tech field, where you can be your true, authentic self because this org knows that was really matters has nothing to do with you being able to throw on a pants suit everyday. In getting the most uninterested and bored kid in the class to smile just a little when we talk about tech and entrepreneurship, putting my loved ones and professional colleagues on to the latest & greatest tech that makes their lives easier.” And, "I'm from struggling to get youth interested in tech, From being a believer in dreams and knowing they can come true.” These insights reveal a leadership philosophy centered on authenticity, inspiring others, and the belief in the transformative power of dreams.

Deborah shares a communal aspect of leadership, "I am from a gaggle of girls
huddled around a computer screen, giggling at the bugs in our websites, learning that it is okay to make mistakes. It is perfectly fine to ask for help, but it feels good when it’s your homegirl helping you out.” This narrative highlights the importance of community, learning from mistakes, and the empowering nature of mutual support.

Seryn's leadership inspiration is driven by creativity and a vision for a better future, "I'm from let your creative juices flow and envision a healthier future, Designing apps and social media campaigns to bring awareness to others.” And, "I'm from losing those I loved the most and overcoming my grief, From wanting all people of color to gain the knowledgeable skills technology and improve their livelihood, community, opportunities.” These statements underline a leadership approach motivated by creativity, resilience, and a commitment to improving the lives of people of color through technology.

Sierra articulates a proactive and inclusive leadership style, "I'm from assertion and communication, Always making sure to welcome those in my team with open arms. I'm from self-confidence and determination, From making an impact in my community and changing it for the better.” This approach emphasizes the importance of assertiveness, confidence, and a desire to effect positive change in the community.

Kiesha further underscores the transformative power of technology and mentorship in her leadership journey, "I'm from overcoming my social anxiety and speaking in front of 50+ people. From showing the world what tech can do and how much it can change lives around us. From mentors in the tech field, they make me want to keep going and see what else I can do.” This reflection highlights the role of personal growth, the impact of technology, and the influence of mentors in shaping her leadership.
Shamia's narrative brings attention to the intersection of personal challenges and leadership, "I am from being a black, From being born as a disabled female.” And, "I'm from going to therapy for childhood Trauma and learning it's ok to have a complicated relationship with my body, From being able to show my creativity through web designing and finally being listened to as a program manager. From the women in my family in the tech field, providing encouraging words.” These insights emphasize the importance of overcoming personal challenges, embracing creativity, and the empowering influence of a supportive family and professional network in the tech industry.

Collectively, these quotes form a rich tapestry of experiences, insights, and reflections that illustrate the diverse inspirations behind the leadership of Black femme-identifying or gender-expansive emerging adults. Their narratives underscore a collective commitment to fostering inclusivity, advocating for diversity, leveraging personal growth to inspire change, and embracing the full spectrum of their identities as sources of strength and inspiration in their leadership journeys within the tech industry and beyond.

**Compassion, Authenticity, Inclusivity, and Resilience.** The narratives shared by participants reveal a profound interplay of hope, confidence, optimism, and resiliency, elements that are intricately woven into their visions of a utopian leadership program. These stories, each unique yet interconnected, not only underscore their diverse inspirations for leadership but also how these core sentiments shape a vision for leadership that is transformative, inclusive, and empowering.

Aysia's reflection encapsulates the essence of hope and optimism, with her leadership inspiration rooted in the belief that technology can be a force for good, encouraging others to find purpose and uplift themselves. This sentiment lays the
foundational pillar for a utopian leadership program that would prioritize compassion and positive change, envisioning a future where technology serves as a bridge to connect and empower individuals across diverse backgrounds.

Kiesha's experience in asserting herself within male-dominated spaces embodies confidence and resiliency. Her story highlights the importance of assertiveness and inclusivity, crucial elements for a leadership program that aims to create spaces where all voices are heard and valued. This vision promotes an environment where emerging leaders learn to navigate challenges with confidence, advocating for themselves and others.

Dayy's journey through embracing their multifaceted identity and the celebration of diversity speaks to the core of optimism and hope. A utopian leadership program, as inspired by Dayy's experiences, would foster an environment where every participant's full identity is embraced, promoting authenticity and diversity as strengths. This inclusive approach not only nurtures personal growth but also cultivates a collective optimism about the potential for a more diverse and accepting world.

The sentiments of authenticity and self-advocacy highlighted by Ra and Kawaii further enrich this vision. Ra's deep engagement with their identity and the embracing of a broad spectrum of human experience, alongside Kawaii's resilience in the face of adversity and her unwavering self-acceptance, both contribute to a leadership program that values and celebrates individuality. This program would instill confidence in its participants, encouraging them to be true to themselves and resilient in the face of challenges, thereby fostering a community where diversity of thought and being is the cornerstone.
Jade and Deborah's narratives emphasize the transformative power of engagement, community support, and the importance of learning from mistakes. A utopian leadership program inspired by these principles would prioritize authenticity, communal learning, and the empowerment of individuals through technology and support networks. This environment would cultivate hope and optimism, showing participants that their dreams are valid and achievable, and that collective growth strengthens individual resilience.

Seryn and Sierra's perspectives add dimensions of creativity, vision for the future, determination, and the desire for positive community impact. These elements are vital for a leadership program that aims to be utopian in nature, suggesting a framework that encourages creative problem-solving, envisions a healthier future for all communities, and empowers participants to enact change with confidence and optimism.

Lastly, the stories of Shamia and Kiesha, highlighting the intersection of personal challenges with professional aspirations and the transformative power of mentorship, encapsulate the essence of resiliency and the importance of supportive networks. A utopian leadership program, as inspired by their experiences, would integrate therapy, mentorship, and creative expression as tools for overcoming personal and professional obstacles, thereby fostering a resilient and supportive community that encourages each member to pursue their passions and advocate for inclusivity and respect.

In synthesizing these narratives into a vision for a utopian leadership program, it becomes clear that hope, confidence, optimism, and resiliency are not just abstract ideals but tangible principles that can guide the creation of transformative leadership experiences. Such a program would not only recognize the unique challenges faced by
Black femme-identifying or gender-expansive emerging adults but also celebrate and leverage their diverse experiences as strengths. It would aim to create a space where compassion, authenticity, inclusivity, and resilience are cultivated, empowering participants to envision and work towards a more equitable and optimistic future.

**Positive self-development**

*How does the process of the future-creating workshop align with these traits of authentic leadership?*

The future-creating workshop, as deployed in this study, is a methodological embodiment of the traits of authentic leadership, particularly resonant with the lived experiences of Black femme-identifying and gender-expansive emerging adults. Each phase of the workshop—critique, utopian, and realization—mirrors the core attributes of authentic leadership, namely self-awareness, relational transparency, balanced processing, and moral perspective, while simultaneously providing a framework for
critiquing and reconstructing the current paradigms of technology leadership development.

In the critique phase, participants' engagement with the challenges they identify in existing leadership opportunities reflects a deep self-awareness. This phase allows them to articulate not only the systemic barriers they face but also their personal and collective responses to these challenges. For instance, the critique might draw from Aysia's insight into "Generational Curses being broken," highlighting the persistent need for resilience in the face of structural impediments. This phase aligns with the self-awareness trait by encouraging participants to reflect on and articulate their understanding of the systemic issues at hand, informed by their unique perspectives and experiences.

The utopian phase, wherein participants envisage an ideal scenario for technology leadership training, offers a space for relational transparency. Here, the insights from the first phase, such as Dayy's "place of intersectionality," and Sierra's emphasis on creativity and intuition, feed into a collective vision of an inclusive and empowering leadership program. The open sharing of these ideals fosters an environment where participants can be vulnerable and honest—central tenets of relational transparency.

During the realization phase, balanced processing is crucial as participants must navigate the practical aspects of implementing their utopian visions. The workshop's design encourages participants to consider various perspectives and constraints critically. For example, the realization phase would require balancing Seryn's emphasis on ancestral wisdom and the practicalities of integrating such principles into a technology leadership program. This phase embodies the balanced processing trait by necessitating a critical and objective approach to turning the utopian visions into actionable strategies.
Ethics, particularly around power dynamics, is a key consideration throughout the workshop, reflecting the moral perspective of authentic leadership. As participants like Shamia reflect on creating a tech field where "everyone is given a truly equal opportunity to be heard and seen," the workshop's safe space ensures that these reflections are grounded in ethical considerations. The moral perspective is further emphasized in the critique of leadership training and program implementation, where ethical leadership practices are assessed, and new standards are proposed.

The workshop's process—starting with individual reflection, moving to group discussion, and culminating in a collective action plan—allows for a synthesis of personal experiences and group dynamics. This aligns with the authentic leadership attribute of fostering positive self-development. Participants' narratives, such as Kiesha's advocacy for being heard, and Deborah's commitment to not settling, serve as a foundation for identifying key themes and differentiating authentic leadership from other models.

The final output, a visual representation of the workshop's findings, serves as a testament to the integrated approach of the workshop. It embodies Black Feminist Thought by visualizing the convergence and divergence of experiences and identities. This approach respects the participants' confidentiality while also acknowledging their contributions to the study's findings, ensuring that their voices are central to the understanding and development of an inclusive technology leadership program.

In conclusion, the future-creating workshop's methodology is inherently aligned with the principles of authentic leadership and Black Feminist Thought. It provides a critical space for Black femme-identifying and gender-expansive emerging adults to
critique current leadership paradigms, envision a more inclusive future, and work collaboratively towards realizing that future. This process not only fosters the development of authentic leadership traits among the participants but also contributes to the creation of a technology leadership program that is reflective of and responsive to their unique needs and aspirations.

How does the product of the future-creating workshop align with the traits of authentic leadership?

The product of the future-creating workshop, developed through the insights and reflections of the participants, aligns with the traits of authentic leadership—confidence, hope, optimism, resilience, transparency, moral and ethical standards, future orientation, and association building—in several profound ways.

Confidence is directly evidenced in the "Realization Phase" as participants, having articulated their critiques, begin to plan The Fold, a tech leadership program. The suggestions to prioritize networking and bonding as foundational activities, as noted by Seryn, reflect a confidence in the group’s ability to create a supportive environment crucial for developing leadership skills.

Hope and optimism are interwoven in the participants' forward-looking strategies. For example, Aysia's proposal to incorporate entrepreneurship and leadership opportunities shows an optimistic outlook towards future career paths for participants, resonating with an anticipation of growth and success beyond the program.

Resilience is embodied in the approach to mentorship and leadership training. Jade's emphasis on the importance of mentorship "just knowing that somebody else is there rooting for you," and Ra's suggestion for skill-based mentorship arrangements
underscore the program's design to support participants through challenges, exemplifying the resilient spirit that the program aims to instill.

Transparency is observed in the iterative dialogue and feedback process, where participants openly shared their ideas and built upon them collectively. Deborah's emphasis on setting expectations and creating a comfortable learning space reflects the transparent communication that authentic leadership espouses.

Moral and ethical standards are implied in the ethical approach to mentorship and leadership training. Sierra's advocacy for balancing structure with the freedom to navigate, and Deborah's insistence on participant autonomy in selecting skills for success, show a commitment to ethical practices that respect individual needs and circumstances.

Future orientation is captured in the program's focus on preparing participants for real-world challenges, with Sierra's suggestions for conflict mediation training providing tools for future use, demonstrating a proactive approach to leadership development.

Association building is evident throughout the phase, particularly in the focus on collaboration and team-building. Seryn's recollection of working with small Black businesses and the desire to utilize participant-created work in meaningful ways emphasize the importance of building associations that extend beyond the program itself.

In sum, the emergent themes from the "Realization Phase" of the workshop—bonding and expectations, mentorship, leadership training, and collaboration/team building—mirror the tenets of authentic leadership by fostering an environment where Black femme-identifying and gender-expansive emerging adults can cultivate their leadership capacities in a setting that is responsive to their identities and communities. This process is not only a reflection of their authentic leadership traits but also a blueprint
for how these can be operationalized in a program that is ethical, inclusive, and forward-thinking.

**Positive Organizational Context**

*How do Black young women (femme-identifying and gender expansive emerging adults) describe the vision, strategy, culture of an organization that incorporates their identity/community? How are their life experiences, communities, and identities supported by an organization that incorporates their identity/community?*

The envisioned organization, as articulated by Black young women (femme-identifying and gender expansive emerging adults), is one that centers both gender affirmation and the Black experience, deeply informed by the principles of intersectionality. The participants' self-descriptions reveal the necessity of an organization that fully supports and celebrates the complex interplay of their racial identities and gender experiences.

**Vision**

The vision of this organization is robustly intersectional, recognizing the multiple layers of identity that Black young women navigate. The vision is to construct an environment that not only acknowledges the Black experience as central to its ethos but also actively affirms the varied expressions of gender and sexuality within it. This includes honoring Ra's fluid gender expression and the days she presents as feminine or masculine, acknowledging Sierra's and Kiesha's experiences as Black lesbians, and embracing the dynamism in Dayy's evolving understanding of their gender identity and pansexuality. The organization envisions a space where Aysia's straight Black womanhood, Seryn's Black and bisexual identity, and Deborah's Black queer non-binary
existence are all seen, valued, and positioned as strengths from which to build a vibrant community.

**Strategy**

The strategy is deliberate in its design to empower Black young women, providing them with tools and resources that resonate with their lived experiences. Mentorship, as highlighted by Jade, is not generic but culturally specific and gender-affirming, with mentors who understand the complexities of navigating tech spaces as Black and femme-identifying or gender expansive. The networking and bonding strategies, as suggested by Seryn, are mindful of the cultural and communal connections that are vital to Black individuals, ensuring that the fabric of the organization is interlaced with the richness of Black culture and community ties.

**Culture**

The culture of the organization is one of inclusivity and respect, creating spaces that are safe and affirming for all identities. It acknowledges the societal pressures faced by Black femme-presenting individuals, as mentioned by Ra, and integrates practices that address these unique challenges. The culture is also one that reflects the communal ethos prominent in Black cultures, as seen in Shamia's tiered approach to team building, where community knowledge and mutual support are key.

**Support**

Support within this organization is multifaceted, addressing both the individual and collective needs of its members. It mirrors the resilience embodied in participants' lives, like the tenacity shown by Kiesha in asserting her voice in male-dominated spaces. The support extends to embracing the participants’ full selves, including the duality of
roles and the spectrum of emotions and experiences that they bring into the space. The organization’s strategies and culture are designed to foster personal growth and leadership development within a context that honors the intersection of Blackness with the vast spectrum of gender identities and expressions.

In essence, the organization that these Black young women conceptualize is one where the interlocking aspects of race, gender, and sexuality are not just acknowledged but are integral to its mission. It is an organization that leverages the unique insights, strengths, and experiences stemming from the participants’ intersectional identities to create a community that is empowering, nurturing, and resilient—a community that is authentically representative of its members and their visions for leadership in technology and beyond.

**Conclusion of BFT/authentic leadership analysis**

In synthesizing the data from the future-creating workshop and the 'Still I Rise' poems, this research has illuminated the multifaceted nature of leadership as envisioned by the participants. Their narratives and creative expressions coalesce to form a nuanced portrait of a leadership model that integrates the tenets of Black Feminist Thought with the principles of authentic leadership. This model champions a vision that is intersectionally aware, a strategy that is empowerment-focused, and a culture that is inclusively celebratory of each individual's identity.

The key factors that differentiate this integrative leadership model include the valuing of lived experiences as a source of expertise, the fostering of community bonds as a foundation for mutual growth, and the prioritization of ethical and transparent practices that honor the full humanity of each member. This leadership approach is
characterized by resilience that is born from the legacy of overcoming systemic barriers, confidence that is rooted in the affirmation of one’s identity, and optimism that is nurtured by the hope of creating a more equitable future.

This section has endeavored to capture the essence of how the participants’ self-descriptions—such as Shamia's navigation of life with a disability, Ra's fluid gender expression, and Dayy's evolving understanding of their gender and sexuality—shape an organization that is attuned to the complexities of their identities. It is a forward-thinking blueprint for an organization where the Black experience is not only recognized but is also interwoven with gender affirmation and an appreciation for diversity in all its forms.

I recognize that the journey of these emerging leaders is emblematic of a broader movement towards a more inclusive and representative technological landscape. Their insights compel us to reconsider traditional leadership paradigms and embrace a model that is as dynamic, diverse, and resilient as the individuals it seeks to serve. The findings from this research underscore the necessity of reimagining technology leadership development programs to truly reflect and support the rich tapestry of identities that comprise our future leaders.

This will be discussed more in the next session. I will also investigate how this study contributes to the existing body of knowledge, where the findings converge with what we already know, how my findings fit/don’t fit within my theoretical framework, what are the theoretical contributions, and implications for future research and practice.
DISCUSSION

Authentic Leadership/Black Feminist Thought

The crux of this study centered around engaging participant’s authentic identity to create a technology leadership program and understanding how the results reveal the alignment/malalignment of Black Feminist Thought and Authentic Leadership Framework. Using an authentic leadership framework seemed like a natural fit, because its principles are centered in Greek philosophy and the idea of *to thine own self be true*. Authentic leadership exists as an antidote to leadership styles that display inauthenticity, deceit, and dishonesty (Luthans & Avolio, 2003). Borrowing from positive psychology, authentic leadership illustrates a brand of leadership that is honest and instills hope in its followers. Luthans and Avolio point to historical times where there was turmoil and uncertainty and positive leadership was a beacon of hope in a dark time, citing famous historical figures such as “Alexander the Great, Washington, Gandhi, Churchill, Eleanor and Franklin Roosevelt, Mandela, and Rudy Giuliani.” (Luthans & Avolio, 2003, p. 1)

While the idea of Rudy Giuliani in 2024 being considered an historical figure alongside Alexander the Great, Gandhi, Churchill, and Mandela may be hard to imagine in his current status, the point remains: In times of turmoil people have often turned to leaders who radiate a high level of positivity and hope. Indeed, even Hitler’s reign of terror was predicated by his message of hope to bring more jobs and land to the German people.
However, authentic leadership has been called problematic (Alvesson & Karreman, 2016; Spoelstra, Butler, & Delaney, 2016; Van Knippenberg & Sitkin, 2013; Yukl, 1999) criticized as void of solid theoretical foundation, lacking strong empirical studies, and more, ultimately describing it as feel-good leadership more than based in positive psychology. Additionally, authenticity in tandem with leadership becomes difficult, as the nature of leadership involves influencing others, which can conflict with the idea of maintaining personal authenticity, especially when adapting to social norms and expectations.

While the premise of these critiques are valid, they choose not to acknowledge the fluid nature and situational dynamics involved in leadership. In the implementation of authentic leadership theory, it’s not a one-size-fits-all solution, but implores leaders to place value on and seek to incorporate authenticity whenever possible (Luthans & Avolio, 2003).

The critiques of authentic leadership often overlook the intricate relationship between identity, power, and the capacity for authenticity. Organizational leaders, by virtue of their position, typically enjoy greater latitude to express their genuine selves, courtesy of the power they wield. Conversely, those outside of leadership positions swiftly learn the behaviors and expressions that align with the preferences of their superiors, even if it means enduring forms of authenticity that may not resonate with them. More research is needed on understanding the complexity of authentic leadership, within the framework that true authenticity is not merely a personal endeavor but is also shaped by the hierarchical structures within which individuals operate.
Additionally, authentic leadership centers around the leader’s authenticity, with the intended secondary result being that if the leader is authentic, this will inspire the rest of the group to be authentic as well. But throughout the analysis of this CUAR study, the themes of intersectionality, bringing our authentic selves, and how to “be” and leadership abilities and capacity questioned compels us to consider that being an authentic leader may not always be possible for those seen as “atypical”. Indeed, Ayaz, Ozbilgin, and Samdanis (2023) ask if atypical leaders, defined as a diversion from dominant backgrounds and patrimonial behaviors can afford to be authentic, ultimately concluding that dominant narratives often preserve the power of typical leaders over changing the status quo.

Reflecting on the narratives shared by participants who were both Black and queer, Black and disabled, among other intersectionalities, it becomes evident that a good measure of authentic leadership's success is how well it allows individuals at all levels to exhibit their authenticity through their identity and intersectionality. This underscores the necessity of augmenting authentic leadership with frameworks like Black Feminist Thought and intersectionality, which provide a more inclusive lens for leadership.

While transformational leadership, as conceptualized by Burns (1978) and later expounded upon by Bass (1999), offers an alternative with its intrinsic motivation ethos, it is not without limitations. Despite its ability to inspire and engender commitment, transformational leadership often remains leader-centric. The responses in this CUAR study align with the research that shows that this approach can overshadow the contributions of non-leaders and may inadvertently marginalize their identities and community affiliations (Deng, Gulseron, Isola, Grocutt, & Turner, 2022).
In practice, even with the sense of unity, effort, and engagement that transformational leadership can promote, this CUAR study shows that one's identity and community might remain on the periphery, not fully integrated or acknowledged as valid sources of knowledge and innovation. Therefore, leadership models must evolve to not only motivate and unify but also to genuinely incorporate and celebrate the rich tapestry of individual identities within the organizational fabric.

In this study's context, identity leadership holds significance, as it acknowledges the critical role of identity in forming effective team dynamics. Identity leadership is a concept of leadership that revolves around the significance of identity as a central component of effective leadership, particularly as workplaces become more globalized, mobile, and diverse (Ibarra et al., 2014). This approach encourages leaders to foster a shared social identity, which is instrumental in enhancing team performance (Steffens et al., 2014). The influence of identity leadership is particularly notable in its capacity to affect group-based pride and enhance leaders' political skills (Hou et al., 2021).

However, the results of this study problematize this approach, as it focuses on shared identity as the goal, rather than the authenticity of intersectionality. Indeed, the study reveals a gap within this leadership model when it comes to atypical identities. Participants noted instances where their unique intersectional identities were not fully embraced, especially when facing racism in queer-positive spaces and homophobia in race-positive spaces. This theme of “how to be” was a consistent theme throughout the study, which underscores a need for a nuanced approach to identity leadership, one that allows for the authenticity of intersectional identities within the collective social identity.

This study demonstrates the transformative potential of integrating
intersectionality into leadership models, particularly within the tech industry. The Critical Utopian Action Research methodology applied in this research not only included participants' diverse identities but actively involved their intersectional experiences in the creation of 'The Fold.' This leadership program, now implemented by TECH-Nique, serves as a testament to the innovation that can emerge from fully engaging with the multifaceted nature of individual and community identities.

The implementation of 'The Fold' raises important questions for future research: To what extent are intersectional identities being actively involved in organizational decision-making? How are initiatives reflecting the intersectional composition of their creators? Are organizations ensuring that a wide spectrum of intersectionality is present from the inception of ideation? Such questions are critical for evaluating the long-term impact of intersectionality-informed leadership on organizational culture and innovation.

Highlighting the importance of intersectional contributions, this study challenges traditional leadership structures, illustrating the necessity for strategies that go beyond inclusion to actively involve diverse identities in shaping the direction and decisions of an organization. This inclusive approach is not about simple 'top-down' or 'bottom-up' dynamics but is about creating a collaborative environment where the intersection of different identities contributes directly to innovation and progress.

The emergence of generative AI, with its vast capabilities and inherent risks, amplifies the need for intersectional identities not only to be involved in tech leadership but also to actively critique and shape this technology. As Figure 4 in this study illustrates, underrepresented groups are often sidelined in organizational tech leadership roles, yet disproportionately face the consequences of unethical AI deployment (Raji et
Moreover, when individuals from these groups do attain leadership positions, they encounter the added burden of navigating stereotypes, which can lead to a cautious, survivalist stance rather than one of proactive engagement with technology (Medina, 2020; Hernandez & Ngunjiri, 2017; Ayaz, Ozbilgin, & Samdanis, 2023). This situation underscores the importance of fostering an environment where intersectional identities can thrive, critiquing and guiding the development of AI to ensure its responsible evolution.

It is for these reasons that multiple leadership theories, and specifically in the case of this study, authentic leadership that incorporates critical theory become important. In the case of this study, because of the intentionality around Black Feminist Thought incorporated into the authentic leadership model, the intersectionality and diversity of the participants was welcomed authentically, made even more prescient by the future-creating workshop, where they knew their ideas, experiences, and knowledge would be used to create an entire program in their organization.

**The Paradox of Utopian Realism**

In the utopian phase of a Critical Utopian Action Research project, participants are prompted to envision an ideal scenario that transcends current limitations. For this study, participants were asked to describe a utopian technology leadership program tailored to the communities and identities of Black, femme-identifying young people, using various expressive mediums. They were encouraged to "GO WILD" with their creativity and imaginations.

The participants' responses yielded themes such as mentorship, travel, conferences, networking, collaboration, curricular activities, training, team-building
activities, authenticity, resources, further opportunities, variety, and notably, the concept of 'space'. These themes collectively pointed towards a desire for holistic support systems, inclusive environments, and transformative opportunities. Yet, the fact that such essential elements were considered 'utopian' underlines the current deficiencies in the tech leadership landscape for marginalized groups.

The utopian phase of the study revealed an intriguing insight: participants' aspirations, which they deemed utopian, were essentially fundamental desires for recognition, voice, and the ability to lead authentically through their intersectional identities. These aspirations, while considered utopian by the participants, are often effortlessly enjoyed by others not facing similar marginalization. This stark contrast raises poignant questions about the lived reality of marginalized groups if what should be commonplace is instead a 'dream.' It begs a deeper inquiry into the societal structures that render such basic aspirations as utopian and how far the reality is from what ought to be a universal experience. The need for further research here is evident—to explore the broader systemic issues that make the mere acknowledgment of one's full identity and leadership potential an 'ideal' rather than the norm.

**Intersectional Identity**

The inclusion of Black, femme-identifying, and gender-expansive descriptors in the study's title may have significantly influenced the depth of engagement from the participants. Such explicit acknowledgment of diverse identities possibly served as an assurance, allowing participants to share more freely and extensively about their intersectional experiences. Had the title been broader, participants might have still joined but potentially withheld full disclosure of their identity layers, as they navigated the dual
challenges of homophobia in predominantly Black spaces and racism in white-dominated areas.

The candor observed in participants' discussions points toward the nuanced reality that having one's intersectionality recognized in research can be a rare occurrence, often leading to more guarded expressions of identity. The explicit inclusivity of this study's title could have been a beacon, signaling a safe harbor for authenticity and comprehensive self-expression. This aspect of the research design may have inadvertently become an intervention, challenging participants to dream beyond the constraints they routinely face.

Therefore, further exploration is necessary to understand the impact of research framing on the willingness of marginalized individuals to fully engage with their intersectional identities. Such research could investigate whether the titles and language used can either encourage a full embrace of intersectionality or reinforce the silencing of certain identity facets. This line of inquiry is crucial for creating truly inclusive spaces that invite a richer, fuller representation of all community members, fostering environments where every aspect of one's identity is not just welcomed but seen as a valuable contribution to the collective narrative.

The Fold

The Fold, now in its fourth month, stands as a significant milestone in TECH-Nique's journey towards inclusive leadership. This initiative, born out of the collaborative efforts of diverse intersectional identities within the CUAR study, exemplifies a pivotal win for TECH-Nique. By providing participants with the autonomy to shape the program and welcoming their intersectional identities with open arms, TECH-Nique has not only
cultivated an environment of inclusion but has also leveraged the innovative ideas and experiences of its members to propel the organization forward.

As The Fold members engage in training sessions focused on generative AI, preparing them to serve as ambassadors in their communities, they not only equip themselves with essential knowledge but also position themselves as advocates for TECH-Nique's values beyond its walls. These ambassadors will play a crucial role in educating their communities about the power, peril, and promise of generative AI, further enhancing TECH-Nique's reputation as a forward-thinking organization. Moreover, by incorporating elements such as mentorship, travel, collaboration, training, authenticity, and team-building activities into The Fold program, TECH-Nique demonstrates its dedication to fostering a culture where every member feels valued, heard, and empowered to contribute their unique perspectives and skills.

In essence, The Fold represents more than just a training program; it symbolizes a collaborative effort between TECH-Nique and its members to co-create a future where inclusive leadership thrives. By embracing intersectional identities and encouraging participation from all corners of the organization, TECH-Nique has not only enriched its leadership development initiatives but has also strengthened its foundation as a progressive and forward-thinking entity in the tech industry.
LIMITATIONS

In this study, conscientious efforts were made to mitigate the potential response bias due to the power dynamics between the principal investigator (PI) and the participants. The PI encouraged open and honest dialogue, creating an environment where participants could freely express both positive and negative views. This is evident by the fact that participants did indeed offer a range of critiques regarding TECH-Nique. Additionally, the PI's clear assertion of positionality was intended to make transparent the relational dynamics at play, aiming to reassure participants that their genuine perspectives were valued regardless of their financial or professional relationship to the PI.

Despite these earnest attempts to reduce response bias, it remains a possibility that such bias, to some extent, influenced the study's findings. Human nature and the complexities of interpersonal relationships can mean that even with encouragement to be frank, individuals may still modulate their responses, especially in a research context involving power differentials. Thus, while the study was designed with a robust methodological framework to address and reduce known biases, the potential for their presence must be acknowledged as a limitation.

Secondly, the study's participant pool is limited to 10 individuals within the organization TECH-Nique. This small, insular sample size limits the generalizability of the findings. The experiences and opinions of these participants may not represent those of all individuals in similar settings or within the broader population of Black femme
identifying or gender expansive emerging adults in technology. Furthermore, the insular environment could foster a particular organizational culture that does not necessarily reflect the diverse cultures of other tech environments, which may affect the leadership styles and experiences of the participants.

Lastly, the study focuses exclusively on Black femme-identifying emerging adults, which inherently silences other identities that are also pivotal in the context of diversity in technology. For instance, the experiences of non-binary individuals, males, or individuals from other racial and ethnic backgrounds in leadership roles could offer additional valuable insights. The exclusion of these identities limits the study's scope and the applicability of its findings to initiatives aimed at increasing diversity in the technology sector.

Future research could address these limitations by including a more diverse and larger sample size, ensuring a balance of power between the researcher and participants to mitigate bias, and expanding the scope to include a wider range of identities to fully understand the complexities of leadership in diverse technological environments.
POTENTIAL IMPLICATIONS FOR RESEARCH, THEORY, AND PRACTICE

This study aims to delve into the leadership development landscape for Black femme-identifying and gender-expansive emerging adults within computer science, potentially contributing to the current research canon and even pioneering a novel domain-specific leadership theory that weaves together Black Feminist Thought with the principles of authentic leadership. The TECH-Nique program exemplifies a transformative model of teaching technology that transcends traditional methods, incorporating leadership and community development aspects that are particularly beneficial for marginalized groups as well as the broader student body.

By integrating the identity and experiences of historically underrepresented groups, this research could significantly inform educational policies. It advocates for curricula that not only teach technical skills but also foster an inclusive environment that values the identities and voices of these groups. The envisioned leadership theory emerging from this research could expand the conceptual framework of authentic leadership by including critical theories, thus offering a richer, more inclusive understanding of leadership development.

The practical implications of this study are far-reaching. They suggest the establishment of leadership cohort models where underrepresented groups serve as near-peer mentors, providing relatable leadership experiences that could positively influence Black femme-identifying and gender expansive youth’s interest in computer science. Furthermore, this research prompts a reevaluation of broader educational strategies...
within computer science. Given the consistent reports of marginalization by underrepresented groups, there is a clear need to educate all students and instructors (especially CS students and instructors) about implicit bias and to adopt a critical pedagogy approach across computer science classrooms. Incorporating assets-based perspectives that recognize the value in underrepresented communities could not only benefit marginalized students but also enrich the learning experience for non-marginalized students.

This subject calls for further research, as many insights from participant feedback and data analysis remain unexplored in current theoretical frameworks and unapplied in practice. With the emergence of generative AI, a technology whose impact is closely tied to accessibility, there is a critical need to investigate how underrepresented groups might again face disparities in technological advancement. This presents a pressing opportunity to delve into the potential of an AI divide and to develop strategies that ensure inclusive progress within technology fields.
SUMMARY/STATEMENT OF SIGNIFICANCE

This Critical Utopian Action Research (CUAR) study embarked on a multifaceted exploration aimed at addressing two pivotal research questions: Firstly, it sought to unearth the nuanced perspectives of emerging adult Black femme-identifying or gender-expansive individuals regarding their ideal technology leadership development program—one that not only fosters professional growth but also integrates and celebrates their unique identities and communities. Secondly, it aimed to discern the key factors distinguishing authentic leadership from a leadership model infused with Black Feminist Thought (BFT), illuminating how authenticity intertwines with intersectional identities within the realm of leadership.

The findings of this study resonate profoundly with the broader discourse surrounding leadership theory, organizational development, and technology educational practices. By meticulously unraveling the narratives of participants, this research underscores the transformative potential of intersectionality in shaping leadership paradigms, particularly within the technology sector. It elucidates how authenticity, when interwoven with intersectional identities and informed by frameworks like Black Feminist Thought, engenders a leadership ethos that is not only inclusive but also profoundly empowering.

The theoretical contributions of this study are manifold. It propels the discourse on authentic leadership by illuminating the complexities of authenticity within the context of intersectional identities and power dynamics. It underscores the limitations of
traditional leadership models in accommodating diverse identities and experiences, advocating for a more nuanced approach that acknowledges and embraces the authenticity of intersectional leaders. Moreover, it advances the integration of Black Feminist Thought into leadership theory, highlighting its capacity to enrich leadership practices with principles of equity, justice, and empowerment.

Beyond theory, this study offers practical insights that hold profound implications for organizational development and educational initiatives. It underscores the imperative for organizations to foster inclusive cultures that value authenticity and intersectionality in leadership, thereby nurturing environments where individuals from diverse backgrounds can thrive and contribute meaningfully. Additionally, it advocates for the integration of intersectional perspectives into technology education initiatives, emphasizing the importance of ethical considerations, inclusive pedagogies, and mentorship opportunities in cultivating the next generation of tech leaders.

In essence, this study transcends the confines of traditional research paradigms, embodying a commitment to transformative change and social justice. Its findings not only enrich the academic discourse but also offer actionable insights that have the potential to catalyze meaningful shifts in organizational practices, educational approaches, and societal norms. By centering the voices and experiences of marginalized communities, this study serves as a beacon of empowerment and advocacy, heralding a future where authenticity, intersectionality, and equity converge to redefine the landscape of leadership and technology.
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Appendix A

Participant Responses to “I Am From – Technology Leadership” Prompt

I Am From - Dayy
I am from a place of intersectionality,
From navigating the complexities of being black, non-binary, and embracing both
masculine and feminine aspects of myself,
And from celebrating my pansexuality as a vital part of my identity.

I am from the world of technology,
Inclusive and empowering, where I envision a future of progress and innovation,
Surrounded by the hum of computers and the electrifying spark of creativity.

I am from the belief that determination knows no boundaries,
Where the strength of my will drives me to reach new heights,
A mindset that empowers me to break barriers in the tech industry.

I'm from the experience of being a program and project manager at TECC Boss,
A transformative journey that brought me out of my shell,
An environment that embraced all of me, including my diverse identities.

From my tech mentor, I learned a valuable lesson,
That my presence as a black and feminine individual in technology is not just valid but
essential,
My unique challenges and life experiences enrich the field and bring distinct value.

I'm from embracing identity-based traditions and rituals,
Finding strength and solace in my cultural heritage and personal expression,
As well as seeking wisdom and guidance from my ancestral roots.
From the motto, "Be true to yourself, and greatness will follow,"
Guiding me to stay authentic to who I am, regardless of the obstacles,
And the advice, "Your voice matters; make it heard," inspiring me to advocate for
inclusivity in tech.

I'm from a leadership approach that is empathetic and inclusive,
Understanding the significance of representation and diversity in driving innovation,
My identity fuels my commitment to creating an environment where everyone can thrive.
I'm from the strength gained by overcoming the grief of my stepfather's illness,  
Standing by his side and finding the resilience to carry on, 
Honoring him by pursuing the life I dream of and making him proud.

I'm from inspiring fellow youth who share my identity,  
A mentor passing on knowledge and wisdom in the realm of technology, 
Empowering them to believe in their potential and embrace their uniqueness.

From the fold, a close-knit community formed by those who worked at TECC Boss,  
A place where I flourished, embraced for my identity, both black and queer,  
Where acceptance and empowerment fostered an environment of growth.

In Tech-nique, I found my best experiences and moments of empowerment,  
A space that recognized the value of my diverse identities,  
Affirming that I belong and have a meaningful contribution in the tech world.

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I Am From - Deborah

I am from a sandy beach in Accra,  
From a Maryland fishing pier and a bluegrass lawn.

I am from a world of educators,  
the light in a student’s eyes when they have their ‘aha’ moment.

I am from a space where a dollar is  
the root of all evil, and simultaneously,  
all blessings, so I might just take  
what I need and get out quick, thank you.

I am from a gaggle of girls huddled around  
a computer screen, giggling at the bugs  
in our websites, learning that it is okay  
to make mistakes.  
It is perfectly fine to ask for help,  
but it feels good when it’s your homegirl helping you out.

I am from a white man telling me no,  
to a white man telling me no,  
to a white man telling me no,  
to never letting another person ever tell me what  
I can and cannot do.

I am from being overworked and underpaid,
so now I advocate for the rest day
and never settling.

I am from not knowing whether I left tech
because I was interested in something else
or because I was defeated.

I am from holding space for every emotion
especially anger and fear.

I am from a listening ear,
a contemplative nod,
an offer to pull up with a box of candy
or a titanium bat
or a hug.

I am from the summer
after I graduated with my Master’s,
my friend coming up to me and saying,
“Do you know how hard it is for a
queer
Black
woman
to do what you just did?”

I Am From - Ra

I am from blackness
From queerness
that says black is queer,
blackness is sound and silence
light and dark
love and despair

I am from the world of art
colorful
pens, pencils, and pixels
stretched canvases
and texture

I am from empathy
Where we all feel
each other
ourselves
and everything between us
I am from film sets and editing rooms
Where screens remind us
That the world is how we see it
and how others see it too
Because there are different ways of seeing
different ways of being black
being queer
being an artist

I am from tradition
that scoffs at tradition

From making my own way
my own decisions
and loving those things

I am from compassion
and empathy
Where I feel all of myself
others
and everything that comes between
Where queerness is my guide to understanding
We are all different
see different
love different
think different
BE different
And that is okay

I am from the hammer
That smashes social anxiety
into millions of little pieces that cover the ground below
persisting but never overcoming
Laid bare for others to see what the hammer can do for them

From Queens and Kings who wear their crowns proudly
Share their crowns generously
and take their seats at the table with me

In the film industry
where brown skin is fleeting behind the camera
and exploited in front of the camera
I see the world
My world
And I want you to see it too
I am from finding out I was bisexual
From being told that's not who I am and from my mom accepting me as I am

I am from the world of Law and Technology
from wanting to make a change in the world and from encouraging my siblings to go for their dreams.

I am from learning from my mom and aunt how to keep the tradition of hiding coins around the house for luck, from praying whenever I feel like I am not lucky enough just because who I am or what I believe in

I'm from finding out that there are little girls like me in the world wanting to be someone that everyone respects and from not having enough opportunities to do so until now

From making an mental health app prototype and being proud of how it looks and being told by my mother that the website and the app looks good and then gave me another resource I could use for it.

I'm from a crystal placed on top of each doorway and a bay leaf and each clothes drawer with a powerful word on it,

From being told just because I have a setback doesn't mean its the end of the world and just because I present myself in a way people don't like doesn't mean I have to change.

I'm from being told how I present myself is unprofessional and I'll never accomplish what I desire, I am an African-American Bisexual woman wanting to be heard and considered.

I'm from depression trying to take me down and losing I am from not letting anxiety win

From wanting to be a lawyer to wanting to learn more about tech and from being inspired by the people I've previously had a chance to work with and think I wanna make a change like them.

From TECH-Nique giving me the opportunity and push that made me rethink my career I am from wanting to study Computer science or IT work.

In making a website with people who actually wanted my examples and let me put my touch to the work,

From talking about our app infront of important people.
I Am From – Jade

I am from being black,
From being both a southern bell and being a city girl.

I am from the world of data analysts,
compelling stories, and colorful dashboards.

I am from “ain’t no such thing as hard”,
So I believe I can do anything.
I'm from exposing kids to survey design & web development and leading TECC Boss workshops in AI,
From encouraging people to include themselves in their tech innovations and encouraging people to pave their own ways.

I'm from taking out my outside clothes before getting in the bed and “are your hands clean” before taking a taste of my mama’s good ole cooking,
From “every tub has its own bottom” and “it’s better to have then need then to need and don’t have”.

I'm from interaction & crowd engagement,
a city girl and country girl at heart, you can make most things fun!

I'm from struggling to get youth interested in tech,
From being a believer in dreams and knowing they can come true.

From TECH-nique in the tech field,
where you can be your true, authentic self because this org knows that was really matters has nothing to do with you being able to throw on a pants suit everyday.

In getting the most uninterested and bored kid in the class to smile just a little when we talk about tech and entrepreneurship,
putting my loved ones and professional colleagues on to the latest & greatest tech that makes their lives easier.

I Am From – Seryn

I am from Sunday dinners and robust laughter,

From playing with Bratz to my first DS and learning to play cooking mama.

I am from the world of Social Impact, infectious energy, and late night races down the hotel hallways.

I am from God willing and the creek don't rise,
Granny's way of telling us who has the final say.

I'm from binary bracelet workshops and facilitating panels of tech mentors,

From gridded maps of black footprints the paths of our ancestors history and unleashing our creativity to inspire the youth.

I'm from playing my own games because the boys won't share and learning all the family recipes,

From If you pray about it, you can't worry, So if you're going to worry, don't pray and God kissed it but the devil missed it, Girl eat that food and stop playing!

I'm from let your creative juices flow and envision a healthier future,

Designing apps and social media campaigns to bring awareness to others.

I'm from losing those I loved the most and overcoming my grief,

From wanting all people of color to gain the knowledgeable skills technology and improve their livelihood, community, opportunities.

From TECH-Nique participants and Project teams in the tech field,

Filling me with encouragement and determination to push forward

In my first keynote for technology and social impact

teaching young minds how to ensure their voices are heard, to make a difference, and carry on the torch.

I Am From - Sierra

I am from twists and ball balls,

From Pink Lotion and Blue Magic.

I am from the world of on air lights and microphones,

Fast-paced and quiet, always bustling.

I am from always trusting your gut,

And never being the last to know what’s going on around you.
I'm from building legos and graphic design,
From teamwork and collaboration.
I'm from holiday cookouts and family reunions,
From always making wise choices and decisions.
I'm from assertion and communication,
Always making sure to welcome those in my team with open arms.
I'm from self confidence and determination,
From making an impact in my community and changing it for the better.
From my mentors in the tech field,
Always pushing me to do my very best.

I Am From – Shamia

I am from being a black,
From being born as a disabled female.
I am from the world of web designing and project management,
bright colors, and signed contracts.
I am from an honest living,
and working a regular 9-5 because it guaranteed that your bills would be paid and your family would be fed.
I'm from the 2020 TECC Boss internship and facilitating tech workshops,
From never feeling bad for charging the full price and denying a job that doesn't work for me.
I'm from wrapping my money up in tissue paper when I don't have my purse and praying when life is good and bad,
Don't give out money you can't miss out on and never let your left hand know what your right hand is up to.
I'm from making fixing my nana's Wi-Fi,
switching from HDMI 1 to HDMI 2.
I'm from going to therapy for childhood Trauma and learning it's ok to have a
complicated relationship with my body,
From being able to show my creativity through web designing and finally being listened
to as a program manager.

From the women in my family in the tech field,
providing encouraging words.

In the tech field,
where everyone is given a truly equal opportunity to be heard and seen for the skills and
talent they bring to the country they helped build.

**I Am From – Kiesha**

I am from the west end streets of Louisville from spongebob and family love all around.

I am from the world of Morehead State University, sweet smell of flowers, and sight of people who did not look like me.

I am from the belief that God is our everything and he sees and knows all and has a plan for you. This is not how I see the world in my eyes.

I’m from being in a group of men and not feeling heard and being talked over, from learning to take control and speak up when I need to about things that are incorrect.

I’m from family cookouts on a hot summer day and Christmas surrounded by family, from you can’t control people’s emotions and should’ve, could’ve, and would’ve will get you no where in life.

I’m from patience, being in a leadership position patient is needed when you are working to keep people on task and working.

I’m from overcoming my social anxiety and speaking in front of 50+ people.

From showing the world what tech can do and how much it can change lives around us.

From mentors in the tech field, they make me want to keep going and see what else I can do.

In me finally speaking up when I felt that I needed to and my team taking what I said into consideration and making adjustments.
I Am From - Aysia

I am from Mielle hair products
From RnB and Uno.

I am from the world of Digital Design and Admin help
Bold, Strong minded and quick as a wink

I am from Generational Curses being broken,
Just so you continue to open doors for yourself that the world won't.

I'm from knowing a leader is a follower and encouraging people to be there very best,
From trying to find a solution with tech and always pivoting when something does work.

I'm from Christmas Dinners and Juneteenth cookouts,
From knowing to love someone else when they aren't able to love themselves and aspiring to inspire.

I'm from funny but determined.
I always want to bring the hope of teaching tech.

I'm from not believing I can be in the room where it happens but I will be in the room when and where it happens
From learning there are multiple to give a purpose to tech and encouraging others to use it.

From years of friends who love me for who I am in the tech field,
I am bold, loving, caring, determined.

In my admin work, I always keep tech in mind to always push myself to keep evolving.
For me, my family, my friend.
Appendix B

INFORMED CONSENT (over 18)


Mary Brydon-Miller, PhD (Principal Investigator)
Alisia McClain (PhD Candidate)
University of Louisville
Department of Educational Leadership, Evaluation, and Organizational Development

Introduction and Background Information
You are invited to take part in a research study because you were a project manager or program manager in TECH-Nique’s TECC Boss internship in the summer of 2020, 2021, or 2022. This study will be conducted by Mary Brydon-Miller, principal investigator, and Alisia McClain, co-principal investigator. We want to understand how Black femme-identifying and gender expansive emerging adults envision a technology leadership program. The study is being conducted under the direction of the Educational Leadership, Evaluation, and Organizational Development Department at the University of Louisville. This participatory workshop will be conducted in two parts and both parts will be conducted at a coworking space conference room in the city of Louisville, Kentucky. It is expected that 10 – 12 participants will participate in this workshop.

Purpose
The purpose of this study is to understand how Black young women describe and envision a technology leadership program that incorporates their identities and communities.

Procedures
There are four phases to the study. The first three phases will take place in one day, for around 4 hours. Food will be served. First, I will explain what critical utopian action research is, and what the Future-Creating Workshop is. I want to make sure that you understand from an academic standpoint what it is that we are doing, how we are doing it, and why it’s important. Then, the three phases will begin.

The first phase of the Future-Creating Workshop, the critique phase, is where all participants will brainstorm on the issues or problems you see in the following three contexts: 1. Current leadership development opportunities that are available to Black
young women. 2. Your own experiences in leadership development opportunities that you have participated in outside of TECH-Nique, and finally 3. Your experiences as a team lead in the summer of 2020, 2021, and/or 2022 TECC Boss program, critiquing both the leadership training and the program implementation.

The second phase, the utopian phase, is a second brainstorming session, where you will be asked to express your ideal technology leadership training for Black young women. Within the utopian phase of the workshop you will be describing in detail what the ideal or utopia would be for you - the sky is the limit on this part.

The third phase, the realization phase, is a continuation of the utopian phase, with an added focus of how those ideas can be realized, what barriers stand in the way, etc. It requires understanding the themes that emerged from the critique and utopian phase and how they can be implemented in the future. Then, we will discuss the themes that emerged from all the phases. You will also be asked to create a digital representation of those themes.

After the first study day, on my own, I will analyze the responses from an academic perspective based on the themes that emerged from our workshop. Then, in the last phase, the fourth phase, you will be asked to provide feedback on accuracy and give feedback on misunderstandings and additions you would like to make to the analysis. This will take place in a one-on-one, in-person meeting with you. In academic terms, this is called a member-checking process - it is important to make sure that what was analyzed is aligned with what your responses were.

Important: You may decline to answer any questions and may decide not to participate at any time.

As outlined above, your research results will be shared with you. Results of the overall research study will be shared with you as well, upon request. Please send an email to alisia.mcclain@louisville.edu at any time, if you would like access to the information collected.

The study will be recorded for reference purposes and with your permission, your likeness, name, and information will be recorded.

Your data will be stored and shared for future research without additional informed consent if identifiable private information, such as your name, are removed, for up to one year. Your data will not be used for research studies or given to another investigator for future research studies without additional consent from you.

Potential Risks
There are no foreseeable risks, although there may be unforeseen risks.

Benefits
You may not benefit personally by participating in this study. The information collected may not benefit you directly; however, the information may be helpful to others. In addition, there is a potential benefit in reflecting on what you learned and how you see yourself in relation to technology leadership and this experience.

Alternatives
Instead of taking part in this study with your name and photo used, you can request that your name and photo not be used. You can also decline to take part in this study.

Payment
There is no payment for taking part in this study.

Confidentiality
Total privacy cannot be guaranteed. We will protect your privacy to the extent permitted by law. If the results from this study are published, your name will be made public, unless you request that your name and/or photo not be used.

Your information may be shared with the following:
The University of Louisville Institutional Review Board, Human Subjects Protection Program Office, Privacy Office, others involved in research administration and research and legal compliance at the University, and others contracted by the University for ensuring human subjects safety or research and legal compliance
The local research team
Applicable government agencies, such as:
Office for Human Research Protections
Law enforcement agencies, if during the interview you speak of abuse, harm to self or others, or other required reportable experiences

Security
The data collected about you will be kept private and secure by being stored in a locked file on a locked computer for up to one year.

Voluntary Participation
Taking part in this study is completely voluntary. You may choose not to take part at all. If you decide to be in this study, you may change your mind and stop taking part at any time. You will be told about any new information learned during the study that could affect your decision to continue in the study.

Research Subject’s Rights
If you have any questions about your rights as a research subject, you may call the Human Subjects Protection Program Office at (502) 852-5188. You may discuss any questions about your rights as a research subject, in private, with a member of the Institutional Review Board (IRB). You may also call this number if you have other questions about the research, and you cannot reach the study doctor, or want to talk to someone else. The IRB is an independent committee made up of people from the University community, staff of the institutions, as well as people from the community not
connected with these institutions. The IRB has approved the participation of human subjects in this research study.

Questions, Concerns and Complaints
If you have any questions about the research study, please contact 502-876-8759 (co-principal investigator, Alisia McClain, cell) or 502-852-6887 (Principal Investigator, Mary Brydon-Miller, office)

If you have concerns or complaints about the research or research staff and you do not wish to give your name, you may call the toll free number 1-877-852-1167. This is a 24 hour hot line answered by people who do not work at the University of Louisville.

Acknowledgment and Signatures
This document tells you what will happen during the study if you choose to take part. Your signature and date indicates that this study has been explained to you, that your questions have been answered, and that you agree to take part in the study. You are not giving up any legal rights to which you are entitled by signing this informed consent document though you are providing your authorization as outlined in this informed consent document. You will be given a copy of this consent form to keep for your records.

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<th>Signature of Investigator (PI, Sub-I, or Co-I)</th>
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Date Signed

Phone number for subjects to call for questions: 502-876-8759
Mary Brydon-Miller
502-852-6887
Alisia McClain
PhD candidate
502-876-8759
Educational Leadership, Evaluation, and Organizational Development
2030 Poloview Place
Louisville, KY 40245
RECRUITMENT LETTER


Hi ________,

Because of your participation as a team lead, project manager, or program manager in the TECH-Nique TECC Boss 2020, 2021, 2022, or 2023 internship program, I am writing to invite you to participate in a research study. The purpose of the study is to understand how late high school/college-age Black young women describe an ideal technology leadership development program that incorporates our communities and identities.

The time commitment will be approximately 5 hours in total, over the course of two meetings. Lunch will be provided but no compensation will be given to you as part of this study. If you are interested in participating, please respond to this email/text with “yes” and I will follow up with dates and times to capture your availability.

Thank you for your consideration.

Sincerely,

Alisia McClain
PhD candidate
Department of Educational Leadership, Evaluation, and Organizational Development
College of Education and Human Development
CURRICULUM VITA

Alisia McClain, Ph.D.
2030 Poloview Place
Louisville, KY 40245

EDUCATION AND TRAINING

Ph.D., Educational Leadership, Evaluation, and Organizational Development
University of Louisville
2024

M.A.T., Secondary Math
Spalding University
2013

B.M., Vocal Jazz
Temple University
2010

PROFESSIONAL EXPERIENCE

Founder/Executive Director
TECH-Nique, Inc.
2018 – present

Executive Director
Microsoft Future of Work Initiative
2020 – 2023

Secondary Mathematics Teacher
Calculus, Pre-Calculus, Geometry
Jefferson County Public Schools
2012 - 2017

AWARDS

Changing the Narrative Community Impact Award
Metro United Way
2023

Social Impact Project of the Year
RockIT Women WIT Conference
2020

PRESENTATIONS

Panelist
Equity and community partnerships in workforce development for young adults
St Louis Federal Reserve Board
2024

Presenter
Equity and AI
Social Media + AI Conference
The Vision Group Marketing
2024

Facilitator
Spreadsheet Savvy: Excel Essentials for Everyone
Code Louisville
2024

Facilitator
Enhancing Quality of Life with Generative AI
Bellarmine University
2023, 2024

Facilitator - 8 week course for college professors
Course: Data Science/Artificial Intelligence Across the Curriculum
Simmons College of Kentucky
2023

Adjunct Professor – 8 week course for JCPS middle/high school teachers
Course: Data Analytics Across the Curriculum
University of Louisville
2023

Panelist
AI Panel
Kentucky Health Information Management Association Annual Meeting
2023

Presenter
Customer Discovery Workshop
Startup Weekend Louisville
2023

Panelist
KYSTATS Data Summit
Artificial Intelligence and the Education & Workforce Landscape
2023

Panelist
ChatGPT and AI
V-Soft Consulting
2023

Presenter
Ethics and Philanthropy
Louisville Youth Philanthropy Council
2023

Panelist
Techquity and Talent
Microsoft Future of Work Initiative Data Summit
2023

Keynote
The Butterfly Project: Data Science and Social Justice
Humana Inc.
2022

Presenter
Artificial Intelligence, Data Science, and Internet of Things
The Rotary Club of Louisville
2021

Presenter
Examining the Dearth of Women in Computer Science
Graduate Student Regional Research Conference
2017