

As Purple is to Lavender: Exploring Womanism as a Theoretical Framework in Engineering Education

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Work in Progress: As Purple is to Lavender —Exploring Womanism as a Theoretical Framework in Engineering Education

Introduction

The current conversation in diversifying STEM classrooms and workforce in the United States focuses attention on traditionally underrepresented groups such as women and people of color. Very often, Black women in STEM are grouped into the large category of underrepresented populations in STEM, and there is little effort to specifically focus on the unique experiences of this population. There is a small segment of existing programs and efforts that specifically call out Black women as a target population for STEM diversity efforts. This is evidenced by new and growing programs like Black Girls Code, efforts on Historically Black Colleges and Universities (HBCU) campuses to increase their enrollment of Black women in STEM majors, and media publications primarily managed by Black women, that celebrate and encourage Black women in STEM. While there is growing impact and attention for these efforts, the results have yet to be realized in STEM degree attainment, workforce representation, and faculty ranks.

If the broad STEM community indeed desires to increase the representation of Black women in STEM, then efforts to attract and retain them to these fields should be informed by and theorized from the perspective of Black women. Of course, social science theories such as self-efficacy, learning, motivation, and other concepts underpin many diversity efforts and are tied to positive outcomes, there are minimal examples available in the literature that purely explore the theories from the perspective of Black women and their identity in the context of STEM.

Womanism, a theoretical perspective grounded in the experiences of Black women across the diaspora has the opportunity to inform STEM education efforts that focus on Black women in an exciting and informative way. Presently, there is a gap between this critical, yet often absent social science theory and STEM education research and practice. Through the experiences of eight Black women in STEM disciplines at various levels (e.g. current students, graduates, or working professionally in STEM careers), we bring to life and illustrate the explanatory power of the womanist theory framework. We used two frequently adopted methods in womanist scholarship: narrative and a “sister circle.” These methods, when paired together, offer the opportunity for participants to share their individual story independently and then engage and discuss the similar experiences in a group setting to identify commonalities and share strategies.

Capturing the narratives and strategies to successfully navigate STEM fields utilized by Black women and connecting it to theories about Black womanhood, provides a new insight to the field of engineering education. This work also provides vivid vignettes of the experiences of Black women in STEM and the obstacles that must be overcome to achieve desired representation and retention goals.

Understanding Womanism

Womanism, also known as Black feminism, considers the intersectional identities of Black women and accounts for experiences related not only to sex, but to race, class, and the other multiplicative identities that traditional feminist perspectives do not readily take into account. Alice Walker, attributed as one of the mothers of womanist thought, explained that “Womanism is to feminism, as purple is to lavender.[1]” This deeper, more encompassing representation of women’s experiences maintains the central ideal that various forms of inequity are bound together. That is to say, oppressed individual identity dimensions are intersecting and the relative impact is not additive but cumulative [15]. In order for one oppressed group with a marginalized identity to experience true liberation, all people of other identities should experience the same liberation. When those people, or identities are bound in the same body, liberation becomes much more complicated. According to the womanist theory, a Black woman’s womanhood cannot be truly liberated if her Blackness, or other identity, is not. This required feature accompanied with the Black female author, helped to expose the broader applicability of the feminist theory to be more encompassing of Black and other people (particularly those facing multiple axes of oppression by defining womanist as “a feminist, only more common [2].” Walker’s work addressed the concerns that feminism, at the time and arguably continues today, is highly defined, and only applies to certain kinds of women in with a particular social position and context. Womanism as a theory provides a unique way to not only understand the experiences of women of color, but also, their way of moving and being throughout the world (e.g. how they relate to others??). Womanism also allows for multiple identities to exist in coherence within a single harmonious being, the Black woman. As a result, the womanist theoretical frameworks highlights the variability of salience of identities in individuals’ lived experience and offers explanatory power that may be absent from other theories based on the unique perspective from which the theory was originally developed.

In the broadest sense,

Womanism is a social change perspective rooted in Black women’s and other women of color’s everyday experiences and everyday methods of problem solving in everyday spaces, extended to the problem of ending all forms of oppression for all people, restoring balance between people and the environment/nature, and reconciling human life with the spiritual dimension. (Phillips, 2006, p. xx)

With such a lofty definition of womanism, it may be difficult to see how it can effectively respond to so many dimensions or establish a connection to the positivist dominated epistemology in STEM. Phillips points out, that “the womanist frame has been applied more frequently than it is formally acknowledge and written about [3],” considering the process in which the theory was developed. The earliest citation of womanism, by Walker in 1979, *In Search of Our Mothers’ Gardens*, was about capturing the life that the author, and women in her community lived. The perspective, while it may not be specifically called out, is applied in many ethnic traditions in regular, common activity (citation). Native Americans historically applied womanist ideals in their efforts of activism and cultural preservation, along with a shared history of an exploited population in the history of the United States [4]. Women from around the world, not just Black cultures, have demonstrated varied expressions of the womanist idea in their culture, especially as one goal is to end all forms of oppression for all people. In *The Womanist Reader*, Phillips proposes five characteristics or foundational principles for womanism: (1) “antioppressionist,” (2) vernacular or everyday, (3) nonideological or inclusivity of various perspectives, (4) communitarian, focused on all, and (5) spiritualized. We suggest that STEM education and the workforce efforts aimed at increasing the representation of underrepresented people should implement these principles - from the initial motivation and throughout the regular functioning of STEM spaces.

Black Women in STEM

There are many theoretical perspectives developed by and for the benefit of specific underrepresented groups, generally from sociology and psychology. These are not widely leveraged in the design and implementation of STEM diversity efforts and research. Critical theory including race, feminist, queer, and other culturally sensitive frameworks have been researched and established in the humanities and social sciences, but remain largely “unadopted” in engineering education research. These theoretical perspectives have the opportunity to inform efforts that focus on underrepresented groups in meaningful ways. Indeed, there are good examples of these frameworks successfully achieving desired outcomes, even when the study focused solely on Black women. Yet, the dearth of empirical research studies and the lack of vigorous efforts to improve representation and engagement suggest that we need to do more.

Research supports that even with a generally higher rate of interest in STEM careers among Black women than White women, Black women still represent a disproportionately smaller population of those who complete STEM degrees. Beyond graduation, the number of Black women who earn STEM degrees that enter and are retained in the STEM workforce is also disproportionately low [6]. Many STEM education efforts targeting girls and women explicitly or implicitly adopt a framework that focuses on preparing and exposing girls to STEM [4],

however, these programs still fall short in producing sustainable results.

Interestingly, Black women were found to be less likely than White women to ascribe to the idea that STEM disciplines are more masculine [3]. This finding challenges the commonly held idea that internalized sexism and gendered stereotypes of engineers and scientists have the same impact on all women. When focusing possibly on race as the determining factor, both men and women of underrepresented groups face unique challenges in the STEM classroom and workforce [7]. When ignoring race with a color-blind perspective, there remain negative outcomes for all underrepresented students [8]. These challenges lead us to seek a more encompassing theory such as intersectionality or a combination of several, in order to understand and thereby address the concerns of this population. In our review, womanism remains one of the least directly acknowledged and sought after approaches to praxis in STEM education.

Study Methodology

By embracing womanism as the theoretical perspective for this work, it was imperative to select methods that are epistemologically consistent with the theory. In order to do so, review of other studies of womanist praxis in other disciplines pointed to two methods: narrative and sister circles. Narrative, the explanation of one's lived experience as told or written to another of a small number of women of color is captured in a written format. A "sister circle" is an informal gathering of women of color to discuss and engage on specific issues, through conversation, sharing, and inquiry [10].

The participants in this study acted as co-researchers who thoughtfully reflected on their own experiences in navigating and completing at least one STEM degree and working in STEM related areas. There are many approaches to using narrative in research, but a personal narrative, can also be considered autoethnography. Narrative in research is generally focused on producing some version of text, whether spoken or written, to represent the sole data source for another party to evaluate and assess the meaning. Autoethnography, however, prompts the narrator to do the work of connecting their own story to theory, in order to explain a larger social reality. In this study, the narrative - autoethnography captured the experiences of co-researchers and were analyzed by the individual preparing the narrative and other collaborators [9]. In order to obtain a narrative account, eight Black women in STEM collectively developed and responded to three short prompts with a 300 to 500 word response. The prompts were designed to initiate reflection on personal experiences at various stages of development ranging from initial interest in STEM, to the pursuit of STEM degrees (baccalaureate, master's and doctorate levels as it applied to individuals), and careers in STEM. The narrative prompts were:

1. What challenges did you experience as a student?
2. What steps did you take to overcome those challenges?
3. How are you using your experiences to help others overcome those challenges?

Each participant's full response was included and considered valuable and viable data for this study. In most instances, participants exceeded word count suggestions and breadth of the questions.

Sister circles are less of a research approach and more of a social intervention that are derived from womanist ways of doing, learning, and sharing. Sister circles often occur in settings that women find themselves in together, alone, be it a multi-generational gathering of women in one family, "ladies night" with friends, events that bring women together or celebrate women, and take place in settings like family kitchens, houses of worship, social sororities, and other locations. These sister circles enable members to offer transparent dialogue, express vulnerability, and ask questions without fear of judgement. These conversations often occur naturally, but can also be facilitated. The approach of a sister circle has been readily adopted in medical or clinical settings to explore health concerns (citation), impacts, advice and recommendations for women of color due to its culturally responsive nature.

Sister circles informally have principles that enable the space to function in the ways that often research focus groups cannot (citation). Individuals may have various wants and needs that impact the way that they engage with the group and those needs are held at the forefront. Sister circle facilitators aim to eliminate barriers between participants by helping them to connect with each other and the topic at hand. The focus on shared experiences and identities is an essential feature for successful sister circles. This method was also used by co-researchers as a way to debrief and explain written narratives and shift focus to the celebration of accomplishments, another important outcome of this method.

A broad thematic analysis was completed on the written narratives and the sister circle session [14]. Eight participants submitted written narratives and five actively participated in the sister circle with one facilitator/co-participant.

Findings

The experiences of eight Black women in STEM were collected using the aforementioned prompts and captured in their own 300-500 word written response. Collaborators were given a brief period to read each other's responses, and ask questions or provide commentary using the comment feature of a web-based document platform. After that, the sister circle took place using

an online video-conferencing tool that allowed participants to engage each other in conversation. Throughout the project, each participant had a chance to share, get to know and discuss topics related to women of color in STEM before the formal sister circle took place. In addition to unpacking and questioning the written narrative responses, the sister circle included three semi-structured questions: (1) What accomplishments or sources of pride do you have based on your experiences? (2) What have you done with your accomplishments? and (3) How would you like to see STEM education change in the future? These personal stories provide not only insight into the experiences of Black women in STEM, but vital, proven strategies to ensure a group historically underrepresented in STEM (Black women) and in many cases, highly sought for diversity efforts, will be supported and successful throughout their pursuit of STEM careers.

After analyzing the written responses and “sister circle” discussion, several common themes were revealed and two themes appeared in some variation in all eight narratives: isolation and lack of support and encouragement. Other themes included the lack of women or Black (or other minority) faculty role models, and feeling of obligation. Next, we offer a brief description and narrative segments related to each theme.

Isolation

Isolation was captured in some format in all eight narratives related to challenges. Participants expressed both outright and subtle ways in which their presence was unwelcome and unwanted. Interestingly, this was not a feature solely tied to the institution or faculty, but also other students who excluded these women in STEM spaces. As readers will notice, many of these expressions of isolation were presented with the strategies that participants used to resist, understand, or navigate the space of the situation.

“[The] feeling of isolation and singleness was fluid and shifting dynamic that was ever present in my experience. As I reflect back on my entire engineering education from undergraduate through the doctoral process, the common dominator has been the isolation and limited interaction with people who look like me or came from my background. This constant reminder that I am different from the majority of those around me lead to choose one of two options: 1) shrink and accept the marginalized identity bestowed upon me by others or 2) accept the calling to be the Black queen my ancestor implored me to be.”

“I feel that the vast majority of students have similar experiences: “you’re just here to fulfill a diversity statistic,” “affirmative action,” “you’re taking someone else’s seat,” were comments I knew many of my diverse classmates had heard.”

“[I] wanted to be in a place that I didn’t need to explain my being.”

“[The] STEM departments [were] isolated on campus physically from other students... When introducing myself to new people on campus and upon discovering that my major was Chemical Engineering, it was followed by a host of different responses including “oh, I guess I’ll never see you again”. Even the area where all the science buildings were located had the fabulous nickname of Death Valley.”

“I was a minority in my classes because our school had such a high influx of international students that isolated themselves from the Americans. We found out that they were told by their parents not to associate themselves with us and that we were lazy and incompetent.”

“Being the only Black/Black woman or among few minorities in [the] program and being one of few women, not being included by other students, study groups, [I had to] combat insider trading.”

“Societal image of black women that causes us to internalize failure before expecting that everyone else faces the same.”

“[I] experienced countless microaggressions that were a direct result from my being female and/or African American.”

“[The] engineering building did not have an adequate number of women’s restrooms compared to men’s restrooms.”

“As a second grader, I realized that I, my white classmates, and black boys were treated very differently. Even as a K-2 student I was aware that I had fewer friends (fewer birthday party invitations), pride that required lots of explanation when I brought my Black Barbies to school for show and tell, and knowing a tiny bit more about Black History Month other than Martin Luther King and Rosa Parks made me different from a lot of kids I went to school with.”

“The challenges I faced were more around academics and having a strong STEM support system from students who looked like me. Sure I had a few black friends who were engineers and taking the same Physics and Math classes as me but most of my core classes were full of white and “smarter” students in my eyes. I had to lean on my white colleagues but sometimes I just couldn’t relate to how they were studying; how they were

teaching the STEM content to me and I couldn't understand why I didn't see it the way they saw it. This struggle pre-dated my college experience especially because in high school I was not fully set up to succeed especially in a college Physics course as I had never taken Physics in high school.”

Each of these quotes provide evidence that as early as elementary school, black women are experiencing differential treatment in their education settings and this experience persists through graduate education and often the workforce. There are several things that educators and campus leadership can do to support women of color in STEM when it comes to addressing the feeling of isolation. Beyond increasing enrollment in STEM majors, which may be challenging to address in the short term, individuals can take the time to support activities that connect women of color with peers and possible role models. Connecting students with possible mentors and communities of Black women on campus, if present, but also reaching beyond campus gates is also a useful strategy to support Black women in STEM. As faculty, making those connections for oneself provides a healthy platform to connect a student with a peer in your field, rather than passing the student off to someone who looks like her. These gestures can often read as disingenuous. Educators must also make it a priority to make personal connections with students in order for meaningful advocacy and allyship with Black women in STEM to occur.

For students, identifying institutions that may be particularly well-positioned to meet the needs of Black women in STEM can prevent some of these challenges. This can be visible both through a critical mass of Black women and faculty of color in STEM programs, along with campus and local resources that cater to Black women. Additionally, being open to connecting with and expanding a network with non-Black women colleagues can be a particularly helpful strategy.

Lack of Support and Encouragement

Within the STEM contexts that these women found themselves, they also were at a loss for support and encouragement within their educational institutions and departments. While many noted valuable relationships with family and friends outside of their STEM contexts, the limited amount of support and encouragement from within posed a challenge. Many of the comments focus on authority figures who actively or indirectly dissuaded students from pursuing STEM.

“The feeling of not being taken seriously or prioritized.”

“I became discouraged [in my original major and] switched to Construction Management (and Mechanical Engineering Technology), oddly still met with heavy opposition.”

“Discouraged from pursuing careers that are male dominated or traditionally male.”

“My teachers never sat down with me to say, “If you want to major in Chemistry, you should take Physics”. For me this was the first experience of lack of exposure that I encountered.”

“I had some great professors in college but it was also hard not having the encouragement from professors who looked like me. I had no true role models in college. At times I also felt I wasn’t good enough or smart enough to be majoring in Chemistry. I recall struggling in one of my upper level Chemistry classes and going to the professor only to feel like he didn’t want to take the time to help me, giving me very vague answers to leave me struggling more than before but when my white colleagues went for help they were offered more assistance.”

“One particular instance I will never forget is having to go to the emergency room the day before an exam. I was very, very sick. I asked the professor what he thought I should do via email. He suggested I take the exam and see how I do and that he would “evaluate whether or not I should re-take the exam” based on my performance. It was my only C in the class. And the professor noted this, but refused to allow me to retake the exam because “I shouldn’t have taken it in the first place if I wasn’t feeling well.” At the time I didn’t understand why he would reverse his decision. But one day after class, towards the end of the semester, I confronted him on the issue. He asked me my major, and informed me that was also his background and proceeded to say this: “This may be the first B you’re going to make in a course, but it most certainly won’t be your last.”

Similar to the suggestions for educators who would like to support students as it relates to their isolating experiences, in order to address the lack of support educators can take a genuine interest in the success of their students. By developing meaningful relationships that focus on the student’s priorities and providing advice and support that can advance their goals, educators have the opportunity to provide encouragement at critical points. An emotionally safe experience in classrooms and on campus as it relates to Black women’s pursuit of STEM can make an incredibly notable impact. Microaggressions, and as these examples demonstrated, intentionally negative behaviors and directly communicated low expectations leave an indelible mark even on those who persisted.

For Black women pursuing STEM degrees and careers, many of these situations are sadly familiar. The women included in this project specifically sought connections with other Black women in STEM but often found those relationships in social groups, religious organizations, or

from the home networks. One suggestion was to begin a support group specifically for Black women on your campus or in your context. The approach to develop this paper, the sister circle, proved to be useful, informative, and develop a bond between women, some of whom never met before participating. Additionally, connecting to national organizations such as the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, National Society of Black Engineers, The Compact Institute for Faculty Diversity, and sororities (engineering and general) provide access to a broad national network that will include other women of color in STEM.

Lack of Women, Black, or Other Underrepresented Faculty Role Models

Role modeling presents a specific, two-way challenge when discussing STEM education and workforce. Students and those earlier in their career seek role models, yet because of very low representation rates, these role models are limitedly available in STEM. Imagined possibilities and examples are noticed and have an impact on women in STEM.

“[We] have few or no women, black, or minority faculty.”

“There were no women professors in the ChemE department, so I didn’t have many inspirations other than the girls in my class and those ahead of me.”

“The only women faculty or staff members in my Mechanical Engineering department were one professor and office administrative assistant.”

The challenge with diversifying faculty is a complex issue for many institutions. Women of color faculty are vastly underrepresented among their peers, and even more so in STEM disciplines. These women faculty have expressed the challenges and often undue obligations placed on them because of their identities as Black women faculty, particularly at major research institutions and have shared strategies for navigating the ivory tower as academic professionals[12]. As institutions look to diversify faculty, especially in the wake of student uprisings and student protest related to Black students and faculty on major campuses, it is all the more urgent that STEM become particularly proactive [13]. Considering that faculty must navigate through to complete the doctorate, ensuring positive experiences for women of color will likely increase the number that pursue faculty roles. Proactively recruiting scientists and engineers of color for their merit is also incredibly important. Last, as the pathway to recruiting is a long one, educators should expand their network to include women of color faculty as collaborators and colleagues.

For students, the immediate need for mentoring can be addressed by some of the suggestions included earlier. Expanding a network beyond campus and often beyond STEM may provide

useful insights and strategies. Graduate students and other professional staff may also be valuable mentors to support and provide advice through STEM matriculation. Additionally, being open to mentors who are not women of color will also be useful, as many are well equipped to be invaluable mentors and role models.

Feeling of Obligation

A sense of obligation is a challenge for Black women in STEM. Their obligations often lie beyond just being an excellent student, but the feeling of responsibility to be a representation or spokesperson for women, Black people, assisting others with diversity, and obligations beyond campus life. These obligations often became coping strategies as well.

“[I] managed my isolation in engineering through getting involved with causes that I support such as broadening participation in engineering or diversifying the student population at the institutional level.

“Expert on all things black/minority.”

“[I felt some] tokenization and the burden placed on me to do the work of diversity for others.”

The strong sense of obligation that many Black women in STEM experience is complex. The responsibility often extends far beyond campus and impacts a student's day to day life and movement through an educational space. *This feeling is often amplified due to many requests from colleagues and faculty.* To support Black women in STEM, it is important to avoid tokenism--highlighting their accomplishments while emphasizing their race and gender. This also takes form by consistently requesting the same women to participate in recruitment events, diversity initiatives, and the like. More subtly, it is the expectation that Black women must do diversity related work, participate in diversity related courses, or participate and lead diversity organizations on campus. By supporting the whole student, and her multiple identities without singling out one feature of her identity, students can be comfortable to engage in the ways that feel most natural for them.

Many Black women deal with a strong sense of obligation, but this can be addressed with affirming one's own individuality. Practicing self-care in realizing that the only person owed is oneself is an exciting proposition that many Black women in STEM struggle with. Departments and institutions cannot and should not place all onus on individuals. Students should always feel

free to participate when comfortable and the outcome fills some self-serving purpose, even if the larger outcome has the opportunity to have a significant impact on others.

Strategies for Overcoming Obstacles

Womanist ways of doing certainly had an influence on the way that these women navigated their STEM spaces. Often looking beyond themselves, commitment to community, and improving the pathway for others were ways in which these women not only overcame or coped with their challenges, but they very frequently left the state of the institution better than they found it for future Black women. In the sister circle, the women expressed the ways that these strategies made them better scientists, engineers, educators, and researchers. Ironically, or not, all eight have some form of commitment to STEM education in their current lives and responsibilities.

“To combat insider trading, I expanded my network during the first few weeks of a class.”

“The challenges I encountered only helped prepare me for my next steps, prepared and motivated me to pursue a PhD.”

“The challenges in my PhD experience inform and in many ways are a contributing factor into how I see and understand higher education.”

“Finding a community matters so much, I met other students in STEM grad programs which was instrumental in building a local network of students to support each other and eventually lead to the formation of the Graduate Students of Color Association which is still a strong, active group almost ten years later – institutional change.”

“I found a sorority, Phi Sigma Rho that helped me make solid bonds with the other women within the different STEM and architecture programs on campus. I even allowed the pull of blacks in the arts to encourage me and to learn about my own history. I lived in a dorm with all athletes one year and learned about their experiences. And I engaged with the student body by serving on student government and as a leader in NSBE.”

“Find a place to thrive. Personally, professionally, and academically the place that you can thrive is the place you ought to be.”

“[I was a] member of American Institute for Architects (AIA), National Society of Black Engineers (NSBE) and Peach State’s Louis Stokes Alliance for Minority Participation

(PS-LSAMP). It was through these organizations, I started conducting research, presenting at conferences, and gaining my traction in the academic arena of S.T.E.M.”

“Nevertheless, being the only black female Chemistry student allowed me to become stronger in the midst of challenges. I didn’t know it then but I was applying a lot of the principles of growth mindset especially obstacles and effort. In that, I was persevering through challenges and I was always seeking to find someone who could help my brain grow.”

“I use those experiences every day and serve not only as a Program Coordinator for a non-profit that serves girls, most being girls of color, but also as a role-model.”

“That feeling of isolation can be managed by Black women who embrace the fact that support doesn't always come in the form that you anticipate.”

“I have learned that knowing your worth and having confidence in your abilities is paramount to success for diverse students. Having someone who is pointing out your achievements, lifting you up, and giving you direction must be a part of their educational experience. And creating an environment where students feel safe to speak with these advocates is what colleges and universities NEED. Everyone needs an advocate. It’s not something I feel should be optional. Through the years I have worked towards that with both undergraduate and graduate student groups. As each semester goes by, students I have never met find me in my office just to seek advice. Not because I am an expert on how to graduate, or because I am just that interesting, but because they know that I care. And I am willing to help them find a way to make it through the arduous task of being a Black engineer.”

Pursuing a STEM degree may be incredibly challenging for Black women, yet the outcomes of persisting can be great. Finding ways to navigate, make sense of, and excel both academically and professionally can reap great, long-term returns. When faculty and departments actively take an interest in addressing the unnecessary challenges that women of color face in STEM, while women of color collaborate to navigate, the ambitious goal of achieving parity in STEM for women of color can be achieved.

Discussion

We suggested that the womanist framework has the opportunity to radically inform engineering diversity efforts and could provide an unexplored pathway for diversifying engineering. The framework also has the potential to shift the ways in which diversity related research and

practice are pursued in engineering education. We suggest that womanism is an ever-present epistemology for Black women in STEM fields, despite the theory being grounded in sociology and psychology. The strategies that Black women apply in STEM to successfully navigate educational and career pathways are fairly consistent with tenets of womanism and ought to be considered in STEM educational research and practice.

In this paper, we introduced womanism as a theoretical perspective and drew attention to the experiences of Black women in STEM education and workforce. We demonstrated some ways in which a womanist perspective can be leveraged as a sense-making tool by Black women in STEM and how the perspective can inform initiatives that focus their efforts on Black women in STEM. While only a small representation of ideas and theory, this paper does give some context to understanding the ways in which Black women specifically navigate STEM, that are different from or more complex than other women and underrepresented minorities. As in womanist theory, Black women in STEM often seek to change the community for others to succeed as well. These efforts should be supported beyond the tenure of these women as students, graduate students, and staff in their STEM environments. Acknowledging this keen awareness for meeting unseen needs is critically valuable for STEM to become a more inclusive field.

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