We Cannot Address What We Do Not Acknowledge: An Autoethnography in 2020

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Abstract

In a collaborative autoethnographic process, we three Black female engineering professors explore how our status as junior faculty women of Color and the social-institutional factors in U.S. higher education affected our experiences in the year 2020. Based on experiences as graduate students and later as faculty and leaders, we trace the development of empowering and transforming navigational strategies we utilized to survive and thrive at our respective public U.S. institutions—within the context of social unrest that exploded during the year 2020. We discuss how the cultivation of our *collective* yet unique perspective and strength can be a valuable resource for women of Color to advance engineering education research agendas and leverage their vital position in the academy. African American female engineering faculty are a rare find among the pool of engineering faculty nationally. To move the field of engineering forward, we must unleash and unshackle the untapped power of the Black female engineering professors.

Keywords: Black women, intersectionality, multiple identities, collaborative autoethnography, engineering faculty

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In 2020, the world experienced life-changing events that greatly impacted the viability of communities of Color. Not only were we facing a global pandemic that disproportionately affected communities of Color, but we also faced a second pandemic of racism. During a non-mandated lockdown, we were exposed to the abuse and public murder of Black people that led to civil unrest in the United States but sparked a movement felt throughout the world. An election year described as the most critical election of our time became a choice between continuing down the current path versus charting a new course.

While in the pandemic, the civil unrest unfolded, sparked by several instances that were as equally public as they were reprehensible and led to a months-long movement of public outcry. In April, a video was released showing the killing of Ahmed Aubrey from February 23rd, 2020. The video had previously been suppressed, and authorities in the community had not charged the perpetrators with any crime. On May 8th, thousands of people throughout the country protested by running or walking 2.23 miles to honor the date on which Mr. Aubrey was killed. On May 26th, the first protest in response to the killing of George Floyd began. Mr. Floyd was killed a day earlier when Minneapolis police responded to a call about a counterfeit $20 bill being passed at a convenience store. He died after a short encounter with police after an officer placed a knee on the back of Mr. Floyd's neck, a practice that has been outlawed in several states, restricting his breathing for eight minutes and 46 seconds. Two days later, a march to bring justice for Breonna Taylor happened in Louisville, KY. On March 13th, Ms. Taylor was shot and killed after local police executed a "no-knock warrant" on her residence, although reports indicate that the suspect in question did not live at the residence and was already in police custody. She was shot and killed by police when her boyfriend shot at what he thought were individuals breaking into their home, and they returned fire.

These examples are a non-comprehensive list of events that happened in our country, but through it all, academics were expected to work and produce outcomes in an environment that had already been transformed due to COVID-19. In this paper, we explore the civil unrest's impact has had on three Black women academics in engineering who are already working to keep pace with their white[1] male counterparts performing at higher levels during the pandemic (Staniscuaski et al., 2020). To better understand the impact of major events on this population—Black female engineering faculty—this work aims to conduct an autoethnographic study to gain insight into their experiences through the authors' self-reflections. Through a list of guided questions linked to the major events, the shared experiences will be connected back to these events' cultural and social understandings both within and outside of higher education.

Theoretical Framework

Womanist Theory

Womanism, or womanist theory, is a social theoretical perspective grounded in the experiences and history of Women of Color (WOC), with a historical focus on Black women (Rousseau, 2013). Gender must be understood as it intersects with multiple identities regarding race, power, and privilege (Jones, 2009). Work by prominent scholar Patricia Hill Collins emphasized the importance of womanist theory in scholarship and often referred to the theory as *Black feminist thought*. She

asserted Black feminist thought to illustrate the importance of knowledge in empowering oppressed people and portrayed WOC as self-defined, self-reliant individuals that constantly confront oppression based on race, gender, and class (Collins, 1989). This paper explores our experiences as academic Black women in a year of civil unrest. The womanist theory is an important framework in understanding our experiences because it provides a theoretical framing to explain the lived experience of being a double minority within the sociocultural dynamics of power and privilege in every aspect of our lives or higher education (Cross, 2020).

Intersectionality

Intersectionality, first coined by Dr. Kimberlé Crenshaw in 1990, describes how race, class, gender, and other characteristics overlap or intersect (Crenshaw, 1990). Originally, intersectionality was developed to highlight discrimination in the law, and it describes how discrimination manifests differently when people exist within multiple marginalized identities. Collins described intersectionality as an analytical tool to understand the human experience within the six core themes of social inequality, relationality, power, social context, complexity, and social justice (Collins & Bilge, 2016, p. 30). Other social science scholars encourage using intersectionality as a guiding framework and perspective in educational research (Davis et al., 2015). Intersectionality further evolved when Jones and colleagues explicitly connected the intersectional approach to research exploring multiple identities, which is discussed in more detail in the next section (Jones & Abes, 2013).

Multiple Identities of Women of Color

Multiple identities is a conceptual framework that provides a way to examine how individuals' demographics (e.g., race, class, gender, ethnicity, and age) and cultural, social, and personal identities intersect. This approach emphasizes that a person's experience is not simply an additive sum of individual identities (e.g., African American + female + engineering); instead, all identity dimensions impact an experience simultaneously in more complex ways (Cross, 2020). The initial conceptual *model of multiple dimensions of identit*y (MMDI) was developed to address multiple traditionally oppressed identity dimensions such as race and gender (Jones & McEwen, 2000). Multiple identities was reconceptualized after researchers studied lesbian students (Abes et al., 2007), Black students (Stewart, 2008, 2009), and Black female students in STEM (Tate & Linn, 2005; McGee & Bentley, 2017) as well as Black female academics (Marbley et al., 2011). Key in this research is that Black women in academia are balancing multiple identities and are continually experiencing intersections of their various identities (e.g., racial, gender, professional) while simultaneously growing in those identities while also working to carve out a space in academia where they can be seen, welcomed and more importantly, valued.

Method

In this collaborative autoethnography, we leverage intersectionality and multiple identities to interrogate our experiences as Women of Color in the U.S. Academy of education. We consider how social injustice in 2020 in the United States informs and complicates the negotiation of our multiple identities as work for advancement within a United States research-intensive predominantly white teaching university. The following research question guides the study: How do three Black women

engineering faculty describe their identity and experiences as impacted by the social unrest of 2020?

Autoethnography

Autoethnography is a qualitative methodology for research and writing that seeks to describe (Costello et al., 2016) and systematically analyze personal experience to connect this autobiographical story to a wider cultural, political, and social meanings and understandings (Ellis et al., 2011). In other words, autoethnographers use personal experience as a lens to collect, analyze, and interpret their autobiographical data to illuminate the connection between themselves and cultural experience. As a methodology, autoethnography combines characteristics of *autobiography* (i.e., researchers collect autobiographical data about their personal experiences and sociocultural surroundings) and *ethnography* (i.e., data are analyzed and interpreted through an ethnographic process to gain a sociocultural understanding of personal experiences). The autoethnographic method includes documenting or writing about epiphanies, or critical "aha" moments or events perceived to have transformed their lives or thinking (Ellis et al., 2011). Ellis et al. (2011) also distinguish autoethnography from an autobiography by its methodological goal—whether or not it illuminates how epiphanies emerge from being part of a culture and possesses a particular identity associated with a culture. Other authors suggest that autoethnography has the goal of social change and was primarily developed by the personal autobiographical narrative to explore women's multiple identities and Black studies (Jones, 2009; Drechsler Sharp et al., 2012). Also, critical race scholarship suggests that personal narratives allow researchers to draw on resistance theories by

illustrating how people are not simply acted upon by an oppressive system but also reveals how people negotiate and struggle with racist structures and make sense of their interactions (Solórzano et al., 2001).

Additionally, autoethnography typically highlights a single isolated voice that negates the unique synergy and coherence created by the combination of multiple voices to interrogate a social phenomenon (Chang et al., 2014). As a result, we selected collaborative autoethnography as our method of inquiry. Interestingly, there is minimal scholarship about collective autoethnographic works in general (Hernandez et al., 2015) or in the engineering education community (see Sochacka et al., 2016). Therefore, our paper contributes to specifically normalizing this methodology in STEM fields and engineering.

Collaborative Autoethnography

In this project, we employed *collaborative autoethnography* (CAE) that "combines the benefits of autoethnography (addressing the connectivity between self and society), multi-participant studies (involving voices of multiple participant-researchers), and *collaborative work* (drawing upon interactive and corroborative energy of researchers)" (Chang et al., 2014, p. 376). According to Chang et al. (2012), the autobiographical data in a CAE is collected by two or more researchers related to a shared social phenomenon and analyzed to interpret the meanings of their personal experiences within their sociocultural contexts. The group exploration of CAE requires that each researcher-participant contribute to the collective interpretation of the epiphanies with her voice concurrently within the iterative process of connecting each self-examination (Hernandez et al.,

2015; Chang et al., 2014).

Participants

The participants of the study ($n = 3$) were the author-researchers: Kelly Cross (K. C.), Whitney Gaskins (W. G.), and Brooke Colely (B. C.), each of whom identified as pre-tenure Black female engineering faculty. The participants worked in small ($N \approx$ 1,000), medium ($N \approx$ 6,000), and large ($N \approx$ 20,000) engineering schools of research-intensive universities in various regions of the United States. The participants were between ages 35–45 years and had a family with at least one child. Each participant was the only Black female faculty member in their respective departments spanning 3–6 years with myriad experiences teaching engineering and/or engineering education courses, conducting qualitative research, and was near or approaching their mid-tenure review. One participant, W. G., had administrative experience and all members of the group had experience working on diversity, equity, and inclusion in STEM. Each participant has won a national award to recognize their academic excellence or leadership and have successfully secured funding to support their research.

Data Collection and Analysis

We conducted three phases of autobiographical data collection and analysis. First, we negotiated the wording and focus of the questions in which we would individually respond. Sample questions included: "What experiences or significant moments of social injustice in 2020 impacted you?" and "How has my experience as a Black female faculty member in STEM shaped who I am, or my multiple identities gave the social injustice in 2020?" Next, we individually wrote recollections about critical incidents relevant to the prompts based on the guiding research questions and then met to discuss the coding to ensure consistency across coding approaches. In the second phase, we each individually coded our responses and identified themes of epiphanies and significant events that impacted us. In the third phase, we discussed the individual coding results and negotiated a shared understanding of common themes across all three participants. After creating a list of the commonalities in our autobiographical data, we prioritized the list to determine which themes we could address in this paper with the necessary detail and integrity.

All data collection and analysis were documented in shared word documents or online platforms, including Google Docs. We met multiple times to discuss the process of concurrently collecting individual data.

Trustworthiness

The methodological integrity and quality in any research are important, and multiple authors have offered criteria to judge the process and product of an autoethnographic study (Anderson, 2006). In this study, we also chose to address the standards of autoethnographic research proposed by Chang (2016, p. 448). In this study, we compare the standard to our approach to ensure quality (see Appendix).

Findings

The autoethnography analysis revealed four salient themes shared across the Black female engineering faculty: the prominence of their Black identity in society and STEM, the constant struggle it is to be at the intersection of Blackness and gender, the adaptations in their behaviors in context to the current moment, and the impacts on and

costs to their mental health and wellness. The findings of this paper will be presented in this section embedded with a discussion situated in the relevant literature.

Black "Trumps" All: We are Black Before Anything Else

The three women participants described themselves very differently when asked to define their multiple identities at this unique period of social injustice highlighted. One woman, K. C., described herself as a "Black female Queer Engineering Professor who uses every platform I have access to, for advocating for the underserved and marginalized in engineering." Another participant, W. G., described herself as "a double-minority, Black and female." The last participant described herself as "a Black Lesbian mother who is also an Assistant Professor of Engineering at a large public university in the southwest United States." Despite the nuanced differences they may have existed in how the women described their identities, conveyed through their stories was a theme that no matter what, they were still a Black female, and their safety was in constant compromise.

It is a "dangerous lifestyle" to live Black in America from which there is no perceived degree of exemption. The women of this study shared a petrifying awareness that the most salient and modulating characteristic of their identity was that of their race. Being Black came with an automatic attachment to perceptions, beliefs, attitudes, and experiences that impacted their navigation of not just society but their academic environments. The impious attacks on Black and Brown lives forced the world to acknowledge the racism that had persisted far too long, just lacking the evidence necessary for it not to be ignored. While innocent lives have been lost at the hands of

minimized "bad apples," the constant condemnation of Black people being guilty by virtue of the color of their skin remains unaddressed. As expressed by the participants, such is paralleled in the academic environment where the experiences of Black students, staff, and faculty are often met with "silence and inaction." W. G. exacted that, "Even though I feel as if I have overcome some pretty large and significant challenges, I still possess a great deal of fear for navigating my space as a Black person." There is common powerlessness that invalidates all the effort, preparation, and investing these women executed to solidify the future for themselves and their families that is demonstrated as K. C. reflected:

> I recognize that my education, my family status, nor my tax bracket matters when a white cop feels he is empowered to diminish or snuff out my life to preserve his white dominance and the devaluing of Black lives.

There is a bold recognition of the power and privilege a white cop has over a Black life that is not mitigated by any of the intentional aspects one can control to increase the likeliness of a certain lifestyle, education, and socioeconomic status. All participants shared a similar account. W. G. described her position clearly in expressing, "I recognize that I exist in a place of privilege. Being a professor and administrator affords me opportunities to succeed. Unfortunately, neither of these titles outweighs my positionality as a Black woman."

Participant B. C. shared an almost identical quote:

> We carry ourselves and the students that look like us as protection to "weather"

an environment that wasn't designed for us. Being a faculty member with the duality of being both a Black faculty in engineering and a Black citizen in society, the current injustices inhibit me from navigating one environment without connection to the other. I am Black *at all times,* and I navigate all environments with people recognizing that identity.

The fact that such explicit words are congruent perceptions across three extremely different profiles of Black women in academia speaks to the awareness of the constant negotiation that it is to be Black in white spaces. Being a faculty woman of Color creates a strong reliance on the ecological systems involved. At the intersection of race and gender, women constantly navigate their own identities in several microcosms embedded into larger systems. As an example, each woman in this study has a family. Their families live in neighborhoods where they interact with a given culture. They then come to work and submerge themselves into the culture of their academic department. This culture is embedded into a larger university structure which may or may not align with a greater culture of that region or state. The state's culture then falls onto a national map where it is superimposed with the larger culture of society, and in the current, at a time where the sociopolitical tensions are alarmingly high.

Additionally, the murders and injustices against Black women enhanced the fear and resonation with the women faculty. Sandra Bland and Breonna Taylor were mentioned across these women's accounts, each explicitly stating the heightened awareness that as women, they were in as much imminent danger as Black men as K. C. explained, "after Sandra Bland, I realized it

is not just Black men, even women of [C]olor are subject to a death sentence because of their brown skin." B. C. captured this as well in the statement:

> With the death of Sandra Bland, it became apparent that police could also use force and abuse power towards women. For me, that epiphany came with knowing that I could be Sandra Bland. When I was in my car, driving alone, I was just another Black woman. There are no credentials in injustice. Degrees do not matter. Publications won't impress the police. Everyone Black was at risk no matter what you had done in your life to position yourself for an honorable life of integrity, commitment, hard work, and improving the lives of others.

Intersectionality posits that race and gender cannot be disentangled and forces consideration of how experiences at this intersection further exacerbate marginalization. To be Black and female simultaneously while navigating all these environments, each with their own subcultures is a constant struggle. McGee and Bentley (2017) stated that the continuous struggle leads to fatigue, stopping Black women from pursuing faculty or STEM careers.

A Constant Battle: We are Always Fighting

"This summer, I felt that all my identities were under attack," K. C. reflected. In the summer of 2020, while the world mourned the horrid murder of George Floyd, K. C. experienced a similar encounter much closer to home in the loss of her 22-year-old nephew. The devastation of these lives taken prematurely left individuals paralyzed with anger, fear, and many other

emotions, but also with a profound reminder of how easily Black life could be stripped and without regard. The juxtaposition of the lives being taken by the day, with 164 Black lives taken by police in the first eight months of 2020 (CBS News, 2020), to the experiences described by these women in navigating their STEM environments is a stark reality of the covert attack that is always facing Black people. K. C. went on to describe how the current state of society left her heartbroken and had a devastating impact on her family. She explained being "sad for her son" and the conversation she dreaded having to have with him:

> My heart was broken as I reflected on his life, and it took me several sleepless nights to reconcile his transition, and his death has had a devastating impact on my biological family. Next, when my 17-year-old son, who is starting college next year, talked to me about the murder of George Floyd and how he had the app to track the COVID cases. I felt sad for my son. I did my best to muster the strength to comfort him and make sense of the heinous crime and awful public health emergency. But I was angry because *we had* to have the talk. The talk every Black family must have to protect our brown-skinned sons. I want him prepared to handle a world that hates him and his beautiful brown skin. Additionally, I remind him that their (American and white supremacist) history does not have to define him.

K. C., at one end of the continuum with a college-bound son, held similar and yet different vantages from W. G., whose son is a toddler, and B. C., whose son is a fourth grader. All these women, Black, female, faculty in STEM, and most important to the context of their greatest fight and fear, mothers of Black boys. W. G. described

watching the murder of George Floyd to be "life-altering," taking our communities from "a moment to a movement." The graphic visual was forever embedded in her mind and introduced a "fight" for a place, as she relayed, "it truly made me question my humanity and my place in the world." W. G. also described the constant fear she now holds for two of the most important people in her life:

> Even as important, it made me more fearful for my husband and my son, who must navigate the world as a Black man and future Black man, respectively. My husband could have been George Floyd one day; my son Waylen could be George Floyd. It is a thought that often keeps me up at night and makes me cringe when my husband and son leave the house. It has created a fear that impacts how I live.

An enormous amount of grief and sadness plaguing Black people creates an impossible disaggregation of experiences; people are Black *at all times* and in all environments. It is difficult to witness a murder of a Black man on television one evening and then come into a majority white workspace the next day and attempt to navigate as "okay." This perpetuates the hypervisibility and invisibility these women feel that is a major part of their constant struggle. It is challenging to be seen and yet, not understood. Main et al. (2020) reported that over 90% of the engineering departments lack a Latina or Black woman faculty member. Such underrepresentation adds to the inability for women of Color faculty to show up as their full selves due to the lack of understanding for the unique compounding marginalizing experiences associated with being Black. W. G. spoke to this representation as both a privilege and price:

Regardless of my accomplishments, I feel judged based on my skin color more than any other metric. As the only Black female faculty member and only Black in administration, I feel the weight of representing and supporting all of the Black staff and students in the college.

A difficult task accompanied these moments of injustice that B. C. regarded, "as a mother of Black boys, I lost an ability to disaggregate my professional from my personal world." The social injustices taking place, though not new to the participants, pushed them to question their work, their place, and the institutional commitments to bringing "real change." And as K. C. made clear, "the social injustice exposed in 2020 makes me feel justified for every word of disdain I write or speak against white supremacy and the associated violence against Brown and Black people in this country and around the world." Undoubtedly, constantly having to be armored for the war on Black—often only acknowledged and experienced by Black people—is toxic and can have a deleterious effect on mental and overall health. Awareness of the cumulative costs of enduring these injustices was pervasive across the participants' accounts.

Paying the Tax: Costs to Mental Health and Wellness

There is a great deal of pressure that comes with being the only Black faculty or administrator in a given academic environment to which many, from lack of experience as people that benefit from inclusion privilege, are oblivious. Throughout the experiences shared by the women was a constant thread of stress, anxiety, fear, obligation, invisibility, and isolation that would harm anyone enduring such a load. W. G. described this weight in

her statement, "I know that if I fall, I am not only letting myself down but all those who rely upon me within the college." This sentiment demonstrated a perceived universal cost for individual error. There is no room to "fall" because falling means a loss for everyone "relying" upon the individual. Such pressures further add to the hypervisibility women of color faculty commonly experience in STEM.

There was also the thought of operating with constant fear in all environments with perhaps only variation in the context or consequence. W. G. reflected on her roles and how as a Black woman, there was a horrifying recognition that with each lost life as displayed in the media, it could just as easily have been her:

The murder of Breonna Taylor was also shocking. While it was not captured for the world to see, as a Black woman, I could truly see myself in Breonna Taylor's shoes. Knowing that a woman sleeping in her bed could have her life cut short based on biased policies is extremely triggering, and it is difficult not to see myself in her shoes. While other experiences make me fear for my husband and son, the Breonna Taylor case makes me fear for my own humanity. It also makes me worry about the students that I support in my roles as a faculty member and the Inclusive Excellence and Community Engagement Leader in my college.

Fear and worry underlined the experiences that left the women in a state of exhaustion. K. C. discussed how she and her spouse experienced harassment in public for wearing masks and being vocal in asking others to wear masks. These constant and compounding feelings created exhaustion and anxiety that easily influenced their

ability to fulfill all their roles. As expanded by K. C.:

> I feel exhausted from the hyper-anxiety in public spaces since experiencing harassment. I am tired of feeling exhausted and being on high alert, but harassment and violence against Black and Brown people have become commonplace over the last few years. Certain groups have been emboldened to express their bigotry in physically aggressive ways. Therefore, I will continue to protect my family as I see fit.

In addition to the prioritization of personal family to preserve mental health and wellness, the faculty all conveyed a sense of obligation to "protect" their academic family in the students present in their programs. B. C. shared, "I know the importance of checking in with students to ascertain the stress and anxiety they are carrying as a result of the injustices that are pervasive in society but ignored in academic environments." There was a common commitment to mentor self-compassion to support emotionally developing Black faculty "to understand the need to play by their own rules, rather than stay subjected to criteria and rules that were not established for our success, but our failure." The women found ways to modify their behaviors to minimize the effects of these experiences on their health and well-being while also aiming to optimize the preservation of their families (McGee & Stovall, 2015).

Coping for Survival: Adaptive Behavioral Shifts

In context to the enduring injustices of 2020, performance and productivity were not prioritized by the women participants. In the given moment, meaning-making occurred to process the experiences and influence a healthy plan for navigating through this difficult period. The focus on the many simultaneous fights that these Black women endured as mothers and professionals yielded several epiphanies. These epiphanies ranged from refocusing the issue framing to intentional actions to be both protective and proactive regarding law enforcement.

As a means of coping, the women faculty made several behavioral shifts. Some of these shifts involved lifestyle modifications, such as establishing new safety practices for the family member not to go out alone or after dark. K. C. recalled her family's new practice:

> [N]o single member of my family leaves the house alone, and we avoid leaving the house after dark. If we do have to leave after dark, sometimes I take my firearm with us. Additionally, I added security cameras to monitor our home, and I got my family additional firearm training in case they must defend our home.

Other shifts focused on elevating the community and accountability of the institution and surrounding academic environments and spaces. W. G. explained a hope that "academia as an environment valuing a higher level of critical thinking" would contain a greater number of colleagues valuing inclusion. Each of these women articulated intentional efforts to "motivate," "educate," "lead," and "develop" initiatives to increase awareness, knowledge, action, and accountability for fostering anti-racist environments. This would span "presenting concepts to encourage innovation within the college around the areas of equity and inclusion" to recognizing the importance of "speaking authentically as a Black woman" to make their college better

for all stakeholders. Their plans were fueled by words such as "discomfort," "real change," "push," and "unapologetic," which all convey the sense of responsibility, urgency, obligation, and commitment that impacted these women's navigation of their academic experiences. There was a shared intention to build scholarship and disseminate information to colleagues and the larger academic community.

> As a faculty member, I have less tolerance for sheltered white students challenging my credentials or uninformed colleagues asking me racist questions due to their lack of knowledge. However, I will continue to battle ignorance and systemic inequity deniers with scholarship and professional development workshops.

Often the women catalyzed these efforts because of their criticality, even though they utilized their own individual resources. As K. C. remembered, "I renewed my commitment to developing training to support colleagues struggling with these issues with little or no support or resources."

The participants had heightened productivity in the publishing of editorials, op-eds, and workshops to promote awareness of this information in a way that could shift the greater culture to be more inclusive and responsive, specifically in the current moment, which was something that felt missing as represented in their stories:

> I have been more intentional in elevating my voice in majority environments. I use my voice to help enable others to understand how Black people experience words, actions, and behaviors. I fight to change the system by exposing the injustices in academia through research and mentorship with students to

empower them to be agitators instead of settlers. I cannot care more about any of the expectations of me than I do the critical aspects of my life. Life, more than anything, has become clear, its meaning, its significance, its value.

The injustices also highlighted a need for more intentionality in the curriculum about cultural responsiveness and the need to encourage introspection of using power and privilege for good. It became clear that institutions could no longer be complicit in their silence but first had to start with acknowledging racism and its impacts on the experiences of Black faculty, staff, and students. As B. C. stated, "We cannot address what we do not acknowledge," and the enduring injustices against Black and Brown people must be accounted for in creating inclusive academic environments, particularly in STEM and other environments where people from racial and ethnic groups are so dismally underrepresented.

Discussion

Implications for Engineering

Race demonstrated to be the most salient factor of identity impacting the experiences of Black women engineering faculty during the social unrest of 2020. The implications of this work are important and far-reaching for institutions, postdoctoral fellows, graduate students, policymakers, and the greater engineering community. A manifestation of the results was that Black women reconciled complex power dynamics in the context of systematic racism and the repercussions of being Black in both their personal and professional environments. As an example, despite facing their own challenges, these women still felt obligated to support others in public and private

spaces. The Black women in this study, while in a constant struggle of their own, were always pouring out and into others via scholarship, mentorship, nurture, despite little equally and oppositely pouring into them. This was largely due to a lack of awareness and familiarity with their experience.

As hypervisibility and invisibility are concurrent and interrelated phenomena (Settles et al., 2019) experienced by the Black women in this study, critical effort to understand their unique experiences is warranted. The onus is on institutions of higher education to better understand the experiences of Black women faculty in engineering. The lived experiences of students of Color have started to be investigated in engineering. However, less known are the experiences of Black engineering faculty, a group that makes up less than 2% of all engineering faculty, and specifically, Black women engineering faculty (ASEE, 2020). As a connection between diverse representation of faculty and student recruitment and broadening participation has been established (Main et al., 2020), it is critical to be intentional in understanding the experiences of faculty. The women of the study lacked spaces and support in their professional environments where they felt confident to show up as their full selves. As faculty play such a critical role in mentoring and supporting students, higher education institutions must be intentional in identifying ways to support Black women faculty to be best positioned for the execution of their roles and responsibilities. Specifically, prioritizing spaces that acknowledge the impacts of navigating engineering at the intersections of race and gender offer multifaceted mentorship, and promote mental health maintenance are particularly important for Black engineering women faculty.

Another implication of the work is the urgency in acknowledgment across roles and levels of those in academic engineering environments of how race impacts systems, policies, power dynamics, and behaviors. The Black women faculty described a sense of obligation to educate the masses of the majority who have benefitted from an inclusion privilege while also supporting the students with similar experiences of marginalization. The women developed workshops and generated scholarship to inform an academic culture that is more inclusive and explicitly more aware of how racial injustice is perpetuated in academic environments with tools, skills, and strategies to promote real change. The women were often developing these materials on their own time and dime, which shifts a significant amount of creating a solution for the marginalized. Higher education institutions should allocate expertise and resources to effectively educate institutional personnel while developing accountability metrics to promote action.

Conclusion

This study exploring data collected from three Black female engineering faculty members during a period of social unrest in 2020 revealed a complex story of intersecting identities for Black women in engineering. The major findings of the study suggest:

1. The events of 2020 heightened each woman's awareness of their racial identity with race taking precedence over both their gender and credentials as academics.

2. Each woman adjusted their navigation of the world anchored in a genuine sense of fear, which was not limited to world events and

becoming the next hashtag but also workspaces unshielded from mental and physical trauma, and anxiety.

3. While there is some anger and animosity within the workspace, each woman felt responsible for bringing change, even when it was not their primary job responsibility.

The study amplified the resilience of Black women and Black women engineering faculty uniquely. Even through their pain and grief, they carry the weight of being productive in their careers and personal lives, oftentimes, in environments that are ignorant to, if not unwelcoming of, their experiences. The women unanimously recognized the deeper implications for Black people, and Black women, in particular, for constantly carrying this load and sense of responsibility. These stories yield insight into the urgent need for institutional change. Institutions must acknowledge the additional labor and better support Black women to protect their mental health while also creating space to allow for fulfilling careers. With this paper, we hope to model that honestly communicating about vulnerability is NOT the absence of strength and integrity.

Acknowledgments

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Footnote

[1] As evidenced by our previous scholarship, we have intentionally lowercased "white" to champion that white or whiteness is not a proper noun in the sense of ethnic origin.

Table 1

Autoethnographic Research Standards

Criteria	Evidence
Authentic and trustworthy data Does autoethnography use authentic and trustworthy data?	Our authentic data is trustworthy because we followed the data collection process described by autoethnographic experts and documented each step of the reproducible process.
Accountable research process Does the autoethnography follow a reliable research process and show the process clearly?	Every step of our data collection and analysis process is communicated in the methods section and is consistent with qualitative research method standards.
Ethnics towards others and self Does the autoethnography follow ethical steps to protect the rights of self and others presented and implicated in the autoethnography?	Our process was ethical as we discussed each step of the process and supported each other during the difficult discussion about challenges we face individually and collectively in our Black female engineering faculty culture. Also, we negotiated the themes and content addressed in the paper.
Sociocultural analysis and interpretation Does the autoethnography analyze and interpret the sociocultural meaning of the author's personal experiences?	For each theme, we discuss our narratives within the sociocultural context of being Black female engineering faculty and provide our interpretation of the meaning of our experience.
Scholarly contribution Does the autoethnography attempt to make a scholarly contribution with its conclusion and engagement of the existing literature?	We clearly state our scholarly contributions with this work, and when relevant, the existing literature is compared to our emergent themes.

Note. The variables of criteria were adapted from the five evaluative questions in "Autoethnography in Health Research: Growing Pains?" by H. Chang, 2016, *Qualitative Health Research*, *26*, 443–451 (doi:10.1177/1049732315627432) to serve as the standard for comparison and measure of this study's trustworthiness and methodological integrity.