Placating Whiteness in Engineering: Operating Under Fear as a Result of Whiteness and the Urgent Need to Achieve Racial Justice

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Abstract
This Work in Progress (WIP) paper explores the impacts of Whiteness in engineering spaces, particularly for faculty of color. Given that predominantly white institutions and corporations dominate the field of engineering, Whiteness creates an environment where people of color must act in ways that appease Whiteness as a survival tactic. Using a collaborative autoethnographic approach, this WIP describes these structural issues in an effort to name and acknowledge how Whiteness in engineering spaces leads to racial injustice in the discipline.

Introduction

Engineering–both as a discipline and profession–reflect the larger societal dynamics. These dynamics include systemic biases and historical privileges that have been bestowed upon younger generations which are perpetuated by Whiteness. Personal and social identities and their intersections such as race, gender, ethnicity, and socioeconomic status, mold how people engage with the curriculum, each other, and perceive their place within the engineering discipline based on power differentials [1], [2]. Whiteness in engineering is not simply about the demographic makeup of the profession; it encompasses the underlying assumptions, values, and practices that define what is considered "normal" and "acceptable" in engineering spaces [3]. These norms influence hiring practices, workplace culture, educational curricula, and even the way problems are framed and solved [1], [4]-[8].

It is without question that predominantly white institutions and corporations dominate the field of engineering [9], [10], perpetuating an environment that often marginalizes PoC and already marginalized communities. This dynamic is evident in the recruitment practices, educational pathways, and professional networks that favor those who align with the cultural norms and expectations established by a predominantly white society [11], [12]. Consequently, the engineering field not only mirrors the racial inequities found in society at large but also reinforces them [13], making it imperative to address these structural issues to foster a more inclusive and equitable environment.

Whiteness operates within a hierarchical system of power and privilege, where white individuals and institutions maintain dominance and control over resources, opportunities, and decision-making processes [14]. In engineering spaces, this hierarchical system manifests in various ways. Often, these hierarchical structures are the representation of ideologies present in society as well as engineering spaces. Whiteness manifests when people of color (PoC) operate out of fear–at times policing themselves and others for fear of retribution. Either they must observe the safety of white people and be denied a space that promotes PoC’s growth and development, or insist on

a space of integrity and put themselves further at risk not only of violence, but also risk being conceived of as illogical or irrational [15].

In this WIP, we present a dominant narrative and counternarrative for two engineering faculty, one a woman of color, the other a white man. The narratives highlight an event from the perspectives of these different actors and reveal how a woman faculty of color finds herself operating from fears when confronted with Whiteness. By juxtaposing these narratives, we aim to reveal the complexities and nuances of navigating an academic landscape for PoC that is shaped by Whiteness.

Methodology

This WIP paper takes a collaborative autoethnographic approach to examine the experiences of a faculty of color in direct contrast to the experience of a white male faculty member in the same School of Engineering when faced with a similar situation. It is important to note that the School of Engineering is embedded in a primarily white institution with a religious affiliation. The institution serves mostly white affluent students, and faculty of color are underrepresented in tenured and tenure-track appointments and overrepresented in contingent (i.e., lecturer) and teaching-track appointments.

Agreeing to conduct a collaborative autoethnography as a group meant re-negotiating some of our roles and relationships. Not only were we crossing professional boundary norms to share deeply personal stories, we were also exposing our vulnerabilities about our experiences in our shared workplace. After establishing norms and rapport through introductory exercises [16], Dr. Downey, whose expertise is in qualitative research in educational settings, conducted semi-structured interviews with the other authors, asking questions such as “Tell me a memorable story of where race might have played a role in your career.” After all three interviews were completed, we created a collaborative code book using the themes and individually coded all three interviews in Dedoose. From this data we then developed the dominant and counternarratives that follows.

Resources: Funding Class Projects

Dominant narrative

Gordon, a white man, was one of two faculty hired into a tenure track position to develop a new engineering department within the school of engineering. During his first few years while they were developing the curriculum for the new department, Gordon was assigned to teach existing courses in the mechanical engineering department (his field of expertise). After several semesters teaching predominantly technical courses, Gordon was asked to join the teaching team for a relatively new mandatory design course, outside of his disciplinary expertise, that had spurned

both students and faculty due to its emphasis on diversity, equity, and inclusion (DEI) topics. During an instructor meeting planning for the course, it came to his attention that the heavily project-based course did not have a course fee. Having previously taught courses with substantial student fees and resources, he found himself confused as to how he would be able to achieve the course learning objectives without the funding to buy prototyping supplies for the students. After that meeting, he placed a quick call to Scott (pseudonym), an influential white, male, faculty member who held the power to allocate resources in the school and was told that he could have some funds to support a new design project he had in mind. With that problem solved, he fully fleshed out the project and brought it back to the other instructors for inclusion in the course.

Counternarrative

Diana, an Asian American woman hired at the same time as Gordon, joined the faculty in a tenure-track position straight out of her PhD in Civil Engineering. Both Gordon and Diana were part of an effort to start a new engineering department within the school. However, Diana's first years were assigned towards designing and developing new courses from scratch, a few even outside of her area of expertise. After incrementally improving the course semester after semester, she finally resignedly accepted ownership of the new DEI design course, due to being the instructor most consistently assigned to teach it. She decided to completely redesign the course to deliberately separate the technical and social elements. Diana writes about this process:

> A history of poor student evaluations has led us to be less bold with these justice topics than they deserve. We have developed a hesitance towards highlighting the justice focus of this course, and rather 'trick' students into thinking the course is more technically focused by couching these topics within the premise of user-centered design… The line that we toe is convincing students that the course content is valuable to them while not digressing too far from the dominant discourse to raise alarm. In the end, however, the course has drifted toward appeasing the masses rather than challenging the status quo—not because we don't want to challenge students but to protect our own vulnerabilities. [17]

Due to the nature of the class, Diana needed to request funding from Scott every semester to support her students' projects. However, after the redesign, her requests began to be rebuffed as not a good use of resources even though her requests were modest and well below that of other design courses. Scott first questioned her need for it, claiming that students should instead pay for supplies out of pocket. Next, when she tried to justify her need, her teaching methods were questioned. When it was suggested that a $5-10 course fee be added to cover these minor costs, Scott also denounced that idea, claiming that students would balk at this "nuisance fee" and interpret it as the university "just finding another way to take their money."

After several emails among colleagues, Diana learned that there was an unwritten guideline that each course was allocated $100 each semester for consumables, managed by the executive assistants in the school, that did not need to be pre-approved. She decided to have a chat with the executive assistants—two women of color—who agreed that her requests were reasonable and fit within the guidelines. Together they came up with a "back-door deal" (that didn't break any rules, but was kept confidential to prevent provoking Scott) to ensure the course could supply the project materials the students needed each semester moving forward.

After some years, Gordon was added to the teaching team for one semester when the student body was particularly large and more instructors were needed. Midway through the semester as they arrived at the first project in the course, Gordon tried to begin ordering supplies and realized there was no budget allocated for the course. He picked up the phone and quickly gave Scott a call. Diana overheard him make the call and begin asking for funds for the class projects. Diana, panicked, ran into Gordon's office to tell him to hang up the phone. She recounts this panic:

> So then Gordon joins the team … picks up -- and I can hear him, he's in the office next to me, our doors are both open -- he picks up the phone and calls Scott and says, 'Hey Scott, we need some money for so-and-so project', and Scott says okay. And this whole time I'm like, I'm like gasping for air -- I'm like, Gordon, you can't! You can't go, like -- hang up the phone! Like you can't just *call* him. He doesn't know about this. And -- no problem whatsoever.

Diana described how she later learned about the funding decision from her department chair, who had been in a meeting with Scott,

> And it came out somehow … I heard it secondhand from [my department chair], that it was originally me and [other instructor], who is [also a woman of color] who teaches this class, and we've "been very resourceful" and… you know, it's a really hard class to teach; students really hated it; it had the social justice elements built in … and the reason [Scott] said okay to Gordon was because "Gordon would never put up with that shit."

This was not the first incident regarding the imbalance of power-treatment, yet, it was one event that culminated in Diana's awareness of racial dynamics as she had more conversations on campus. She couldn't help but notice the power imbalance at the time. Although she could not name the situation, Diana understood that Whiteness played a role in the power differential that she experienced. Despite being hired together, Diana increasingly felt the weight of the imbalance between herself and her colleague of the same status, but different gender and race.

Discussion

Not recognizing or naming Whiteness in engineering spaces has contributed to creating environments that are more susceptible to marginalization. All actors in engineering spaces contribute to the reproduction and replication of Whiteness. Gordon's success and recognition were attributed to his individual merit and abilities, reinforcing the meritocratic ideal that success is solely the result of hard work and talent [6], [18], [19]. This narrative ignores the systemic advantages he benefits from, such as being perceived as more competent and capable simply because he fits the normative expectations of a white, cishet male engineer. Diana's credentials and capabilities were constantly questioned and her contributions were undervalued and scrutinized more rigorously. This illustrated how the myth of meritocracy fails to account for systemic biases against faculty of color [20], [21].

Given these themes, we are exploring other dominant narratives (white) and counternarratives (PoC) to check the validity of the themes that are contained in this WIP. Having interviewed several PoC engineers in order to broaden our focus, similar preliminary themes have emerged including but not limited to: feeling devalued compared to your white counterparts, not all units of merit are seen as equal, and operating under a pedagogy of fear [15]. Naming Whiteness allows us to label, define, and be aware of our actions so that we can change our behaviors and dismantle the systems that hold up these ideologies.

Conclusion

The dominant and counternarrative in this paper highlights the dual nature of Whiteness in academia: while some individuals benefit from the privileges it affords, others are constrained by its systemic pressures and oftentimes operate under a fog (or pedagogy) of fear [15]. Because Whiteness is systemic, engineering academic spaces continue to be places where operating out of fear is consistent among faculty of color. Whiteness, as a pervasive force, impacts not only faculty of color but also white faculty, creating a situation where the academy as whole is held back because faculty of color are unable to dedicate their whole efforts to scholarly contributions. Whiteness is dehumanizing to all, as its pillars prevent white people from accessing compassion and empathy while holding down those that do not subscribe to Whiteness. Whiteness perpetuates inequities and stifles the potential for genuine allyship and transformative change, ultimately hindering the growth and success of the entire engineering academic and industry community.

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