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Color-Evasive/Conscious? A Content Analysis of How Engineering Faculty Discuss Race and Racism in a U.S.-Based Equity-Focused STEM Professional Development Program

Kristine Jan Cruz Espinoza [ID] and Blanca E. Rincón *

Department of Educational Psychology, Leadership, and Higher Education, College of Education,
University of Nevada Las Vegas, Las Vegas, NV 89154, USA
* Correspondence: blanca.rincon@unlv.edu

Abstract: Against a backdrop of calls for increased access and participation in science, technology, engineering and mathematics, Hispanic-Serving Institutions (HSIs) in the United States have emerged as critical access points for Latina/o/x and other Students of Color. Federal grants can become important levers for building institutional capacity for broadening participation in STEM and transforming HSIs toward better serving Students of Color, specifically as it relates to curricula and pedagogy. In this study, we focus on the engineering faculty at an HSI who are participants in a National Science Foundation-funded, equity-focused professional development program. Operationalizing Bonilla-Silva's color-evasive racial ideology framework, we use content analysis techniques to explore how engineering faculty discuss race and racism as part of the professional development experience. First, we find that engineering faculty largely rely on color-evasive racial frameworks (i.e., *abstract liberalism*, *minimization of racism*) when describing their motivations for participating in the program. Moreover, we find that engineering faculty responses depict a range of surprise and familiarity when reflecting on issues of race and racism. Finally, regardless of prior exposure to module concepts, at the end of the program, the majority of action projects reflect a recognition of race and racism as important.

Keywords: Hispanic-Serving Institutions (HSIs); science technology engineering mathematics (STEM); colorblind ideology; color-evasive ideology; faculty

1. Introduction

National calls for increased access and participation in science, technology, engineering, and mathematics (STEM) for Students of Color remain. Given their access orientation and their recent growth (an increase of 94%), Hispanic-Serving Institutions (HSIs) are uniquely positioned to respond to these calls [1]. Despite HSIs representing only 18% of all U.S. colleges and universities, they enroll two-thirds (66%) of all Latina/o/x (We acknowledge the complicated and contested use of Latinx [2–4] and have chosen to use Latina/o/x throughout the manuscript for consistency, except when another term (e.g., Latinx, Latine, Latin *) was used in cited scholarship and/or to keep fidelity with faculty participant quotes.) undergraduates in the U.S. [1]. With respect to STEM, these institutions produce 40% of all STEM baccalaureate degrees awarded to Latina/o/x students [5]. Scholars have noted that HSIs achieve incredible outcomes despite limited institutional resources. As such, federal grants aimed at building capacity at HSIs provide a real opportunity to broaden Latina/o/x participation and success in STEM. In particular, HSIs can leverage National Science Foundation (NSF) grants toward transforming institutional structures, including faculty professional development around equity- and racial-conscious curriculum and pedagogy, which is the focus of this study.

Differing from Historically Black Colleges and Universities and Tribally Controlled Colleges and Universities defined by missions to serve Black and Native American students,

HSIs are largely defined by the students they enroll [6]. HSIs are institutions that enroll 25% full-time equivalent Latina/o/x undergraduates and meet Section 312(b) of the Higher Education Act's (HEA) basic eligibility criteria of Title III and V programs. Classification as HSIs opens opportunities for these institutions to apply for competitive federal funding with agencies including NSF. Yet, while funding is a way that HSIs can seek to enact *servingness*, a term conceptualizing institutional dimensions that influence racialized and validating student experiences as well as academic and nonacademic outcomes [7], scholars have found that not all HSI funding proposals center or benefit Latinx students [8–12]. For example, interviews with institutional actors at HSIs revealed that HSIs often overlook the role of race and ethnicity when applying for Title V grants, prioritizing instead to support all students [8]. In sum, while HSI grants are racialized funding sources, most grants disregard or tangentially acknowledge Latina/o/x students—the very students needed to meet HSI eligibility.

One way HSI grants have been leveraged toward institutional transformation is through faculty professional development. Faculty professional development is of interest because faculty receive little, if any, professional development focused on developing their teaching practice. In fact, Vargas and colleagues found that 42.7% of all funded HSI abstracts from 2009 to 2016 included faculty-related initiatives [11]. Yet, the majority of these abstracts were race evasive, as Latinx students were only "ancillary beneficiaries of Title V initiatives" [10] (p. 407). This runs counter to scholars who have called for more racially-conscious, just, and equitable faculty professional development experiences that result in institutional transformation [13–16].

Taken together, we explore a phenomenon at the intersection of HSIs, STEM, and equity-focused faculty professional development. The purpose of this study is to understand how racial logics shape faculty receptivity to addressing racial inequities through curricula and pedagogy. We pay particular attention to the engineering faculty's articulation of race and racism as it relates to serving Latina/o/x and Students of Color in STEM learning environments. We pursue the following overarching and interrelated research questions:

1. How do engineering faculty describe their motivations for participating in an equity-focused professional development experience?
2. How do engineering faculty discuss race and racism, and to what extent do they rely on color-evasive frameworks?

2. Literature Review

To situate our exploration on how engineering faculty discuss race and racism as part of an equity-focused professional development experience, this research inquiry is informed by and turns to literature around faculty professional development. As we are also interested in shifts in thinking around increased access and participation by a racially diverse STEM student population, this review includes emerging literature around race-conscious, intersectional, and anti-racist faculty professional development and faculty beliefs and ideologies.

2.1. Overview of Faculty Professional Development

Since its emergence in the 1950s, faculty professional development has been understood as fulfilling different purposes over time (e.g., improvement of college teaching and learning, personal and career development and planning, reflection of institutional commitment to teaching and learning) [17]. Goals specific to STEM professional development to improve teaching practice have included improving curricula through course redesign [18,19], adopting evidence-based, student-centered, or student-engaged teaching practices [20–22], cultivating student learning (e.g., critical thinking, reading skills) [19,23], and exposing faculty to culturally responsive and inclusive pedagogy [24]. Beyond curriculum and pedagogy, STEM professional development acts as a resource-connector for faculty to campus programs [23], empowers faculty to have international expertise [25],

and prepares postdoctoral scholars as future teaching faculty [26], including broadening participation for racially minoritized and other minoritized Ph.D. students and postdoctoral scholars in STEM [27].

Concurrently, professional development varies structurally, particularly the form of professional development, the extent of collective participation of instructors (e.g., Communities of Practice (CoPs), Communities of Transformation (CoTs)) [28–32], how the professional development is offered or sponsored (i.e., national, statewide, institution- or organization-specific), and duration of the professional development activity (e.g., shorter-term or longer-term) [33]. While the most common and popular form of faculty professional development offered, including in STEM, has been brief, one-time workshops [34], time-intensive professional development with sustained duration is more likely to see change enacted [33,35]. Moreover, previous scholarship suggests the collective participation of faculty from a campus experiencing the same professional development enhances and leads to departmental and institutional change [33,36]. The professional development in this present research inquiry includes these structural elements suggested to be more effective, including hosting a yearlong workshop series at one institution and collective participation of faculty from the same department, college, and institution.

2.2. Faculty Professional Development Grounded in Racial Equity and Social Justice

While the existence, innovation, and sustainability of professional development efforts have been researched, there is a dearth in research around the extent to which these STEM professional development initiatives are grounded in racial equity and social justice. Despite the ubiquitous culture of competition, individualism, meritocracy, and privilege of "white, middle-class, masculine norms" of STEM in the U.S. [37] (p. 62), STEM faculty do not necessarily engage in critical reflection of their underlying assumptions, beliefs, and values influencing their actions and behaviors [38]. Haynes and Patton point out how "most STEM faculty members are never trained to approach their teaching and scholarship through a racially conscious framework" and, thus, "they lack the necessary knowledge and skills to teach from a critical perspective" [13] (p. 93). Haynes and Patton further argue how minimizing race and racism may actually reinforce racist attitudes and/or assumptions and underline the call and need for white STEM faculty to develop racial consciousness in order to better connect teaching, course content, and racial justice [13]. Conversely, engaging faculty in conversations about race/ethnicity, LGBTQ status, religious affiliation, ability, and socioeconomic status leads to a better understanding of students' barriers to success (i.e., microaggressions, stereotype threats, bias, lack of inclusive teaching practices, and unwelcoming classroom environment) and an increase in modifying curriculum and pedagogy toward cultural relevance [39].

2.3. Faculty Beliefs and Ideologies

A few studies point to the degree to which faculty attitudes and beliefs connect to action [20,40–42]. Chaseteen and Chattergoon found that while new physics faculty generally valued student-centered instruction, they reported low self-efficacy in using different, active learning methods [20]. Using pathway modeling, Aragón and colleagues found that greater endorsement of colorblind ideologies predicted educators' adoption of fewer inclusive teaching practices, whereas greater endorsement of multiculturalism predicted the adoption of more inclusive teaching practices [41]. The current study complements and furthers the quantitative inquiries conducted by Aragón et al. and Garcia et al. by offering a qualitative perspective on faculty attitudes and beliefs and how they connect to action [41,42].

3. Conceptual Framework

To frame our study, we use Bonilla-Silva's *colorblind* framework, hereafter *color-evasive* (Scholars have critiqued colorblindness as not naming the active erasure of People of Color and reflecting ableist language [43]. Unless *colorblind* or *color neutral* are used originally,

following Annamma et al. [43], we use the alternate of *color-evasive* in place of Bonilla-Silva's [44,45] original writing of *colorblind*.), racial ideology to provide guiding points in our analyses [44,45]. The color-evasive racial ideology framework is premised on the idea that color-evasive racism is the dominant form of racial discourse in the U.S. [45]. Color-evasive racial ideology plays a central role in (re)producing and (re)enforcing the racial status quo in ways that are "slippery, apparently contradictory, and often subtle" [45] (p. 42).

Bonilla-Silva forwards four central frameworks of color-evasive racial ideology: abstract liberalism, naturalization, cultural racism, and minimization of racism [44,45]. Described as the most important aspect of color-evasive racial ideology, *abstract liberalism* refers to how certain ideas of economic liberalism (e.g., equal opportunity) and political liberalism (e.g., individual choice, meritocracy) have been used to undermine race-based policies or practices and uphold racial inequality [44]. One way abstract liberalism manifests is when faculty believe that treating all students the same is how we achieve educational equity. As a result, they might be less inclined to support enrichment programs for women, Students of Color, and other minoritized students. *Naturalization* leans into biological or natural explanations of racism. This manifests itself in faculty beliefs that some students are innately better at math or science than others. That is, they believe in biological determinants of intelligence. *Cultural racism* places emphasis on a culturally-based argument to explain (or blame) actions and behaviors of minoritized populations. For example, faculty may point to students' familial obligations, often stemming from cultural practices, as the reason why students are unsuccessful in STEM. The *minimization of racism* is a frame that reduces instances as not having racial motivations, including accusing minoritized individuals as hypersensitive, using race as an excuse, or playing the race card. One way that this frame manifests itself in STEM is when faculty explicitly disregard race and racism as factors that are important in the classroom. Another example is how faculty ignore or minimize race and racism by using coded language when describing students (e.g., "*at-risk*", *diverse*, *minority*). The assumption is that if they do not acknowledge race, they cannot engage in racism. In this current study, we operationalize Bonilla-Silva's color-evasive racial ideology by paying attention to how engineering faculty discuss motivations for participating in and how engineering faculty discuss race and racism as part of an NSF HSI grant-funded equity-focused professional development experience, and the extent to which they rely on color-evasive frames when prompted to discuss issues of race and racism.

4. Method

4.1. Site and Sample

This study follows one cohort of engineering faculty participating in a year-long, NSF-funded, equity-based professional development program at Desert University (DU; pseudonym), a public HSI and Asian American and Native American Pacific Islander-Serving Institution (AANAPISI) located in the southwest of the contiguous U.S. DU is also classified as a Carnegie R1 doctoral university with very high research activity.

At its onset, the 2021–2022 cohort included 10 engineering faculty Fellows. Through the course of the Fellowship year, 1 faculty participant was unable to continue with the fellowship requirements and resulted in 9 faculty Fellows completing the program. The Fellows participated in eight two-hour workshops delivered over virtual platforms (e.g., WebEx, Zoom) during the academic year (4 in the fall semester and 4 in the spring semester). The program's curriculum focused on decentering whiteness and problematizing STEM culture as heterosexual, masculine, and white. Examples of workshop topics include: Structural Inequities in STEM, Implicit Bias, Critical Reflection, and Social Justice Education. Content for the modules was facilitated and prepared by DU College of Education faculty and invited external faculty scholars. Notably, all of the invited module faculty scholars who prepared and facilitated the modules were Faculty of Color, specifically Latina/o/x and Black faculty. In addition to attendance and participation in monthly modules, faculty Fellows were required to respond to reflection prompts after each workshop and complete a final project at the end of the program where they were asked to apply what they learned

to their teaching practice. Faculty received a modest stipend for successful completion of the program.

Faculty Fellows had a variety of appointments including tenure or tenure-track and faculty-in-residence from civil and environmental engineering, construction management, electrical and computer engineering, and mechanical engineering. They self-identified as white alone (*n* = 5), Asian or Asian American alone (i.e., Korean, Pakistani) (*n* = 2), and with two or more races (white, Asian or Asian American (Vietnamese)) (*n* = 1). Two faculty participants did not provide how they racially or ethnically identified. With regard to gender, both women (*n* = 4) and men (*n* = 5) faculty were represented. One faculty participant did not provide their gender identity.

4.2. Data and Methods

This study employs qualitative content analysis as a way to capture and describe how engineering faculty participants' beliefs about race and racism were communicated in written word. The purpose of using content analysis is to systematically examine any underlying language or vocabulary faculty participants use with attention to how language "is concerned with meanings, intentions, consequences, and context" [46] (p. 314). Because the overarching research questions revolve around how faculty discuss issues of race and racism, we draw on application, reflection data, and action project proposals collected during the academic year. Specifically, we examine how the faculty discuss issues of race and racism, and equity broadly, in their application to the program, open-ended post-module reflection prompts, and action project proposals.

Application questions of interest included: Why are you interested in participating in the [professional development program]? What do you hope to learn about creating a more inclusive and equitable classroom environment? How do you currently support Latina/o/x, and other diverse learners in the classroom? Because the professional development program is funded by an NSF HSI grant, the third application question explicitly asks applicants to describe how they "currently support Latina/o/x and other diverse learners in the classroom". After every module, faculty Fellows were asked to reflect on their learning. They were provided with three open-ended prompts that gauged how the module furthered their knowledge of diversity, equity, inclusion, and social justice, whether the information challenged previously held beliefs about underserved students in STEM (i.e., English Language Learners (ELL), Students of Color, women, etc.), and what they would change about their teaching given this new information.

4.3. Data Analysis

To begin data analysis, we read the open-ended application questions, reflection prompts, and action project proposals to familiarize ourselves with the data. After this, we each manually coded participant responses using open-coding methods [47]. Then, we came together to discuss discrepancies in our coding and to create a codebook. Initial codes were later compared and contrasted with Bonilla-Silva's four race-evasive ideology frameworks [44,45]. During the second cycle of coding, we engaged in axial coding of the data to surface patterns across codes and to identify themes in the data [47]. Regarding the trustworthiness of our data and data analysis, we aimed for intercoder agreement which helped clarify codes and working definitions to ensure consistency in our analysis of the data [47].

5. Findings

In this study, we explore how engineering faculty discuss race and racism as part of an NSF HSI grant-funded equity-focused professional development experience. First, we find that Fellows largely rely on color-evasive motivations for participating in the equity-focused professional development experience. We also find that engineering faculty primarily employ *abstract liberalism* and *minimization of racism* to avoid talking about race, even when they have been explicitly prompted to do so. Finally, we find that regardless

of prior exposure to module concepts, engineering faculty express a genuine interest in addressing race and racial inequities in engineering.

5.1. Color-Evasive Motivations

Addressing our first research question (How do engineering faculty describe their motivations for participating in an equity-focused professional development experience?), two main themes arise when engineering faculty articulate what motivates them to participate in an equity-focused professional development program: being responsive to "diversity" and being receptive to learning about "inclusive and equitable" strategies.

5.2. Being Responsive to "Diversity"

Faculty recognize the diverse campus community in which they work and reflect a range of comfortability in writing about race and other forms of marginalization explicitly. The most common way that faculty discussed their motivations for participating in the program were grounded in Bonilla-Silva's frame of *minimization of racism,* wherein faculty broadly discussed being responsive to changing student demographics at DU but failed to explicitly identify the institution's racial demographics as an important factor. For example, Hadley, a tenure-track engineering faculty member, shared that she felt "strongly about supporting [DU's] *diverse [emphasis added]* student community".

Moreover, while faculty relied on racial logics grounded in the *minimization of racism* to discuss their motivations for participating as Fellows, we found that faculty often engaged multiple color-evasive racial ideology frameworks concurrently. For example, Arman, a tenured engineering faculty member, shared, "Considering the minority status (HSI, (Minority-Serving Institution) (MSI)) of (DU), more and more students in our classes are from minorities and underrepresented students". Yet, while Arman explicitly acknowledged the racialized identities of DU as an institution, when asked explicitly what they did to support Latina/o/x and other diverse learners in the classroom, his response engaged race-evasive logic reflecting elements of Bonilla-Silva's frame of *abstract liberalism*:

> My current strategies are not focused on specific ethnic groups but I try to prepare and present contents that support different learning styles such as visual, auditory, tactile and kinesthetic. I use a combination of short video, lectures, quizzes, in class exercises, and group activities in lectures. I also use different techniques to encourage participation by all students.

Indeed, the faculty member confirms that his current pedagogical strategies are not race- or ethnic-conscious but underlines his effort in preparing and presenting curricula that accommodate different learning styles to serve "all students". By minimizing students' race, Arman is able to justify their reasons for not being responsive to Latina/o/x students and instead focuses on student learning styles.

Alternately, while the majority of faculty minimized race and racism in motivating their participation as Fellows, Michelle, a tenure-track engineering faculty member, explicitly points to racial motivations for participating in the program. She references the need to learn about engaging in critical reflection in order to "be more knowledgeable about implicit bias and microaggressions, as well as become more culturally competent". In recognizing race as an important factor in the learning environment, Michelle acknowledges how she, as an instructor, might engage in racist practices in the classroom, implicitly or explicitly.

5.3. Being Receptive to Learning "Inclusive and Equitable" Strategies

Most engineering faculty shared that they were motivated to better serve students and were looking for strategies to do so. Professor Hadley described it as "strategies for implementing more inclusive and equitable teaching environments in the classroom and in our department". At the same time, race or other forms of marginalization are only implied with her description of desiring to learn strategies for "inclusive and equitable teaching and environments," again reflecting Bonilla-Silva's framework of *minimization of racism*. Similarly, Oswald, a tenured faculty member, also shared that his motivations

for participating as a Fellow stemmed from believing "it [was] important to continuously work on improving [their] classes so that they stay engaging and relevant. [He made] some effort to reach out to [DU's] *diverse population [emphasis added]* of students but would like to make sure [he was] aware of best practices". While these faculty recognized the need to create more welcoming and equitable learning environments, by utilizing race-evasive language when describing students, it was unclear who was feeling unwelcome or who was experiencing inequitable learning environments.

Professor Michelle, however, provides an example of how naming race and racism allows us to identify an appropriate intervention for creating an inclusive classroom. For example, she describes how "in order to avoid a Euro-centric view [in assignments] students are asked to share information from class with a family member or friend and get their response". Further, she named how this practice is helpful for all students; it "is particularly beneficial for Latinx students with close family connections," thus centering the needs of marginalized students in the classroom.

5.4. Navigating Color-Evasive Responsibility

Regarding our second research question (*How do engineering faculty discuss race and racism, and to what extent do they rely on color-evasive frameworks?*), the engineering faculty responses depict a range of surprise and familiarity with discussing race and racism. Two main clusters of comfortability emerged as engineering faculty expressed their engagement with race and other forms of marginalization. Importantly, we find that men faculty were more likely to express surprise in encountering the professional development content, whereas women faculty reflected both comfort and a sophisticated equity-lens when approaching serving Students of Color and other marginalized groups in STEM.

5.5. Mitigating "Surprise"

Some faculty expressed that they had never thought about race and other forms of marginalization. For example, in response to a module on implicit bias that required participants to take a series of Implicit Association Tests (IAT) that focused on race and gender, Ivan, a tenured engineering faculty member shared how "It was surprising how [his] unpacked implicit biases differ from [his] conscious beliefs and assumptions about underserved students in STEM". Another tenure-track faculty member, Jung, expressed similarly, "From this module, I was able to realize that I have not deeply thought about diverse interests of underserved students and their concerns as future engineers. This module was very helpful for me to expand my understanding of underserved students in STEM". Despite the IATs being explicitly about race and gender, faculty continued to rely on coded language ("underserved students") when referring to women and Students of Color in STEM. Moreover, their "surprise" in acknowledging implicit biases served to minimize the role of racism. For example, Professor Ivan's inclusion of how his conscious assumptions and beliefs differed from his implicit biases served to minimize the perceived impact these implicit biases might have on his behavior in working with "underserved students". Beyond implicit biases, surprise of racial inequities also surfaced for faculty who were aware of differences but unaware of the magnitude of the problem. For example, Professor Oswald shares his surprise in learning about Latina/o/x graduation rates and entry in STEM careers: "I knew that Latina/o/x students made up a relatively small percentage of STEM major students. But I was not aware that the persistence and graduation rates were even smaller. I also did not realize that Latina/o/x STEM graduates had a lower persistence rate in their STEM careers".

5.6. "This Is Not New"

At the same time, other faculty (mainly women) stated that the concepts raised in the modules were not new to them. These faculty demonstrated an ease with acknowledging race and racism, and they pointed to structural or systemic issues when discussing barriers for Students of Color in STEM. In sharing their reflections on a module focused on

"Structural Inequities in STEM", Professor Hadley aptly expressed, "It helped confirm my understanding that only by changing the system will we be able to affect big change". In response to completing the IAT, Hadley shared:

> I learned a bit about my implicit biases. I was slightly biased towards gay and black people and also slightly biased toward associating male with careers. That last one surprised me-although it's not too unexpected given that I grew up in a very religious environment where women having kids and not working were explicitly valued as the best thing a woman could do.

Similarly, Professor Michelle noted how the content relayed in the modules was not necessarily new for her:

> I've read a number of articles in this area before, so I would say this module reinforced or caused me to recall ideas as opposed to learning a new item. One major point was the importance of familial support for Latina/o/x students. I'm reminded that I should be mindful of different backgrounds and experiences. Although my family wasn't involved in my post-secondary education and I didn't have weekly/daily family commitments to balance while I was studying, my students may have a very different college experience.

In this example, we see Michelle's comfort in both naming Latina/o/x students and their cultural values, as well as her own positionality which is different from her students.

5.7. Recognizing Race and Racism and Taking Action

While faculty Fellows entered the professional development experience with a range of comfortability in discussing race and racism, at the end of the program, the majority of action projects reflected a recognition of race and racism as important. In their action project proposals, faculty Fellows were asked to reflect on how their projects advanced racial equity and inclusion and to provide a rationale based on the literature of why they selected their proposed activities. For example, Professor Arman proposed a systematic review of the literature that covers the "impact of civil infrastructure in terms of equity and justice on communities" that could be shared with faculty in the department. As a rationale for his action project, he argued that civil engineers rely on "cost–benefit analysis and environment impacts assessment," and rarely "equity and inclusion perspectives," citing scholarship on how the racial effects of the interstate highway system constituted a civil rights violation for Black communities. Similarly, Professor Ivan discussed how he plans to integrate sociotechnical aspects of engineering in his courses. Furthermore, he argued that "matters of nuclear engineering including nuclear power, radiation safety, and radiological waste management cannot be understood without considering sociotechnical aspects ranging from social justice to environmental risks". In another example, Professor Hadley proposed a revamp of the departmental website to help students navigate their "courses, graduate, and access job opportunities". In addition, she hoped to increase students' sense of belonging in engineering by "highlighting diverse students, staff, and alumni . . . especially for first-generation students and students from diverse backgrounds, including racially and ethnically underrepresented students and women".

6. Discussion and Implications

There are several important takeaways of this study. First, we find that engineering faculty, regardless of motivations for participating in an equity-focused professional development experience, enter conversations about race from a largely color-neutral and color-evasive stance. This finding is consistent with prior literature [38,41,42]. Moreover, we also find that women faculty were less likely to rely on color-evasive frames when discussing race and racism, and were rather sophisticated in their understanding of structural inequities in engineering [42]. Importantly, however, where faculty Fellows entered the professional development experience did not predict the race consciousness of their action projects. In fact, several faculty who were surprised about race and its impacts in the third

module focused on implicit bias found that equity and justice were central elements of being a good engineer and proposed action projects based on this premise. It is likely that the sustained nature of this fellowship experience allowed Fellows to grow in their understanding of race and racism over time. Prior research finds that faculty benefit from an extended or longer duration of the professional development activity rather than one-time efforts or workshops, as it offers time for evaluation and feedback [33,34]. We advance several recommendations based on our findings. First, there may be a need to differentiate equity-based training based on faculty prior knowledge and experience. Second, we echo prior calls for sustained training and development for faculty. Finally, we recognize the importance of having faculty reflect on how their learning from workshops is actionable by applying it to their teaching practice.

7. Conclusions

Our study demonstrates how federal grants can serve as important levers for building institutional capacity for broadening participation in STEM and transforming HSIs toward better serving Students of Color. Engineering faculty who participated in a year-long, NSF-funded, equity-focused professional development experience aimed at improving their curricula and pedagogy developed greater awareness of how race and racism shapes the learning environment and were moved to action. This study demonstrates how HSI Engineering faculty (largely white and Asian) are receptive to learning new strategies to respond to student needs and bring about greater racial equity in STEM. While funding and facilitating these professional development programs are important, there remains urgency to racially diversify STEM faculty at HSIs.

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