

Making whiteness visible: The promise of critical race theory in engineering education

In the summer of 2020, the United States erupted in a series of protests designed to confront this nation's problem with race. As conversations about racial justice took hold in the public sphere, attention was drawn to critical race theory (CRT) and what role it might have in explaining why the United States remains rooted in racism. However, on September 4, 2020, Office of Management and Budget (OMB) director Russell Vought sent a letter mischaracterizing CRT that subsequently incited a crusade of disinformation and misguided rage (Cineas, 2020). The ensuing fallout has led to an educational crisis as educators grow fearful of teaching the United States' history comprehensively (Griesbach, 2021; Herman, 2021). Rather than critically evaluate how the systems (e.g., educational, judicial, political) within the United States reinforce White supremacist ideology, the focus shifted toward the very theories used to understand this phenomenon. What had the potential to be a racial reckoning instead became an attack on CRT. Across the United States, politicians, school boards, colleges, and universities attempted to ban and eliminate CRT (or topics associated with it) from discussion. While critics of CRT framed their opposition as an attempt to *decrease* racism by not giving it any attention, the pushback against this theory actually reflects a hard truth: that the historical accuracy CRT demands is an existential threat to White supremacy. Trying to censor theories of race is an example of the very thing CRT highlights—that systems are designed to reinforce whiteness—and legislating the erasure of CRT is one form of this White supremacy. We want to make clear that those in strong opposition to CRT are not the primary audience for this editorial. This editorial is for those who want to do better in calling out the role of whiteness in their research that employs a CRT framework. We start with contextualizing the relevance of CRT, then provide a brief overview of it as a theorizing space (as opposed to a theoretical framework), discuss it within engineering education research (EER), and conclude with questions scholars engaging with this theory should consider as they move forward.

In this Year of Impact on Racial Equity, the EER community would do well to scrutinize the recent, and ongoing, campaign against CRT taking hold in various educational spaces (American Society for Engineering Education [ASEE], n.d.). The ASEE has endorsed this yearlong effort “to help leverage and extend the societal momentum toward greater awareness and action to dismantle white supremacy and racism” at a time when White supremacy is flexing its political and social muscle (ASEE, n.d.). This type of attention is particularly important as mention of CRT grows within EER. While some scholars have mentioned it as a useful theory in understanding the experiences of racially excluded people in EER (e.g., DeCuir-Gunby et al., 2009; Ong et al., 2020; Trytten et al., 2013), others have suggested that the use of frameworks like CRT in this domain has largely characterized racially excluded students from a deficit perspective (Mejia et al., 2018). In noticing this trend, we ask, how can EER best apply CRT? Despite the wide range of scholarship on CRT, both the public discourse and many of the published papers mentioning it in engineering make clear that this theory is misunderstood. Too often CRT discussions involve only two of its primary tenets: (1) racism is endemic and (2) the centrality of experiential knowledge. However, these tenets do not directly name a critical component for understanding race in the United States. Any use of CRT within the EER community should center whiteness. This is the only way to make any significant progress on actualizing racial equity and confronting the ways White supremacy operates within engineering classrooms.

In 1998, Gloria Ladson-Billings asked, “Just what is critical race theory and what's it doing in a *nice* field like education?” (p. 7). That question set forth several decades of scholarship that explored the relationship between CRT and

Throughout this text, the term White is capitalized—this was an editing decision dictated by the journal's practices and does not reflect our choice to write White in lowercase. We acknowledge the robust debate that exists on the decision to capitalize this word; however, we both believe that Brown and Black people should have the final say in how they reference whiteness.

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educational spaces. At the time, Ladson-Billings thought that CRT would be a “darling of the radical left” (p. 22) and would not influence the classrooms or daily lives of the racially excluded. While it is unclear how influential CRT has been in classroom spaces, it has proliferated the educational research community and is now commonly used as an analytic frame to understand the lived experiences of the racially excluded. Ladson-Billings offered a word of caution for such situations: “It is a pattern in educational research for a new idea or innovation to take hold and proliferate,” she wrote, and “sometimes an idea takes a while to root, but once it does, most likely its creators lose control of their idea” (p. 21). We argue that EER lacks control over the use of CRT, which is often used as a broad conceptualization of race at the individual level but rarely actively engaged with its many tenets at the systematic level. Theoretical engagement, particularly around critical theories, requires more than just superficial acknowledgment of the theory. It requires deep engagement with its foundational development. Claiming that one is using CRT but only mentioning that racism is endemic or that storytelling allows one to understand the experiences of the racially excluded does not draw attention to *why* these tenets came to be in the first place. What is most profound in EER is the lack of indictment of whiteness—a key reason why CRT was created in the first place.

Cheryl Harris (1993) identified the importance of whiteness in her foundational article, *Whiteness as Property*. As she argues:

In ways so embedded that it is rarely apparent, the set of assumptions, privileges, and benefits that accompany the status of being white have become a valuable asset that whites sought to protect and that those who passed sought to attain—by fraud if necessary. Whites have come to expect and rely on these benefits, and over time these expectations have been affirmed, legitimated, and protected by law. (p. 1713)

Although property in the classical sense often refers to things one can own, Harris notes that modern views of property are much more expansive. Property in a broader sense can include entitlements, jobs, licenses, or other intangibles that are the product of labor and time, such as graduate degrees or intellectual property (Harris, 1993). We note this specifically because Harris's description of whiteness as property addresses how White supremacy is fueled by the right to exclude, and we argue exclusion within educational spaces often takes the form of invisibility. Whiteness will always try to separate itself from its history while reinforcing itself with new iterations. For example, researchers might use the phrase “predominantly White institutions” to connote whiteness. However, this phrase diminishes the fact that colleges and universities are not just “predominantly White”: they embody whiteness in every structure and practice within the institution. Brown and Black people might be present in the institution, but the institution itself is whiteness. “Predominantly” implies racially excluded students would have a better experience simply if more of them were present. This type of phrasing protects whiteness and does not address the role of White racial power. Too often scholars using CRT reduce or gloss over the structural role of whiteness as a key factor in the ongoing racial exclusion.

1 | CRT AS A THEORIZING SPACE

CRT arose, in part, to explain the backlash against the Civil Rights Movement, the racial entrenchment of the Reagan era, and how race and racism are embedded within US law. It developed as a critique of racial erasure within critical legal studies (Crenshaw, 2002), was adapted for educational research (Ladson-Billings, 1998), and is increasingly applied by scholars in various fields (Christian et al., 2021). Given its range, it is important to note that CRT is also a field of study. While the field has some general consensus (e.g., race is socially constructed), there are also intense disagreements about what CRT can and cannot do. It is not within the scope of this editorial to take up those disagreements but to note that there is no universal agreement among CRT scholars. However, while scholars across multiple disciplines use it as a theoretical framework, CRT was not initially designed to be a stand-alone theoretical framework. Rather, it was designed as a theorizing counter-space as opposed to a theory in and of itself (Cabrera, 2018; Delgado & Stefancic, 2012; Solórzano & Yosso, 2001; Yosso et al., 2009).

As a theorizing space, CRT is often critiqued for serving as a problem-posing framework (e.g., what is wrong with institutions) rather than a problem-solving framework (e.g., how can we make institutions less racist). This is due, in part, to the lack of racial theory in CRT. While it allows for the description of what exists—racial inequality, microaggressions—it offers limited understanding in how these phenomena are structured (Cabrera, 2018). There is no overarching description of how racism operates (Cabrera, 2018), and as a result, scholars can misapply CRT. Although

it examines how racial power in the United States is reinforced, sometimes explicitly and sometimes through what seem like neutral laws that nonetheless work in discriminatory ways, CRT does not explicitly call out whiteness. Cultural and discursive practices of whiteness “serve to naturalize unequal social relations along the color line” (Cabrera, 2018, p. 223). Therefore, we call on EER researchers using CRT to also engage with theories of race that situate whiteness as the primary cause of racism (e.g., racial formation, colorblind racism).

2 | ENGINEERING EDUCATION AND CRT

In engineering, the invisibility of whiteness can be seen in how efforts to make the field accessible to racially excluded students are deracialized and individualized. The National Science Foundation's directorate to broaden participation implies some people have been excluded without naming the people and/or policies that have been and are exclusionary (National Science Foundation, n.d.). Similarly, scholars often cite the issue of underrepresentation, as if low representation is the source of the discontent of racially excluded students, again with no discussion of how whiteness instituted the standards for admission, acceptance, and success that affirm the cultural norms of White people while demeaning others. CRT in engineering has often been used to analyze the experiences of racially excluded students navigating the system of whiteness when the community would be better served examining how this racial stratification has persisted despite the omission of explicit consideration of race in evaluation measures. Recent encouragements to think about racism in new ways (Mejia et al., 2020) and other analyses of problematic ideologies within EER (Cech, 2013) serve as good foundations to begin scrutinizing how White people can both embrace the advantages of this exclusive system and claim to disrupt it.

Whiteness causes many to see engineering pedagogy as static rather than socially constructed. This protects the arrogance of believing the dominant paradigm to be optimal, despite ignoring diverse epistemologies that we know exist. The centrality of racially excluded people within CRT is not simply to provide a different perspective; instead, it is to situate that which is deemed normal as violent. Therefore, it is wholly inadequate to just acknowledge the harm being done in our teaching and research practices: we ought to present actionable alternatives that are more humanistic and liberating. CRT would also invoke a more genuine analysis of who benefits from indiscriminate initiatives. The omitted deliberation of whiteness neglects recognition that White people benefit from both exclusion and inclusion when efforts to advance equity are not race-conscious. A prime example is the Meyerhoff Scholars Program (Fries-Britt, 1994; Maton et al., 2000), which began as an initiative exclusively supporting Black students in STEM disciplines from undergraduate through their doctorate but later opened to include racial minority students and now admits White students. This program is not alone in this unfortunate circumstance, but using CRT to examine these instances would help us understand the ways whiteness ensures its advantage through colorblind racism. The use of CRT in EER needs to be a dynamic process, one that should include (a) articulating how race and racism are ingrained in engineering education; (b) crossing epistemological boundaries; (c) exposing claims of neutrality, objectivity, colorblindness, and meritocracy in light of the self-interest of those in power; (d) challenging antihistoricism; and (e) listening to the racially excluded (Chapman & DeCuir-Gunby, 2019).

3 | WHERE DO WE GO FROM HERE?

Honestly, we do not know where to go from here! We started this conversation 5 years ago, and we are both frustrated (although not surprised) that we are still having it! As a Black man and a Native woman, our entire academic existence involves seeing whiteness at work and watching our White colleagues avoid calling it out. So, in addition to asking our White colleagues to more frequently and forcefully call out White supremacy, we propose the following suggestions as a way to move forward. First, research should depart from a problem-posing approach to a problem-solving approach. Do we really need more studies that demonstrate the presence of racism in our institutions or within engineering education? Instead, we should draw on what research currently exists and start studying the role of hegemonic whiteness in relationship to CRT. Second, we should also hold CRT (as both a theorizing space and theory) to a higher standard to expose the way whiteness informs each of its tenets. Lastly, you cannot move toward any liberatory framework without a serious critique of capitalism or colonialism. Including critiques of whiteness in CRT is the first step for scholars in EER to address effectively address; however, it is not the only one.

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