2 WHY CARE ABOUT SEXISM IN STEM?

Feminists have long argued that women's overall underrepresentation in science, technology, engineering, and mathematics (STEM) is a serious problem. Computing knowledge, in particular, is produced in highly segregated classrooms, labs, and workplaces, and many of these sites are rife with exclusionary practices (Corbett and Hill 2015; Misa 2010; Barker, Garvin-Doxas, and Roberts 2005; Margolis and Fischer 2003; Cohen and Swim 1995). Theories abound as to why these injustices appear to be intractable. I argue that a cultural phenomenon, one I call the "Bro Code," operates in the production of computing knowledge to exclude women and denigrate their contributions to the field. To better understand the Bro Code and interpret this study's evidence of the influence it exerts in labs, classrooms. and workplaces, I review three bodies of literature on women's underrepresentation in computing science and engineering—and STEM more broadly. By reference to these literatures, I identify valuable theories about the barriers and constraints to women's full participation in powerful and influential technical fields and describe what must be further illuminated and reckoned with in order to end racist sexism in Big Tech. Not only do these studies hail from many different disciplines, but they use different analytical frames and offer unique conceptualizations to describe and explain similar cultural practices, behaviors, and values undergirding sexism in STEM. For example, gender bias, gender discrimination, gender harassment, gender inequity, and sexual harassment are all used in the feminist and anti-racist communities in which I work, and I see both parallels in these terms and meaningful differences that are important to understanding the Bro Code.

CURRENT SCHOLARSHIP

The first body of literature I engage here is what I call *equity in STEM*, and it includes scholarship from engineering education, social psychology, sociology, history and philosophy of science, and public policy. Equity in STEM scholars do not necessarily share common theoretical frameworks, methodologies, or strategies for outreach (Cech 2005), and I have taken liberties in grouping them and naming them. I have done so in the hopes of harnessing the vigorous spirit and rich insights that characterize this applied scholarship aimed at ending male dominance in technoscience.

Feminist science and technology studies (STS) is the second body of literature reviewed in this chapter. While equity in STEM literature focuses on policies and practices within STEM communities, often from a practitioner's point of view, feminist STS deconstructs social construction of science itself (Bystydzienski and Bird 2006). They argue both interpersonal and institutional dimensions of cultural norms operate at the level of the "collective social imagination" (Fricker 2007, 15) to exclude scholars of color and women of all gender and racial identities from cultural practices of power and denigrate their capacity as knowledge-producers (Margolis and Fisher 2003; Margolis 2008; Harding 1991; 2006).

Finally, the third body of scholarship we will consider in this chapter focuses on sexual and gender harassment. Though the prevalence and impacts of sexist oppression and exploitation go by many names and are understood differently across various fields, one commonality shared across academic research concerned with labor segregation in technoscience was a reluctance to confront the scope and harm of sexual harassment. This is changing, thankfully. A 2018 consensus report from the National Academies of Sciences, Engineering, and Medicine on *Sexual Harassment of Women* galvanized support in STEM communities to consider sexual harassment as a significant force that denigrates, harms, and excludes women from STEM fields, especially women of color and queer scientists. I have been collaborating with scholars in the social and intellectual movement to achieve equity in STEM for a decade and a half to convince the majority of STEM practitioners that the problem of representation relates to bias. The next horizon is to mainstream theories on the patterns of gender and sexual harassment, frames with which racialized gender violence in computing can be suitably reckoned with and prosecuted.

I will explain overlaps in these bodies of work in this chapter and highlight some important differences. As interdisciplinary collaborations between physical and biological scientists, technoscientists, and social scientists continue to grow, the need to share common concepts and frames becomes ever more important. It is also crucial to delineate our differences and how those differences affect the solutions we design and enact. A far-reaching theory of change in computer science and engineering requires bridging the gap between gender equity analyses and modern feminisms, particularly from critical race and STS orientations (Riley et al. 2009). This chapter builds this bridge by asking (1) Why do significant barriers to desegregating STEM persist? (2) Why should we care about racialized sexism in STEM, computer science, and engineering in particular, and how can we delineate between its myriad forms? Integrating this triad of analytics by feminist scholars with different disciplinary and epistemological commitments not only helps in building coalitions but also raises important considerations for people interested in cracking the Bro Code.

METHODOLOGY

In theorizing the Bro Code, I not only expand anthropological theories of reproduction beyond the physical and private sphere, I also join feminist STS scholars who extend theories of embodiment, labor, and the affective nature of care beyond traditional domains like health care and domestic labor (Martin, Myers, and Viseu 2015). In feminist STS, care is taken up as both a conceptual concern (*what do we care about?*) and a methodological one (*why do we care?*) (Puig de la Bellacasa 2011; Viseu 2015; Martin, Myers, and Viseu 2015). Embracing a methodology of care means that I choose to examine exclusionary practices maintaining the citadels of male cabals computing.

Bruno Latour (2004) theorized on matters of concerns in STS, urging STS scholars to "engage with the concerns that animate those who support" things (e.g., SUVs) whose utility is considered pernicious by some (Puig de la Bellacasa 2011, 90). He worries that social constructivist criticisms in this field are destabilizing belief in science and antagonizing technoscientists. To take up his call to understand the practice and applications of science through the eyes of its partisans here would mean pivoting away from the "thing politics" animating Latour's 2004 and Maria Puig de la Bellacasa's

2011 work (recognizing that objects have politics agency) to embrace a relational politics in computing. Relational politics from an STS approach could include the important discovery Jane Margolis, Allan Fisher, and Faye Miller (2000) made that women students of computing are interested in the context and connections that computers facilitate, which eschews a more myopic focus on the machines—the things themselves—that men students tend to exhibit. In the context of the Bro Code, it means caring about power relations in the spaces in which computer knowledge and artifacts are produced.

If the Bro Code includes relational politics predicated on bias and harassment to reproduce segregation in computing today, then taking up Latour's call would mean (for me) understanding harassers' motivations to defend Big Tech's bastions of white male privilege from the scourge of feminization and racial integration——as well as understanding the roles played by those who enable or support the harassers (Harding 1986). This is, in part, what I offer in this book: a spotlight on dominant group members' values and behaviors in an effort not to reproduce a "fix the woman" deficit theory of change in computer science and engineering. However, it has the dangerous potential to be an exercise in "himpathy," interpreting in the most generous way possible the motivations and context in which men exert entitlement, even when these exertions cause harm to others (Manne 2017).

Puig de la Bellacasa's (2011) critical reading of Latour's matters of concern detects a problematic opposition to the oppositional standpoints of marginalized members of science. Striking a balance between what Latour calls "corrosive critique" and pandering to the fragile identities of some dominant group members in science, Puig de la Bellacasa proposes treating sociotechnical phenomena as "matters of care." Matters of care is feminist. It means engaging with science with a commitment to doing something about the "persistent forms of exclusion, power and domination in science and technology" (Puig de la Bellacasa 2011, 91). How social relations in technoscience reproduce uneven distributions of power, access, and resources—the question that animates this book—is thus a matter of care and part of the lineage of feminist scholars who invoke(d) care as a conceptual tool to excavate, investigate, and valorize hidden labors, deleted from the individualistic, "heroic" myth building of technoscientific work (Martin, Myers, and Viseu 2015; Puig de la

Bellacasa 2011; Murphy 2015; Mol, Moser, and Pols 2010; Star 1991; Forsythe and Hess 2001).

Caring about bias, discrimination, and sexual harassment in technoscience requires more that measuring the prevalence of this violence, though this is very important. Caring also requires a commitment to listening to and documenting the ignored, silenced, and neglected experiences of marginalized group members of computer science and engineering. It requires rejecting meritocratic and objective assumptions about science and divorcing technical competency with masculinity, both of which will require reinventing the way in which we view science. No small task, indeed, and one not necessarily welcomed in either physical and biological science or STS (Bauchspies and Puig de la Bellacasa 2009).

Cracking the Bro Code invokes innovative methods and critical methodologies aimed at making the lived experiences of the dispossessed visible and uncovering systems of injustice in science (Kemmis and McTaggart 2000; Denzin, Lincoln, and Smith 2008). This choice of orientation could be read as prescriptive, and this gesture of speaking from an embodied, situated position risks a charge of "aggression" (Latour 2004). While I am mindful of Latour's concerns of "corrosive critique" in STS, I cannot ignore the overwhelming evidence of incivility and its vile offspring, sexual harassment, in computing worksites in technoscience. My concern is with discerning patterns in their cultural "modes of fabrication and . . . stabilizing mechanisms" (Latour 2004, 246).

THE MYTH OF MERITOCRACY

Although women of all classes make up the majority of the US workforce, they still remain segregated to low-paying, service-oriented professions (Shriver 2009; Greenberger et al. 2005; Nakano-Glenn 1992; Spaights and Whitaker 1995). Women workers are the reserve labor force of our current capitalist system, the shock absorbent when the system hits an inevitable crisis. For example, "employers cut 140,000 jobs in December. . . . Digging deeper into the data also reveals a shocking gender gap: Women accounted for all the job losses, while men gained 16,000" (Kurtz 2021). Extensive scholarship has documented the disproportionate barriers experienced by underrepresented groups in accessing opportunities in education and employment (e.g., Morley and Lugg 2009; Boice 1993; Heckman 1998; Massey 1990; Reskin, McBrier, and Kmec 1999).[1] Bias, discrimination, and harassment targeting women of color, queer people, and white women in higher education and the workplace takes many different forms, and interdisciplinary theories explaining persistent segregation in the US labor market abound.

In this chapter, I recapitulate some of this research, specifically theories that relate cultural structures of power that marginalize and discriminate against women of color, queer people, and white women. First, however, to provide context, I begin by introducing and explicating a belief system with a firm grip on the American imagination. Meritocracy—the belief system that wealth, employment, and power are fairly distributed on the basis of hard work and innate abilities—is racism and sexism in modern form (Hing et al. 2011; Swim et al. 1995; Bonilla-Silva and Forman 2000). Meritocracy is a discourse that mythologizes the US as a postfeminist, color-blind society (Browne and Misra 2003; Bonilla-Silva and Forman 2000; Essed 2001; Moody 2004; Benokraitis 1998; Swim et al. 1995). By erasing prejudice as a cause of social inequalities, the ideology of meritocracy attributes the status of underrepresented group members to individual failings and group members' innate incompetence. Meritocracy can overpower scientists' powers of observation, obfuscating discrimination and harassment in professional settings, which burdens underrepresented group members with the task of educating their peers on hostile cultural practices and values and convincing them that their lived experiences are indeed valid (Cech, Blair-Loy, and Rogers 2018).

In these ways, the ideology of meritocracy serves as a consistent and persistent barrier to building critical mass support for equity in STEM (Posselt 2020). This ideology is deeply embedded in our public consciousness. Its emphasis on individualism and personal responsibility reflects the political economic climate in the US, a system that favors the wealthy ruling class and fervently quells collective organizing. Meritocracy is an individual framework with which to view science and the labor force more broadly and serves to mask the uneven distribution of power, resources, and access in the US. This results in animosity when gender equity efforts challenge this ideology. Some scientists interpret criticism of power relations in STEM as an attack on their professional status and the means by which they acquired it.

Education and hard work are mythologized as the means by which anyone can succeed at reaching their goals in the US. This is well epitomized by the words of Bill Clinton, who, when asked to define the American Dream, said: "If you work hard and play by the rules, you should be given the chance to go as far as your God-given ability will take you" (Hing et al. 2011). However, the fact is that the "income achievement gap"—differences in standardized test scores and grade point averages—between children from families in the top 10 percent of the income distribution and children from families in the bottom 10 percent is growing rapidly: "The income achievement gap between children from the highest and lowest income deciles is roughly 30 to 40 percent larger among children born in 2001 than among those born in 1976" (Edsall 2012). Still, meritocracy is close to the hearts of some dominant group members in science and entwined with their beliefs about their abilities, their individual and social identities, and even the American Dream. The fact is that the mantra of meritocracy—*only the best and the brightest*—is a euphemism for "the blessed and the privileged" (Margolis 2008, 202). It is a justification of inequality, "a spurious story that people tell to protect themselves from the discomfort of acknowledging how their behavior and thinking may be part of the very problem they wish to solve" (Posselt 2020, 4).

The cultural dominance of meritocracy makes the racialized gender gap in STEM difficult to bridge. The continued reign of males from racially dominant groups in STEM reflects historical patterns of labor segregation in the US not yet fully understood. How do we continue reproducing such a pervasive system of disempowerment? Why are some fields less welcoming to underrepresented groups than others, and what are the consequences of these exclusionary institutions and practices? While women have gained access to higher education, the gains have only challenged segregation horizontally. In other words, gender equality can be declared in broad aggregates measuring representation, but "the stubborn persistence of gender segregation across fields and subfields of study masks deep gender inequalities rooted in traditional cultural values in US society" (Etzkowitz 2008, 409; Cheryan et al. 2017). Perplexingly, women have made gains in other male-dominated fields, such as medicine and law (Xie and Shauman 2003). Furthermore, a striking pattern of segregation *within* fields of study persists. For example, when women *do* enter STEM fields, they disproportionately choose the life sciences over the physical sciences and engineering (Mann and DiPrete 2013). Medical schools graduate 49 percent women while computer science and engineering doctoral programs graduate less than a third of that number (Misa 2010).

EXPLANATORY MODELS FOR UNDERREPRESENTATION IN STEM

The myth of meritocracy individualizes social problems and denies that injustice exists in the distribution of access, resources, and opportunities. This logic allows ample room for essentialist explanations to emerge. For example, in his keynote at the 2005 Conference on Diversifying the Science and Engineering Workforce, Larry Summers (2005), the former president of Harvard University, stated that women's underrepresentation in STEM is due to differential aptitude. Summers's gaffe was a galvanizing moment for women in STEM fields because it made visible what Pierre Bourdieu (1989) calls "symbolic violence," a means by which those in power justify their dominance and reproduce existing structures of inequality. Summers is just one in a long line of scholars who invoke biological reasons to explain women's exclusion from sites of STEM production, thereby naturalizing patterns of labor segregation and reserving occupations that bequeath wealth and cultural capital for members of dominant classes (Fine 2010). Naturalizing the pernicious segregation problem in computing is an effective way to nullify efforts to change it. This is unjust, given how lucrative engineering fields are (and computing ones especially), robbing women and women of color in particular, who are often the top earners in their immediate families and providers to their extended families, of individual and generational wealth (Ross, Hazari, and Sadler 2020).

In their 2010 summary report *Why So Few?*, the American Association of University Women (AAUW) identifies Summer's sexist logic, which Ben Barres (2006) coined as the "Larry Summers Hypothesis," as one of three significant reasons for women's underrepresentation in STEM:

> First, the notion that men are mathematically superior and innately better suited to STEM fields than women are remains a common belief. . . . A second theme revolves around girls' lack of interest in STEM. A third theme involves the STEM workplace, with issues ranging from work-life balance to bias. (Hill, Corbett, and Rose 2010, 19)

Ten years later, the Larry Summers Hypothesis still echoes through the halls of the networked towers, but its progenitors are no longer invited speakers but, instead, relegated to manifestos or op-eds. The second theme in the 2010 AAUW report gained some traction, most notably research on “ambient belonging” (Cheryan et al. 2009) and work on role incongruity (Diekman et al. 2010). The third theme—workplace culture—however, has had the most explanatory power in equity in STEM discourse over the last 10 years, until the resurgence of the #MeToo movement reignited public outrage on the prevalence of sexual harassment in American society. I will discuss this shift later in this chapter. Suffice to say, babies and bias were determined to be main culprits in women’s underrepresentation in STEM fields and have been the subject of numerous academic studies (Barth et al. 2015; Bystydzienski and Bird 2006; Hill, Corbett, and Rose 2010; Correll, Benard, and Paik 2007).

Jacob Clark Blickenstaff’s (2005) review of 30 years of literature addressing women’s absence from STEM augments the AAUW report with more explanations; as examples:

> girls’ lack of academic preparation for a science major/career; girls’ poor attitude toward science and lack of positive experiences with science; the absence of female scientists/engineers as role models . . . cultural pressure on girls/women to conform to traditional gender roles and an inherent masculine worldview in scientific epistemology. (Blickenstaff 2005, 371–372).

Note that the first two of these explanations are framed to spotlight girls’ deficits. This approach puts the onus on girls and women for not entering STEM rather than on male scientists’ exclusionary practices and a tendency for organizations to favor men’s attributes and lifestyles. It also frames the social problem of occupational segregation as an individual problem, which indicates the ideological influence of meritocracy. “Fixing the woman won’t fix the problem” (Committee on Science, Engineering, and Public Policy 1998, 66). Instead, advocates for gender equity in STEM insist that we fix the scientific system. The deficit approach too often results in diversity, equity, and inclusion programs in STEM designed to help women assimilate to cultures formed by predominantly white male practitioners. This is the wrong approach. Ameliorating women’s underrepresentation in STEM means a shift away from the “woman as deficit” model and toward policy interventions at the institutional level (Bystydzienski and Bird 2006; Rosser 2012). This shift is happening, and in recent years, equity in STEM scholarship has seen a proliferation of systems-level critiques that investigate racial and gender inequalities. Equity in STEM scholarship argues that sources of inequality originate not only in individual minds but also in institutional practices, norms, and values (Plaut 2010).

UNEXAMINED BIAS

As the Chilly Climate activism caught on in academic STEM, programmatic interventions to fix sexism in STEM relied on bias as a conceptual resource to combat gender segregation. Often called unconscious bias, implicit bias, or unexamined bias, bias in STEM research has received much attention both in academia and the US media. Bias is a form of stereotyping that is often unintentional and automatic and often contradictory to our conscious beliefs (Committee on Science, Engineering, and Public Policy 1998). Research demonstrates that threatening environments fostered through bias turn underrepresented groups away from majority domains (Chowdhury, Hoo, and Pasik-Duncan 2007; Valian 1999; Browne and Misra 2003; Adams et al. 2006; Cohen and Swim 1995), which is a critical reason why diversity eludes many STEM disciplines (Malcom 1999; Trower and Chaitt 2002; Ginorio 1995). These biases dictate that people from dominant groups, and white males in particular, inhibit the success of underrepresented scientists and deny scientific communities the talents and perspectives of diverse members. Bias can be perpetuated by highly educated, self-professed egalitarians in the course of making objective decisions. It is not always overt; nor is it conscious. It is coded in subtle ways to reproduce predictable patterns of structural inequality that privilege dominant groups (Moody 2004). Though we like to think that scientists are objective and able to impartially evaluate others' abilities and potential, it is important we acknowledge this is a myth (Posselt 2020).

Bias often comes into play in evaluation settings and leads to erroneous conclusions, most notably that women scientists and engineers are less competent than their male peers and less deserving of success, recognition, and accolades. For example, in a groundbreaking study published in the *Proceedings of the National Academy of Sciences* (PNAS), Corrine Moss-Racusin and her colleagues (2012) found that both female and male science faculty members harbor bias against female students. The faculty participants were given application materials from an undergraduate student applying for a lab manager position. All received the same exact materials, except that half the participants believed they were reviewing a male applicant's materials and the other half believed they were reviewing a female applicant's materials. Faculty participants rated the female applicant significantly lower than the male applicant in terms of competence, hirability, salary offers, and the faculty members' willingness to mentor women students.

These findings augment previous research by Rhea Steinpreis, Katie Anders, and Dawn Ritzke (1999), in which male and female faculty members evaluated a curriculum vitae that was randomly assigned a male or a female name. Both male and female evaluators rated the male applicant higher in research, teaching, and service experience and were more likely to hire the male than the female applicant. These two empirical studies confirm what I heard over and over from participants in this research on women in high-tech communities: women have to be twice as good as men to be considered half as competent. While Steinpreis and her colleagues show that bias plays a role in the faculty hiring process, Moss-Racusin and her colleagues demonstrate that bias affects women in STEM in the educational phase of their careers, a critical junction that serves as a launching pad for further opportunities.

These studies offer indisputable evidence that males pursuing STEM careers benefit from a presumed competence that gives them unearned advantages in the world of STEM production. The fact that both female and male scientists perpetuate sexist bias adversely affecting the career trajectories of female scientists helps to explain why diversity eludes many STEM disciplines in academia. Bias further helps to explain why underrepresented group members with comparable training drop out of STEM fields at greater rates than engineers from majority groups (Fouad et al. 2017; Seymour and Hewitt 1997; Bystydzienski and Bird 2006). Nadya Fouad and colleagues found alarmingly high rates of attrition among women in engineering fields and that their male colleagues enjoyed 50 percent higher rates of persistence. The authors concluded that this may indicate women's protest against the constraints of their subordinated positions within scientific institutions, voting with their feet, as it were (Fouad et al. 2017). Attrition has a ripple effect, with consequences for the next generation of scholars and their families. For example, a dearth of women faculty members adversely affects women students' persistence, as they have fewer role models to inspire and guide them (Eppes, Mialnoviv, and Snaborn 2010; Carrell, Page, and West 2010; Blickenstaff 2005). A dearth of underrepresented minority male faculty has negative effects on the persistence of women students of color in computing (Domingo et al. 2020). Engineers who identify as lesbian, gay, bisexual, transgender, queer, intersexed, and asexual (LBGTQIA) also turn down or step down from opportunities because of homophobic discrimination and harassment (Nelson et al. 2017).

The trick to being an effective change agent is to examine our biases and interrupt their application when they have been activated. Initially, this requires deliberate acts of consciousness-raising, preferably in collective settings (Carrigan et al. 2021), and then lots of practice. In essence, unexamined bias research claims that there are no bad apples—we all have to, individually and collectively, examine our biases and interrupt them. This premise undergirds both my past scholarship and collaborative efforts to intervene programmatically in cultures of computing. I use the bias frame when I want to meet majority computer scientists and engineers where they are at, inviting them to take responsibility for interrupting bias in their particular technical culture.

CULTURE IN STEM

In the 1970s and 1980s, feminist practitioners in STEM fields began to agitate, organize, and speak out against the constraints of their subordinate status in their workplaces and disciplinary communities. Relying on their dissonant experiences to inform their analyses of behaviors and social relations that privileged men and denigrated women's capacities and accomplishments (Wylie 2012), these activists named "culture" as a factor that perpetuated systematic gender inequalities. Instead of culture, they used the term "the chilly climate" (Sandler and Hall 1986). Chilly climate, an ecological metaphor for a significant barrier to desegregating STEM, resembles what anthropologists define as culture: "the collective behavior patterns, communication styles, language, beliefs, concepts, values, institutions, standards, symbols, and other factors unique to a community that are socially transmitted to individuals and to which individuals are expected to conform" (Strike et al. 2003). Culture serves as a mechanism that manufactures social values and reproduces systems of power favoring the dominant class (Smith 2005; Bourdieu 1989). Ethnographic studies of culture from this orientation, like this book, seek to question implicit assumptions and behavioral norms adopted as group values in a particular culture. Ethnographers then interpret the meaning of these values and their role in shaping social priorities and practices (Madison 2005). Science is a culture, one forged by "hundreds of years of active shunning of women," and to change it to welcome women of color, queer women, and white women will require "deep structural changes in the culture, methods and content of science" (Schiebinger 1999, 11).

A first step toward these institutional changes would be to raise a collective critical consciousness that recognizes how science incubates ideas within cultural spaces through the subjective standpoints of people and how its widely disseminated outputs both shape and are shaped by broader cultural values and power relationships (Franklin 1995). Building on the shrewd insights of Chilly Climate activists, the "science as culture" argument is vital to desegregating STEM, particularly highly technical fields like computing, and challenges the deeply entrenched belief that science is purely objective and created in meritocratic environments.

In the decades since Chilly Climate activists' achievement of hermeneutical justice—coining a term to name and define forms of male hostility toward women (Sandler and Hall 1986)—culture continues to be cited as a significant factor responsible for the persistent lack of diversity in STEM (National Academies 2018). Yet cultures in technoscience remain inadequately understood and theorized. On the one hand, women of color, queer people, and white women navigating STEM institutions know all too well that the institutions for which they work (and the people with whom they work) tolerate and even encourage inequitable labor relations. Quantitative studies, like those undertaken by Steinpreis, Moss-Racusin, and their colleagues, demonstrate the prevalence of racial and gender bias in STEM and the *need* for cultural change. On the other hand, cultural experts and qualitative methodologies can be marginalized in interdisciplinary efforts in science (Viseu 2015; Hackett and Rhoten 2011; Carrigan and Bardini 2021), and collaborations—both theoretical and programmatic—to warm the climate in STEM workplaces are no exception.

Victoria Plaut (2010, 82), in an attempt to valorize cultural research in STEM equity efforts, argues that it is important to pay "attention to historically rooted cultural and structural contours of human behavior and psychological tendencies . . . examining cultural ideas and beliefs prevalent in people's social worlds." The social and intellectual movement to end racialized gender discrimination in STEM is an extension of women organizing to contest a subordinated position in US society. In other words, STEM equity efforts are a legacy of feminist activist in the US (hooks 2000). Dr. Nancy Hopkins, a biology professor at the Massachusetts Institute of Technology (MIT), is an example of a Chilly Climate scholar whose work was explicitly feminist. Hopkins and her colleagues gathered proof of a systematic reproduction of unequal distribution of labor roles and resources between female and male MIT faculty, and they garnered support to rectify this discrimination and achieve parity. In the course of this activism, Hopkins saw the value of organizing as women and for women. Soon after Hopkins and her coauthors published their report, MIT made a public, long-term commitment to analyzing resource and salary disparities and rectifying institutional and interpersonal gender inequalities at the faculty level (Rosser 2006). Perhaps inspired by this prestigious institution acknowledging and attempting to rectify institutional barriers against women in STEM, the National Science Foundation (NSF) initiated a new awards program called ADVANCE, with funding to create institutional, rather than individual, solutions to the problems of white male overrepresentation in STEM (Rosser 2006). In its call for proposals, the NSF encouraged this institutional transformation approach because women's underrepresentation in STEM is often a "systematic consequence of academic culture" (Rosser 2006, 70).

Even though feminism was integral to spotlighting culture as a significant barrier to just relations in science, Londa Schiebinger (2008) argues that feminist epistemologies and interventions have been mainstreamed into STEM and its frameworks, methods, and theories with little to no credit. I agree that even today, with some stellar exceptions, there is reluctance in gender equity studies to orient around feminist scholarship. Perhaps if interventions to recruit, retain, and advance women in STEM are perceived as overtly feminist, those advances may very well be scorned or ignored by faculty and administrators (Frehill 2007). In this way, feminism remains a specter in equity in STEM research, and risk aversion plays a role. Gender equity scholars concerned with justice in STEM must ask how much programmatic planning and knowledge production is constrained by peers' resistance and the threat of retribution. These fears are valid but can result in too much emphasis on "the individual processes of stereotyping and prejudice, which are less successful in changing these habits than lessons that highlight the systematic nature" of cultural oppressions (Plaut 2010, 83).

Relegating feminism to the sidelines of diversity in STEM scholarship and intervention strategies is akin to respecting the decision of LGBTQIA people to remain in the closet. It minimizes the risk of exclusion and other forms of violence to marginalized community members who are already vulnerable. However, the most promising efforts and ideas in equity in STEM research come from explicitly feminist centers like the Research Institute for Feminist Engineering at Purdue University and the Michelle R. Clayman Institute for Gender Research at Stanford University (Pawley 2011; Schiebinger 2008). Research on culture in engineering fields has grown out of feminist analyses of engineering education (Margolis and Fisher 2003; Godfrey and Parker 2010; Burack and Franks 2004; Pawley 2011). Since this scholarship is part of the legacy of Chilly Climate activism, it is no coincidence that it is some of the first STEM literature to investigate culture using qualitative methods that are uniquely suited to explore norms, values, symbols, and the lived experiences of group members from a range of standpoints (National Academies 2022).

SPOTLIGHTING DOMINANT GROUP CULTURE

One way to better understand inequities in STEM is to spotlight dominant group culture in these workplaces. For example, social scientists have identified male-dominant practices specific to computing, including jockeying for superior status, public criticism, impersonal communications, and competitive behaviors, especially in the classroom (Barker and Garvin-Doxas 2002, 2004; Margolis 2008; Margolis and Fisher 2003). Social psychology research finds that women are not drawn to computing because they do not fit the stereotypical norm of a male computer scientist (Cheryan et al. 2009). In an interview with the *New York Times*, Sapna Cheryan describes the stereotypical geek as "male, skinny, no social life, eats junk food, plays video games and likes science fiction" (Cain-Miller 2010, 2). Others note that underrepresented groups in STEM tend to be viewed as likable or competent but not both (Barnett and Rivers 2004). Just the fact of being a solo underrepresented group member in a white, male-dominated organization can create feelings of isolation that play a role in underrepresented group members' attrition from STEM disciplines (Greenwald and Banaji 1995; Nora and Cabrera 1996; Pewewardy and Frey 2002; Potter and Rosser 1992; Roos and Reskin 1984; Rosser 1995, 1998).

The stress of struggling to belong, in combination with discriminatory practices, lack of money and collegiality, slower promotions, and lower tenure rates, begins to explain the barriers to women's advancement in academic

STEM fields (Valian 1999, 220). Dissatisfaction with working conditions significantly influences women faculty's decisions to leave their institution (Committee on Science, Engineering, and Public Policy 2007). For example, women engineers make 90 cents for every dollar earned by their male colleagues (Society of Women Engineers 2021). White men are seen as the most qualified scientists and leaders, the most worthy of high salaries, and much more competent than other groups (Moss-Racusin et al. 2012). Women of color in STEM graduate programs found dominant group members' bias, microaggressions, and everyday racist slights, which revel in and reinforce white male superiority in technical matters, far more challenging than structural barriers (Ong et al. 2011).

THE CULTURAL IDENTITY OF ENGINEERS

Feminist cultural studies of science—an orientation that hails from a range of disciplines, including cultural anthropology, literary studies of science, STS, and studies of visual cultures (McNeil 2007)—needs to be in collaboration and conversation with equity in STEM scholarship. In order to locate my own research in these discourses, I draw attention to an issue that plays a key role in my project as a whole: the cultural identity of engineers. This focus also allows me to elucidate a methodological divide that must be acknowledged and debated if scientists and cultural feminists seeking diversity in STEM are to work together effectively. Efforts to sunder masculinity from the engineering identity must consider how the two were fused in the first place in order to better understand the legacies we have inherited in the current socioeconomic moment in which engineers labor today.

In their study, Cynthia Burack and Suzanne Franks (2004) discovered that dominant group members in engineering feel threatened by diversity efforts and defend their group identity in gendered interactions and discourses. To demonstrate a range of skills in a discipline that is not well understood by the general public, engineers point out that they "use two quite different kinds of skills: 'hard' and 'soft.'" Hard skills are "technical, mathematical and scientific; soft skills are interpersonal and communicative . . . their meanings are understood and shared, though left unspoken, by the community" (Burack and Franks 2004, 84). "Hard" also refers to "difficult," with the implicit assumption embedded in this linguistic framing that "soft" skills are really "easy" (Burack and Franks 2004). This reflects a sense of superiority among engineers, who believe they are smarter than their non-STEM peers (Carrigan and Bardini 2021; Burack and Franks 2004). The power of language and its ability to create inequality, bias, or exclusivity becomes apparent as unconscious understandings of "hard" and "soft" reflect gendered meanings. In engineering, rigor and "hardness" are glorified as are "performances of masculinity and assertions of male power" with phallic connotations (Riley 2017, 253). The double entendre of terms used to describe technical competence, or lack thereof—hard/soft and rigorous/easy—demonstrate how the ideological value system in STEM is a fusion of dominant norms governing both identity and epistemology.

These common forms of language, often used by engineers to tell stories of their profession, disadvantage certain groups along intersecting vectors of race and gender. For example, women of color are perceived as less competent than their white male peers and lack mentorship and encouragement (National Academies 2022; Ong et al. 2011; Espinosa 2011). Similarly, the technical/social divide that privileges technical skills and codifies them as masculine poses social challenges for women and LGBTQIA students in STEM (Cech and Waidzunas 2011).

Having worked with technoscientists closely for over 15 years, I can attest computer scientists and engineers generally agree that they have overarching characteristics that define them as a group. Jane Jorgenson (2002) refers to this phenomenon as "engineering identity," and Erin Cech (2005) refers to it as "engineering schemas." Broadly speaking, the engineering identity can be characterized as someone who enjoys and excels at problem-solving and getting one right answer (Chachra 2012). In a facilitated workshop, my colleague at the University of Washington ADVANCE Center for Institutional Change (UW ADVANCE) asked a large group of tenured engineering faculty members to name the top characteristics of engineers. Their answers included someone who is (in order of frequency) analytical; problem-solver; smart; designer/developer/builder; creative; logical; and visionary/innovative.

These characteristics may be idealistic or realistic; most likely, they are a combination of both. Regardless, they shape the evaluation criteria and culture of engineering fields, and this affects women engineers differently than their male colleagues. The long hours and laser focus of STEM fields operate to fit white male lives within the capitalist organization of labor, one in which bourgeois white men display their dominant position not only with unequal access to lucrative "hard skills" jobs but with stay-at-home wives caring for the household and children. Within the context of capitalist patriarchy, men's careers will fare better than their female peers who do not have the same access to free labor in their homes. The architecture of these modern patterns of labor segregation can be traced back to the Victorian era where, in white middle-class English society, domestic work became a sign of drudgery incompatible with class-climbing aspirations (Anne McClintock as cited in Lewis and Mills 2003). A white middle-class woman's vocation was not knowledge production but to make invisible domestic labor—the work of cleaning, cooking, and tending a home. Her labor promoted the prestige of male buying power without sullying it with evidence of female labor and, in the process, devaluated women's labor value and transformed wives' labor power into their husband's political power (McClintock as cited in Lewis and Mills 2003).

The historical dimensions of engineers' cultural identity helps to explain how everyday practices of exclusion are deeply woven into not only the group identity of individual members but also the class status of the field as a whole. A man's prowess with a machine is a source of pride, and tinkering is a form of male middle-class bonding in the US (Oldenziel 1999). The relationship between masculinity and machinery in the nineteenth and twentieth centuries is a symptom of a long-term cultural alliance between science and mechanistic paradigm. The core values of the Western world are a systematic objectification and mechanization of the human body and domination over nature (Merchant 1980). At the turn of the twentieth century, both elite engineers and those on the shop floor conspired to keep women out of the profession to "keep alive the promise, often unfulfilled, that upward mobility was still a viable option for middle-class men" (Oldenziel 1999, 43). The precarious position that engineers hold within the hierarchy of political economic organization, in a space between capital and labor, has shaped the collective identity of engineers and the defining characteristics of competency in this arena. In the professional culture of engineering, stereotypes about the social identity of group members are co-constructed with qualities and characteristics of competence (Cech and Waidzunas 2011). The confident, even peremptory, white male is the typical icon of scientific and technical competence (Carrigan 2018; Ong 2005). Ideologically, technology is canonized as the savior of the masses, and upper-middle-class white men have the privilege of interpreting and integrating this transformative force into society. These dominant group members go further to assert that their expert knowledge can be applied universally (Harding 2004). This posturing is what Maria Lugones (1989) calls "arrogant perception," being at ease in the world without challenging oneself or one's social position. Only dominant group members would assume that their knowledge claims should be applicable to all (Harding 2004). The role of hero that the engineer plays in our culture has not changed, but the identity of this hero has shifted from one who conquers the wild west frontier with dams, mechanical engines, mass agriculture, and (sub)urban planning to the stereotypical nerd who is a postindustrial hero storming the virtual frontier of cyberspace.

Women who do enter these domains are often coerced to perform the masculine ideals of engineering in order to be accepted as "one of the guys" (Carrigan 2018; Hacker et al. 1990; Faulkner 2000b). Some women navigate this pressure by denying any gender differences in both the scholarship and cultures of their fields. However, we must be careful not to naturalize social identities that make women choose between a gender identity and an engineering identity (Jorgenson 2002). Wendy Faulkner (2000b) recommends "pluralism" of style and identities, opening our minds and thinking beyond two popular themes—that women must act like men to succeed or that they must be different from men, which is a fixed identity difference. The fact is that when engineers hold high status in an organization, they dominate norms and exercise power that reaffirms a particular kind of masculinity, one that also reinforces class inequalities by affirming technical prowess and denigrating other kinds of work (Faulkner 2000b). Pluralism is an excellent orientation with which to frame ethnographic methodologies when studying cultures of STEM because it gives participants the opportunity to possess and perform multiple identities. For example, being perceived as a woman of color *and* a scientist is a complex and daunting negotiation of performance, social identity, and professional confidence, and female scientists of color operationalize multiple identities as a strategy of persistence (Ong 2005). To suss out the factors related to women's low participation in STEM fields, however, it is important to discuss dimensions of race, gender, and class identities within the context of a dominant engineering identity, cultivated and enacted to affirm a homosocial community of powerful professionals.

FEMINIST SCIENCE AND TECHNOLOGY STUDIES

Equity in STEM is well augmented with feminist STS. Feminist scholars of STS uncover historical and cultural foundations underpinning how and why modern technology is coded as the domain of white males (Harding 2004, 2006; Wyer 2009; McNeil 2007; Oldenziel 1999; Forsythe and Hess 2001; Harding 1991; Wajcman 2009, 1991; Hacker 1981; Franklin 1995; Faulkner 2000a; Riley 2014; Barker, Garvin-Doxas, and Roberts 2005; Suchman 2012; Lerman, Oldenziel, and Mohun 2003; Lohan 2000; Lie 1995, 1997; Frehill et al. 2009; Faulkner 2001; Margolis and Fischer 2003; Margolis 2008; Rosser 2004; Henwood 1996; Mayberry 1998; Kelly 1985). Feminist anthropologists have been prominent in this field of science studies, extending kinship studies to critique the cultural impact of new reproductive technologies and the ways in which women and our bodies are objectified and controlled (Rapp 1979; Davis-Floyd 1992; Martin 1994; Ginsburg and Rapp 1995).

A main vein of difference in feminist STS literature, as compared to equity in STEM literature, is an explicitly feminist stance that is reflected in different methodologies and arguments for problems and solutions to labor segregation in science. Also, feminist STS research expands the conversation beyond numbers—an important element, but one that needs to be placed in cultural contexts and historical legacies of systematic injustices (Malcom 2019; Harding 1986, 2008; Rossiter 1998). These injustices are the root causes of the lack of diversity and inclusion in STEM (Malcom 2011). Framing the low numbers of historically underrepresented group members in STEM as inequality and injustice is a political stance, one that allows for an intersectional critique of culture in STEM and the possibility of enacting transformational change in the halls of technical knowledge and power. Further, feminist STS asks: "How can the core epistemological presumptions of science be maintained when empiricism cannot recognize its own failures within the actual practice of science" (Grassie 1996, 286)? In other words, feminist STS destabilizes normative understandings of what constitutes the practices, inquiries, epistemologies, methodologies, cultural meanings, and applications of technoscience. Because of their interdisciplinary and critical approaches, scholars in feminist STS articulate an alternative yet comprehensive understanding of the social identities of technoscientists and the cultural production of technology (Reid and Traweek, 2000). Since

Donna Haraway's seminal intervention into probing the boundary between nature/culture (Haraway 1991), feminist STS has made many contributions to interrogating its epistemic and socially constructed grounds. The historical, cultural roots of positivist science are often masked and obfuscated (Franklin 1995; Traweek 1988; Bauer 1990). Although technology is a political activity in which women and men of various standpoints engage (e.g., by using cell phones), a small minority of the population decides what gets made and toward what end.

The study of culture in technoscience can be considered problematic given that scientific inquiry is often assumed to occur in a cultural vacuum—a "culture of no culture" (Traweek 1988, 162). Feminist STS scholars in particular argue otherwise, noting that objectivity is a cultural value in STEM and evolved out of scientific practices performed almost exclusively by white males (Haraway 1991; Harding 1986; Franklin 1995; Campbell 2009). Schiebinger (2008) argues further that many cultural practices in the sciences developed in opposition to women's participation. Therefore, naturalizing the epistemic knowledge of some and discrediting others for the purpose of reproducing institutional, historical inequalities must be rigorously scrutinized and combated (Collins 2000; Reid and Traweek 2000; Hess 2007).

This is why some STS scholars interrogate the production, distribution, and consumption of technoscientific knowledge as ethico-political processes (Puig de la Bellacasa 2011; Sismondo 2010). However, arguing that science is culturally contextualized and formed by unjust social norms strikes at the heart of the popular belief that scientific endeavors are separate from society (Nader 1996). Epistemological commitments of a moral and ethical nature in feminist STS are strongly resisted by both scientists and STS scholars alike because they do not want their allegiance to empiricism and achievements in this intellectual tradition to be criticized. "They find it intolerable to be positioned by feminist transformations of regulative ideals as less than fully ethically admirable" (Bauchspies and Puig de la Bellacasa 2009, 338). Thus, while STS as a field is becoming more comfortable with "scholarship that critically addresses the methods and practices that maintain oppressions within technoscience," mainstream STS scholars too often either resist critical scholarship or relegate it to the footnotes, especially work from a feminist orientation (Bauchspies and Puig de la Bellacasa 2009).

SEXUAL HARASSMENT

In the decades in between Chilly Climate activism and recent calls to action to fight sexual harassment in STEM, feminism, culture, and empiricism have been at the forefronts of debates led by scholars alarmed by violence in STEM. "Correcting biases drew attention to deeper, more pervasive problems" (Wylie 2012, 54), like women's subordinated position in broader society, structural racism, identity-based harassment in science, and the colonizing dimensions of objectivity in Western science—the hubristic "god trick," an infinite view from nowhere (Haraway 1988, 581). While unexamined bias is extremely important to catalyzing a critical mass of scientists and engineers to understand and interrupt barriers to desegregating their fields, we continue to reckon with this violence in both the STEM workforce and the fields' ties to militarism, capitalism, colonialism, and white male supremacy in broader society. An ethos of care, however, requires that praxis interrogating sexism in STEM to reckon with the harms and effects of gender and sexual harassment, both of which are, unfortunately, all too pervasive in academic science, technology and engineering fields (National Academies 2018).

Thanks to Anita Hill and the groundswell of feminist activism in the 1990s, sexual harassment has entered into US mainstream consciousness and public policy. Now, over 30 years later, gender and sexual harassment are being explicitly spotlighted and discussed in gender equity circles in STEM.[2] For example, a consensus study on *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine* called for cultural change in higher education to combat sexual harassment in STEM fields (National Academies 2018). Scientists and science policymakers are responding to this growing visibility of sexual harassment with decreasing tolerance for its effects and perpetrators.

Sexual harassment in science is multifaceted. Its enactment and tolerance are predicated on epistemological assumptions (rooted in institutional relations of gender and race) about who is a competent knowledge producer and who is not and whose bounds of privacy and autonomy are respected and whose are transgressed. These assumptions are generated in a social matrix of structures of meaning and patterns of power and disempowerment along vectors of race, gender, and sexuality. In *Cracking the Bro Code*, I am forging a path for moving forward at this critical juncture in research on broadening participation in STEM fields, arguing that sexual and gender harassment are significant reasons why some disciplines, like computer science and engineering, remain stubbornly segregated. This book is part of the lineage of anthropologists leading the groundbreaking study of sexual harassment in STEM (Howell 1988, 1990; Sharp and Kremer 2006; Nelson et al. 2017; Clancy et al. 2014, 2017). My perspective straddles anthropology and STS and the knowledge that I have gained working in interdisciplinary and cross-race collaborations to combat segregation and identity-based harassment in STEM. Ultimately, my vision is achieving the widespread adoption of gender harassment policies in academic STEM and enacting effective interventions that put a stop to this form of identity-based violence.

Sexual harassment takes three forms: unwelcome sexual attention; coercion, a sexual quid pro quo whereby professional advancement requires sex; and gender harassment (National Academies 2018). Gender harassment refers to disparaging conduct not intended to elicit sex. Instead, it is verbal, physical, and symbolic behaviors that convey hostile and exclusionary attitudes toward women. Examples of gender harassment include anti-female jokes, comments that women do not belong in computing or management, and crude terms of address that denigrate women. Gender harassment communicates hostility that is devoid of sexual interest but aims to insult and reject women (Leskinen, Cortina, and Kabat 2011).

Sexual harassment studies commonly rely on surveys and laboratory experiments to estimate "prevalence and determine correlates, antecedents, outcomes, and factors that attenuate or amplify outcomes from sexual harassment" (National Academies 2018, 30). Qualitative studies serve as complements to statistical ones because they are able to learn about minoritized members of scientific workplaces and offer intersectional insights into complex phenomena, the contexts in which they occur, and their consequences (National Academies 2022; Cho, Crenshaw, and McCall 2013). In this book, I am committed to moving beyond *describing* to *problematizing* a workplace culture that tolerates and "black boxes" the systemic problem of sexual harassment that reproduces oppressive relations in technoscience.

Sexual harassment rates in academic institutions (58 percent) are second only to the military (69 percent) when compared with industry, and the government (Ilies et al. 2003). The National Academies (2018) consensus study report makes important contributions to begin to address sexual harassment in academic STEM. The authors framed the problem not as an individual or interpersonal one but rather a cultural one. They go further to say that there are four elements unique to academic science, engineering, and medicine workplaces that make them more likely to tolerate sexually harassment, including

1) male overrepresentation;
2) hierarchies of power concentrated into the hands of a few individuals;
3) ineffective policies and procedures that perform concern for sexual harassment but hold zero consequence for noncompliance; and
4) lack of educated leadership being held accountable for preventing sexual harassment. (National Academies 2018)

This roadmap to potential interventions implores further research into cultures of STEM and their tolerance level for sexual harassment. While there is an abundance of research on unconscious bias in STEM, more research is sorely needed on the lived experiences of sexual harassment and how these experiences are either different or similar across racial identities and disciplines in STEM. Finally, we need to know more about what cultural attributes contribute the most to workplace environments that protect and even reward harassers.

The stakes of this issue are high—first, because the violence is so prevalent and second, because the effects of sexual harassment differentially affect highly marginalized women in STEM. For example, a groundbreaking study on fieldwork-based scientists found that 72 percent of their female respondents had been the target of gender harassment and 26 percent had survived sexual assault during the course of fieldwork, most often perpetrated by senior males on the research team (Clancy et al. 2014). A follow-up study by Kathryn Clancy and colleagues found that women of color scientists are targeted at higher rates than white female peers (Clancy et al. 2017). These findings support other scholarship on sexual harassment that the experiences of women of color in the US workplace differ from those of white women (Berdahl and Moore 2006; Buchanan, Settles, and Langhout 2007; Buchanan and Fitzgerald 2008; McGee and Bentley 2017; Raver and Nishii 2010; Richardson and Taylor 2009). Experiences of racial and gender discrimination also differ among Black, Hispanic, and Asian American women (Mohr and Purdie-Vaughns 2015). The manner in which race is gendered plays a significant role in a cultural matrix of power relations. For example, gendered racial stereotypes shape how "women in technical positions manage their gender and sexuality" (Alfrey and Twine 2017, 30–31). Furthermore, queer women experience higher rates of sexual harassment than their heterosexual peers (Rabelo and Cortina 2014).

Sexual harassment persists because it is tolerated through culturally normalized, daily acts of ignoring rather than mere ignorance (Quinn 2002). What we know so far about sexual harassment in STEM comes from a few rigorous descriptive studies and inductive hypothesizing by STEM education experts on findings from decades of sexual harassment research on workplaces *outside* academic STEM. Drawing on a knowledge politics informed by a de-colonial feminist STS, *Cracking the Bro Code* aims to make sense of the enactments and tolerance of sexual harassment in some of the most powerful laboratories and worksites in the world. Demanding an end to harassment in technoscience has a distinct advantage over a singular approach of combating bias in that sexual harassment is explicitly prohibited in government, university policies, and many professional societies in technoscience. Sexual harassment is a cultural phenomenon. To study it properly requires appropriate methods for studying culture—namely, qualitative methods.

A robust theory on sexual harassment in STEM is both timely and needed. We must more comprehensively understand not only the experiences of being sexually harassed but also the cultural phenomena that reproduce this violence in order to enact "effective, intersectional interventions, prevention strategies, and response models that are centered on the perspectives and needs of those who experience identity-based harassment" (Herbers, Metcalf, and Williams 2019, 4). In later chapters, I analyze my data intersectionally, looking to how women of color, queer women, and gender nonconforming people are disproportionately targeted by gender and sexual harassment (Clancy et al. 2017; Rabelo and Cortina 2014) and how this targeting then negatively affects their career, health, and persistence.

How might framing sexual harassment as a matter of care (Puig de la Bellacasa 2011) foster greater collegiality in technoscience and to what broader effects? In studying the traumatic effects and serial patterns of predation in science, how can one not only take care not to speak "for" others but also ensure that no further harm will come to research participants? In other words, how do I ensure that this research triggers no retributive responses toward those who are already targets of sexual harassment and discrimination in science?

CONCLUSION: TRANSFORMING GENDERED INSTITUTIONS

Caring about bias, discrimination, and harassment can illuminate workplace cultures that, through preferential treatment, support the persistence of some but not all members. Spurious forms of resistance to desegregation—bias, discrimination, and harassment—have too long been tolerated, especially in computing science and engineering workplaces, labs, classrooms, and professional society meetings. We must develop pathways of resistance where the people who produce computer technology are not just free of harassment and discrimination but also free to trouble the institutions they work for, to agitate not just for reform of exclusionary practices but for a transformation in how technology is produced, toward what ends, and for whose benefit. The end goal is not simply the vague concept of "inclusion" but rather that all have a voice at the table—one that is heard, respected, and supported. Further, the weight of responsibility should not fall on those targeted by bias, discrimination, and harassment to introduce and lead difficult conversations about the social dimensions of STEM production (e.g., racism, sexism, homophobia, and classism).

Too often, in their efforts to convince the public of the importance of diversifying STEM fields, STEM scientists argue that their fields are "critical to the national economy and America's global competitiveness," yet they leave these institutions unexamined (Hill, Corbett, and Rose 2010, 1). Commonly held reasons for equity interventions in STEM must be destabilized to reframe the exclusion of women and scholars of color from laboratories, faculty ranks, and boardrooms as a broader historical project of dispossession, the solutions to which require more than an "add and stir" approach to combating underrepresentation and carefully defined conceptualization of similarities and differences between discrimination and harassment.

I grounded this chapter's analysis in feminist STS methodological commitments to "matters of care" because I hope equity in STEM scholarship going forward will build on the 2018 National Academies report and inform activities and scholarship with an explicitly political stance against the tolerance and reproduction of harassment in STEM fields. My call to augment critiques of bias and discrimination with sexual and gender harassment in academic STEM has raised questions about the differences between discrimination and harassment. While on the same continuum, the differences between these forms of social violence are a matter of scale. Discrimination is prejudice and ill treatment that stems from stereotypes that operate at the level of culture. It shapes behavior and policies that lead to disparate outcomes and chilly climates (Carr et al. 2000).

The term "harassment" traditionally has meant to exhaust and fatigue. It comes from the French word *harer*, "to set a dog on" (Procter 1984). Gender harassment occurs at the level of individual and interpersonal interactions in academic workplaces and is intended to both dehumanize women and denigrate our capacity as knowers. Sexual harassment involves unwelcome sexual advances and coercion to engage in sexual activity. Such harassment erodes collegiality in sites of STEM knowledge production and unjustly exhausts and fatigues women in academic workplaces. Though I argue that we need to understand the differences between sexual and gender harassment, their effects on disadvantaged group members of science are, unfortunately, remarkably similar. For example, a study of women in male-dominated fields found that nine out of ten women who were harassed experienced no sexual advances but suffered adverse effects on their health and career similar to those who were sexually harassed (Leskinen, Cortina, and Kabat 2011).

In the following chapters, I aim to answer these questions by probing ideological, material, and cultural practices of high-tech workers, synthesizing scholarship in equity in STEM and feminist STS, and paying close attention to how women and their allies within STEM fields can collaborate to enact institutional transformation. Much important knowledge about the structural, organizational, and interpersonal barriers to women's success and advancement in STEM fields has been generated by female STEM practitioners (Bystydzienski and Bird 2006). However, advocates for gender equity in STEM make claims about culture, the exploration and verification of which will require greater collaboration and cooperation between them and feminist STS social scientists. On-the-ground emic perspectives are important because they privilege the experiences and unique positionalities of people who are participating in the epistemic and cultural practices of STEM fields. However, if institutional transformation is the end goal, then incorporating outsiders' perspectives on the cultures of STEM (e.g., those of social science researchers) will continue to be helpful to attend to silences, misinterpretations, and lacunae of knowledge that have yet to be uncovered. For example, my feminist analysis of cultural norms in computing reveals that the white male standpoint in STEM fields is so deeply embedded, not only in norms and workplace culture but also in the positivist tradition of Western science, that performances of masculinity are taken for granted. Women technical professionals must navigate these unspoken norms and values. As I discuss in chapter 5, women in computing find this navigation to be an exhausting exercise of filtering out their lived experiences so as not to disrupt how the dominant class defines the social identity behaviors of engineers, the problems worth solving, and the methods that have validity.

Equity in STEM scientists and feminist STS scholars alike are engaged in the struggle to transform exclusion in STEM. This is a political demand, and resources and ideological shifts are required to satisfy this demand. Feminism in science requires political engagement, like Nancy Hopkin's efforts at institutional transformation, and ideological work, like Wendy Faulkner's call for pluralism in the cultural identity of engineers in order to break the ideological bind between engineering identity and gender identity. For many readers, this work requires interrogating the different methodological approaches to feminist interventions. For some who are persisting in technoscience, better inclusion practices are sufficient to transform the tech industry. Conversely, within projects aimed at overhauling how the industry operates within other structures of power, like the state and racial capitalism, radical labor organizing is the only path forward. Together, feminist labor activism can coexist with those amplifying the lived experiences of pioneering women in STEM to disrupt the "arrogant perception" (Lugones 1989) that universalizes a singular identity of a computer scientist or engineer and a singular definition of competency to reproduce dominant class rule in STEM.

This is a section of doi:10.7551/mitpress/14883.001.0001

Cracking the Bro Code

By: Coleen Carrigan

Citation:

Cracking the Bro Code
By: Coleen Carrigan
DOI: 10.7551/mitpress/14883.001.0001
ISBN (electronic): 9780262377157
Publisher: The MIT Press
Published: 2024

The open access edition of this book was made possible by generous funding and support from MIT Press Direct to Open

The MIT Press

The MIT Press would like to thank the anonymous peer reviewers who provided comments on drafts of this book. The generous work of academic experts is essential for establishing the authority and quality of our publications. We acknowledge with gratitude the contributions of these otherwise uncredited readers.

This book was set in Stone Serif and Stone Sans by Westchester Publishing Services.

Library of Congress Cataloging-in-Publication Data

Names: Carrigan, Coleen, author.
Title: Cracking the bro code / Coleen Carrigan.
Description: Cambridge, Massachusetts : The MIT Press, [2024] | Series: Labor and technology | Includes bibliographical references and index.
Identifiers: LCCN 2023028854 (print) | LCCN 2023028855 (ebook) | ISBN 9780262547055 (paperback) | ISBN 9780262377164 (epub) | ISBN 9780262377157 (pdf)
Subjects: LCSH: Women computer industry employees—United States. | Sexual harassment of women—United States. | Sex discrimination against women—United States. | Male domination (Social structure)—United States.
Classification: LCC HD6073.C65222 U533 2023 (print) | LCC HD6073.C65222 (ebook) | DDC 331.4/80040973—dc23/eng/20230817
LC record available at https://lccn.loc.gov/2023028854
LC ebook record available at https://lccn.loc.gov/2023028855