Empathy Blues at the Colonial Difference: Underrepresented Undergraduate Women in STEM
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At a recent interdisciplinary symposium on empathy, I was troubled by the ostensibly uncomplicated view that it is a natural, easily attained state. Neuroscientists from across the United States discussed the neural substrates of human empathy, perspective-taking, and mechanisms of neural resonance and “mirroring” that seem to indicate our ability to “feel with” others; artists as well as professors from social work and the humanities discussed various approaches to empathy in their pedagogy and research. All the while in my mind’s eye, I saw two young women who had recently shared distressing interactions with me. After a meeting in which she told her advisor that for graduate school she would like to move from her science major to its practical applications in engineering, Esma came to my office and sadly announced the unexpected response: “She laughed at me.” When Jill discussed her plans to apply to doctoral programs, a well-intentioned professor with a reputation as a brilliant but tough teacher emphasized how difficult this path would be. Her interpretation? “He intimidates me. I don’t think he has confidence in me.” Esma and Jill were both shaken and began to doubt their abilities. Had their advisors experienced a failure of empathy? They had apparently not been able to connect and “feel with” their students. I began to ponder: to what degree is empathy possible? If it is possible, is it a desirable mode of relation? And what bearing might empathy have on the experiences of women — particularly women of color — in science, technology, engineering, and math (STEM) fields?

Such events reveal that a young woman’s ability to persist in the sciences often turns on exchanges with professors who may be surprised to learn they are discouraging the very students they hope to support. Moreover, these were not isolated incidents, but common, contemporary echoes of long-standing dynamics in the STEM fields. A recent New York Times Magazine article pointedly asked, “Why Are There Still So Few Women in Science?” It thoroughly explores common assumptions about women’s abilities and individual academic choices that predispose high school teachers and university faculty to — often unwittingly — contribute to the cascade of microaggressions directed toward women in STEM. The essay quotes Meg Urry, current director of the Yale Center for Astronomy and Astrophysics: “Women [are] leaving the profession not because they [aren’t] gifted but because of the ‘slow drumbeat of being underappreciated, feeling uncomfortable and encountering roadblocks on the path to success.’” Recent scholarship attests to the truth of Urry’s claim: it makes plain that changing the culture of the sciences to be fully inclusive of women in general, and marginalized underrepresented and first-generation women in particular, is proceeding with excruciating slowness. And, sadly, concerning interpersonal exchanges such as those that Esma and Jill experienced seem particularly marked in STEM disciplines.
Later in the symposium, Audrey Thompson reminded the audience that our ability to respond with empathy is situated in our social and racial positions: power relations are always implicated in and cannot be separated from the potentially empathy-inducing event. Here, I thought, was a clue to my problem. And, indeed, further research into the neuroscience of empathy revealed several troubling, intertwined notions: (1) unless we hold a positive attitude toward that person, we are less likely to engage in prosocial helping behavior toward an outgroup member experiencing physical pain; (2) in contrast with the distress individuals may feel for someone in physical pain, affective responses for social pain may only be activated in the most empathic individuals; and (3) we are less likely to engage in perspective-taking with “socially-derogated targets.” When I put these strands together, I doubt the possibilities for faculty from dominant backgrounds to “feel with” students who have been marginalized in the academy. Successfully empathizing to navigate conversations with students like Esma and Jill would seem to require individuals who are aware of, and highly attuned to, the social pain of academic exclusion, who also have the ability to overcome an unconscious tendency to distance themselves from dissimilar others. However, the hurtful interchange between Esma and her female advisor should caution even those professors who share a social and political position with their underrepresented students.

Academics, policymakers, and foundations are concerned about increasing diversity in STEM fields; they have created a range of grant-funded programs to address the seemingly intractable problem of numeric underrepresentation of women as well as all students from minoritized groups. I suggest that several lines of inquiry can be braided together to address how we might enrich the scientific community with more inclusive STEM departments. I begin with Sharon Todd’s nuanced discussion of responsible educational community and empathy, which I then complement with Sandra Harding’s work on the continuing impact of colonialism on modern Western knowledge systems and Maria Lugones’s on the coloniality of gender and decolonial feminism. Ultimately, I argue that pedagogical relations with first-generation or women of color in our science classrooms are complicated by the intertwining colonialities of knowledge and gender.

A C A D E M I C   C O M M U N I T Y ?

I agree with Todd that “community” is a “rather ubiquitous presence in social justice education,” and, certainly, increasing diversity in STEM fields is a project grounded in a social justice ethos. Many programs hope to increase underrepresented participants’ “sense of community”; activities are done in a cohort, peer mentors are called upon to model the hoped-for outcomes, and faculty provide research mentorship and guidance. Of course, communities are peopled by subjects, and Todd takes a Levinasian view of subjectivity: the encounter with the utter alterity of the Other compels me to enter an ethical relationship with her; I am responsible to the Other in her singularity, and my response to her — that is, the event of responding — constitutes me as a subject. Todd further states that “Levinas conceives of the ethical relation between self and other as already situated within community” because the face of the Other also represents one’s individual responsibility to all
of humanity: the ethical relationship I am called to when I am face-to-face with the Other also signifies my ethical responsibility toward all Others. And, just as the event of the one-on-one encounter with Otherness constitutes my subjectivity, community is a “continuously on-going practice that negotiates [the] difficult ethical path” of creating commonality and shared responsibility (or response-ability) which “can only ever be derived from the presence of difference within community, a difference that constantly threatens to … dissolve the communal bond.” She notes that it is a paradoxical process because only “in attending to this difference, to others as others” are we able to form a responsible community that aims to be socially just. To maintain the paradoxical nature of community, Todd calls on Zygmunt Bauman’s concept of “being-for” as a way of relating to others: “Being-for is entered for the sake of safeguarding and defending the uniqueness of the Other; and that guardianship undertaken by the self as its task and responsibility makes the self truly unique, in the sense of being irreplaceable.” Bauman likens the relational result of being-for “to an alloy whose precious qualities depend fully on the preservation of its ingredients alterity and identity.” How might Jill’s professor find a way to be for her, to create a sense of relationship and community that preserves what they each bring to the other and to the scientific community as a whole?

Todd interrogates the possibility for empathy to help community members in social justice-oriented education projects be for one another but determines that it falls short. First, “feeling with others … blurs the distinction between self and other….” Empathy might bridge the divide of difference through understanding and knowledge, but it does so at the cost of respecting the Other’s fundamental difference.” Second, she finds it impossible to will an empathic response: empathy is nonintentional. Finally, because empathy’s “impulse [is] to overcome difference and partake in a shared reality, [it] focuses upon what we can know of the other’s experience … [thus] shutting down … opportunities for communicative openness…. Empathy necessarily leads to questionable assumptions about how the other is ultimately somewhat like you, and that what you feel is the same as the others’ feelings.” Interestingly, neuroscience lends support to this view. Certain empathy studies note heightened activity in the insula. The meaning of this fact, however, is ambiguous; the activation may indicate the participant is “feeling with” the other, but it may simply indicate that she is remembering her own similar experience. To encourage being-for, Todd asks us to teach with ignorance rather than empathy. In contrast to many discussions of ignorance, Todd deploys it in a beneficial way: ignorance allows us to drop the presumption that we can know the Other, to be surprised, to be called into question by the Other so that we may respond to her and become subjects as well as responsible community members. Acknowledging ignorance of the contemporary academic consequences of colonial knowledge practices and gender relations is one way we can prepare to respond to the Other.

Coloniality of Knowledge

Nelson Maldonado-Torres explains that coloniality arises out of the sociohistorical setting of the conquest of the Americas and “refers to long-standing patterns of power that emerged as a result of colonialism, but that define culture, … inter-
subjective relations, and knowledge production…. It is maintained alive in books [and] in the criteria for academic performance.” He further indicates that for those of us who are descendants of colonizers, coloniality is part and parcel of our very being — that the “ego conquiro” predates the “ego cogito” of Descartes. Coloniality is “characterized by a permanent suspicion” toward the colonized. Indeed, their very humanity was questioned. For Maldonado-Torres, then, the skeptical attitude at the heart of Descartes’s thinking person must be “understood against the backdrop of an unquestioned ideal of self expressed in the notion of the ego conquiro.” He asserts that this notion of the self often reveals itself in European-descended settler peoples’ imperial attitude toward the formerly colonized. The notion of coloniality helps illuminate contemporary science practices. Much good has come from the methods and norms of modern Western science, and we should not abandon them. However, it is important to recognize that they hold a deeply troubled past, the effects of which still linger.

Mary Louise Pratt, in her fascinating study of travel writing, Imperial Eyes, describes how two events that took place in 1735 shaped “European elites’ understandings of themselves and their relations to the rest of the globe.” That year saw both the publication of Carl Linnaeus’s Systema Naturae and Europe’s first major international scientific expedition. Linnaeus developed a classificatory system designed to categorize all forms of plant life on the planet; the French-led La Condamine scientific expedition was intended to determine the exact shape of the earth — was it a sphere or a spheroid (IE, 15–16)? According to Pratt, these events led to the development of a “planetary consciousness” (IE, 15). By employing the classifying and descriptive methods of natural history to create a new understanding of both knowledge production and global social relations, European elites organized the world around themselves and to their sole benefit. She suggests that this new consciousness “is a basic element constructing modern Eurocentrism, that hegemonic reflex that troubles westerners even as it continues to be second nature to them” (IE, 15) — an idea that certainly resonates with Maldonado-Torres’s concept of the imperial attitude. Narratives written by explorer-scientists communicated the results of their expeditions to the European elites, and Pratt reveals how through this form of writing “science came to articulate Europe’s contacts with the imperial frontier and to be articulated by them” (IE, 20). She asserts that, through his “totalizing classificatory” schema (IE, 28), Linnaeus “launched a knowledge-building enterprise” (IE, 25) that had “a deep and lasting impact … on the overall ways European citizenries made … sense of their place on the planet” (IE, 24). The scientist was held up as someone who produces order out of chaos (IE, 30), who observes, represents, and classifies the world in a way that distances the observer from the observed object. The classification and categorizing of — and distancing from — nature included the distorted and poisonous racial ranking of humans. Stephen Jay Gould has thoroughly documented the historic (and more contemporary) practices of ranking humans that were, in their day, considered the apex of scientific study. Now discredited, the effects of imperial projects of racial classification are still felt: the formerly colonized continue to be excluded and marginalized, albeit in more subtle ways, and the
former colonizers do not easily apprehend the gaps in their knowledge about the social world they have created.

Moreover, the order-out-of-chaos view of science and scientists is persistent. But scholars in science and technology studies such as Sandra Harding have brought critical questions to bear on our commonsense understanding of modern Western science. They question whether we can truly engage in neutral, value-free research practices, and they cast a wary eye on the idea that science constructs knowledge for the universal good and social progress. In profound ways that we don’t often acknowledge in our daily lives on college campuses, Pratt, Harding, and Gould illuminate how scientific practices and academic disciplines are deeply intertwined with the European history of exploration, colonization, and exploitation of the planet. Using their methods to draw a line between knowledge that could be considered science and what could not, early explorer-scientists set in motion a discussion regarding what deserves to be called “science” that carries through to this day:

The knowledge systems of other cultures, it was routinely asserted, were infused with magic, superstition, religion, and other forms of irrationalism and anthropomorphism, making them unreliable guides to nature’s regularities and their underlying causal tendencies, and leaving the thought of those cultures firmly lodged in the premodern. Such knowledge systems did not deserve the name “sciences,” and because of their cultural elements they could not be integrated into a unified or harmonious relation with modern Western sciences.29

Which disciplines deserve to be included under the aegis of Science remains an open question: what “counts” as STEM fields varies from one agency to the next. What is at stake when we ask this question? Michel Foucault exposes the argument about what constitutes a “science” as one concerned with power and its effects.30 Historically, what counted as “science” was decided by the powerful colonizers; they institutionalized knowledge practices and controlled scientific discourse, and, in so doing, delegitimated other ways of knowing the natural world. Projects that benefited the colonial enterprise were favored.

In an insightful essay on epistemological vulnerability, Jennifer Logue underscores this point. She writes, “Disciplinarity itself … shifts some knowledges out of consideration, thereby creating categorical ignorances.”31 It encourages epistemic chauvinism. In harmony with Harding, Logue concludes that the “scientific canons … have been polluted by sexist and racist colonial projects of expansion and domination.”32 With other scientific traditions silenced and cast aside, Harding writes, “European expansionism … changed the ‘topography’ of global scientific knowledge, causing the advancement of European sciences and the decline or underdevelopment of scientific traditions of other cultures” (SSI, 42). This is a very significant point, and it can be applied to other academic disciplines: systemic patterns of knowledge and ignorance are just as surely found in literature, political science, and history.

Harding stands with other philosophers and sociologists of science who have pointed out that culture always leaves its mark on the production of knowledge, including scientific knowledge. In practice, this means that the class, racial, and gender concerns of imperial nations have deeply influenced the history of science (SSI, 42). Power resides with those who name and organize natural and social realities, and it became impossible for outsiders to pose certain questions. For example, Harding asks,
In what ways have the existing projects in physics, chemistry, engineering, biology, geology, medicine and environmental and other sciences been excessively contained by Eurocentric assumptions and goals? How have the conceptual frameworks and practices of Eurocentric philosophies of these sciences guided and made them appear not only reasonable but also the only such reasonable kinds of sciences? (SSI, 61–62)

She asserts that “conventional accounts of science present it as the discovery and testing of hypotheses, implying that the laws of nature had been there all along, untouched by human hands or thought, until some clever or lucky scientist managed to detect them” (SSI, 8). This concept of scientific discovery is widely taught in schools, and it claims to represent the world as it is — at least, one small piece of the natural world. But such accounts obscure “how social and political values and interests seem to flow out of scientific work ‘behind the backs’ of the scientists. The representational account seems to absolve the scientific enterprise of any responsibility for the various politics that flow from its representations” (SSI, 10). Yet Harding contends that our modern Western science has a political unconscious (SSI, 3), and this is exposed when we take as our starting place those knowledges that have been pushed to the margins, discounted, and, to use Foucault’s term, subjugated. To counter the marks our imperial history has left on science, and to better apprehend our ignorance, Harding would have us “take seriously how others see us, themselves, and the world” (SSI, 31) so I now turn to the work of Maria Lugones.

**Coloniality of Gender and Decolonial Feminism**

A theoretical frame that aims to shed light on the situation of underrepresented women in STEM needs to include gender, as well. In “Toward a Decolonial Feminism,” Lugones explains the “oppressive logic of colonial modernity [and] its use of hierarchical dichotomies and categorial logic…. Categorial, dichotomous, hierarchical logic [is] central to modern, colonial, capitalist thinking about race, gender, and sexuality.”33 As Pratt and Gould make clear, this imperial logic was applied to humans in “scientific” systems of racial classification. The dichotomous categories colonizer/colonized also marked the division between the human European and the perceived nonhuman indigenous peoples. Pratt and Gould would no doubt agree with Lugones that this distinction was “imposed on the colonized in the service of Western man.”34 But Lugones carries the argument further: when the male, European hierarchical dichotomy that differentiated men from women is added to the mix, she finds that “only the civilized [Europeans were] men or women” because only they were human. The European woman was of course not considered the equal of men; her purpose was to “reproduce race and capital through her sexual purity, passivity, and being homebound in the service of the white, European, bourgeois man.”35 But European women were indeed human — as opposed to the degraded, wild, animal, sexual, colonized non-woman. Therein lies the fault line that — once broken apart — exposes the coloniality of gender.

Previously, I argued that our present-day scientific knowledge systems are deeply implicated in coloniality. Although there is much more that could be said about the topic, at this point, it is important to note that in a move that is parallel to the discussion of the coloniality of knowledge, Lugones asserts, “Unlike colonization, the coloniality of gender is still with us; it is what lies at the intersection of gender/class/
race as central constructs of the capitalist world system of power.” I propose that the issues confronting women of color in STEM fields result from the interlocking colonialities of Western knowledge practices and gender relations that marked them as less-than-human — incapable of civilized western ways of knowing and being. The nexus of these seemingly abstract matters is brought into focus by the deeply telling question asked of an African American female science blogger: “Are you an urban scientist or an urban whore?” In this event, the intertwining histories of the production of modern Western knowledge systems and colonial social relations created a contemporary opening for the raced and gendered act of academic violence.

Although the science education of women of all backgrounds has been marred by sexism, I affirm that the extreme marginalization often experienced by first-generation, working-class, and underrepresented women may foreclose opportunities for academic community-building. Further, I understand that in Lugones’s view, I have no firm ground on which to enter a discussion on decolonizing STEM because I do not write from the “colonial difference,” a term she borrows from Walter Mignolo. Lugones notes that the sense of this phrase shifts through the course of Mignolo’s work; however, she points to its meaning by offering, “The colonial difference is the space where coloniality of power is enacted.” That is, the colonial difference becomes visible through acts of power. Importantly, Mignolo writes that transcending “the colonial difference can only be done from a perspective of subalternity, from decolonization.” Thus, Lugones concludes that the work of decolonial feminism can only be attempted by coalitions of feminists of color who resist the coloniality of gender from their many and varied positions at the colonial difference. It is here that she struggles to practice and engage in dialogue. And perhaps more to the point, Lugones does not want to be in community with white women.

Isn’t it clear that those of us who rejected the offer made to us over and over by white women in … conferences, workshops, and women’s studies program meetings saw the offer as slamming the door to a coalition that would really include us? Isn’t it the case that we felt a calm, full, substantial sense of recognition when we asked: “What do you mean ‘We,’ White Woman?” … Isn’t it the case that we refused the offer at the colonial difference, sure that for them there was only one woman, only one reality? Isn’t it the case that we already know each other as multiple seers at the colonial difference, intent on a coalition that neither begins nor ends with that offer?

Yet when students bring to me the pain of academic violence resulting from the interlocking colonialities of knowledge and gender, I am responsible to be changed by that encounter with Otherness; I must respond if I hope to open the possibility to be for them. To bring Todd’s essay into conversation with Lugones’s, I submit that attempts at perspective-taking and empathy across the colonial difference — my own or that of well-intentioned STEM professors — obscure the very problem that demands our attention if we hope to create a responsible, just, scientific community that values the abilities, contributions, and worldviews of underrepresented women in STEM. Esma and Jill are resilient women who stand in the colonial difference. I strive to remain aware of their ancestresses’ history as nonhumans, to understand, to the extent that I am able, so that I might respond from a form of empathy that questions itself. How is my response limited by my ignorance of the colonial difference? Only this more nuanced approach to empathy and relations with students will allow me
to transform — at least in small ways — the hurtful campus climate young women may encounter when they pursue academic training in the STEM fields.

Much may be known about our natural world, but as we strive to make sense of complex natural systems from microscopic organisms to the vastness of space, I hope we will also be attentive to the people who “do” the science. We must approach our pedagogical relationships through Frank Maragonis’s concept of political intersubjectivity. As we ask new questions and categorize or quantify what we learn through experimentation, we must bear in mind that everyday interactions in the classroom, the laboratory, and the scientific community are often fraught with tension for underrepresented women that may be hard for us to apprehend, whether or not we also occupy a social position among the fractured loci of the colonial difference. We may wish to believe that the STEM curricula are value-free, but, even in the sciences, knowledge cannot be separated from its emotional and political context. We do well to admit our ignorance of women’s experiences in the colonial difference, and, sometimes, we can only accept that a student may be “too hurt to be open,” while we who hope for academic justice must strive to remain “so open that it hurts.”

2. The students and their statements are real; identities are masked to maintain privacy.
6. Audrey Thompson, “Labora(s)tories and the Art of Trauma” (presentation, Interdisciplinary Symposium on Empathy, University of Utah, September 26, 2014).
17. Todd, 346.
18. Ibid., 348.
21. This section is excerpted from chapter 1 of Mary Jo Hinsdale, *Mutuality, Mystery, and Mentorship in Higher Education* (Rotterdam: Sense, 2015).
23. Ibid., 245
24. Ibid., 244.
25. Ibid., 245.
26. Ibid.
27. Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation*, 2d ed. (New York: Routledge, 2008), 15. This work will be cited as *IE* in the text for all subsequent references.
29. Sandra Harding, *Science and Social Inequality* (Urbana: University of Illinois, 2006), 5. This work will be cited as *SSI* in the text for all subsequent references.
32. Ibid.
34. Ibid., 743.
35. Ibid.
36. Ibid., 746.
37. Patton, “Scientist or ‘Whore’?”
39. Ibid.
41. Ibid., 755–756.
43. Lugones, “Toward a Decolonial Feminism.”