

RESPONSE COMMENTARY*

To Rectify the Moral Turpitude¹ of Mathematics Education

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First, I must confess that over the past few years I have been gravely disappointed with the white moderate. I have almost reached the regrettable conclusion that the Negro's great stumbling block in the stride toward freedom is not the White Citizen's Council or the Ku Klux Klanner, but the white moderate who is more devoted to "order" than to justice; who prefers a negative peace which is the absence of tension to a positive peace which is the presence of justice; who constantly says: "I agree with you in the goal you seek, but I can't agree with your methods of direct action;" who paternalistically believes he can set the time-table for another man's freedom; who lives by the myth of time and who constantly advises the Negro to wait until a "more convenient season." Shallow understanding from people of goodwill is more frustrating than absolute misunderstanding from people of ill will. Lukewarm acceptance is much more bewildering than outright rejection.

– Dr. Martin Luther King, Jr., 1963

Professor Danny Bernard Martin delivered a different talk at the National Council of Teachers of Mathematics (NCTM) Research Conference in April 2015 (published by *JUME* later that year); he established an important concern that few in the room would soon forget. Martin, like King (1963), was not interested in waiting for a more convenient season to achieve a positive peace in mathematics educa-

¹ The notion of "moral turpitude" is a legal concept, referring to conduct that is thought to be against community standards of justice or morality. I do not claim here that any person or formal organization ought to be brought to justice; however, it is certain that the current practices of mathematics education are unjust and fail even its own moral standards.

***EDITOR'S NOTE:** In the Spring/Summer 2015 issue (Vol. 8, No. 1) *JUME* published, as a Commentary, Dr. Danny Bernard Martin's invited plenary address delivered at the NCTM Research Conference April 2015 in Boston, Massachusetts (Martin, 2015). In the Fall/Winter 2015 issue (Vol. 8, No. 2), *JUME* published a Response Commentary, authored by Drs. Diane J. Briars, Matt Larson, Marilyn E. Strutchens, and David Barnes (Briars et al., 2015). The Response Commentary here continues this important discussion; we invited others to *keep things going while they are still stirring* (see "[Contributing a Commentary to JUME: Keeping Things Going While They Are Still Stirring](#)").

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tion. Speaking truth to power (Rustin, 2012), he questioned whether NCTM could be the organization to create the reform needed to change the conditions of the *collective Black* (Bonilla-Silva, 2003) in mathematics education. Or is NCTM, the “public voice of mathematics education” (NCTM, 2014, p. ii), this White moderate, seeking an absence of tension, more dedicated to order than to justice.

In his invited talk, Martin (2015) expressed his disappointment with the “White moderate” position that NCTM has taken. He recognized that a nearly thirty-year history of documents, policies, and position statements from NCTM reflect a nearly static concern with standards for mathematical content, instruction, and assessment (Berry, Ellis, & Hughes, 2013), yet there has been little if no reduction of dehumanizing practices or positive impact on inequities in student achievement. Our profession, mathematics education, seems to lack the will to shift from an orientation toward mathematics and mathematics education that systematically oppresses, or fails to reduce the inequities of the larger society.

Representatives of the NCTM leadership (Briars et al., 2015) authored a response to Martin on behalf of NCTM, set as a call to action. In that response, they restated the many efforts toward more equitable mathematics education that have been part of its recent history, and recognized there is more work to do—as they had done previously: “Over the past twenty-five years, we have learned that standards alone will not realize the goal of high levels of mathematical understanding by all students. More is needed than standards” (NCTM, 2014, p. vii). In this call to action, NCTM (i.e., Briars et al., 2015) invited the mathematics education community to participate in the conversation to consider what more is needed, committing to using its role to strive for improvement. I commend the organization for this stance; it is my intent to use this forum to take them up on the invitation to consider action.

While there is great complexity in the challenge for NCTM to end its participation in the stratification of society, I focus in this paper on three core issues: what counts as mathematics, explicit pedagogical attention to how mathematics works in society, and revaluing mathematics as human activity. These three issues could be considered ontological, epistemological, and axiological concerns; fundamental structures or underlying worldviews of the mathematics education community that in their present state obstruct the pursuit of a more just mathematics education. To forge a liberatory and re-humanized mathematics education, I suggest each of these core issues must be addressed. The changes I propose to each issue, while seemingly radical, are insights recognized for decades within our own field.

Prior to the discussion of these three issues, I elaborate concerns raised by Professor Martin (2015) then respond, reflecting on my 25-year career in mathematics education. Following elaboration on the three issues, I argue that a new organization must emerge to speak back to NCTM, wholly convinced that the nature of NCTM as an organization could never direct nor condone the work that would

radically change the collective conditions of African American, Latin@, Indigenous, poor, queer, and otherwise underserved students.

A Consistent History

Of the core ideas in Martin's (2015) invited talk, several resonated strongly with me. First, the various standards for content and practice, teaching and professionalism, and assessment are far more similar than different over a nearly thirty-year history. This lack of advancements in ways of thinking about content, pedagogy, and assessment suggests an inadequate interest for a positive peace. Second, standards and similar documents reflect a particular ideology of what counts as mathematics and mathematical ways of thinking. This ideology is presented as both non-negotiable as well as necessary for a successful life after schooling. Yet many adults find happiness and comfort in life, but do not have a level of mathematical literacy called for in these standards (Ernest, 2000). And third, given the lack of significant progress on equity targets in mathematics education, it strikes me that very different ideas and very different voices are essential to make change.

The points raised by Martin (2015) are not entirely new (cf., Bishop, 1990; Frankenstein, 1983); mathematics education functions in a manner to preserve itself. Foucault (1981) recognized, "any system of education is a political way of maintaining or modifying the appropriation of discourses, along with the power and knowledge they carry" (p. 64); mathematics education is no different. For example, Martin's remarks during the talk provide an analysis of *Principles to Actions: Ensuring Mathematical Success for All* as an exemplar of "Race, Racial Projects, and Mathematics Education" (Martin, 2013), an essay published in the NCTM periodical *Journal for Research in Mathematics Education*. As Martin notes in that essay, questions such as *Whose interests are served by mathematics education?* persist, having been considered by critical mathematics educators for several decades. It is curious why now NCTM responds. More importantly, an honest analysis of this condition would likely be important to understanding how impactful changes can be achieved, what alternate voices might be heard.

NCTM's mission charges it to be the public voice of mathematics education. While NCTM is to be commended for publications that reflect many voices representing the diverse perspectives of mathematics educators, its stance as the public voice remains problematic. As Martin (2011, 2013, 2015; see also Martin, Gholson, & Leonard, 2010) argues, there is a need for NCTM as this public voice to recognize and then interrogate its position as an *institutional space of whiteness* serving a majority White audience. This status is likely not by design, rather a historical product of a deeply racist society and educational system, a product of both physical and psychological colonization by European settlers and Western thought. The danger of this status is that NCTM is unlikely to recognize possibility that lies out-

side its paradigm. Furthermore, because of its responsibility to its members (recall, “the voice of mathematics education”), NCTM is unlikely to take a stance that would not be readily embraced by the (predominantly White) mathematics education community. Because of its status, NCTM is unlikely to advocate for children over mathematics. Because of its incorporation, survival of the business is the first priority. Ultimately, NCTM operates in service to the White majority: its economic desires, its rationalities and sensibilities, its benevolence. Martin (2015) claims that given this frame, gains for the collective Black can only come hand in hand with benefits for Whites. His is not a singular perspective; modern sociology recognizes these conditions as the present operations of racism in modern day America, where not only the criminal justice system but also the educational system is creating a new Jim Crow (Alexander, 2010; Thomas, 2013), a uniquely American approach to ensuring a caste social system.

The Need for Introspection

NCTM’s actions since the late 1980s occurred within a larger neoliberal economic, political, and social context, generally a turn toward free market ideology and individualism.² For example, NCTM’s policies typically came with a message that there are many ways a teacher can support students to achieve the standards; we will not prescribe any particular pedagogical strategy. Furthermore, the context has allowed for schools to view the student as “being solely responsible for the consequences of the choices and decisions they freely make” (Thorsen, 2006, p. 208).

These actions fail to interrupt (if they do not create) a bifurcated educational experience that works more insidiously than to create simple discrepancies such as achievement gaps. In its present form, mathematics education operates as a *Centaur state* (Wacquant, 2014), liberal at the top and punitive at the bottom. The enterprise of mathematics education flouts egalitarian ideals, evidenced by cries for *Mathematics for All* and strong support for equity—as seen routinely in conference programs as an “equity strand.” Attention to mathematical processes, habits, or practices value problem solving, discourse, and the conceptual-oriented thinking of mathematicians. Yet for students of the collective Black, they are more likely to experience mathematics classrooms that focus on procedures and memorizing (Davis & Martin, 2008), skills for employability or servitude. All the while, classrooms that include children of society’s more privileged focus on higher order reasoning, problem solving, and discourse (Anyon, 1980; Ladson-Billings, 1997; Lubienski, 2002).

² Liberalism is generally a strategy toward the prevention of social conflict. Neoliberalism has emerged as economic policy grounded in ideas of free market capitalism and the glorification of individualism.

Sociologist Loïc Wacquant (2014) argues that neoliberal policies for addressing inequalities experienced by marginalized populations, as we see in mathematics education, leads to the “criminalization” of poverty (i.e., the creation of the collective Black). An example of this sort of educational criminalization is the deficit orientation to the learner, an ideology baked into our discourse. Further examples of neoliberalism in mathematics education include brutal assessment policies, which work to disproportionately hold children of the collective Black further and further behind;³ policies that emerged from the federal Elementary and Secondary Education Act of 2002 create shutdowns or takeovers of a disproportionate number of urban schools (Sunderman & Payne, 2009); research programs yield pedagogical strategies focused on deficit, such as student misconceptions (e.g., Smith & Stein, 2011); and the notion that certain families do not value education (Aguirre, Mayfield-Ingram, & Martin, 2013) allows for lessened expectations. This criminalization of children leads to heightened punitive results such as increased suspensions (Advancement Project, 2007) and more years repeating math classes (e.g., Fong, Jaquet, & Finkelstein, 2014), leading to our grave awareness of the efficiency of the school to prison pipeline (Amurao, 2013) for children of the collective Black. The centaur state of mathematics education creates liberal ideals with minimal oversight for those at the top, and repressive practices with strict controls for those at the bottom. This mathematics education is systematically failing all our children—whether by oppression or by creating a false sense of righteousness.

Martin (2015) argues well that the negative outcomes experienced in mathematics education by the collective Black serve to support larger economic, social, and political agendas. In NCTM’s role as the public voice of mathematics education, I expect the recognition of and calls to action against such injustices. These calls, however, are not enough; Martin has challenged NCTM with introspection, to consider how it may be complicit.

A Liberatory Mathematics Education

The present centaur state of mathematics education serves to sediment the neoliberal (and neocolonial) standardization agenda. The particular mathematics knowledge and ways of knowing put forth by NCTM is to format (Skovsmose, 1994), or fabricate (Lawler, 2012), the child. Here I suggest shifts in three principles foundational to mathematics education, necessary, yet not sufficient for a radi-

³ For example, “The achievement gap between children from high- and low-income families is roughly 30 to 40 percent larger among children born in 2001 than among those born 25 years earlier” (Reardon, 2011, p. 91).

cal⁴ change that may allow for a liberatory and re-humanized mathematics education. The first is ontological—the status of mathematical knowledge; the second, epistemological—an interrogation of how mathematics education is complicit in racism; and the third, axiological—what a re-humanized mathematics education should value.⁵ I point to these underlying philosophical principles that have invisibly guided mathematics education to its present state of moral turpitude.

Rethink the Ontological Status of Mathematics

The present ontological status given to mathematics reflects Western logic; a way of thinking that arose during the Age of Reason. This current status reflects the realist (or Platonist) tradition, which emerged from rationalists of 17th century Europe. They claimed that all knowledge could be acquired on the power of reason alone; mathematics is the model for such knowledge. Furthermore, this mathematical knowledge is considered to exist independent of human experience. The realist orientation to knowledge allows for metaphors such as *discovery* for learning, and *guidance* or *facilitation* for teaching (Davis, Sumara, & Luce-Kapler, 2015)—metaphors common to present mathematics education.

This ontological perspective persists for several reasons. Among them is that many working mathematicians are mathematical realists. They see their work as discovery of naturally occurring objects, not the products of their humanity or constructions of their mind. Davis and Hersh (1981) suggested, “The typical mathematician is a Platonist during the week and a Formalist on Sundays” (p. 321). That is to say, mathematical objects are real, they exist “outside the space and time of physical existence” and “quite independent of our knowledge of them” (p. 318).

A second force maintaining this ontology is how it has so successfully sorted and ranked our current society by defining levels of intelligence (Lakoff & Núñez, 2000; Lawler, 2005); mathematicians are often thought of as brilliant, having attained the highest form of knowing. An example of this societal belief can be found in our print media: “One reason why people who learn more mathematics earn more is because doing maths makes you smarter and more productive” (Schrager, 2009, ¶3). As a result, those who possess knowledge in the domain (i.e., the discipline of mathematics) are “more aligned with communities of practice that hold more power” (Nasir, Hand, & Taylor, 2008). This sort of status bestowed upon the nobles precluded them from alternate considerations of the ontological status of mathematics that have the potential to remove them from the court.

⁴ A shift in these foundational principles may reflect the notion of violence summoned by Martin (2015).

⁵ For the purposes of this article, I bend the epistemological argument to attend to how the noetic emphasis of a realist ontology sharply limits what counts as mathematics, and thusly can be used to sediment hegemony.

This present, persistent ontology afforded to mathematics produces innumerable iniquities, one being that it allows for deficit language in mathematics; we focus on misunderstandings—not possessing *the* correct, enlightened way of knowing. Foucault (1965) writes that this sort of deficit orientation to forms of discourse, knowledge, or ways of knowing pathologizes not only the discourse but also the person. Mathematics educators are so steeped in the dominant, realist, “standardized” mathematics (Gutiérrez, 2007) that we can no longer imagine, let alone have the ears to hear, our students’ subjugated knowledges (Foucault, 1980)—mathematical ways of thinking and knowing that are left out, opposed, or ignored by the dominant culture. We can only *not* hear the brilliance of the collective Black.

What is needed is a counter-discourse, oppositional to the standard system of mathematical knowledge and knowing. This counter-discourse must reveal how the accepted knowledge is built on exclusion and confinement. It is within these hidden forms of knowledge that we may recognize the limits of the knowledges that disqualify them.

This sort of disruption of Western ontologies already exists within mathematics education. One example is in the ethnomathematics tradition; the dominant view of mathematics is recognized as only one of many (see Powell & Frankenstein, 1997). Similar perspectives emerge in relational (Belenky, Clinchy, Goldberger, & Tarule, 1986; Thayer-Bacon, 2003) and indigenous epistemologies (Battiste, 2013; Sarra, 2011). In some of these perspectives, the learner is characterized as a mathematical author (Povey, Burton, Angier, & Boylan, 1999). Povey and colleagues argue that this shift in perspective on “author/ity amongst teachers and learners will support a renegotiation of the relations of dominance embedded within current conceptions of the nature of mathematical knowledge” (p. 244), a disruption that has the potential to revalue whose mathematics counts.

There is a second, ignored tradition in mathematics education that interrupts the realist ontology of the dominant orientation to mathematics—the constructivist orientation to knowing and learning that arose in mathematics education just prior to NCTM’s first standards. Smock and von Glaserfeld (1974) posited that knowledge is not passively received through the senses or by communication; rather the cognizing subject actively builds it up. In other words, knowledge is the result of a self-organizing process, a human construction generated in interaction: “Coming to know is a process of dynamic adaptation towards viable interpretations of experience. The knower does not necessarily construct knowledge of a ‘real’ world” (von Glaserfeld, 1990). Constructivism suggests an ontology in which “knowledge is not the commodity the tradition of Western philosophy would have us believe” (von Glaserfeld, 1988, p. 83).⁶ Unfortunately, the radical ontological

⁶ Quoting Montaigne, “La peste de l’homme, c’est l’opinion de savoir” or “Mankind’s plague is the conceit of knowing” (von Glaserfeld, 1988, p. 83).

notions of constructivist epistemologies that briefly enamored the profession (Davis, Maher, & Noddings, 1990) failed to take hold.⁷ Presently, many applications of constructivist theory emphasize the activity of the learner, but fail to shift the ontology (Lawler, 2014).

Since constructivism's explosion and quick departure in mathematics education, there have been others whose work disrupts the ontological status of mathematics from a sociocultural and sociopolitical orientations (see, e.g., Gutiérrez, 2013; Nasir et al., 2008) rather than psychological. Yet these, too, have yet to find traction.

The implications for the proposed ontological shift from one to many mathematics are systemic. Fundamentally, it demands a re-humanization of both mathematics and mathematics education. Could the institution and pedagogies of mathematics education recognize many mathematics and many ways of being mathematical? Such an ontological shift suggests a pedagogy focused on listening⁸ rather than telling, a move away from authority and control, evoking new relations of power. Teachers listen to form conjectures of student conceptions, serving to generate for the teacher a tree of potential new ways of knowing for the child. The teacher's role becomes to design an environment that may occasion the emergence of new mathematical ways of knowing (Davis, 1996). The child leads, the teacher follows.

Confront the Role of Racism in Mathematics (and Mathematics in Racism)

The second foundational shift I propose is for mathematics education to be explicit about the consequences of and its complicity in racism and similar oppression, an epistemological emphasis on how mathematics functions. At present, the field is nearly silent on the roles of racism in mathematics (cf., DiME, 2007; Powell, 2002; Spencer & Hand, 2015) and mathematics in racism (Bishop, 1990; Frankenstein, 1983⁹). Much that I have documented above demonstrates the ways in which the racist American society propagates itself through a particular mathematics—that racism flourishes is in part through this mathematics' ability to create a centaur state.

Others have demonstrated mathematics' functions in racism. For example, through the use of counting and emphasis on hierarchal relationships, mathematics provides a colonizing power to administer and govern (Foucault, 2009). Davis and

⁷ A notable exception is the idea of enactivism (Davis, 1996), still present in some research programs outside the United States, Canada in particular.

⁸ Davis (1997) proposes a hermeneutic listening, which "is intended to imply an attentiveness to the historical and contextual situations of one's actions and interactions" (p. 370).

⁹ "Traditional mathematics education supports the hegemonic ideologies of society" (Frankenstein, 1983, p. 328).

Martin (2008) argue how the subordination of Blacks is built on scientific methods of mathematical measures to support and validate racist beliefs. Frankenstein (1983) suggests, “the hegemonic ideology of ‘aptitudes’—the belief, in relationship to mathematics, that only some people have a ‘mathematical mind’—needs to be analyzed” (p. 329). Furthermore, Popkewitz (2004) argues that modern pedagogies in mathematics serve to “divide, demarcate, and exclude particular children from participation” (p. 4). Mathematics, as a colonizing force historically and presently, is thought to represent the highest forms of Western thinking, and is assumed better than any indigenous mathematical systems or ways of knowing.

This second recommendation is that not only must our profession recognize and embrace the colonizing and formatting power of both mathematics and mathematics education, but also the study of these issues must become a required element of the K–12 mathematics curriculum. Again, the ethnomathematics tradition may offer a start toward this alternative epistemology. Powell (2002) notes that ethnomathematics “departs from a [Western] binary mode of thought and a universal conception of mathematical knowledge that privileges European, male, heterosexual, racist, and capitalistic interests and values” (p. 17); it disrupts the notion of a singular mathematics. The mathematics classroom could include study of others’ mathematics, and include questions like *Where do degrees come from?* and *Who decided we will measure angles with degrees?* Given that answers to questions like these are along the lines of “because some people determined it should be that way,” such a pedagogy can allow students to begin to recognize mathematics has a cultural history (Bishop, 1990), another re-humanizing move.

Similarly, the traditions of critical mathematics (Frankenstein, 1983; Powell, 2002) and mathematics for social justice (Gutstein, 2005; Leonard, Brooks, Barnes-Johnson, & Berry, 2010) offer frameworks for examining as well as teaching a different mathematics, such as Gutstein’s (2005) call to embrace classical, community, and critical mathematics. Furthermore, there is a wealth of strategies and materials available for use in the classroom, and a broad community of mathematics educators embracing this approach (Gutstein & Peterson, 2005; Wager & Stinson, 2012). Critical and social justice mathematics offer different pedagogies, yet as Martin (2013) has noted, the perspectives have not been consistent in explicitly attending to issues of racism. Culturally relevant pedagogy (Ladson-Billings, 1995; Leonard et al., 2010) offers this missing element, calling for a critical pedagogy of cultural critique, to attend to “political underpinnings of the students’ community and social world” (Ladson-Billings, 1995, p. 477).

Often a critical or social justice approach to mathematics teaching is rejected, arguing such topics lie outside the discipline (Beck, 2014; Ravitch, 2005). NCTM could elect to impact this rationale; in fact, it already has a rich history of embracing interdisciplinary approaches to mathematics education—often connections to

scientific or economic topics. Seeing mathematics as a product of human activity offers a seemingly natural interdisciplinary fit with humanities and social studies.

Mathematics has been used for great evils including the creation of ranked social structures and the validation of racist beliefs. It would be incomplete to not recognize it as also been used for great good, and can be used to disrupt injustices (Gutstein, 2005). A critical social and historical understanding of the role of mathematics in people's lives would create better understanding of the roles mathematics has contributed socially and politically historically, the way it operates presently, and how it can be harnessed to fight injustices and create a better world (D'Ambrosio, 2007). The recognition that mathematics works in particular ways, including to stratify society and perpetuate racism, and that how it works can be changed, leads to a need for consideration of the moral code underlying the field of mathematics education.

Highlight the Humanity of Mathematics

A third foundational element of mathematics education in need of examination is its moral code, an axiological consideration. Mathematics is not neutral (Nasir et al., 2008) nor value free (Frankenstein, 1983); mathematics and mathematics education are the products of human activity (Davis & Hersh, 1981; Kilpatrick, 2012), "math needs people" (Gutiérrez, 2013, p. 48). What is the kind of behavior we aspire to? Why do we teach mathematics, to what end?

Several years ago I interviewed Laurie Reyes Hart and George M. A. Stanic (Lawler, 2005), two mathematics educators whose careers focused on issues related to equity. The interview was grounded in their review of research focused on differential achievement in mathematics based on race, sex, or socioeconomic status (see Reyes & Stanic, 1988). I asked both *Why should we teach mathematics?*—a question Stanic (1984) traced historically for his doctoral dissertation; a question usually assumed to be so self-evident that we as a field forget to ask. Yet that mathematics seems complicit in both benefits and iniquities¹⁰ compels contemplation of the justification question.

In their response, both Hart and Stanic (see Lawler, 2005) questioned arguments about the utility of mathematics; they frequently ignore that most people function well in their daily lives without a profound level of mathematics.¹¹ Fur-

¹⁰ I intentionally use iniquity, a term to indicate a gross injustice, or wickedness. My use was prompted by Stanic in my interview, in which he expressed his notion of equity "as the opposite of iniquity, as the opposite of something evil. So that it's more than the kind of gentle word than we think of it as.... When you start thinking of it as that which is the opposite of iniquity, suddenly you seem to have more responsibility" (Lawler, 2005, p. 36).

¹¹ There is a "simultaneous objective relevance and subjective irrelevance of mathematics in society" (M. Niss, as cited in Ernest, 2000, p. 3).

thermore, both dismissed the justification that we must teach mathematics so future citizens can contribute to the economy. Hart surmised that mathematics should be taught for access to power and resources, as well as awareness of mathematics as a tool of oppression. Stanic added that mathematics seems to be “this interesting phenomena that has arisen among human beings, and thus worthy of study because it’s such an important part of human life, historically” (p. 35).

Stanic (see Lawler, 2005) suggested that not only is humanity defined in part by our mathematics but also the study of mathematics is in part a study of our humanity. Beyond the shift to recognize mathematical ideas are generated by people and in cultures, there is an onus to examine ethics of mathematics, and mathematical ways of knowing. What are the responsibilities that come with learning mathematics? What are the responsibilities that come with knowing a particular mathematics? What are the responsibilities for using mathematics? Furthermore, what might it mean to develop a mathematics education with a project to erase inequities between people, mathematics, and the globe (Gutiérrez, 2007)? Gutiérrez (2013) argues a key aspect of equity is for the mathematics education community to “become experts at supporting learners to maintain a sense of wholeness while doing mathematics” (p. 61). Classroom and professional foci such as those indicate in the questions above would contribute not only to the development of robust children’s mathematical identities (Aguirre et al., 2013), but also to those of our professional community.

Similar to a study of the sociohistorical productive and destructive uses and impacts of mathematics as previously encouraged, a broader study of the humanity of mathematics would begin to achieve an ethical imperative to humanize the discipline. The stories of mathematicians, wide-ranging biographies, may become part of the curriculum. Some stories may be of a particular problem that puzzled this person, serving to pose a problem for classroom study. The effort could extend to the study of peoples, in which once again the ethnomathematics tradition offers many examples.

Over these past 30 years, NCTM has asserted standards for mathematical practices and identified habits of a mathematician. These human aspects of doing mathematics and the development of mathematical identity (Aguirre et al., 2013), however, seem to be largely ignored. During the same time period, epistemologies that embrace a critical orientation to the intersection of mathematics and society, and postmodern shifts in ontology have also been ignored in the practices of mathematics education, as well as in the policy statements and other actions of the NCTM. The three recommendations suggested above are radical, in the sense they call for difficult shifts in mathematics education. Of course there are recommendations offered by others that I have not recognized here, such as a modernized and germane content, culturally relevant tasks, a diversity of teachers that match that of students, and an end to the accountability rhetoric (Suspitsyna, 2010) and the testing

regime. It is my sense that each of those is secondary to the changes I have argued. That is, making those shifts are predicated on the three I suggest, and are not sufficient to change the experiences of students to be something other than schooling as a colonizing experience into the White, upper-middle class value system and ways of knowing.

What NCTM Did Not (Could Not?) Hear

I have suggested three recommendations fundamental to a liberatory and re-humanized mathematics education. These recommendations are not new; they are already represented in numerous traditions and research programs within the larger Mathematics Education community. Yet they remain unfulfilled. Important questions to ask: *Why has the field of mathematics lacked political will to enact re-humanizing recommendations? Where is the moral outrage?* (Spencer, 2015) Martin (2015) suggests that the current state of affairs affords not only NCTM as an organization but also its leadership and its members social, economic, and political privileges. It is certain that the mathematics education community is a conservative force (Kilpatrick, 2012), lacking the will to disrupt this current state of affairs. As it operates now, the mathematics education project writ large benefits from the status quo. There are large sums of money to be garnered for research programs that rely on seeing the collective Black as deviant (Berry et al., 2013), and potentially greater dollars to be made peddling equity-themed products and professional development—all in the guise to improve the lives of the collective Black. Furthermore, as mathematicians and mathematics educators, our status is conferred by a particular view of mathematics; it is not in our interest to disrupt this enlightened, ordained form of knowledge. Kilpatrick (2012) notes: “Teachers of mathematics may derive considerable status from presiding over a subject that others find difficult or even impenetrable. Why should they lower it from its elite pedestal?” (p. x). These changes are messy, imbued with power and ego, requiring mathematics educators to “reject a view of their subject that may have been a mainstay of their scholarly identity” (p. x).

From my perspective, the NCTM response (see Briars et al., 2015) ignores significant aspects of Martin’s (2015) critique. This non-response was predicted by Kilpatrick (2012); it is the product of the organization’s conservative drive to maintain the present state of affairs in mathematics—the decades-long, persistent cry for equity. NCTM’s response seems to not recognize two critical concerns voiced by Martin: (a) to redefine the goals of the mathematics education enterprise to escape a colonizing orientation, and (b) to wonder if NCTM is capable of leading such change.

Martin (2015) states that the mathematics education community, in general, and NCTM, in particular, has not made significant progress in addressing the op-

portunity gap; that is, it has not made significant progress in changing “the conditions of African American, Latin@, Indigenous, and poor students in mathematics education” (Martin, 2015, p. 22). NCTM either refused to hear, could not hear, or ignored Martin’s intent with this passage. NCTM remains muddled in the notion of an opportunity gap, but Martin has no interest in this framing of an opportunity gap; it leaves unquestioned the Eurocentric and colonizing form of mathematics education indisputed, undisturbed. At present, mathematics education functions to perpetuate the ideology of the dominant view of mathematics. The emphasis on an opportunity gap for NCTM is to improve the opportunities for the collective Black so as to assimilate to the dominant view, in effect to become white washed.¹² As Martin (2015) puts it, NCTM seems unable to get beyond an orientation to equity for the collective Black “to enjoy contingent benefits of the system, [a system] that is not set up for them or by them” (p. 22).

Martin (2015) characterizes the change necessary to the status quo of mathematics education as violent, a change that would put the last first. This language is strong, yet “decolonization is always a violent phenomenon” (Fanon, 1968, p. 35). As a White heterosexual man, quite successful in a system set up for me,¹³ I can empathize with the anxieties this sort of language brings. If the collective Black were to become those who succeed, people like me could be repositioned as the recurrent failures. It is clear that such a result does not sit well for neither me nor others; but the fierceness in which we refuse such a solution seems not to be matched in our duty to correct the contemporary reverse injustices.

The present iniquitable outcomes of mathematics education are evidence that the Eurocentric mathematics of schools serves as a colonizing force to the minds of children, possibly all children, but certainly those whose cultures do not align to the dominant American (U.S.) culture. The last 27 years suggest that relying on the White benevolence of NCTM will not achieve the kinds of equity called for.¹⁴ For correction to be other than an incremental change, the history of mathematics education suggests that some form of impassioned, vigorous, violent—in the sense of total—action must be taken. This is not the violence of bloodshed, but the overhaul of a colonizing institution and belief system about what counts as mathematics, and what is valued in a mathematics education. It is to be a violence on the level of the

¹² To understand the trauma associated with this sort of experiencing of the Eurocentric mathematics school culture, consider, for example, Stinson (2006).

¹³ I owe “the fact of [my] very existence... to the colonial system” (Fanon, 1968, p. 36).

¹⁴ Gutiérrez (2007) proposes a redefinition for equity goals in mathematics education. She sets the target for equity to be three-fold: (a) to be unable to predict achievement and participation based solely on student characteristics; (b) to be unable to predict ability to analyze, reason about, and critique the knowledge and events in the world based solely on student characteristics; and (c) to erase inequities between people, mathematics, and the globe.

routine psychological, social, and institutional violence perpetrated on the collective Black.

Mathematics education incurs a psychological, not physical violence; it is a psychological colonization (Fanon, 1968). The decolonization project must liberate the colonized mind from the effects of alienation and dehumanization. It is certain to be an intense, sociopolitical contention in which race and class-based struggle play a key role. In this struggle, NCTM is a political organization representative of the colonial bourgeoisie. It is not in their interest to oversee a removal of the system that has created their dominance: “Is NCTM the kind of organization that is capable of facilitating the kind of violent reform necessary to change the conditions of African American, Latin@, Indigenous, and poor students in mathematics education?” (Martin, 2015, p. 22). I suspect the institution, the voice of mathematics education, can only imagine a reform entailing tweaks and modifications. NCTM will promote compromise, a non-violence. The question I see unasked in Martin’s comment is *What violence is necessary?*

I suggest the violence necessary is embedded in three shifts I have recommended here, actions that reclaim and humanize the ontological, epistemological, and axiological roots of the present mathematics education. It is my hope that these recommendations could result in a liberation of the consciousness, reverse the effects of alienation and dehumanization for both students and educators, build solidarity in the struggle for liberation, and reconstitute the structures and social institutions of the present mathematics education.

To close, I call for a movement to rise, possibly from within mathematics education, that not only strives to improve the condition of the collective Black but also conceives further to disrupt the status quo in such a way that moves the last to first,¹⁵ to decolonize mathematics education. This movement cannot become a pawn or affiliate of the NCTM, “it is the colonist who fabricated and continues to fabricate the colonized subject” (Fanon, 1968, p. 2). Based on nearly thirty years of equity rhetoric and little action, NCTM’s content adherence to “myth of time” (King, 1963, p. 10), that “the very flow of time will inevitably cure all ills” (p. 11), suggests that NCTM “paternalistically believes [it] can set the timetable for another man’s freedom” (p. 10). The colonized subject must break from NCTM and create a counter-organization to express its own voice. This new community must emerge to counter the conservative institutional force of NCTM. We cannot afford the mathematics education that presently exists under our watch.

¹⁵ It is my sense that in a new ontology, all can be first—an absence of hierarchy, a postcolonial heterarchy.

References

- Advancement Project. (2007). *Telling it like it is*. Retrieved from http://b.3cdn.net/advancement/54c290ce86e7ee7c70_3d0m6ue80.pdf
- Aguirre, J., Mayfield-Ingram, K., & Martin, D. B. (Eds.). (2013). *The impact of identity in K–8 mathematics: Rethinking equity-based practices*. Reston, VA: National Council of Teachers of Mathematics.
- Alexander, M. (2010). *The new Jim Crow: Mass incarceration in the age of colorblindness*. New York, NY: The New Press.
- Amurao, C. (2013). *Fact sheet: How bad is the school-to-prison pipeline?* Retrieved from <http://www.pbs.org/wnet/tavissmiley/tsr/education-under-arrest/school-to-prison-pipeline-fact-sheet/>
- Anyon, J. (1980). Social class and the hidden curriculum of work. *Journal of Education*, 162(1), 67–92.
- Battiste, M. (2013). *Decolonizing education: Nourishing the learning spirit*. Nutana, SC: Purich.
- Beck, G. (2014). *Conform: Exposing the truth about common core and public education*. New York, NY: Threshold Editions.
- Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). *Women's ways of knowing*. New York, NY: Basic Books.
- Berry, R. Q., III, Ellis, M., & Hughes, S. (2013). Examining a history of failed reforms and recent stories of success: Mathematics education and Black learners of mathematics in the United States. *Race, Ethnicity and Education*, 17(4), 540–568.
- Bishop, A. (1990). Western mathematics: The secret weapon of cultural imperialism. *Race & Class*, 32(2), 51–65.
- Bonilla-Silva, E. (2003). *Racism without racists: Color-blind racism and the persistence of racial inequality in the United States*. Lanham, MD: Rowman and Littlefield.
- Briars, D. J., Larson, M., Strutchens, M. E., & Barnes, D. (2015). A call for mathematics education colleagues and stakeholders to collaboratively engage with NCTM: In response to Martin's commentary. *Journal of Urban Mathematics Education*, 8(2), 23–26. Retrieved from <http://ed-osprey.gsu.edu/ojs/index.php/JUME/article/view/292/178>
- D'Ambrosio, U. (2007). Peace, social justice and Ethnomathematics. *The Montana Mathematics Enthusiast, Monograph 1*, 25–34.
- Davis, B. (1996). *Teaching mathematics: Toward a sound alternative*. New York, NY: Garland.
- Davis, B. (1997). Listening for differences: An evolving conception of mathematics teaching. *Journal for Research in Mathematics Education*, 28(3), 355–376.
- Davis, B., Sumara, D., & Luce-Kapler, R. (2015). *Engaging minds: Cultures of education and practices of teaching*. New York, NY: Routledge.
- Davis, J., & Martin, D. B. (2008). Racism, assessment, and instructional practices: Implications for mathematics teachers of African American students. *Journal of Urban Mathematics Education*, 1(1), 10–34. Retrieved from <http://ed-osprey.gsu.edu/ojs/index.php/JUME/article/view/14/8>
- Davis, P. J., & Hersh, R. (1981). *The mathematical experience*. Boston, MA: Birkhäuser.
- Davis, R. B., Maher, C. A., & Noddings, N. (Eds.). (1990). Constructivist views on the teaching and learning of mathematics. *Journal for Research in Mathematics Education: Monograph No. 4*. Reston, VA: National Council of Teachers of Mathematics.
- Diversity in Mathematics Education Center for Teaching and Learning (DiME). (2007). Culture, race, power and mathematics education. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 405–433). Charlotte, NC: Information Age.
- Ernest, P. (2000). Why teach mathematics? In J. White & S. Bramall (Eds.), *Why learn maths?* (pp. 1–14). London, United Kingdom: Bedford Way Papers, Institute of Education.

- Fanon, F. (1968). *The wretched of the earth*. New York, NY: Weidenfeld.
- Fong, A. B., Jaquet, K., & Finkelstein, N. (2014). *Who repeats Algebra I, and how does initial performance relate to improvement when the course is repeated?* (REL 2015–059). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory West.
- Foucault, M. (1965). *Madness and civilization: A history of insanity in the Age of Reason*. New York, NY: Pantheon.
- Foucault, M. (1980). *Power-knowledge*. London, United Kingdom: Harvester Wheatsheaf.
- Foucault, M. (1981). The order of discourse. In R. Young (Ed.), *Untying the text: A post-structuralist reader* (pp. 48–78). Boston, MA: Routledge & Kegan.
- Foucault, M. (2009). *Security, territory, population: Lectures at the Collège de France 1977–1978*. New York, NY: Picador.
- Frankenstein, M. (1983). Critical mathematics education: An application of Paulo Freire’s epistemology. *Journal of Education*, 165(4), 315–339.
- Gutiérrez, R. (2007). (Re)defining equity: The importance of a critical perspective. In N. S. Nasir & P. Cobb (Eds.), *Improving access to mathematics: Diversity and equity in the classroom* (pp. 37–50). New York: Teachers College Press.
- Gutiérrez, R. (2013). The sociopolitical turn in mathematics education. *Journal for Research in Mathematics Education*, 44(1), 37–68.
- Gutstein, E. (2005). *Reading and writing the world with mathematics: Toward a pedagogy for social justice*. London: Falmer Press.
- Gutstein, E., & Peterson, B. (2005). *Rethinking mathematics: Teaching social justice by the numbers*. Milwaukee, WI: Rethinking Schools.
- Kilpatrick, J. (2012). Foreword. In A. A. Wager & D. W. Stinson (Eds.), *Teaching mathematics for social justice: Conversations with educators* (pp. ix-x). Reston, VA: National Council of Teachers of Mathematics.
- King, M. L., Jr. (1963). *Letter from a Birmingham jail*. Retrieved from http://okra.stanford.edu/transcription/document_images/undecided/630416-019.pdf
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465–491.
- Ladson-Billings, G. (1997). *The dreamkeepers: Successful teachers of African-American children*. San Francisco, CA: Jossey-Bass.
- Lakoff, G., & Núñez, R. E. (2000). *Where mathematics comes from: How the embodied mind brings mathematics into being*. New York, NY: Basic Books.
- Lawler, B. R. (2005). Persistent inequities: A twenty-year perspective on “Race, Sex, Socioeconomic Status, and Mathematics.” *The Mathematics Educator* (Monograph No. 1), 29–46.
- Lawler, B. R. (2012). The fabrication of knowledge in mathematics education: A postmodern ethic toward social justice. In A. Cotton (Ed.), *Towards an education for social justice: Ethics applied to education*. Oxford, United Kingdom: Peter Lang.
- Lawler, B. R. (2014). Forging a constructivist pedagogy: Focus on teacher decision-making. *Constructivist Foundations*, 9(3), 412–415.
- Leonard, J., Brooks, W., Barnes-Johnson, J., & Berry, R. Q., III. (2010). The nuances and complexities of teaching mathematics for cultural relevance and social justice. *Journal of Teacher Education*, 61(3), 261–270.
- Lubienski, S. T. (2002). A closer look at black-white mathematics gaps: Intersections of race and SES in NAEP achievement and instructional practices data. *Journal of Negro Education*, 71(4), 269–287.
- Martin, D. B. (2011). What does quality mean in the context of White institutional space? In B. Atweh, M. Graven, W. Secada, & P. Valero (Eds.), *Mapping equity and quality in mathematics education* (pp. 437–450). New York, NY: Springer.

- Martin, D. B. (2013). Race, racial projects, and mathematics education. *Journal for Research in Mathematics Education*, 44(1), 316–333.
- Martin, D. B. (2015). The collective Black and *Principles to Actions*. *Journal of Urban Mathematics Education*, 8(1), 17–23. Retrieved from <http://ed-osprey.gsu.edu/ojs/index.php/JUME/article/view/270/169>
- Martin, D. B., Gholson, M. L., & Leonard, J. (2010). Mathematics as gatekeeper: Power and privilege in the production of knowledge. *Journal of Urban Mathematics Education*, 3(2), 12–24. Retrieved from <http://ed-osprey.gsu.edu/ojs/index.php/JUME/article/viewFile/95/57>
- Nasir, N. S., Hand, V., & Taylor, E. V. (2008). Culture and mathematics in school: Boundaries between “cultural” and “domain” knowledge in the mathematics classroom and beyond. *Review of Research in Education*, 32(1), 187–240.
- National Council of Teachers of Mathematics. (2014). *Principles to Actions: Ensuring mathematical success for all*. Reston, VA: National Council of Teachers of Mathematics.
- Popkewitz, T. (2004). The alchemy of the mathematics curriculum: Inscriptions and the fabrication of the child. *American Educational Research*, 41(1), 3–34.
- Povey, H., Burton, L., Angier, C., & Boylan, M. (1999). Learners as authors in the mathematics classroom. In L. Burton (Ed.), *Learning mathematics: From hierarchies to networks* (pp. 232–245). London, United Kingdom: Falmer.
- Powell, A. (2002). Ethnomathematics and the challenges of racism in mathematics education. In P. Valero & O. Skovsmose (Eds.), *Proceedings of the Third International Mathematics Education and Society Conference* (pp. 15–28). Copenhagen, Denmark: Centre for Research in Learning Mathematics.
- Powell, A., & Frankenstein, M. (1997). *Ethnomathematics: Challenging the Eurocentrism in mathematics education*. Albany, NY: State University of New York Press.
- Ravitch, D. (2005, June 20). Ethnomathematics. *The Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/SB111922877339463719>
- Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 91–116). New York, NY: Russell Sage Foundation.
- Reyes, L. H., & Stanic, G. M. A. (1988). Race, sex, socioeconomic status, and mathematics. *Journal for Research in Mathematics Education*, 19(1), 26–43.
- Rustin, B. (2012). *I must resist: Bayard Rustin's life in letters*. San Francisco, CA: City Lights.
- Sarra, G. (2011). Indigenous mathematics: Creating an equitable learning environment. In C. Glascodine & K. Hoad (Eds.), *Proceedings of the Australian Council for Educational Research Conference*, Darwin, NT, Australia.
- Schrager, A. (2009, Aug 12). How to get smart. *The Economist*. Retrieved from http://www.economist.com/blogs/freeexchange/2009/08/how_to_get_smart
- Skovsmose, O. (1994). *Towards a philosophy of critical mathematics education*. Dordrecht, The Netherlands: Kluwer.
- Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions*. Reston, VA: National Council of Teachers of Mathematics.
- Smock, C., & von Glaserfeld, E. (1974). *Epistemology & education: The implications of radical constructivism for knowledge acquisition* (Report #14), Athens, GA: Follow Through Publications.
- Spencer, J. (2015). Moving from the outside in, or what white colleagues need to do to get it right with their white students. In N. M. Joseph, C. Haynes, & F. Cobb (Eds.), *Interrogating whiteness and relinquishing power: White faculty's commitment to racial consciousness in STEM classrooms* (pp. 223–240). New York, NY: Peter Lang.

- Spencer, J., & Hand, V. (2015). The racialization of mathematics education. In L. Drakeford (Ed.), *The race controversy in American education* (pp. 237–258). Santa Barbara, CA: Praeger.
- Stanic, G. M. A. (1984). Why teach mathematics? A historical study of the justification question (doctoral dissertation, University of Wisconsin–Madison, 1983). *Dissertation Abstracts International*, 44, 2347A.
- Stinson, D. W. (2006). African American male adolescents, schooling (and mathematics): Deficiency, rejection, and achievement. *Review of Educational Research*, 76(4), 477–506.
- Sunderman, G. L., & Payne, A. (2009). *Does closing schools cause educational harm? A review of the research*. Mid-Atlantic Equity Center Information Brief. Retrieved from <http://files.eric.ed.gov/fulltext/ED543514.pdf>
- Suspitsyna, T. (2010). Accountability in American education as a rhetoric and a technology of governmentality. *Journal of Education Policy*, 25(5), 567–586.
- Thayer-Bacon, B. J. (2003). *Relational (e)pistemologies*. New York, NY: Peter Lang.
- Thomas, P. L. (2013). Education reform in the New Jim Crow era. *Truth-Out*. Retrieved from <http://www.truth-out.org/opinion/item/16406-education-reform-in-the-new-jim-crow-era>
- Thorsen, D. E. (2006). The neoliberal challenge: What is neoliberalism? *Contemporary Readings in Law and Social Justice*, 2(2), 188–214.
- von Glaserfeld, E. (1988). The reluctance to change a way of thinking. *Irish Journal of Psychology*, 9(1), 83–90.
- von Glaserfeld, E. (1990). An exposition of constructivism: Why some like it radical. In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist views on the teaching and learning of mathematics* (pp. 19–29). Reston, Virginia: National Council of Teachers of Mathematics.
- Wacquant, L. (2014). Marginality, ethnicity and penalty in the neo-liberal city: An analytic cartography. *Ethnic and Racial Studies*, 37(10), 1687–1711.
- Wager, A. A., & Stinson, D. W. (Eds.). (2012). *Teaching mathematics for social justice: Conversations with educators*. Reston, VA: National Council of Teachers of Mathematics.