

Research Committee

Equity Within Mathematics Education Research as a Political Act: Moving From Choice to Intentional Collective Professional Responsibility

Julia Aguirre

University of Washington Tacoma

Beth Herbel-Eisenmann

Michigan State University

Sylvia Celedón-Pattichis

University of New Mexico

Marta Civil

University of Arizona

Trena Wilkerson

Baylor University

Michelle Stephan

University of North Carolina-Charlotte

Stephen Pape

Johns Hopkins University

Douglas H. Clements

University of Denver

“Each of us has a responsibility to both think about and act on issues of equity.”
(Gutstein et al., 2005, p. 98)

In 2005, the NCTM Research Committee devoted its commentary to exploring how mathematics education research might contribute to a better understanding of equity in school mathematics education (Gutstein et al., 2005). In that commentary, the concept of equity included both conditions and outcomes of learning. Although multiple definitions of equity exist, the authors of that commentary expressed it this way: “The main issue for us is how mathematics education research can contribute to understanding the causes and effects of inequity, as well as the strategies that effectively reduce undesirable inequities of experience and

achievement in mathematics education” (p. 94). That research commentary brought to the foreground important questions one might ask about equity in school mathematics and some of the complexities associated with doing that work. It also addressed how mathematics education researchers (MERs) could bring a “critical equity lens” (p. 95, hereafter referred to as an “equity lens”) to the research they do. Fast forward 10 years to now: Where is the mathematics education researcher (MER) community in terms of including an equity lens in mathematics education research? Gutiérrez (2010/2013) argued that a sociopolitical turn in mathematics education enables us to ask and answer harder, more complex questions that include issues of identity, agency, power, and sociocultural and political contexts of mathematics, learning, and teaching. A sociopolitical approach allows us to see the historical legacy of mathematics as a tool of oppression as well as a product of our humanity.

As we look back across the past decade, we see some progress in bringing an equity lens into mathematics education research. The field’s knowledge base related to equity-based research has deepened, with research handbook chapters, books, journal issues and articles, and research centers devoted to understanding and improving the mathematical experiences of students historically marginalized in STEM education (see, for example, many of the references in this commentary as well as the list of readings in the Appendix).

In this commentary, we build on the 2005 commentary that states that equity can no longer be a choice but needs to become an intentional, collective, and professional responsibility of the MER community. There is a long-standing, thoroughly documented, and seemingly intractable problem in mathematics education: inequity. Children of certain racial, ethnic, language, gender, ability, and socioeconomic backgrounds experience mathematics education in school differently, and many are disaffected by their mathematics education experience. Together we need to find ways to solve this problem with all its facets and employ a more clearly antioppressive and humane course for mathematics education: a mathematics education that does not result in the negative experiences, fears, anxieties, and disaffected mathematical identities that we continue to encounter in schools and society. Research is needed for this to happen. We hope this commentary will raise awareness to examine and deeply reflect on our research practices with an equity lens.

To frame this commentary, we begin by offering a common ground to readers by saying more about research as a political act, sharing guidelines for dialog about equity work as a professional responsibility of the MER community, and offering some norms for such dialog. We describe a sample of four political acts that illustrate the essential role of equity as an explicit responsibility of MERs while acknowledging that many more such acts could be generated. Finally, we suggest a set of actions MERs might take to make progress on this intentional collective professional responsibility—to do the right thing for current and future generations.

Offering Common Ground: Assumptions, Political Acts, and Guidelines for Dialog

We recognize that there are a range of theoretical perspectives and commitments one might have under the umbrella of “equity work” in mathematics education. A fundamental assumption of this work, however, is that power relations exist in all interactions and relationships, including in education and research spaces. In the Introduction to the translation of Freire’s (1921/1985) *The Politics of Education: Culture, Power, and Liberation*, Giroux wrote:

Education is that terrain where power and politics are given a fundamental expression, since it is where meaning, desire, language, and values engage and respond to the deeper beliefs about the very nature of what it means to be human, to dream, and to name and struggle for a particular future and way of life. (p. xiii)

In this view, the assumption is that there is no neutrality in education and research. Without recognition of this critical assumption, it is difficult to identify and discuss pervasive and tacit acts that can prohibit progress toward making equity and equitable practices an intentional collective professional responsibility in mathematics education.

Many voices call on MERs to acknowledge power relations and the political acts in which we engage (e.g., Gutiérrez, 2013; Lerman, 2000; Martin, 2015; Pais & Valero, 2012; Valero & Zevenbergen, 2004). By “political acts,” we are not using “political” in the common meaning that relates to government or political parties. Rather, we mean acts in which power, privilege, and oppression tacitly and explicitly play a role in research programs. Although we realize that not all MERs ascribe to the critical perspective that underlies much equity work, we take as common ground that the choices we make about our research, whether epistemological, methodological, theoretical, and so on, are shaped by who we are, what our experiences have been, what we value, and the ideologies we (knowingly or not) ascribe to. By recognizing that these choices are shaped by our lived experiences and identities, MERs can reflect on unintentional and inequitable practices in all aspects of our research.

Making our ideologies explicit, exploring our lived experiences and identities in relationship to our research and practices, and reflecting on assumptions and decisions we make take work. This work is necessary for sustainable progress toward a more humane and equitable mathematics education. In his Introduction to the book *Power and Method*, Apple (1994) points out that bringing these ideas to the foreground can be “unsettling” but that being unsettled is productive in considering the social role of research:

Certain things need to be unsettled, need to be shaken. For those of us in education, among the most important assumptions that deserve to be “unsettled” is the belief that research—as it is currently done in both its quantitative and qualitative forms—is a “good thing.” . . . But what if this assumption is naive? What if it is based on an unexamined foundation that begins to crumble when looked at closely? What if research is a political act? . . . Raising the question of the relationship between . . . power and

method, immediately brings to the fore a whole set of issues about the social role of research, about the conceptual and epistemological grounding of knowledge claims, about what such knowledge is *for*, and about *who* ultimately benefits from its generation. It ultimately raises intensely personal questions about ourselves—as raced, gendered, and classed actors—and where we fit into the relations of power, of domination and subordination, in our societies. (pp. ix–x)

When power and method are considered together, the decisions that we as MERs make can be seen as political acts, and we can recognize how things that have been taken as “common sense” can be questioned and seen as centered in viewpoints, assumptions, and experiences. Such recognition can help us interrogate our viewpoints and assumptions and understand our experiences and choices differently. Questions such as those raised by Apple become fruitful for examining how relations of power operate in mathematics education research and can lead to unsettling conversations that help us understand how aspects of our identities—our gender, race, class, and sexuality, for example—influence our research. We recognize that few people have had opportunities to do the kind of difficult internal and external work that such perspectives require. Thus, we offer suggestions at the end of this commentary for ways to get started. Such work is critical to *genuine* equity work in mathematics education research, even if equity is not one’s main line of research.

When we discuss issues of power and our decisions as political acts, difficult topics can arise and tensions and emotions can occur. When we engage in conversation and dialog about diversity and social justice, “learning necessarily involves not merely risk, but the pain of giving up a former condition in favor of a new way of seeing things” (Rom, 1998, p. 399). Arao and Clemens (2013) propose that we enter a “brave space” (p. 141) that has ground rules and norms that recognize tensions and create potential spaces for growth. Some norms that are useful for these kinds of discussions include the following: Listen and consider carefully and deeply the experiences and stories of others, speak from personal experience (use an “I” voice rather than making general statements), do not freeze each other in time (allow others and ourselves to change and grow since learning is an ongoing process), and expect or accept discomfort and unfinished business (suggested by Allies for Change¹).

In this commentary, we explore how mathematics education research and the decisions we as MERs make to include (or not) an equity lens are not just choices; rather, they are political acts. We must take a hard look at ourselves as human beings shaped by the political landscape of our different histories and experiences and understand how these histories and experiences affect our choices as researchers to question, understand, and ultimately transform mathematics education into a more clearly antioppressive and equitable human experience. For this

¹ Allies for Change is a nationally recognized network of educators who share a passion for social justice and a commitment to creating and sustaining life-giving ally relationships and communities (see www.alliesforchange.org).

to take place, we suggest being willing to enter a brave space in which some of our assumptions are questioned. We argue that addressing equity necessitates an intentional, collective, and professional responsibility that is taken up by all mathematics educators in multiple ways, levels, and settings. What we ask of the MER community is not new or easy, but it is necessary to gain transformative traction on this long-standing, thoroughly documented, and seemingly intractable problem of inequity in mathematics education.

Four Political Acts With Consequences for Equity

To move us from equity as choice to equity as an intentional collective professional responsibility, as MERs we must take a candid look at the biases and experiences that may be at play in our scholarship and in the way we prepare future MERs. Below is an illustrative sample of four political acts in mathematics education research that involve integrating equity as central to scholarship. The four political acts are designed to provoke discussion within the MER community to move the field forward. They may be unsettling to read but are essential to strengthening our collective professional responsibility for equity in mathematics education research.

Political Act 1: Enhance Mathematics Education Research With an Equity Lens (Reprise)

The 2005 research committee commentary provided numerous examples of ways for MERs to consider their research questions with an equity lens (Gutstein et al., 2005). Some specific examples included the following: Research on rational numbers could expand analysis of contexts and affordances within various communities or lived experiences of students and families, *Standards*-based curricula research could investigate the impact of such curricula on diminishing or exacerbating learning opportunities among students and the reasons for this occurrence, assessment investigations could examine the appropriateness of assessment tasks in relation to cultural and linguistic bias, and research on *Standards*-based instruction could include how families historically marginalized in education perceive such instruction and its effects on their children. A key point made to the MER community in 2005 was that an equity lens broadens and deepens the field's understanding of mathematics learning and teaching and works to improve how students experience mathematics. Yet, institutionally and structurally, efforts to make equity an explicit part of our professional responsibility have been met with tacit and open resistance. For instance, consider the power and influence of mathematics education conferences for the MER community. In recent efforts to structure equity as part of MERs' responsibilities, some conference organizers have included an additional proposal criterion asking that submissions include a discussion of how the proposal connects to issues of equity in mathematics education. This structural change focused on equity was met with concerns about research exclusion and disenfranchisement of the majority of our MER community, possibly resulting in the significant reduction of the number of

submitted proposals. The rationale underlying the concern is the recognition that the majority of MERs do not focus on equity, and researchers investigating topics such as how students learn calculus concepts like the derivative would be unable to respond to such a criterion. This rationale confirms the need for a *structural move* to elevate the importance of equity in mathematics education research. At the same time, it reflects a misinformed framing of equity as a tool of exclusion, one that will hurt, not enhance, the field as a whole.

It is important to understand that the historical absence of equity as a research conference proposal criterion (also a political act) essentially absolved mathematics education scholars from considering their work in relation to issues of equity. Including equity as one (but not the only) component considered in a research conference proposal moves the field forward through an important systemic mechanism (i.e., research conferences) that promotes the advancement and dissemination of research. This is a structural move that supports our collective professional responsibility as a MER community called for in the 2005 research commentary. In addition, as discussed in the previous commentary, there are numerous ways to enhance mathematics education research with an equity lens. In the case of studying how students learn calculus concepts such as derivatives, investigations might include attending to the metaphors, images, and discourse moves of students learning in multiple languages (e.g., see Adiredja, 2015, for a funds of knowledge orientation to studying students' understanding of limit and Morales, 2012, for how emerging bilingual learners make meaning of exponential functions in an advanced mathematics course). Furthermore, MERs studying calculus understanding might ask themselves fundamental questions such as this: What mathematical, cultural, or linguistic assumptions do I have about the concept of derivatives that might be reflected in tasks I design or in my interpretations of claims made by students? As a collective professional responsibility, structures must be put in place to support our MER community to include equity as a lens to enhance our work.

Political Act 2: Acquire the Knowledge Necessary to Do Genuine Equity Work

As funding agencies and other sponsored project institutions request connections to equity (e.g., the National Science Foundation's broader impacts and connections to underrepresented students), we must now articulate how our work relates to equitable mathematics education. One approach to address this new funding landscape is that sometimes we make a choice to send a last-minute email to a colleague who is seen as doing equity work, rather than take the request to attend to equity in more purposeful and genuine ways. In doing so the attention to equity gets translated into putting someone on a board or committee to make sure that "equity is covered." Another approach is that the equity work is done by MERs who do not have this expertise and are underqualified to do that work. Either approach can result in problematic framings of children, families, and communities that impact policies and practices.

In the first approach, equity is tokenized, the prevailing assumption being that having one equity expert on the panel, writing team, or department faculty means that equity is addressed. Equity is an add-on or afterthought. In the second approach, MERs with little to no professional preparation or expertise in equity might address equity in superficial ways. For example, when asked, “Where is the equity?” some MERs might respond with answers such as “Many of the students were of diverse backgrounds, or are English learners, or . . .” as if listing the demographic categories of students without connection to the theoretical, methodological, or empirical aspects of the research is a sufficient response. Alternatively, some MERs might present the work in uninformed ways, as if what they are writing about is somehow new, even though there is a robust line of work about equity in mathematics education research. In this case, MERs may claim expertise in equity without professional preparation or co-opt equity work. These actions would not be allowed in relationship to research that has been more in line with the status quo in mathematics education. For example, if MERs were to say that their work contributes to research on students’ thinking about rational number, a baseline expectation would be that the MERs would be familiar with literature about learning and about student thinking in relation to rational number. It is a political act to take professional responsibility and acquire the necessary knowledge to do equity work in ways that exceed a superficial examination.

On the one hand, if we continue to tokenize equity by sending those last-minute emails to colleagues who specialize in equity research rather than establishing respectful, genuine collaborations with them, the consequences can lead to further marginalization and frustration that equity is not being taken seriously. On the other hand, if we continue to co-opt equity work, uninformed claims grounded in outdated frameworks, superficial analysis, or lack of awareness of published equity research could reduce the focus on equity to being only about individual interactions rather than understanding the interactional, historical, institutional, structural, and cultural levels at which inequitable practices exist. Finally, treating equity as tangential to the work by tokenizing or co-opting can result in an uninformed deficit framing of students, families, and communities. The findings we report and the ways we “frame” those findings can have detrimental effects for future mathematics learning experiences and environments, particularly for those students who are historically and currently underserved. The framing of issues is important because “it assigns responsibility and creates rationales that authorize some . . . solutions and not others” (Coburn, 2006, p. 343).

Political Act 3: Challenge the False Dichotomy Between Mathematics and Equity

The mathematics–equity binary is a false dichotomy that continues to be manufactured and restated in various mathematics education research settings, including journals, conferences, and job talks (Battista, 2010; Confrey, 2010; Heid, 2010, 2012; Martin, Gholson, & Leonard, 2010). For instance, some equity-focused MERs have been asked the following “questions” in research venues: “Where’s

the mathematics in this scholarship?” “What percentage of your work is mathematics and what percentage is equity?” “Isn’t your research really advocacy work or activist scholarship?” This line of questioning raises legitimacy issues about the work and infers that mathematics is not a priority in equity-focused research. These kinds of questions reinforce this false dichotomy, diminish equity-focused mathematics education research, and have serious consequences for the potential advancement of scholars who choose to make equity central to their work in mathematics education.

Confrey (2010) argues that the relationship between equity and mathematics should be described as “both/and,” not “or.” Yet, there is ample evidence that equity continues to be an afterthought in mathematics education research, policy, and practice. A recent example is the literal separation (rather than integration) of equity from the high profile educational standards document, the *Common Core State Standards* (CCSS). This is done through separate “application” documents pertaining to two specific demographic groups: children with disabilities and English language learners. Neither application document is connected to the main CCSS document nor are they readily visible on the official website for easy access. The explicit disconnect from the growing inclusion and equity-based mathematics education research raises serious questions about the intent and scope of such policy documents to positively affect mathematics learning experiences of children (see a discussion of this in Martin, 2015, and Martin et al., 2010). Even with notable exceptions (including National Science Foundation-sponsored Centers for Learning and Teaching such as the Center for the Mathematics Education of Latinos/as [CEMELA] and the Diversity in Mathematics Education [DiME] Center that focused on equity issues related to mathematics teaching, learning, and policy research), the framing of the mathematics emphasis of these scholarly pursuits has been questioned by the prevailing power structure. For example, a *Journal for Research in Mathematics Education* editorial stated that many of these research centers focused on equity and not mathematics learning:

Unfortunately, there was little direct uptake of the notion of building a coherent and extensive research program targeted to a small number of highly important areas (in this case, mathematics proficiency and equity). . . . Many of the centers had a central focus on issues of equity, as recommended by the RAND report, but only two were directly focused on students’ mathematical proficiency or learning, also a recommendation of the RAND report. (Heid, 2012, pp. 506–507)

This point suggests that research on mathematics learning was not a priority for these new research centers. Instead, equity was the focus. We argue that the Centers for Learning and Teaching identified in the editorial as centered on equity were also focused on mathematics. Repeating Confrey (2010): It is about **both** equity **and** mathematics, not equity or mathematics. The implicit and explicit perpetuation of mathematics and equity as dichotomous creates an over-simplification of the complexities of mathematics teaching and learning by ignoring and diminishing structural and systemic forces in mathematics education. Moreover,

it results in maintaining the privilege of those who wish to falsely assume that equity-focused mathematics education research diminishes the rigor and importance of mathematics. As a MER community, we must challenge this false dichotomy and its negative consequences on advancement in academia if we are to move forward as a community and make progress on eradicating inequities in mathematics education. As Martin et al. (2010) wrote:

Rather than generating concern about studies that do not give priority to mathematics content, it may be more informative to understand why studies that have continued to do so have offered so little in the way of progress for students who remain the most underserved. (p. 16)

Political Act 4: Expand the View of What Counts as “Mathematics”

Who decides what counts as mathematics and what mathematics students should learn? Why does algebra, for example, have an aura of prestige? Several years ago, in a middle school in which one of the authors worked, students who were studying Algebra 1 were seen as the “smart kids.” It was apparent from visits to the school that the Algebra 1 students recognized their status as such. No one seemed to notice (or question), however, that the eighth-grade Algebra 1 class was mostly composed of White, non-Latina/o students even though the student population was 90% Latina/o. Algebra (and we mean traditional algebra) is still being used as the gatekeeper into further mathematics at the college level. Why is a certain form or content of mathematics given high status while others are given low status? For example, why are there so few efforts to really build on students’ everyday experiences with mathematics? Some notable exceptions to this claim do exist and can be educative to our field. For example, in the United States, the funds-of-knowledge-based work (Civil, 2007; Civil & Kahn, 2001; González, Andrade, Civil, & Moll, 2001), the Algebra Project (Moses & Cobb, 2002), the work of Jerry Lipka and colleagues on mathematics curriculum development based on Yup’ik elders’ knowledge (Lipka, Sharp, Brenner, Yanez, & Sharp, 2005; Lipka, Yanez, Andrew-Ihrke, & Adam, 2009), as well as scholarship at the international level (Carraher, Carraher, & Schliemann, 1985; Hunter & Anthony, 2011; Lunney Borden, 2011; Meaney, Trinick, & Fairhall, 2011) can be informative. The example that follows illustrates some of the tensions between in-school and out-of-school knowledge.

A few years ago, in discussing the development of some mathematics materials to be used with adult learners, one of the authors and her colleagues explained the “rule of 12,” which was learned through an interview with a construction worker. In the “rule of 12,” construction workers use a string marked with 12 equidistant segments to make a “3, 4, 5” right triangle. To make sure that the foundation of a house is a rectangle, they use that string to check that the corners are right angles. The construction worker did not refer to the Pythagorean theorem in his description, yet his method certainly could be used in a “formal” course to discuss that theorem. As we shared this “rule of 12” with the materials’ developers, one of them, a mathematician, expressed surprise at the method used and then questioned

whether we wanted to reinforce these methods from the past or help the parents understand the mathematics that their children were learning (Civil, 2016). We argue that it should not be an either-or and that by dismissing these “methods from the past” (which are in fact still used to determine whether an angle is a right angle), we are dismissing people’s community knowledge.

Similar to Political Act 3, the issue here is that such a decision should be both, and MERs, curriculum developers, communities, and children should not have to choose between in-school and out-of-school mathematics. What might be some consequences of our valuing one form of mathematics over another in our courses and in our research? Fasheh (2012), for example, discusses the role of mathematics in the destruction of communities. Additionally, Civil (2016) raises several questions related to the separation of in-school and out-of-school mathematics. At the heart of these issues is the concept of valorization of knowledge (de Abreu, 1995). Why does home mathematics have less status and less value than school mathematics? This is particularly the case for nondominant students whose home mathematics is not usually brought into the classroom.

What counts as mathematics (see, for example, Civil, 2014a, 2014b, 2016; Nemirovsky, Kelton, & Civil, in press)? What we decide to count as mathematics is a political act. We talk about all children having access to quality mathematics education, yet we do not value in the same way all children’s experiences with mathematics, particularly their experiences from their community and home environment. For example, “did any of the research that looks at mathematics from a cultural point of view influence the development of the Common Core State Standards for Mathematics?” (Civil, 2016, pp. 53–54). We suspect that the answer is no and stress that future revisions of the *Common Core State Standards for Mathematics* take a more equity-focused lens.

Strengthening Our Responsibility to Equity

The 2005 commentary challenged the MER community to take on our “responsibility to both think and act on issues of equity” (Gutstein et al., 2005, p. 98). To do this, we first address reflective questions about choices being made in our research practices. We then describe particular actions and activities that we as a MER community can do to get started and genuinely deepen this work.

Reflective Questions About Choices Made in Research Practices

The mathematics education research community has a moral and ethical responsibility to reflect on how we conduct and engage with research in different communities (Gutiérrez, 2016; Gutstein et al., 2005). Gutiérrez (2016) refers to this act of moral and ethical reflection in mathematics education as the *mirror test*. We as the MER community must always ask questions that turn the mirror back on ourselves and what we do. In the context of any research, many of us ask the following questions:

1. What is my *researcher positionality*?

2. What *theoretical frameworks and literature* will I draw from and why?
3. How will the *research design* be informed by the communities with whom I work?
4. How do I engage the community or population in the *findings* I report in the research?

Although many MERs typically consider these more general questions, we propose that a slightly different set of considerations should be made related to each of these areas in order to turn the mirror back on ourselves.

The first question asks MERs to reflect on personal and professional experiences we have had in the past that have privileged us to conduct research with a specific population (e.g., students, parents, schools, communities, teachers). This question also includes asking whether we will take on an outsider or insider role (Banks, 1998) and what we know about the community with which we will engage. Knowing the *context* of the communities with which we engage as well as the length of time we have engaged with these communities is critical to establishing credibility.

As MERs, we must ask who gets to conduct research and how our backgrounds influence the choices we make for *what* we investigate in various settings and *how* we investigate them. This is true for all types of research; for example, even the variables we choose to study and how we define them relate to our own experiences. Just as mathematics education is racialized and gendered, so is mathematics education research (Martin, 2006). What gets valued and what is marginalized is a product of social forces. Although scholars—mostly feminist scholars and critical race theorists—have pointed to the importance of positionality in mathematics education research, this point still seems controversial to acknowledge in mathematics education research. A recent review of research on mathematics classroom discourse, for example, showed that few articles included an author’s positionality even though discourse theories make context and participants and their relationships central to any interpretation of discourse (Herbel-Eisenmann, Meaney, Bishop Pierson, & Heyd-Metzuyanin, in press). As Foote and Bartell (2011) convincingly argued, one’s identity very much influences the ways in which one sees, interprets, and experiences the research process. The research MERs do also shapes and influences our identities as people and as MERs. As we see the connections between identity development and our research field, we must recognize that scholarship in mathematics education is conducted as part of a White institutional space (Martin, 2015; Martin et al., 2010). When we look at the demographics of newly awarded doctoral degrees in mathematics education, we have to recognize the fact that the scholars *producing* the research about mathematics education do not reflect the current population *experiencing* mathematics education in schools. Milner (2007) describes the explicit, tacit, and unanticipated “dangers” that can “emerge for researchers when they do not pay careful attention to their own and others’ racialized and cultural systems of coming to know, knowing, and experiencing the world” (p. 388). He points out that people of color

have been misrepresented, exploited, and silenced in educational research and that some educational researchers have prioritized White voices, ideologies, and viewpoints. He offers a framework that can be used to “guide researchers in a process of racial and cultural consciousness as they conduct education research” (p. 388).

The second question asks us as MERs to reflect on which theoretical frameworks and literature we draw from to inform the research we conduct. For example, some feminist and critical frameworks that have been developed by White scholars have been shown to have blind spots and biases that need to be critiqued. We should ask what research already exists that addresses equity issues in mathematics education and what interdisciplinary fields can inform the work. MERs should search beyond the mathematics education literature to understand the context in which the research population is a part (e.g., bilingual education, sociology, anthropology, linguistics, philosophy, disability studies, cultural studies).

The third question asks us to honor and respect the communities we work with by asking, well in advance of the work to be done, what the appropriate methods are for data collection, including the variables and instruments that will be used and how these are connected to the *particular* context. We should recognize that the variables we choose to study, for example, may be aspects of people’s experiences that they themselves do not recognize or value. Additionally, choices we make about the forms of data to collect should be informed by the particular context. For example, some Aboriginal or First Nations communities may not allow picture taking or videos of their communities or their surroundings. We must be mindful of the use of photos or video when these are used as part of the data collection. In addition, we should consider how we will give back to the community (reciprocity); conducting research is not just about getting but about giving back to the populations and communities with which we work. The above research design and dissemination decisions move toward a noncolonizing and nondeficit approach to research (see González y González & Lincoln, 2006; Lincoln & González y González, 2008; Smith, 1999).

The last question asks MERs to consider the ways in which participants or community members are included in the interpretation and reporting of the findings. This process involves participants in member checks to confirm how the researcher is interpreting emergent themes and findings based on participants’ feedback. This is a critical component in triangulating the data. The analysis of the data and the role participants play in this process are important to consider because we sometimes report findings that are deficit-oriented and have detrimental consequences for diverse communities or underrepresented groups of students. In addition, there are severe consequences when deficit-oriented research findings are taken up by policymakers who create policies that negatively impact these communities or students.

Overall, it is important that we as MERs hold ourselves accountable for gauging the genuineness of our work by examining the sincerity, credibility, moral contributions, and ethical considerations of the work that we do (Tracy, 2010). In fact,

ethical considerations must go beyond the procedures required by human subjects and institutional review boards. They should also include relational ethics that require attention to the ways in which we are “mindful of [our] character, actions, and consequences on others” (Tracy, 2010, p. 847). When MERs engage in long-term relationships with communities and consider authentic partnerships with them in the work (e.g., Paris & Winn, 2013), they should carefully consider questions such as these: Who decides what questions to ask and what data to collect? Who has access to the data? Who is involved in telling the stories of the work being done? Building trusting relationships with the communities we work in is a necessity if we are to do genuine work in mathematics education. It requires understanding one’s own privilege as well as the historical and systemic marginalization of various populations with whom MERs might work. And it takes time.

Actions and Activities to Get Started in Genuine Equity Work

In addition to asking such questions throughout the process of research, we need to consider the actions and activities we can do to engage in genuine equity work. Learning to engage in genuine equity work is not an end goal; it must be seen as an ongoing process and something we can always improve upon. The recently released and NCTM-endorsed joint position statement from the National Council of Supervisors of Mathematics and TODOS: Mathematics for ALL (2016), titled *Mathematics Education Through the Lens of Social Justice: Acknowledgment, Actions and Accountability*, takes an important step in this direction. The document explains what it means to take a social justice stance in mathematics education, provides particular actions that can be taken in this direction, and suggests that action must be coupled with accountability to gauge progress toward mathematics education that is socially just, antioppressive, and humane. We draw on this document and other scholarship to provide suggestions for MERs to engage in genuine equity work. To address all of the political acts described above, MERs can, for example, take these steps:

Stop using deficit-oriented language in mathematics education work, and help educate others about how such language perpetuates negative framings of children and communities. As we write and talk about children, their families, and communities, we need to pay attention to whether we are using language that makes some people or communities sound superior or inferior to others. In schools, these same kinds of negative labels can appear—“low-level kids” or “bubble kids,” for example—in practitioners’ language (Horn, 2007; Suh, Theakston Musselman, Herbel-Eisenmann, & Steele, 2013), but they are also deeply embedded in the mathematics education community’s policies, practices, and language, including its underlying metaphors (see Berry, Ellis, & Hughes, 2014; Ellis, 2008; Parks, 2010). These types of language are pervasive in our field, are perpetuated in institutional structures such as tracking, and contribute to cultural myths and stereotypes about who is “smart” (or not) and what constitutes “smartness.” Students bring important knowledge and practices from their own communities, which

should be recognized and capitalized on rather than perpetuating the expectation that all children should conform to dominant groups' practices that are emphasized in school mathematics.

Deepen one's professional knowledge base and mentoring practices with mathematics and social justice as a dual focus. Although this was a recommendation for the preparation of Ph.D. students in the Conference Board of the Mathematical Sciences report (see Taylor & Kitchen, 2008), few graduate-level programs in mathematics education have revised their programs to achieve this goal. Thus, many MERs were not provided an opportunity to understand how their work can actually be enhanced by considering how equity perspectives are intertwined with any area of research in mathematics education. Shifting demographics in the United States (and other countries with increasing populations of refugees across places such as Europe) have created a widening gap between the demographic of MERs (who are primarily White and middle class) and the student populations in schools. For example, over 51% of children attending public schools in the United States live in working-class and poor communities (Southern Education Foundation, 2015). In addition, enrollment data show that non-White children are now the majority in elementary and secondary public schools (National Center for Education Statistics, 2014). These growing differences in demographics will only continue to widen the mathematics education research community's gap in being able to understand the communities we work in unless we become engaged in equity perspectives, build genuine relationships, and better understand how our own identities shape our perspectives, interpretations, and the work that we do. This work can begin at any point in a MER's career and can be made part of all doctoral education for future MERs.

Acknowledge and learn about the systems from which you² benefit from unearned privilege. Various systems of oppression have long historical roots in social and institutional systems, and they exist with "interlocking systems" of privilege; that is,

the oppression of some people does not exist without systems supporting the unearned privilege of other people ... For example, racism does not exist without systems supporting White privilege. That is, "racism is understood to be widespread and ingrained in society, rather than manifested only in the actions of a few 'irrational' people ... [and] ... through this perspective, racism is perceived as an entity that affects everyone in society, benefiting some and victimizing others" (Marx, 2006, p. 5). (Herbel-Eisenmann et al., 2013, p. 7)

This emphasis on understanding the historical, systemic, and cultural aspects of

² We chose to use the second person singular pronoun here because this is work that individuals need to do specifically. Each person benefits from various systems based on one's own identities and, thus, needs to do one's own work.

privilege and oppression is important because many people consider these only through their interpersonal interactions with others. In some discussions about racism, for example, some authors of this commentary have heard friends and colleagues declare, “I’m not racist.” Taking such an individualistic and personal view narrows the scope for understanding how these systems work. Systems of privilege and oppression act on at least four levels: personal, interpersonal, institutional, and cultural (Batts, 1998, 2002; Harro, 2000a, 2000b). These four levels illuminate how these systems might be instantiated, for example, in one’s beliefs, people’s interactions, institutional policies, and in our cultural images and stereotypes associated with different identity groups. In Political Act 1, for example, we emphasized that making a structural change to conference calls for proposals would encourage more MERs to consider how their work relates to equity, rather than focusing on an interpersonal level of one researcher encouraging another to learn to do genuine equity work. Although not the cause of systems that perpetuate oppression, as bell hooks (1996) writes, “all our silences in the face of racist assault are acts of complicity” (p. 19). Furthermore, while we are not to blame for these systems, we contribute to them if we choose not to do something about them once we are aware that they exist. Naming the identities in which one has unearned privilege (sometimes called “non-target” identities; see below) and other identities in which membership might cause one to be “disenfranchised, exploited, and victimized in a variety of ways by members of non-target or dominant groups and the non-target’s systems or institutions” (Allies for Change, n.d., “Targets of Oppression,” para. 1) is a useful way to begin this work.

Read outside of mathematics education literature to better understand target and non-target identities and how they are related to various systems of privilege and oppression. Memberships in “target” or “non-target” groups (Batts, 2002) are based on whether or not a particular identity has been historically marginalized by systems and institutions. Such explicit recognition of identities is important because “the more non-target identity groups one belongs to, the better the odds are for positive life outcomes, due, in part, to unearned privileges” (Herbel-Eisenmann et al., 2013, p. 10). It is important to recognize that not all individuals experience systems of privilege and oppression in the same way, and, because our identities are socially constructed, how individuals experience privilege and oppression can shift and change within and across contexts.

Another important aspect to realize in reflecting on target and non-target identities is that understanding the impact of non-target identities in relationship to systems of oppression is a lifelong *process*, not a one-time act. For example, Bishop (2002) argues:

It is ridiculous to claim you are not sexist if you are a man or not racist if you are white and so on. No matter how much work you have done on that area of yourself, there is more to be done It is an ongoing task, like keeping the dishes clean A white person never becomes non-racist, but is always a “recovering racist,” more often referred to as “anti-racist.” ... members of an oppressor group are always oppressors,

no matter how much individual learning we have done: until we change the politics and economics of oppression, we are still “living off the avails.”... So, until we succeed in making a more humane world, yes, we are racist (or ageist, or classist, or heterosexist, and so forth). Understanding this is part of learning to think *structurally* rather than *individually* [emphases added]. It is part of avoiding overpersonalization of the issues. (p. 115)

To start (and continue) the process, MERs can read outside of mathematics education research literature, listen to podcasts, or find Internet videos. There is a plethora of important academic books and articles related to race, class, gender, sexuality, disability, and other types of identities (e.g., Butler, 1999; Butler-Wall et al., 2016; Carter Andrews, 2009; Carter Andrews & Tuitt, 2013; Collins, 2000; Gorski, 2006, 2008; Grant & Sleeter, 1986; Grant & Zwier, 2011; hooks, 1990, 2000, 2014; Leonardo, 2009a, 2009b; Milner, 2013, 2015; Paris, 2011; Pollock, 2008; Sensoy & DiAngelo, 2012) as well as books for broader audiences.³ A quick Internet search also identifies important and scholarly discussions and talks, many done by top scholars in fields related to issues of equity, social justice, and systems of privilege and oppression.

Cite MERs from around the world who do equity-focused work, especially scholars of color. Who we reference is a political act. There are implications of being cited for systems such as tenure and for others to recognize and become familiar with the work. These recognitions then impact practices, such as who gets invited to serve on editorial boards or committees like the Research Committee for NCTM. There are many important books and articles to read from within mathematics education that can be useful for understanding these issues as they relate to mathematics and mathematics education (see the Appendix for a selected list of publications from 2005 to the present that are not included in this commentary).

In fact, to engage seriously with Political Acts 3 and 4, all MERs should understand a range of philosophies and epistemologies of mathematics and mathematics education, and such coursework should be offered to all graduate students in mathematics education. Being able to engage in genuine equity work requires knowledge of a range of status quo views, such as Platonism, absolutism, social constructivism (e.g., Ernest, 1991), and quasi-empiricism (e.g., Lakatos, 1976). It must also involve the inclusion of critical, post-colonial, post-structuralist or post-modern (e.g., Appelbaum, 1995; Stinson & Bullock, 2012; Walkerdine, 1988, 1998; Walshaw, 2004), and other post-interpretive perspectives because many of those perspectives emerged out of the critique of quantitative and interpretive theories. MERs should know about, for example, feminist epistemology (e.g., Belenky, 1986; Burton, 1995; Harding, 2004), Indigenous epistemology (e.g., Cajete, 2012;

³ See, for example, <http://www.bustle.com/articles/144531-18-books-every-white-ally-should-read>, <https://www.romper.com/p/21-lgbtq-books-to-read-if-you-want-become-a-better-ally-for-the-community-4037>, and <http://www.bustle.com/articles/153390-10-books-i-wish-my-white-teachers-had-read>.

Lipka, Wong, Andrew-Ihrke, & Yanez, 2012; Lunney Borden, 2011; Meaney, Trinick, & Fairhall, 2013), cultural views on mathematics (e.g., Bishop, 1988), viewpoints on ethnomathematics (e.g., Barton, 1996, 1999; D'Ambrosio, 1985, 1997; Powell & Frankenstein, 1997), critical mathematics education (e.g., Alrø, Ravn, & Valero, 2010; Skovsmose, 2011), social justice mathematics (e.g., Gutstein, 2006; Wager & Stinson, 2012), and so on. They should also understand the history of a White-Eurocentric mathematics (e.g., G. G. Joseph, 1987, 2010) that has become commonplace in mathematics classrooms because such an understanding illuminates the role of imperialism in what counts as school mathematics, the “implications for the nature of the relationship between knowledge and power,” and “the issue of who ‘makes’ science and technology” (G. G. Joseph, 1987, p. 14). Without an understanding of the ways in which an individual’s non-target identities and life experiences might influence what one can see or not, it is difficult to begin to engage in genuine work in communities and schools where people will be different from you.

Engage colleagues and friends in explicitly talking about race, class, gender, and other systems of privilege and oppression. We acknowledge that engaging in self-reflection and joint work with colleagues in these conversations takes courage and, as pointed out earlier, may at times feel unsettling (Singleton, 2014; Sparks, 2002). As MERs, we must enter brave spaces, much like the one organized by N. M. Joseph, Spencer, Johnson, and Kitchen (2016), because this work requires constant questioning of what we are used to doing (Arao & Clemens, 2013; Russell, Haynes, & Cobb, 2016). This work is also not easy to do; it takes time (Gutstein, 2012) and requires compassion. For example, one of the authors of this commentary and her colleagues started these conversations by getting together to share stories and challenges associated with addressing equity and social justice issues in our courses for prospective and practicing teachers. Some of these beginning conversations resulted in getting funding to host a small conference on privilege and oppression in mathematics education. There is a special issue (see Stinson & Spencer, 2013) in the *Journal of Urban Mathematics Education* and an edited book that resulted from this conference. The edited book, in fact, provides cases of issues that arise in our work with responses from various scholars in the field and could be used to spur conversation (White, Crespo, & Civil, 2016). Sessions at various mathematics education research conferences have also focused on understanding White privilege in mathematics teacher preparation (e.g., McLeman, Vomvoridi-Ivanović, & Chval, 2012), better understanding issues of equity and supporting colleagues of color in academia (e.g., Gutiérrez, Aguirre, & Bartell, 2013; Gutiérrez, Aguirre, Strutchens, & White, 2012), and challenging deficit discourses in mathematics education (e.g., Aguirre, Berry, Gutiérrez, Martin, & Wager, 2016; Larson, 2016). When MERs are serving on committees in professional organizations, suggesting these types of sessions can help build a broader mathematics education community that can engage in honest and hard conversations about racism, classism, sexism, heterosexism, ableism, and so on. There are

also skilled facilitators who can be brought in to facilitate such discussions; this was the case in the previously mentioned small conference in which Allies for Change was contracted to lead experiential sessions that allowed participants to talk about their experiences and share stories associated with racism, classism, and sexism. Here we have provided many concrete questions for MERs to reflect upon as well as actions and activities MERs can do to engage in genuine equity-related work. Although not comprehensive, they provide good places to begin for becoming intentional in this work.

Conclusion

In this commentary, we argue that equity is an intentional collective professional responsibility of the MER community. It is as necessary and as important as mathematics is to mathematics education. Eliminating the well-documented inequities of our mathematics education system requires us to leverage our biggest community asset, our research. We hope this commentary raises awareness to take the mirror test and examine our research practices with an equity lens. We provide a set of actions to help you take on this professional responsibility with courage and resolve—to do the right thing for current and future generations. We cannot wait another decade. MERs need to start now, collectively, and use our power toward a more humane, just, and equitable mathematics education.

References

- Adiredja, A. P. (2015). Exploring roles of cognitive studies in equity: A case for knowledge in pieces. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Bradfield, & H. Dominguez (Eds.), *Proceedings of the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1269–1276). East Lansing, MI: Michigan State University.
- Aguirre, J. M., Berry, R. Q., Gutiérrez, R., Martin, D. B., & Wager, A. (2016). *Power concedes nothing without a demand: Challenging the pervasive deficit discourse in mathematics education*. Invited Panel Session at the Annual Research Conference of the National Council of Teachers of Mathematics, San Francisco, CA.
- Allies for Change. (n.d.). *Glossary of terms*. Retrieved from <http://www.alliesforchange.org/documents/Glossary.pdf>
- Alrø, H., Ravn, O., & Valero, P. (Eds.). (2010). *Critical mathematics education: Past, present and future. Festschrift for Ole Skovsmose*. Boston, MA: Sense.
- Appelbaum, P. M. (1995). *Popular culture, educational discourse, and mathematics*. Albany, NY: SUNY Press.
- Apple, M. W. (1994). *Series editor's introduction*. In A. Gitlin (Ed.), *Power and method: Political activism and educational research* (pp. ix–xii). New York, NY: Routledge.
- Arao, B., & Clemens, K. (2013). From safe spaces to brave spaces. In L. Landreman (Ed.), *The art of effective facilitation: Reflections from social justice educators* (pp. 135–150). Sterling, VA: Stylus Publications.
- Banks, J. (1998). The lives and values of researchers: Implications for educating citizens in a multicultural society. *Educational Researcher*, 27(7), 4–17. doi:10.3102/0013189X027007004
- Barton, B. (1996). Making sense of ethnomathematics: Ethnomathematics is making sense. *Educational Studies in Mathematics*, 31(1–2), 201–233. doi:10.1007/BF00143932
- Barton, B. (1999). Ethnomathematics and philosophy. *ZDM*, 31(2), 54–58. doi:10.1007/s11858-999-0009-7

- Battista, M. (2010). Engaging students in meaningful mathematics learning: Different perspectives, complementary goals. *Journal of Urban Mathematics Education*, 3(2), 34–46.
- Batts, V. (1998). *Modern racism: New melody for the same old tunes*. Cambridge, MA: Episcopal Divinity School.
- Batts, V. (2002). Is reconciliation possible? Lessons from combating “modern racism.” In I. T. Douglas (Ed.), *Waging reconciliation: God’s mission in a time of globalization and crisis* (pp. 1–16). New York, NY: Church.
- Belenky, M. F. (1986). *Women’s ways of knowing: The development of self, voice, and mind*. New York, NY: Basic Books.
- Berry, R. Q., III, Ellis, M., & Hughes, S. (2014). 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. doi:10.1080/13613324.2013.818534
- Bishop, A. J. (1988). Mathematics education in its cultural context. In A. J. Bishop (Ed.), *Mathematics education and culture* (pp. 179–191). Dordrecht, the Netherlands: Springer. doi:10.1007/BF00751231
- Bishop, A. J. (2002). *Becoming an ally: Breaking the cycle of oppression in people* (2nd ed.). New York, NY: Zed Books.
- Burton, L. (1995). Moving towards a feminist epistemology of mathematics. *Educational Studies in Mathematics*, 28(3), 275–291. doi:10.1007/s11858-008-0109-9
- Butler, J. (1999). *Gender trouble: Feminism and the subversion of identity*. New York, NY: Routledge.
- Butler-Wall, A., Cosier, K., Harper, R., Sapp, J., Sokolower, J., & Tempel, M. B. (Eds.). (2016). *Rethinking sexism, gender, and sexuality*. Milwaukee, WI: Rethinking Schools.
- Cajete, G. (2012). Decolonizing Indigenous education in a twenty-first century world. In Waziyatawin & M. Y. Bird (Eds.), *For Indigenous minds only: A decolonization handbook* (pp. 145–156). Santa Fe, NM: School for Advanced Research.
- Carraher, T. N., Carraher, D. W., & Schliemann, A. D. (1985). Mathematics in the streets and in schools. *British Journal of Developmental Psychology*, 3(1), 21–29. doi:10.1111/j.2044-835X.1985.tb00951.x
- Carter Andrews, D. J. (2009). The construction of black high-achiever identities in a predominantly white high school. *Anthropology & Education Quarterly*, 40(3), 297–317. doi:10.1111/j.1548-1492.2009.01046.x
- Carter Andrews, D. J., & Tuitt, F. (2013). *Contesting the myth of a “post-racial” era: The continued significance of race in U.S. education*. New York, NY: Peter Lang.
- Civil, M. (2007). Building on community knowledge: An avenue to equity in mathematics education. In N. Nasir & P. Cobb (Eds.), *Improving access to mathematics: Diversity and equity in the classroom* (pp. 105–117). New York, NY: Teachers College Press.
- Civil, M. (2014a). Musings around participation in the mathematics classroom (guest editorial). *The Mathematics Educator*, 23(2), 3–22.
- Civil, M. (2014b). Why should mathematics educators learn from and about Latina/o students’ in-school and out-of-school experience? *Journal of Urban Mathematics Education*, 7(2), 9–20.
- Civil, M. (2016). STEM learning research through a funds of knowledge lens. *Cultural Studies of Science Education*, 11(1), 41–59. doi:10.1007/s11422-014-9648-2
- Civil, M., & Kahn, L. (2001). Mathematics instruction developed from a garden theme. *Teaching Children Mathematics*, 7(7), 400–405.
- Coburn, C. E. (2006). Framing the problem of reading instruction: Using frame analysis to uncover the microprocesses of policy implementation. *American Educational Research Journal*, 43(3), 343–349. doi:10.3102/00028312043003343
- Collins, P. H. (2000). *Black feminist thought*. New York, NY: Routledge.
- Confrey, J. (2010). “Both and”—Equity and mathematics: A response to Martin, Gholson, and Leonard. *Journal of Urban Mathematics Education*, 3(2), 25–33.
- D’Ambrosio, U. (1985). Ethnomathematics and its place in the history and pedagogy of mathematics. *For the Learning of Mathematics*, 5(1), 44–48.

- D'Ambrosio, U. (1997). Ethnomathematics and its place in the history and pedagogy of mathematics. In A. B. Powell & M. Frankenstein (Eds.), *Ethnomathematics: Challenging Eurocentrism in mathematics education* (pp. 13–24). Albany, NY: SUNY Press.
- de Abreu, G. (1995). Understanding how children experience the relationship between home and school mathematics. *Mind, Culture, and Activity*, 2(2), 119–142. doi:10.1080/10749039509524693
- Ellis, M. W. (2008). Leaving no child behind yet allowing none too far ahead: Ensuring (in)equity in mathematics education through the science of measurement and instruction. *Teachers College Record*, 110(6), 1330–1356.
- Ernest, P. (1991). *The philosophy of mathematics education*. London, United Kingdom: Falmer.
- Fasheh, M. J. (2012). The role of mathematics in the destruction of communities, and what we can do to reverse this process, including using mathematics. In O. Skovsmose & B. Greer (Eds.), *Opening the cage: Critique and politics of mathematics education* (pp. 93–106). Rotterdam, the Netherlands: Sense. doi:10.1007/978-94-6091-808-7_4
- Foote, M. Q., & Bartell, T. G. (2011). Pathways to equity in mathematics education: How life experiences impact researcher positionality. *Educational Studies in Mathematics*, 78(1), 45–68. doi:10.1007/s10649-011-9309-2
- Freire, P. (1921/1985). *The politics of education: Culture, power, and liberation*. Westport, CT: Greenwood Publishing Group.
- Giroux, H. A. (1985). Introduction. In Freire, P. (Ed.), *The politics of education: Culture, power, and liberation* (pp. xi–xxv). Westport, CT: Greenwood.
- González, N., Andrade, R., Civil, M., & Moll, L. C. (2001). Bridging funds of distributed knowledge: Creating zones of practices in mathematics. *Journal of Education for Students Placed at Risk*, 6(1–2), 115–132. doi:10.1207/S15327671ESPR0601-2_7
- González y González, E. M., & Lincoln, Y. S. (2006). Decolonizing qualitative research: Nontraditional reporting forms in the academy. In N. K. Denzin & M. Gardina (Eds.), *Qualitative inquiry and the conservative challenge* (pp. 193–214). Walnut Creek, CA: Left Coast.
- Gorski, P. C. (2006). Savage unrealities. *Rethinking Schools*, 21(2), 16–19.
- Gorski, P. C. (2008). Peddling poverty for profit: Elements of oppression in Ruby Payne's framework. *Equity & Excellence in Education*, 41(1), 130–148. doi:10.1080/10665680701761854
- Grant, C. A., & Sleeter, C. E. (1986). Race, class, and gender in education research: An argument for integrative analysis. *Review of Educational Research*, 56(2), 195–211. doi:10.3102/00346543056002195
- Grant, C. A., & Zwier, E. (2011). Intersectionality and student outcomes: Sharpening the struggle against racism, sexism, classism, ableism, heterosexism, nationalism, and linguistic, religious, and geographical discrimination in teaching and learning. *Multicultural Perspectives*, 13(4), 181–188. doi:10.1080/15210960.2011.616813
- Gutiérrez, R. (2010/2013). The sociopolitical turn in mathematics education. *Journal for Research in Mathematics Education*, 44(1), 37–68.
- Gutiérrez, R. (2016). Strategies for creative insubordination in mathematics teaching. *Teaching for Excellence and Equity in Mathematics*, 7(1), 52–60.
- Gutiérrez, R., Aguirre, J. M., & Bartell, T. (2013, January). *Analyzing issues of (in)equity and power in mathematics methods courses*. Presentation at the 17th Annual Conference of the Association of Mathematics Teacher Educators, Orlando, FL.
- Gutiérrez, R., Aguirre, J. M., Strutchens, M., & White, D. Y. (2012, February). *On our terms: Faculty of Color negotiating the academy*. Presentation at the 16th Annual Conference of the Association of Mathematics Teacher Educators, Fort Worth, TX.
- Gutstein, E. (2006). *Reading and writing the world with mathematics: Toward a pedagogy for social justice*. New York, NY: Routledge.
- Gutstein, E. (2012). Reflections on teaching and learning mathematics for social justice in urban schools. In A. A. Wager & D. W. Stinson (Eds.), *Teaching mathematics for social justice: Conversations with mathematics educators* (pp. 63–78). Reston, VA: National Council of Teachers of Mathematics.

- Gutstein, E., Fey, J. T., Heid, M. K., DeLoach-Johnson, I., Middleton, J. A., Larson, M., . . . Tunis, H. (2005). Equity in school mathematics education: How can research contribute? *Journal for Research in Mathematics Education*, 36(2), 92–100.
- Harding, S. G. (2004). *The feminist standpoint theory reader: Intellectual and political controversies*. New York, NY: Psychology Press.
- Harro, B. (2000a). The cycle of socialization. In M. Adams, W. J. Blumenfeld, R. Castaneda, H. W. Hackman, M. L. Peters, & X. Zúñiga (Eds.), *Readings for diversity and social justice: An anthology on racism, anti-Semitism, sexism, heterosexism, ableism, and classism* (pp. 15–21). New York, NY: Routledge.
- Harro, B. (2000b). The cycle of liberation. In M. Adams, W. J. Blumenfeld, R. Castaneda, H. W. Hackman, M. L. Peters, & X. Zúñiga (Eds.), *Readings for diversity and social justice: An anthology on racism, anti-Semitism, sexism, heterosexism, ableism, and classism* (pp. 463–469). New York, NY: Routledge.
- Heid, M. K. (2010). Editorial: Where's the math (in mathematics education research)? *Journal for Research in Mathematics Education*, 41(2), 102–103.
- Heid, M. K. (2012). Some thoughts on the importance of the community and on the challenge of identifying great research challenges in mathematics education. *Journal for Research in Mathematics Education*, 43(5), 502–508. doi:10.5951/jresmetheduc.43.5.0502
- Herbel-Eisenmann, B., Bartell, T. G., Bieda, K., Breyfogle, M. L., Crespo, S., Dominguez, H., & Drake, C. (2013). Strong is the silence: Challenging interlocking systems of privilege and oppression in mathematics teacher education. *Journal of Urban Mathematics Education*, 6(1), 6–18.
- Herbel-Eisenmann, B., Meaney, T., Bishop Pierson, J., & Heyd-Metzuyanin, E. (in press). Highlighting heritages and building tasks: A critical analysis of mathematics classroom discourse literature. In J. Cai (Ed.), *Compendium for research in mathematics education*. Reston, VA: National Council of Teachers of Mathematics.
- hooks, b. (1990). *Yearning: Race, gender, and cultural politics*. Boston, MA: South End Press.
- hooks, b. (1996). *Killing rage: Ending racism*. New York, NY: Henry Holt and Company.
- hooks, b. (2000). *Where we stand: Class matters*. New York, NY: Psychology Press.
- hooks, b. (2014). *Teaching to transgress*. New York, NY: Routledge.
- Horn, I. S. (2007). Fast kids, slow kids, lazy kids: Framing the mismatch problem in mathematics teachers' conversations. *Journal of the Learning Sciences*, 16(1), 37–79. doi:10.1080/10508400709336942
- Hunter, R. K., & Anthony, G. (2011). Forging mathematical relationships in inquiry-based classrooms with Pasifika students. *Journal of Urban Mathematics Education*, 4(1), 98–119.
- Joseph, G. G. (1987). Foundations of Eurocentrism in mathematics. *Race & Class*, 28(3), 13–28. doi:10.1177/030639688702800302
- Joseph, G. G. (2010). *The crest of the peacock: Non-European roots of mathematics* (3rd ed.). Princeton, NJ: Princeton University Press.
- Joseph, N. M., Spencer, J., Johnson, K. R., and Kitchen, R. (2016, January). *Exploring racial consciousness and faculty behavior in STEM classrooms*. Presentation at the 20th Annual Conference of the Association of Mathematics Teacher Educators, Irvine, CA.
- Lakatos, I. (1976). *Proofs and refutations: The logic of mathematical discovery*. Cambridge, MA: University of Cambridge Press.
- Larson, M. (2016, April). *Access, equity, identity, and agency*. President-elect discussion at the Annual Research Conference of the National Council of Teachers of Mathematics, San Francisco, CA.
- Leonardo, Z. (2009a). *Race, whiteness, and education*. New York, NY: Routledge.
- Leonardo, Z. (Ed.). (2009b). *Critical pedagogy and race*. New York, NY: Wiley.
- Lerman, S. (2000). The social turn in mathematics education research. In J. Boaler (Ed.), *Multiple perspectives on mathematics teaching and learning* (pp. 19–44). Westport, CT: Ablex.
- Lincoln, Y. S., & González y González, E. M. (2008). The search for emerging decolonizing methodologies in qualitative research: Further strategies for liberatory and democratic inquiry. *Qualitative Inquiry*, 14(5), 784–805. doi:10.1177/1077800408318304

- Lipka, J., Sharp, N., Brenner, B., Yanez, E., & Sharp, F. (2005). The relevance of culturally based curriculum and instruction: The case of Nancy Sharp. *Journal of American Indian Education*, 44(3), 31–54.
- Lipka, J., Wong, M., Andrew-Ihrke, D., & Yanez, E. (2012). Developing an alternative learning trajectory for rational number reasoning, geometry and measuring based on Indigenous knowledge. In S. Mukhopadhyay & W.-M. Roth (Eds.), *Alternative forms of knowing (in) mathematics* (pp. 159–181). Rotterdam, the Netherlands: Sense. doi:10.1007/978-94-6091-921-3_8
- Lipka, J., Yanez, E., Andrew-Ihrke, D., & Adam, S. (2009). A two-way process for developing effective culturally based math: Examples from math in a cultural context. In B. Greer, S. Mukhopadhyay, S. Nelson-Barber, & A. Powell (Eds.), *Culturally responsive mathematics education* (pp. 257–280). New York, NY: Routledge.
- Lunney Borden, L. (2011). The “verbification” of mathematics: Using grammatical structures of Mi’Kmaq to support student learning. *For the Learning of Mathematics*, 31(3), 8–13.
- Martin, D. B. (2006). Mathematics learning and participation as racialized forms of experience: African American parents speak on the struggle of mathematics literacy. *Mathematical Thinking and Learning*, 8(3), 197–229. doi:10.1207/s15327833mtl0803_2
- Martin, D. B. (2015). The collective black and Principles to Action. *Journal of Urban Mathematics Education*, 8(1), 17–23.
- 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.
- McLeman, L., Vomvoriđi-Ivanović, E., & Chval, K. (2012, February). *Engaging in dialogue about researching mathematics teacher educators’ practice related to teaching diverse populations*. Presentation at the 16th Annual Conference of the Association of Mathematics Teacher Educators, Fort Worth, TX.
- Meaney, T., Trinick, T., & Fairhall, U. (2011). *Collaborating to meet language challenges in Indigenous mathematics classrooms* (Vol. 52). Dordrecht, the Netherlands: Springer.
- Meaney, T., Trinick, T., & Fairhall, U. (2013). One size does NOT fit all: Achieving equity in Maori mathematics classrooms. *Journal for Research in Mathematics Education*, 44(1), 235–263. doi:10.5951/jresmetheduc.44.1.0235
- Milner, H. R. (2007). Race, culture, and researcher positionality: Working through dangers seen, unseen, and unforeseen. *Educational Researcher*, 36(7), 388–400. doi:10.3102/0013189X07309471
- Milner, H. R. (2013). Analyzing poverty, learning, and teaching through a critical race theory lens. *Review of Research in Education*, 37(1), 1–53. doi:10.3102/0091732X12459720
- Milner, H. R. (2015). *Rac(e)ing to class: Confronting poverty and race in schools and classrooms*. Cambridge, MA: Harvard Education Press.
- Morales, H., Jr. (2012). Case 4: Twelfth-grade English language learners and the making of mathematical meanings. In S. Celedón-Pattichis & N. Ramirez (Eds.), *Beyond good teaching: Advancing mathematics education for ELLs* (pp. 109–118). Reston, VA: National Council of Teachers of Mathematics.
- Moses, R., & Cobb, C. E. (2002). *Radical equations: Civil rights from Mississippi to the Algebra Project*. Boston, MA: Beacon Press.
- National Center for Education Statistics. (2014). *Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and region: Selected years, fall 1995 through fall 2024*. Retrieved from http://nces.ed.gov/programs/digest/d14/tables/dt14_203.50.asp
- National Council of Supervisors of Mathematics and TODOS: Mathematics for ALL. (2016). *Mathematics education through the lens of social justice: Acknowledgment, actions, and accountability*. (Joint position statement). Retrieved from http://www.todos-math.org/assets/docs2016/2016Enews/3.pospaper16_wtodos_8pp.pdf
- Nemirovsky, R., Kelton, M. L., & Civil, M. (in press). Towards a vibrant and significant informal mathematics education. In J. Cai (Ed.), *Compendium for research in mathematics education*. Reston, VA: National Council of Teachers of Mathematics.
- Pais, A., & Valero, P. (2012). Researching research: Mathematics education in the political. *Educational Studies in Mathematics*, 80(1/2), 9–24. doi:10.1007/s10649-012-9399-5

- Paris, D. (2011). *Language across difference: Ethnicity, communication, and youth identities in changing urban schools*. Cambridge, MA: Cambridge University Press. doi:10.1017/CBO9780511978852
- Paris, D., & Winn, M. T. (2013). *Humanizing research: Decolonizing qualitative inquiry with youth and communities*. New York, NY: Sage.
- Parks, A. N. (2010). Metaphors of hierarchy in mathematics education discourse: The narrow path. *Journal of Curriculum Studies*, 42(1), 79–97. doi:10.1080/00220270903167743
- Pollock, M. (2008). *Everyday antiracism: Getting real about race in school*. New York, NY: The New Press.
- Powell, A., & Frankenstein, M. (1997). *Ethnomathematics: Challenging ethnocentrism in mathematics education*. Albany, NY: SUNY Press.
- Rom, R. B. (1998). “Safe spaces”: Reflections on an educational metaphor. *Journal of Curriculum Studies*, 30(4), 397–408. doi:10.1080/002202798183549
- Russell, N. M., Haynes, C. M., & Cobb, F. (Eds.). (2016). *Interrogating whiteness and relinquishing power: White faculty’s commitment to racial consciousness in STEM classrooms*. New York, NY: Peter Lang.
- Sensoy, Ö., & DiAngelo, R. (2012). *Is everyone really equal? An introduction to key concepts in social justice education*. New York, NY: Teachers College Press.
- Singleton, G. E. (2014). *Courageous conversations about race: A field guide for achieving equity in schools*. Thousand Oaks, CA: Corwin Press.
- Skovsmose, O. (2011). *An invitation to critical mathematics education*. Boston, MA: Sense. doi:10.1007/978-94-6091-442-3
- Smith, L. T. (1999). *Decolonizing methodologies: Research and Indigenous peoples*. New York, NY: Zed Books.
- Southern Education Foundation. (2015). *Research bulletin: A new majority: Low income students now a majority in the nation’s public schools*. Retrieved from <http://www.southerneducation.org/getattachment/4ac62e27-5260-47a5-9d02-14896ec3a531/A-New-Majority-2015-Update-Low-Income-Students-Now.aspx>
- Sparks, D. (2002). Conversations about race need to be fearless: An interview with Glenn Singleton. *Journal of Staff Development*, 23(4), 60–64.
- Stinson, D. W., & Bullock, E. C. (2012). Critical postmodern theory in mathematics education research: A praxis of uncertainty. *Educational Studies in Mathematics*, 80(1–2), 41–55. doi:10.1007/s10649-012-9386-x
- Stinson, D. W., & Spencer, J. A. (Eds.). (2013). PrOMPTE [Special issue]. *Journal of Urban Mathematics Education*, 6(1).
- Suh, H., Theakston Musselman, A., Herbel-Eisenmann, B., & Steele, M. (2013). Teacher positioning and agency to act: Talking about “low-level” students. In M. V. Martinez & A. C. Superfine (Eds.), *Proceedings from the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 717–724). Chicago, IL: University of Illinois at Chicago.
- Taylor, E., & Kitchen, R. (2008). Doctoral programs in mathematics education: Diversity and equity. In R. E. Reys & J. A. Dossey (Eds.), *U.S. doctorates in mathematics education: Developing stewards of the discipline* (pp. 111–116). Conference Board of the Mathematical Sciences (Vol. 15). Providence, RI: American Mathematical Society, and Washington, DC: Mathematical Association of America.
- Tracy, S. J. (2010). Qualitative quality: Eight “big-tent” criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837–851. doi:10.1177/1077800410383121
- Valero, P., & Zevenbergen, R. (Eds.). (2004). *Researching the socio-political dimensions of mathematics education: Issues of power in theory and methodology*. New York, NY: Springer. doi:10.1007/b120597
- Wager, A. A., & Stinson, D. W. (Eds.). (2012). *Teaching mathematics for social justice: Conversations with educators*. Reston, VA: National Council of Teachers of Mathematics.
- Walkerdine, V. (1988). *The mastery of reason*. London, United Kingdom: Routledge.
- Walkerdine, V. (1998) *Counting girls out*. London, United Kingdom: Falmer Press.

- Walshaw, M. (Ed.). (2004). *Mathematics education within the postmodern*. Charlotte, NC: Information Age Publishing.
- White, D., Crespo, S., & Civil, M. (Eds.). (2016). *Cases for mathematics teacher educators: Facilitating conversations about inequities in mathematics classrooms*. AMTE Professional Book Services (Vol. 1). Charlotte, NC: Information Age.



An Appendix of selected readings on equity in mathematics education from 2005 to the present is available online at <http://www.nctm.org/jrme>. More4U content is available to NCTM members only.