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# Democracy & Education

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## Lift Every Voice and Sing

Anita Bright

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### Abstract

In this response, I applaud the work initiated in this research and underscore some of the key reasons I find it so valuable. Building from this, I also issue a call to the greater mathematics education community—particularly the large mathematics professional organizations—to consider the ways their organizations have conceptualized and framed equity work, and invite them to entertain the idea of remapping their visions in ways that are more forward thinking and less traditionally safe.

### This article is a response to:

Brelia, A. (2015). Mathematics for what? High school students reflect on mathematics as a tool for social inquiry. *Democracy & Education*, 23(1), Article 4. Available at: <http://democracyeducationjournal.org/home/vol23/iss1/4>

**A**S A MATHEMATICS educator committed to working for equity and social justice, it was with great hunger that I read Brelia's (2015) article, titled "Mathematics for What? High School Students Reflect on Mathematics as a Tool for Social Inquiry." As it seems this formal line of inquiry is not only newly gaining traction but also urgently important, I offer my wish for greater focus in this area by more scholars and the broader mathematical community. At root, I applaud this line of inquiry and view it as an invitation to the mathematics community at large, with the hope that increasing numbers of researchers will elect to explore different facets of the same ideas Brelia raises.

Reading this piece calls to mind the passion and vision of other vanguard mathematics educators (Skovsmose, Frankenstein, Moses, Cobb, Peterson, Gutstein, and so many others), who introduced thinking about leveraging mathematics as a means to create a more equitable world. Drawing from the same wells,

Brelia's (2015) piece explores what happened when two classes of high school students engaged in mathematical work directly related to sensitive social issues that are typically unaddressed in high school mathematics settings, and analyzes what kinds of transformations took place in the students as a result.

On the surface, the research presented in "Mathematics for What?" resembles that of other studies of social justice in

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mathematics, in that the research is focused on students (adolescents in this case) engaging in “real-world” mathematics that speak to social contexts wherein injustice and/or inequity can be quantified and learned from. What makes this particular work different is that the educators participating in this study—those teachers who taught the high school students—were neither “critically oriented researchers [n]or teachers who collaborated with researchers” (Brelia, p. 3). I take these educators to be prototypical, almost, in that they may represent the kinds of teachers one might find in Anytown, USA. As such, I find the conclusions from this work to be inspirational, in that perhaps it’s possible to invite other educators to participate in similar kinds of layering-in of social justice contexts into their curricular materials.

In this response, I first speak to what I see as some of the compromises Brelia (2015) makes and follow this with some ideas about how we, as scholars, may consider posing another question. Finally, I speak to the ways the mathematics community at large seems to wish to “play it safe,” and I suggest other ways to move the conversation ahead more quickly.

### Compromises

As I stand in solidarity with Brelia (2015) for making formal this line of inquiry, I feel compelled to acknowledge what might be viewed as compromises made not only to conduct this line of research but to organize it into an academic article of this nature. What I mean by compromises is that while I am initially thrilled to see work on this topic—work that focuses attention on hegemony and oppression in a mathematics context—at the center of the frame, I am also simultaneously aware that Brelia’s methods, analysis, and entire framework are part of “the system,” or what Lorde (2003) might have called “the master’s tools” (p. 27). So while Brelia’s work gives voice to urgently important ideas, and helps to validate and articulate their worthiness, it’s not without the need to conform to the structures academia has established as “appropriate” venues and organizations for this kind of work. It’s as if this small study somehow lends a kind of academic and elite credibility to the work of Rethinking Schools and specifically to the work of educators like Gutstein and Peterson (2013). What, then, does this say about the need for validation from external, established, canonical sources?

The need to “prove” these topics are worthwhile and valid uses of instructional time for adolescents is problematic, in that, from my perspective, these are the obvious choices to frame our mathematics instruction. Frankenstein (2011) has asserted that “the overarching purpose of all education is to contribute to the struggle for a more just world” (p. 51). Why would we focus exclusively on daisies and dandelions when we could, instead, focus on human sorrow and ways to ameliorate it? Why would we focus exclusively on how many sweaters Jana can buy on sale at the mall when we could, instead, focus the ways corporate greed harms countless millions?

Of course we should provide opportunities for our students to grapple with real-world issues. Of course we should help students understand the ways power and privilege play out around us. Of course we should highlight ways to make our world a more

equitable, healthful, and joyful place. So in these compromises, by focusing on this rigorous exploration of what happens in student thinking when given the chance to grapple with these kinds of issues, Brelia (2015) cracks open the door to invite much greater and more broadly transformative explorations of this type.

### Posing Another Question

Although the author thoughtfully frames the overall piece with the question, mathematics for what?, I find myself wanting to warp and deepen this question with a refocused gaze and to ask a second question, mathematics for whom? Adapted from Wong’s (2005) query, “knowledge for whom?” (p. 158), my question invites the reader to think about the often unnamed layers of power, positionality, and privilege that form the context of mathematics scenarios in textbooks, assessment items, and trade books. For literally every single mathematics context presented to students, from preschool through advanced university mathematics, there exists a range of person-specific questions that could be posed:

- Whose version of reality is presented as normal in this problem or task?
- Where is power located in this problem or task? In other words, who has it, and as such, who is denied or being kept from power?
- Whose aspirations, desires, and values are reified in this problem or task? And at what expense to others who hold different perspectives?

Brelia (2015) does begin to frame questions along these lines in her description of critically oriented reflections, asking, “Whom does it benefit? Whom does it harm? Does it promote the social good or interests of an elite? Is it dehumanizing?” In next steps, these are the very questions I would love to see answered by the students in the research—and, in truth, by everyone engaged in any type of mathematics. How might formulating responses to these questions change or enrich the thinking of students and their teachers?

This also takes our attention to the students themselves—those actually engaged in doing the mathematics described in Brelia’s (2015) piece. If the vanguard educators in this study could do this work with high school students, what other audiences might benefit in some of the same ways? While high school students are at a developmental level where engaging in the broad social issues (like the intersection of the death penalty and race, for example), is age appropriate, how might similar ideas work with students of other ages? The work of Moses and Cobb in the Algebra Project (2001) centers on slightly younger adolescent students—those in middle school. Similarly, the bulk of Gutstein’s work (2006) is focused on young adolescents. How, then, might equally urgent social issues—hunger, pollution, war, and so on—be framed for younger students?

One of the key findings in Brelia’s (2015) study is that for most of the students in the study (86.7%), “applying mathematics to social issues was a novel experience for them” (p. 5). In my view, this expression of the novelty of this experience for the high school

students should invite us, the readers, along with other mathematics educators, to think about who else might have never been invited to think about the ways mathematics contexts can be used as a way to heighten awareness of pressing and urgent social issues and to think about the ways mathematics might be leveraged as a tool for social transformation. There exist possibilities for interweaving these ideas across the curriculum, including into social studies, language arts, and science contexts as well.

### Playing It Safe

Brelia's (2015) work moves beyond the comfortable, familiar celebration of difference and into territory that is not necessarily action oriented but clearly more provocative than standard mathematical contexts. "The contexts students meet, in mathematics classrooms and assessments, contribute to their understanding of mathematics and the world and the relationship between the two" (Boaler, 2009, p. 138). It's clear that the purpose of this work with students on highly charged issues was seeking not just to foster a linking of arms and singing of "Kumbaya" but, rather, to provoke, to outrage, to startle, to spur.

So while Brelia's (2015) research speaks with nuance and thoughtfulness to a way educators might shift the context—the *what*—of mathematics, it seems to serve as a natural invitation for readers and other mathematics educators to consider what might be the next important question, the *now what* of this same work. Raising awareness is obviously valuable; raising awareness can be transformative; raising awareness can be uncomfortable. But awareness is a first step and is also remarkably passive in that it requires no action and, in many cases, is invisible to others.

This passivity as related to the content of mathematics—which, to be candid, seems to contain a cushion of armchair-like comfort—is echoed in most of the professional organizations related to mathematics education in the United States. Although all of the major professional organizations contain language that speaks to equity and diversity in some way, there is a marked absence in a commitment to fostering the use of mathematics to actually shift society in ways that actively work against oppression and hegemony. It might be seen as a perpetuation of the myth that mathematics can maintain what Litowitz (2009) would call a "pretense of neutrality," an organically unbiased field of study, immune to the contextualized challenges other fields like the social sciences or literature might encounter. Indeed, Smiley and West (2012) stated, "Great social change requires persons who possess the courage to tell the truth, to fight for justice, and to be so committed to that truth that they are willing to risk death" (p. 112). There's nothing passive about what Smiley and West invoked; their call to action is clear.

I'm betting there are few mathematics educators out there who are willing to "risk death," as Smiley and West (2012) might suggest, choosing instead to focus on the two "safe" pillars of the dominant discourse in equity-related conversations in mathematics education. The first safe pillar is the call to recruit and retain more diverse mathematics educators, drawing from communities outside those traditionally privileged within the mathematics community. The second safe pillar is the call to provide more equitable instruction

for all students, with an eye on what some might refer to as the achievement gap—but what others might refer to as the teaching gap (Stigler & Hiebert, 2009). However, what we realize is that for both of these safe pillars, there is often a subtle (if not, at times, overt) press for "the other" to conform to the standards of those in power. Scholars of color can be most successful when conforming to "whitestream" ways of knowing and being and doing mathematics; similarly, students of color can be most successful when "acting white" in school (Fryer & Torelli, 2010).

I choose to frame these two big ideas—the purposeful diversification of the mathematics teaching force and the emphasis on improving the quality of instruction for all students—as safe because in today's academic climate, who could possibly oppose these? Given all the purposeful and, at the time, contentious groundwork that has been established, we have reached a point where, I contend, these two ideas are no longer revolutionary, no longer fresh, and no longer at the leading edge of our work in framing mathematics for equity. Rather, I posit that these two safe pillars should be the minimum level of acceptability and that we do not allow our vision to rest on these as our end goal, but instead as our starting point. Envisioning a mathematics curricula rich with the kinds of challenges Brelia (2015) proposes—which of course echoes the beautiful but often marginalized work of others like Boaler (2012), Gutstein (2006), Moses and Cobb (2001)—can allow us to consider ways to actually enact change, moving beyond a passivity or willingness to allow things to move at a snail's pace. Brelia's decision, like that of Gutstein, Moses, Peterson, Cobb, and others, to give voice to dangerous issues and to engage students in the grapple is a great step forward.

As an example of this rootedness in the safe, the Association of Mathematics Teacher Educators (AMTE) has a list of six key goals (2014). The last one (the sixth of six) speaks to issues of equity, seeking to promote, "equitable practices in mathematics teacher education, including increasing the diversity of mathematics teachers and teacher educators." Clearly a worthwhile goal, its positioning as last in a list of six goals is disappointing and speaks to equitable practices—with no apparent acknowledgement of the content itself. Although AMTE has an equity task force, it's not clear whether its focus is on using mathematics to work toward overall social good or to diversify the ranks of teachers and teacher-educators.

Similarly, the Mathematical Association of America (MAA) has a section of its website devoted to the organization's work for "underrepresented groups" (2014). As with the other large organizations, the focus is on recruitment and retention of individuals from outside the historically dominant cultures in mathematics, evidenced by the opening statement, "MAA supports initiatives to enhance opportunities for women and underrepresented minorities in the mathematical and statistical sciences." Again, there is an implied passivity, with no suggestion for using mathematics itself as a way to foster more equitable conditions nor any hint that mathematics as a field may, in some ways, be complicit in reifying existing power structures. This is not to undermine the worthiness of MAA's work, but rather, to highlight an opportunity for continued growth.

The National Council of Teachers of Mathematics (NCTM) has framed its equity statement in similar language, but with a slightly different focus. Their first “strategic priority” (2012) reads, “Access and Equity: Advance knowledge about, and infuse in every aspect of mathematics education, a culture of equity where everyone has access to and is empowered by the opportunities mathematics affords.” Just as with the other organizations mentioned here, the focus is on access and equitable practices—not specifically on using mathematics content to foster a particular focus, as Brelias (2015) does.

Paralleling the work of NCTM, the National Council of Supervisors of Mathematics (NCSM) states on its website (2014), “We are NCSM. We act with a commitment to equity.” Further articulating this, the NCSM vision statement includes the imperative to “motivate mathematics leaders to maintain a life-long commitment to provide equity and access for all learners.” Additionally, NCSM collaboratively authored and published a position paper with NCTM titled “Improving Student Achievement by Leading the Pursuit of a Vision for Equity” (2008), which although admirable in intention, is mostly passive and again, does little, if anything, to work against oppression. Noteworthy verbs from the paper include *respect*, *value*, *acknowledge*, and *embrace*. Further, the position paper specifically calls for “high expectations, culturally relevant practices, attitudes that are free of bias, and unprejudiced beliefs.” Again, this is highly desirable, but seems to oversimplify the nuanced and ever-layered realities that surround us. Further, this seems to promote the idea that there exists a nirvana-like state in which one may become “free of bias.” Even if an individual were to attain this level of freedom from bias, what about the contextual (institutional) settings in which we all function? The loftiness of the statement seems to hint at a naiveté and lack of familiarity with the ways the larger institutional structures and history also play a role in the lives of students.

Finally, not to be left out, the Common Core State Standards (Council of Chief State School Officers, 2010) website also speaks to equity-related issues as directly related to K–12 students. In a short section titled “Why Are the Common Core State Standards Important?” the response is “The standards promote equity by ensuring all students are well prepared to collaborate and compete with their peers in the United States and abroad” (2014). I invite the reader to note the passivity in this statement—the verb is *promote*—and the inclusion of the verb *compete*. This term seems to go against the very spirit of the work Brelias (2015) sets forth to document and describe, in that engaging in social inquiry is typically not framed as a way to trump or outshine others but rather as a way to make our world better.

This squares with Brelias’s (2015) references to the work of Christiansen (1996), who distinguished between technically oriented reflections on mathematics and critically oriented reflections on mathematics. There exist many mathematics educators for whom raising these issues may feel like an affront and, as a reaction, may cast the idea of using mathematics as a lever for social inquiry as an unthinkable (or conversely, overthought) kind of approach. In my own analyses of the layered cultural contexts that mathematics problems carry, I have, at times, been

met with overt skepticism, outrage, and accusations of being “too sensitive.” In skimming the crowd-sourced amazon.com reviews of *Rethinking Mathematics* (Gutstein & Peterson, 2013), a book with lessons similar to those described in Brelias’s paper, I see that about half of the reviews are scathing, with one reviewer, John (2013), stating, “The book is obsessed with race, profoundly anti-capitalist, anti-European, feminist, anti-Western, anti corporate, anti all the bogeymen of the left. But that is not math, it’s political indoctrination.” This is echoed by Brelias’s well-founded assertion that this kind of critical approach to examining mathematics is “frequently silenced, dismissed, or supplanted by technical concerns” (p. 3). It’s easier to dismiss these issues and to call them “not math” than it is to actually engage in the labor of resolving them.

Thus, I contend that these highly influential organizations—AMTE, MAA, NCTM, NCSM, and CCSS—which have decided to solely display a technician’s kind of focus with a dual-pillared, safe approach (improving the overall quality of mathematics education and recruiting more people from outside the traditionally dominant demographic in the field), are missing an opportunity to directly speak to inequity in our world. In doing so, the leadership in these organizations quietly avert their eyes from the contention that “mathematics, in and out of school, is a powerful instrument for inflicting symbolic violence” (Greer & Mukhopadhyay, 2012, p. 244). This is not to cast blame or fault upon the leaders and policymakers of these organizations, because, in truth, they’re likely reproducing the cultures they have been socialized into—cultures whose members have learned to politely look away from contentious, painful, and not-easily-resolvable issues.

Finally, there is the risk that the two pillars I’ve identified—diversifying the teaching force and strengthening mathematics education for all learners—may become dangerously intertwined in such a way that may conflate these two concepts, or in some way collapse them into a single, knotty, mono-pillar. I worry that these pillars, these calls for equity, could be interpreted to mean that “those” teachers should take responsibility for teaching “those” students, perhaps serving as a way to simultaneously track people from communities who have been marginalized, while at the same time enabling an abdication of responsibility for educating all students on the part of those already enjoying positions of power, esteem, or success. In other words, I worry that these two pillars may be interpreted to mean that mathematics education needs more faculty of color so they can teach the students of color, further perpetuating the range of marginalizations and oppressions already so well documented.

Further, there is also the risk that students and educators from historically marginalized communities may feel some pressure to engage exclusively in work with a social justice frame and, as such, may feel constrained in their desire to pursue paths or agendas that may not directly speak to issues of equity or antioppression. Neil Tyson Degrasse, a renowned astrophysicist who happens to be Black, alluded to this concern in an interview from 2008 (ResearchChannel) wherein he described the subtle pressure he felt from another Black scholar to engage in work that was explicitly linked to social justice. Degrasse explained that he felt “guilt that maybe I wasn’t doing all I could to help others” but then

described the first time he was interviewed on television for his expertise in astrophysics—which was entirely unrelated to social justice and unrelated to his identity as a Black man. This experience precipitated a slowly dawning realization in response to his colleague’s assertion, wherein DeGrasse came to understand that “I just have to be visible . . . That would have a greater force on society than anything else I could imagine.” Simply by engaging in the professional and intellectual practice that he loves, being an astrophysicist—perhaps “astrophysics-ing while Black”—DeGrasse illustrates the importance of choice in selecting foci of one’s work. Being a member of a historically marginalized community does not constitute an obligation to focus one’s work in this area—an important point to keep in mind as this work in equity mathematics continues to unfurl.

### Lift Every Voice and Sing

To be candid, sweetly singing “Kumbaya”—which I use as shorthand for a simplified celebration of difference and unwillingness to actually shift power and privilege—is what many of us have been taught and have come to believe is the right way to move forward. This patient, liberal frame, threaded with the idea that “things move slowly,” seeks to gloss over the most fraught and potentially transformative aspects of our professional practices as educators. But others among us know that to actually engage in “the work” requires facing and digging into and working to resolve painful and privilege-disrupting issues, just as Brelias (2015) initiates in this work, and as I allude to in the title of this response, referencing the “Black national anthem,” “Lift Every Voice and Sing.” I read Brelias’s (2015) piece as an extended hand, an invitation of sorts, an opening gambit to the mathematics education community with stated foci on equity and social justice at all levels and across multiple organizations. With this, I return to my original wish for an increasing pool of researchers to explore different facets of the same ideas Brelias raises.

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