

TENSIONS OF RESPONSIBILITY IN CRITICAL MATHEMATICS: DEFINING TEACHER RESPONSIBILITY AND STUDENT AGENCY

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Often even teachers who are committed to and plan to teach critical mathematics struggle to do so. To understand this struggle I studied discussions between seven preservice secondary mathematics teachers and myself. From these discussions I identified a key theme of responsibility for teaching CM. I argue that our understanding of responsibility was shaped by dominant discourses in ways that were incompatible with the goals of CM.

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Since its introduction, critical mathematics¹ (Frankenstein, 1990; Gutstein, 2006) has gained interest. However, teachers often struggle to effectively teach CM (Bartell, 2013; Brantlinger, 2004; Rubel, 2017). Preparing teachers for social justice is a challenge of teacher education (Galman, Pica-Smith, & Rosenberger, 2010; Sleeter, 2001), especially mathematics education (de Freitas, 2008; Gutiérrez, 2009; Gutstein, 2006). This may stem from the difficulty of developing a critical understanding of “teacher” and “student.” Dominant discourses cast teachers as authoritative and students as passive.

Resistance to social justice in education, especially from White teacher candidates, has been linked to Whiteness (Aveling, 2002; Sleeter, 2001). This resistance is manifest even as teacher candidates disrupt Whiteness (Applebaum, 2010; Aveling, 2006; Hytten & Warren, 2003; McIntyre, 1997). Here I am concerned with how teachers who support CM struggle to understand a teacher role that is socially just. To this end, I present selections from discussions with a class of pre-service mathematics teachers. While dominant views bounded our discussions, there were moments when we began working towards discourses that reflected responsibility to students.

Theoretical Framework

The theorizing of CM has drawn on critical pedagogy (Frankenstein, 1990; Gustein, 2006). This perspective emphasizes the use of mathematics for social critique. Expanding this view, Gutiérrez (2012) describes four dimensions of equity in mathematics education: access, achievement, identity, and power. *Access* views the resources that students have available, including technology and quality instruction. *Achievement* is measured with grades and test scores. Both access and achievement generally leave the content unchanged. *Identity* means providing opportunities for students to draw on their linguistic and cultural resources, meeting their own standards, and understanding themselves and their world mathematically. *Power* addresses voice in the classroom (authority), mathematics for social critique, nature of mathematics, mathematical ways of knowing, and humanizing mathematics.

Discourse, Whiteness, & Responsibility

In focusing on discourse I draw from Gee (2005) and Fairclough (2001). Discourse includes how we speak and the things that accompany speech. While discourses do not create the physical being of a mathematics teacher, they define the categories of mathematics teacher, mathematics student, and mathematics. Discourses enable and constrain, particularly dominant discourses (Fairclough, 2001).

¹ I use CM broadly to include much of what is referred to as social justice and/or equity in mathematics.

The pressure felt to conform to discourses maintains power structures. In the United States dominant discourses are discourses of Whiteness. Whiteness Theory uncovers how discourses maintain and promote White power structures. Whiteness Theory operates on the assumption that the lives of all people in the U.S., in particular, are racially structured (Frankenberg, 1993; Frye, 1992). Dominant discourses of responsibility (and Whiteness) center around *individual* responsibility. For students, these discourses are used to justify the inequities in schools by suggesting that students or their families are responsible for their own failures (Gutiérrez, 2015). A key aspect of the dominant discourses of mathematics and Whiteness is the need to portray school mathematics as neutral. Thus mathematical achievement is constructed as individual skill and effort. Individual responsibility helps support the view of mathematics as neutral by justifying blaming students.

Methods

In this study I focus on the discourses seven pre-service secondary mathematics teachers and I used during their final course. The participants included four White males (Pseudonyms: Jeff, Karl, Gavin, and myself), two White females (Stella and Lisa), one Latina (Esperanza), and one Japanese-American female (Jane). All of our classes were recorded and transcribed. I then selected those transcripts when we discussed mathematics and social justice. In my analysis I used Critical Discourse Analysis (CDA) as defined by Fairclough (2001). I combine this approach to CDA with Walshaw's (2013) recognition that teachers as well as students are caught in dominant discourses, and Thompson's (2003) explanation of how White anti-racist educators can reinscribe Whiteness. As I analyzed our discussions on the roles of teachers, students, and their relationships I found us repeatedly circling around ideas of responsibility and blame.

Results and Discussion

Taking Responsibility

For progressive educators one logical response to dominant discourses would be to accept responsibility. However, accepting responsibility may become a means of taking power in the classroom and reinscribing Whiteness. These problems with taking responsibility were illustrated in Lisa's narrative. She carefully links her struggles to her choices, rather than to her students.

Lisa: ok so . . . I had no idea what my students were learning at all ((Lisa explains some of what led up to this project)) and then I started having problems so I realized I didn't know what they knew and then I started to plan lessons anyway and this like divide grew in my class and you should see the scores for their final it's like half As half failing they're like there's like nobody in the middle it's like crazy so I think like people were getting it and I didn't really pay attention to them because I knew that people were struggling and we kept like repeating stuff and people got bored and then I realized that that was happening so I switched my focus and started paying attention to them but by that point people had given up on trigonometry in general and the kids that were sort of lost like still were and it just became like this huge thing.

Notice throughout how frequently "I" is used as the subject of the sentence. This positions Lisa as agent and powerful, even though most of these statements refer to her mistakes. The power of her decisions can create major problems. When students are brought up they are passive ("divide grew in my class", "people were getting it", or "people got bored"). There is little student agency shown, which positions them as powerless and blameless. Students are left out of their education and teachers are problematically positioned as solely responsible the class. Lisa has taken all authority and left none for students. While Lisa does not appear to do so, this could be consistent with a "lone-hero" (White) teacher who tries to "save" her students through social justice (Thompson, 2008). Not blaming students and taking responsibility feel like necessary steps towards social justice. It could meet Gutiérrez's (2009) call to mathematics teachers to "be in charge" in their classroom. However,

Gutiérrez links this teacher-in-charge with the tension to “not be in charge” to balance classroom power. Lisa does not avoid responsibility, instead she takes all of the responsibility onto herself. This is one of the few instances where the discourse of responsibility was used to place responsibility on the teacher. However, this combination does not leave room for active student roles. The problem with this combination of discourses is that recognition of structural and historical factors is disallowed while students are denied participation.

Hinting at an Alternative: Responsibility to Students

Margonis (2015) suggests that teachers can opt out of dominant discourses of responsibility through responsiveness. Through responsiveness, instead of blaming students (as dominant discourses would have us do), we are open to the messages students send, and we have an ethical responsibility to be responsive to those messages. Responsiveness requires that we view our students as worth hearing *and meaningfully responding to*. There were times when, in our discussions, we proposed a different kind of responsibility.

Considering negative effects of CM. Towards the end of the semester we again had a class devoted to what it means to teach CM. This is one of the first times in this discussion that a student perspective is taken up and students are positioned as intelligent and capable. This change in perspective shifts how we position students and teachers.

Lisa: I feel like we need to talk about some potentially negative consequences that could happen.

Teacher: Ok. Good.

Lisa: Because all I want to say when you ask that question is well they'll probably think that we understand them better and that we're on their side and all these positive things but there has to be a negative side

Teacher: Is there risk in doing that

Lisa: Yeah and maybe they're if they don't trust they're right to so definitely negative feelings to be had ((we discuss laws regarding undocumented students and in-state tuition))

Jane: . . . so it was kind of like depressing I feel like when they said like well hey you have to pay way more to go to school in this state because you're undocumented but then I feel like it's kind of like all those all the other students who are like legal or whatever their tax dollars are going towards the state and that's the reason they get in-state tuition or whatever I don't know I feel like that that thought would be absolutely depressing . . .

Lisa: Oh yeah

Jane: like \$60,000 more when you already don't have very much money and like with that one especially I couldn't see any solution or any benefit of telling it . . .

Lisa flips the perspective to say “if they [students] don't trust they're right”. This positions students as intelligent and selective in whom they choose to trust. This also suggests that teachers may not always be worthy of their trust. These are both important in how we position teachers and students and momentarily disrupt the dominant discourse of teacher authority. Within the context of the discussion these are students of color and White teachers. Positioning students as intelligent and careful navigators of a racist school system is necessary to work *with* students. In response to Lisa's comments Jane brings up an example from our readings. Jane characterizes this lesson as “depressing”. She implies that teachers may be unaware of what students think and feel. As a daughter of immigrants Jane may feel a particular connection to this example. She does not specify a subject position for undocumented students. However, she references the argument about “legal” students whose “tax dollars” *earn* them “in-state tuition”. She implies that teachers need to judge what information to share with students. This manifestation of authority is an authority to judge what is needed by others, a key aspect of Whiteness (Frye, 1992), based on the implied lack of (racial) bias that Whites possess. Despite Jane's return to dominant discourses other students address the cost of college for undocumented students.

Karl: Yeah or yeah it was really discouraging um I guess in a way it could be in a way motivating to think about or at least at least they realize how much it would cost and it would be tough but that there are probably things they could do I guess.

Jane: Mhmmm

Esperanza: A way to follow up would be like as a teacher investigate scholarships . . .

Karl: Right

Jane: But I feel like that's another problem is that they don't usually offer that many scholarships to undocumented students.

Karl suggests that knowing could be “motivating”. This suggests that students have resilience. He then adds that “they realize”, positioning students as capable. Esperanza then points out that teachers could “follow up”. Following up assumes that the teacher has taught the lesson. For her teaching the lesson is an assumed part of being a teacher. This framing of responsibility comes as we position students as capable. This suggests a balanced responsibility where teachers share and support and where students are capable of understanding and utilizing information. Esperanza suggests that “a teacher investigate scholarships” and so positions teachers as responsible *to* their students to do this work; work that may typically be framed as outside the role of a teacher. This is also part of teacher authority, however, in this case instead of judging, the teacher uses authority to provide information and resources. Positioning teachers as responsible-to is facilitated by positioning students as capable. Jane then points out the relative lack of scholarships for undocumented students. Her she characterizes lack of scholarships as a “problem”, critiquing the system and repositioning undocumented students as innocent.

Conclusion

Dominant discourses are used to portray teachers as solely responsible for what happens in their classroom. As a result in our discussions of CM we often used these discourses to position individual teachers as *not* responsible to teach for social justice. However, taking responsibility for CM is also problematic. Instead I propose responsibility *to* students. This kind of responsibility requires that students be positioned as intelligent and capable and an understanding of shared authority. Positioning students and teachers in these ways can disrupt dominant discourses.

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