# *Turning the Lens: Reflexivity in Research & Teaching with Critical Discourse Analysis*

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***Abstract:***

*This article explores the use of Critical Discourse Analysis in truth-telling in education research. I argue that without critical reflexivity Critical Discourse Analysis can become a means of reinforcing and reinscribing some of the same dominant discourses that we critique. Here I suggest the recognition that in the role of teacher and researcher we are also caught up in dominant discourses. As such we need to include our own discourse use (both teaching and writing) in our analysis and critique. In doing so we can more effectively use CDA for truth-telling. To illustrate I present two sample analyses from a social justice oriented action research course for secondary preservice mathematics teachers. I include my own use of discourse in the analysis both as the teacher of the course and then critique my written analysis of the same class.*

***Keywords:*** *Critical Discourse Analysis, researcher reflexivity, dominant discourse*

## Critical Discourse Analysis

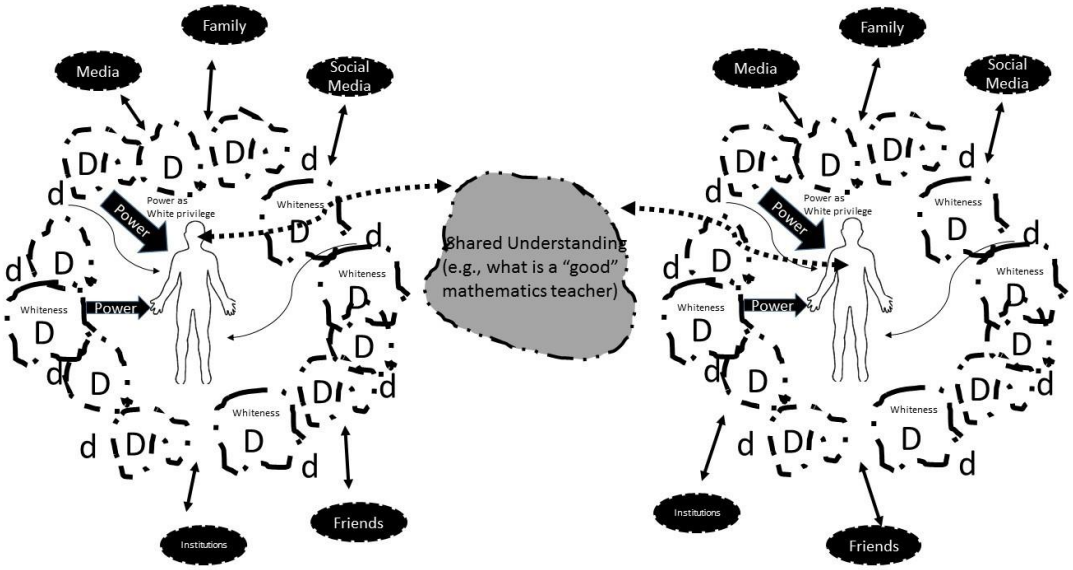
In broad terms CDA attempts to explain the ways that language is linked to society, with a clear political stance growing out of critical theory (Chilton, 2011). The work of Fairclough (2001) draws on Foucault to explore the ways in which consent is manufactured through dominant discourses (Fairclough uses the term "ideology"). Fairclough (2001) describes his work as using discourse to explain the relationship between social norms and power. In this article I draw from a larger study to show how the work of Walshaw (2013) and Thompson (2003) led to greater reflexivity on my teaching and research (specifics are explained later).

Discourse includes particular ways of speaking and all the things that accompany speech to make the spoken word and the speaker understandable (Fairclough, 2001; Gee, 2005). These things include appearance, tools, context of interaction, and the norms of interaction (Gee, 2005). Through discourses we create the objects, identities, etc. of which we speak. While discourses do not create the physical being of a mathematics teacher, they define what we understand as *mathematics teacher*, *mathematics student*, and *mathematics*, etc., thereby creating and recreating terms in categories as we use them and shaping the physical manifestations of these terms.

As a result, Fairclough (2001) explains, the need to use discourses in a recognizable way forms a set of constraints that both restricts what is possible and enables action and interaction. Discourses enable in that using the appropriate discourses allows me to be recognized as a mathematics teacher. However, these same discourses constrain by setting limits as to what speech, behavior, dress, actions, etc. are acceptable for a mathematics teacher. This simultaneous enablement

and constraint illustrate the operation of power through discourses. The use of discourses then becomes a continual negotiation of these power relations. In the mathematics classroom this negotiation occurs most directly between the teacher and students, but the negotiation also includes other members of the school community and society. These negotiations are implicit and dependent on a shared idea of what it means to be a "teacher" or "student." When one of these discourses becomes dominant it then excludes other ways of thinking and speaking by establishing an apparently static, common sense, and universal understanding of truth. They cast alternative discourses as either untrue, partially true, or unimaginable. By analyzing these discourses CDA can become a means to promote truths which have been disallowed by dominant discourses.

It may be helpful to view ourselves as immersed in a sea of discourses through our continuous interactions with people, media, and institutions (see Figure 1).




Some of them are dominant (capital "D")[1] others are not dominant (lowercase "d"; Fairclough, 2001; Gee, 2005). Many of these dominant discourses are discourses of Whiteness since they maintain White privilege. The dominant discourses are connected via large block arrows (imagine varying sizes of arrows connecting discourses to the person) to show how through their ubiquity and consistent repetition we have much greater access to them. These discourses carry power. In contrast, the connections between us and the non-dominant discourses are thinner and more tenuous. When we interact with someone we each draw on the discourses that we have access to and put them together to re-create in that moment our shared understanding of our topic of discussion (e.g., what it means to be a "good" mathematics teacher). To be able to discuss it meaningfully we need to have some shared discourses in order to understand one another (enabled; Gee, 2005), but this also means that we are limited (constrained) in our ability to imagine our topic in a way that differs from what is provided to us in the discourses that we know and have been exposed to.

1. This should not be confused with Gee's (2005) distinction between Discourse/discourse. Here I am focusing on the status (dominance) of different discourses rather than the extra-linguistic features that are part of Gee's conceptualization of Discourse.

The pressure felt to conform to these discourses as well as the ways that the discourses place limits on what is possible to think and speak (and still be recognized as a mathematics teacher) maintain power structures. In the United States (and elsewhere) the dominant discourses are used to maintain and promote White power and privilege. Whiteness Theory operates on the assumption that the lives of all people in the U.S., in particular (but elsewhere as well), are discourses of Whiteness (Yoon, 2012). Whiteness Theory helps to uncover the ways in which lives are racially structured, including the lives of White people (Frankenberg, 1993; Frye, 1992). Since historical mathematical achievement plays out on clearly racial lines in U.S. K-12 schools (Stinson, 2004), I operate from the assumption that race is a significant factor in defining mathematical success as traditionally measured within school mathematics.

## Problems with Critical Discourse Analysis in Education

Within education research CDA has typically been applied to understand students' use of discourses (Rogers et al, 2005), leaving teachers and teacher-student interactions out. Without including these teacher-student interactions a key aspect of what discourses are used and how they are taken up is left out. Further Rogers et al (2005) note that CDA in education often does not address the role of the researcher and how the researcher is also using and reinforcing particular discourses.

Not only do these practices miss the social justice potential of CDA to reveal and highlight the circulation of power through discourse in the classroom. These practices also ignore the ways in which dominant discourses shape the analyses and interpretation of the critical discourse analyst; thereby lessening the truth-telling potential of CDA. Finally, CDA as applied in education research often does not pay sufficient attention to race, even though most studies analyze the discourse of historically marginalized groups (Rogers et al., 2005). Another clear problem in adopting this approach is that the theoretical and methodological foundations I am drawing on are dominated by White researchers (Rogers, 2011). I summarize these problems as the teacher/researcher's use of discourse, lack of attention to race, and the dominance of Whiteness in CDA.

In my case these problems overlap since as a White researcher, drawing on a theory and method developed (primarily) by White researchers, it is easy to overlook the influence these discourses have on my research and teaching and to overlook how I reinforce these discourses in my teaching and research. The risk here is that CDA then becomes a means to obscure, rather than reveal, truth. Rogers et al (2005) call for greater researcher reflexivity when CDA is practiced in education. In their explanation of reflexivity they suggest that one key is that the researcher turn the analytical lens back on her- or him-self. Thus in my work (as a mathematics educator and mathematics teacher educator) with preservice mathematics teachers I need to include in my analysis the particular approaches to mathematics education I promote and their potential to maintain dominant discourses. As a result, to address reflexivity I draw on two key concepts from the work of Walshaw (2013) in mathematics education and Thompson (2003) in Whiteness Theory.

First, Walshaw (2013) draws on Foucault to understand the ways in which power affects identity development for mathematics teachers and students. In doing so she notes that, "in the classroom strands of power entangle everyone, governing, regulating, and disciplining teachers as well as students" (p. 103). As a result teachers (as well as researchers) regularly draw on the same dominant discourses that their students use. Focusing only on students means that researchers miss an important way in which dominant discourses are used, reinforced, critiqued, or disrupted in the

classroom, especially considering the traditionally authoritative role that teachers (especially mathematics teachers) take.

Second, Thompson (2003) explains that White, anti-racist educators may, through our efforts to promote and teach anti-racism, particularly to White students, set ourselves up as performing the "right" kind of anti-racism. The focus becomes proving our own "goodness" as Whites where we gain merit by pointing out the racism of other Whites; the more nuanced our critique the more we bolster our anti-racist credentials. As Applebaum (2010) explains this kind of "goodness" becomes problematic as we refuse to hear those who might critique our efforts; we especially fail to meaningfully engage with scholars and/or students of color. Whiteness is thereby reinforced as we critique Whiteness or racism in the discourse of others, while deflecting attention (including our own) from the Whiteness in our discourse. In the following sections I explain the methods I used, how I incorporate the work of Walshaw (2013) and Thompson (2003) to promote greater reflexivity on my part, and provide two sample analyses to illustrate this work.

## Social Justice Mathematics Education

Multiple authors note the lack of consistent definitions of social justice in education (Grant & Agosto, 2008; North, 2008). However, North's (2008) review lays out three tensions of social justice. These tensions are between redistribution and recognition, macro- and micro-issues, and knowledge and action. North (2008) suggests that social justice balance the priorities of the redistribution of material resources with the recognition of group and individual differences. Macro-level issues include broad national and global inequities and the policies that promote these inequities, while micro-level include the day-to-day happenings of a particular classroom and the needs of the students and teacher (both in and out of school). The final tension suggests a need to balance learning about inequity (knowledge) and taking action.

Within mathematics education the theorizing of social justice has drawn heavily from Freirian critical pedagogy (Frankenstein, 1990; Gustein, 2006). From this perspective social justice mathematics often involves curricular changes to use mathematics for social critique (Gutiérrez, 2016). The dominance of this perspective has, perhaps, contributed to the limited adoption of social justice mathematics. Additionally, it appears to give priority to aspects of (rather than maintaining balance between) the various tensions of social justice in education (North, 2008). In order to expand this understanding of social justice mathematics I turn to Gutiérrez (2012).

Gutiérrez (2012) describes four dimensions of equity. These are access, achievement, identity, and power. Access deals with the resources that students have available to them, including technology and high-quality instruction. Achievement is measured in the traditional sense of grades and test scores. Both access and achievement generally leave the mathematics content untouched. However, these two are necessary in order to provide students with the material resources and social capital to advance in the school system. Attending to identity means providing opportunities for students to draw on their own linguistic and cultural resources, becoming better by their own standards, and coming to understand themselves and their world in relation to mathematics. Addressing power includes addressing whose voice matters in the classroom, using mathematics for social critique, and questioning the nature of mathematics and mathematical ways of knowing (Gutiérrez, 2012).

## Methods

### Participants

I grew up immersed in and accepting of dominant discourses, especially discourses of Whiteness. I did not consider myself privileged and believed many of the myths of Whiteness, including meritocracy. I thought of racism as a problem of the past and had minimal interactions with people of color. Learning to speak Spanish and living for two-years as a missionary in southern Chile began to open my thinking to different perspectives on the world, including manifestations of racism and discrimination. When I returned to the United States and re-enrolled in college it was with a goal of becoming a teacher. On completing a bachelor's degree in mathematics education and Spanish teaching as well as a master's degree in teaching English as a second language, I took my first teaching job at a rural high school in Colorado. The high school had a student population of about 750 with 50% Latino students, mostly from Mexico and Central America.

As a first year teacher I taught all of the sheltered mathematics classes and continued teaching every sheltered mathematics class that was offered for four years. My teaching experience was very positive and the relationships that I developed with my students continue. However, I was also aware that my teaching was not as student-centered nor as relevant to my students as I wanted it to be. What I found frustrating was the difficulty of trying to teach in student-centered and relevant ways that were so different from the traditional way I had been taught. In addition, I felt like I could not see beyond the abstract, dominant mathematics in order to understand how to make the connections to students' lives that I felt were necessary. I witnessed first-hand the roles of race and class in the lives of students in our education system. There was a superficial harmony at the school between the wealthy White students and the working-class Latino students. However, there were clear divisions along race and class lines that determined which entrance to the school students used, what classes they took, which sports they participated in and supported, what cars they drove (or didn't drive), even where they parked their cars, and where and if they went to college. As an example, the school implemented a policy which assigned parking stalls to students, but students had to present a driver's license, proof of insurance, and pay a fee. Since many Latino students either did not have a license or could not afford the fee they had to park in a mud parking lot across the street.

Mathematics classes were one of the key ways to maintain these divisions. Once these divisions were made (mostly in middle school) they were set. A student who began high school taking Algebra 1 would not make it to AP Calculus as a senior. As a new teacher I felt pressure to support school policies in order to maintain my position as a teacher; I also wanted to better serve my students who were not being served by those same school policies. I wanted to teach mathematics in innovative and at times critical ways, but I felt the need to conform to traditional views of teaching mathematics, emphasizing correct answers and focused on "covering curriculum." Perhaps more importantly I saw that the school was not meeting the needs of my students in a number of ways. The students were clearly divided into tracks by race. School activities were dominated by the wealthy White students and there was a clear sense that the school catered to the White students. These experiences contrasted for me the privileged educational experiences that I had with those of my Latino students. In the face of these experiences my acceptance of the dominant discourses about race and education began to weaken, leading me to pursue a PhD with a critical focus and to emphasize social justice in my work with teacher candidates in the present study.

## Student Teachers

The participants in this study were all working towards a Master's degree in mathematics with teaching certification. These students were funded by Mathematics for America (MfA). MfA recruited students with Bachelor's degrees in mathematics fields, funded their education, and paired them with accomplished mathematics teachers for their student-teaching (Mathematics for America, 2013). This was a nontraditional program leading to teacher certification by following a condensed version of the standard teacher education curriculum. During the Fall 2013 academic semester I supervised these teacher candidates during their early months of student-teaching. I also attended monthly MfA meetings and an MfA retreat with them. During the Spring 2014 semester I taught an action research class as I continued supervision of their student-teaching. In our various interactions several of the preservice teachers expressed an interest in learning to teach for social justice and four attended a practitioner conference on teaching mathematics for social justice in Los Angeles, CA. I consider each of these teachers to be capable and committed educators, who sincerely struggle with what it means and how to teach mathematics for social justice. While all seven teacher candidates participated in the larger study I only include biographical information on those teacher candidates who are represented in the sample analyses.

### *Lisa*

Lisa provided very little demographic information. She was 26 at the time she took my class and is a White woman. She excelled at mathematics early on and enjoyed the status that she gained from being good at and helping her classmates with mathematics in high school. She delayed taking mathematics classes in high school, but after finishing her general education requirements she determined to major in mathematics. Lisa described her college mathematics experience as very different from her early experience. She struggled in these classes and often did not dare to ask questions or talk to her professors in fear that they would discover her lack of mathematics ability. Eventually she successfully completed her degree. After working in restaurants for a year she returned to college to pursue a mathematics teaching master's degree and had a much better experience. In describing her desire to become a teacher Lisa gushed about the opportunity to work with young people and to influence them at this key part of their lives. She particularly chose mathematics because of its perceived difficulty for these students. As she finished my class she expressed a clear view that all teaching is political in its effects on students and society.

In her student-teaching placement Lisa worked in a mathematics- and science- focused charter high-school. Lisa's classes were small and racially and socio-economically diverse. She worked with a very competent mentor who regularly used inquiry-based teaching methods and focused on traditional content. Lisa's mentor supported her social justice efforts even though she did not necessarily agree with them or have the ability to provide practical guidance. Lisa adopted many of the methods that her mentor teacher used, although Lisa placed much greater emphasis on developing relationships with and understanding her students' perspectives.

### *Stella*

Stella, at the time of my class, was a 22-year-old White woman. She grew up in an affluent neighborhood in the same city as our university and eventually took a job in the same high school that she had attended as a student. She excelled at mathematics in middle and high school. She

determined to become a mathematics teacher, because mathematics was her favorite subject and she enjoyed working with kids. Stella talked about being a teacher who can guide students both in gaining deep understanding of and ownership of mathematics and in their life choices.

Stella student-taught in the same school as Lisa, although she worked primarily with freshmen (Lisa worked with juniors). Stella worked with a competent and experienced mentor teacher who followed her reform-based textbook very closely. Stella also followed the textbook closely, although she began developing more of her own materials later in the semester. Stella excelled at finding ways to engage her students in meaningful and in-depth mathematical discussions.

### *Jeff*

Jeff, at 48, was the oldest of the group. He was from a neighboring state, but had lived in our state for much of his adult life. He had prior degrees in psychology and physics and had worked for a number of years in business before returning to college to become a teacher. Jeff did very well in his mathematics classes and was comfortable with the traditional style (lecture, decontextualized problem sets, emphasis on procedural accuracy, and emphasis on correct answers) of teaching those classes. However, his experiences with his own children in mathematics classes and observing classmates led him to believe that traditional methods were not the most effective for many students, and this is part of what led him to be a mathematics teacher.

Jeff completed his student-teaching at a large public high school. His mentor teacher was experienced, but was also adapting to her 1st year at a new school. This, coupled with a number of personal life issues that she faced and with a lack of Common Core aligned curricular materials for her grade level, meant that Jeff did not get the support he felt he needed. Most of her time was spent developing curriculum and there was little time for collaboration. Jeff was also commuting from over an hour away. As a result he was very concerned about what he considered the basics of being a mathematics teacher, which included developing mathematically focused lessons that were accessible to students, and classroom management. While he expressed appreciation for social justice issues, he also suggested that these would best be taken up later in his teaching. Table 1 summarizes participant information.

Table 1. Summary of participant characteristics

| Chosen Pseudonym | Self-selected Race | Gender | Age | Background Information | Student-Teaching Context |
|---|---|---|---|---|---|
| None (Lisa) | None (White) | Female | 26 | From state of study; previously worked in schools in a nonteaching capacity | Taught in a diverse mathematics/science focused charter high school. Mentor teacher regularly used reform methods and was very supportive. |
| Stella | None (White) | Female | 22 | From city of study; religious | Taught in a diverse mathematics/science focused charter high school. Mentor teacher regularly used reform methods (strictly following a reform textbook) and was very supportive. |

| | | | | | |
|---|---|---|---|---|---|
| None (Jeff) | None (White) | Male | 48 | From Wyoming; has worked previously in business, physics, and psychology | Taught in a large public high school. Due to various circumstances Jeff did not feel he got all the support he needed from his mentor and school. Teaching was mostly traditional. |
| Teacher | White | Male | 34 | From state of study; speaks Spanish as a second language, member of dominant local religion | Taught (prior to study) in a diverse public high school. Worked primarily with recent immigrant Latino students. |

The course I taught these teacher candidates was one of the final requirements for their certification as teachers. As a group these students were committed to doing the best they could for their students and while they struggled at times with all of the responsibilities involved in becoming a teacher, they also maintained a commitment to equitable teaching practices. Although what each meant by equitable teaching practices varied each was influenced by the conceptualization of social justice mathematics education above.

## Tools of Analysis

Gee explains that "the goal of discourse analysis is to render even Discourses with which we are familiar 'strange'" (2005, p. 102). By rendering the common discourses "strange" we will be more able to see the ideologies underlying these discourses, why they exist, and whose purposes they serve. I approached this process using Gee's (2005) seven "building tasks." These building tasks are the various things people do by using discourses. According to Gee (2005), in speaking and being in the world people build significance, activities, identities, relationships, politics, connections, and significance for sign systems. Examples of these are given below. Of these building tasks significance, identity, relationships, politics, and connections were the most significant for understanding the issues around discourses that I explored here. Consider the following, brief transcript from one of our class discussions on how schools and teachers can affect students' access to mathematics courses.

433. ***Gavin***: But even if they have those kinds of options
434. what kind of students are going to want to come in during summer
435. to catch up on something [they're not necessarily sure they want to do.]
436. ***Stella:*** [Yeah.
437. ***Stella:*** Yeah and they have to pay money to do it
438. and their parents have to drive them there.
439. ***Gavin:*** It restricts the access I think.
440. ***Teacher:*** Yeah I was just going to say is that really access?

### *Significance*

We build significance by what we draw attention to (or away from). In this portion of the discussion Gavin makes the group of students that he is talking about significant by using the

phrase "kind of" (l. 434) rather than simply "students". This draws attention to these students, distinguishes these students from students generally, and makes them more significant.

***Identity***

One way that we build identity (or subject positions) through discourse is by who is positioned as agent (the subject of the sentence) and in what way. All of Gavin's and Stella's comments focus on the students. They build identities for students as uninterested in mathematics (l. 435) and unwilling or unable to confront obstacles to come to summer school (ll. 437-438). Of course Stella and Gavin are also building their own identities as knowledgeable about students and school systems. In contrast, in my statement (l. 440), I am the agent. In this way I draw attention to myself and present an identity as a critic.

***Relationships***

We build relationships both with the other speakers present and with others who may not be present. By using "yeah" (ll. 436, 437, 440) Stella and I both signal a relationship with Gavin that is supportive of him and what he is saying. In particular Stella's use of "yeah and" (l. 437) mark her comment as an extension of Gavin's thought and suggest a relationship of mutual agreement.

***Politics***

We build politics through discourse based on the implications of these discourses for the distribution of social goods. Our discussion above, with its focus on who has access to the social good of mathematics education, is explicitly political, but this explicit politics is not necessary for a conversation to have political implications. Prior to the discussion above Stella had brought up a summer school program that would allow students to move from general to honors mathematics. Gavin's opening comment is in response to this and suggests that the program does little to increase access. This aligns him as someone who advocates increased access, possibly based on untracked classes. My comment carries similar implications. Stella's comment more directly suggests that the social good of mathematics education should not be connected to money or transportation, which also possibly supports untracked classes.

***Connections***

We build connections by creating links between ideas and objects. In this case Stella links issues of finance (l. 437) and transportation (l. 438) to the issue of access to mathematics classes. This link is not a natural part of the definition of access, however, this link may be a common one in some discourses and not in others. In making this link Stella frames the idea of access in a way that has specific political implications (see above).

Even in a brief transcript we build many different things through the discourses that we use. While all of these building tasks may be present in any given selection of text, some will be more relevant to a particular analysis than others. Additionally some of the tasks will be more prominent than others in different selections of text. As I present my analyses I generally draw on

only one or two of the tasks at a time in order to present a more coherent argument. Fairclough (2001) adds that a discourse analyst should look at the experiential (how an experience is represented), relational (how relationships are constructed), expressive (the author's evaluation), and connective (how parts of discourse are connected) aspects of discourse. In particular a researcher should pay attention to how these aspects of discourse constrain and involve contents, relations, and subjects. This process allows for an analysis of how power is taken up, used, and influences people in a particular situation.

Critical Discourse Analysis draws on post-structural understandings of discourse and the circulation of power (Rogers et al, 2005).Of particular importance is the idea that as speakers use discourse they construct the objects and subject positions that they speak about. This view of discourse is in contrast to views of language as referential. The referential view of language places a sharp division between a physical object or idea and its name. Thus the word "teacher" only refers to a teacher and does not influence what it means to be a teacher. Within the post-structuralist view, even discursively constructed objects and subject positions are multiple and changing; they are continually negotiated and re-created. Thus my analysis portrays the multiplicity of possibilities in the presented data, names the dominant discourses and how they constrain what we can think, and how our use of discourse reflects the binaries of these discourses. I have also framed these discourses within Whiteness Theory to analyze the ways in which these discourses maintain White privilege and how we begin to re-work and undo some of these discourses in order to understand teaching mathematics for social justice. Specifically, I use Whiteness Theory to identify the binaries set up by our discourses and then revisit my analysis to identify the binaries that I present in my analysis.

**Data Collection**

All data for this study are drawn from a larger study on a teacher research and professional development course for these seven preservice teachers. Because of the makeup of the class I brought a social justice in mathematics focus to the work that we did. Each class was recorded and transcribed, resulting in over 25 hours of data. The teacher candidates' written work provided additional data. As I reviewed the data I chose those sections where there was evidence of, or potential for, addressing issues of social justice within mathematics education. I performed line-by-line analysis of each of these transcripts using Gee's building tasks. From these analyses I identified themes and then re-analyzed the transcripts to look for key ideas I had missed. I also presented some of my analyses to colleagues and at times adjusted interpretations in light of feedback from others. Key transcripts were re-analyzed in order to fill out the themes in detail.

## Sample Analyses

In this section I present my analyses of two transcripts. In the first I show how including my own discourse in the transcript is a key aspect of interpreting the discourses and in demonstrating the difficulty of disrupting the dominant discourse at play. In the second transcript I show how my original analysis furthered White-centered conceptions of progressive teaching that prevented developing deeper understandings of teaching mathematics for social justice. For both analyses I provide explanatory comments to explain my thinking or how I applied aspects of methodology.

In an attempt to address the concerns above I brought together CDA with Walshaw's (2013) recognition that teachers as well as students are caught up in the dominant discourses of

mathematics, and Thompson's (2003) notion of Dr. Lincolns—White anti-racist educators who reinscribe Whiteness. These understandings required that I as the teacher/researcher include myself in the analysis of discourse to reveal how I also contribute to and am caught up in the discourses that reinforce dominant norms. I attempted this in two ways. I included my speech as I conducted my analysis and then conducted secondary analyses to reveal the ways in which my analysis also draws on and maintains dominant discourses. Thus there are two implications for the critical discourse analyst—to include in the analysis how in our interaction with participants we contribute to/disrupt dominant discourses and how in our presentation of analyses we contribute to/disrupt dominant discourses. This kind of reflexivity is key to the truth-telling project. Without this reflexivity CDA can be used to critique prevailing ideologies and norms, however it will simultaneously (and uncritically) reassert other dominant discourses, in particular the discourse of progressive White goodness. Truth-telling in CDA requires that our own discourse use in research and writing be brought within the scope of our critical discourse analysis. In attempting to include this reflexivity in my analysis my own role as researcher and social justice educator are called into question and examined.

**Including the Researcher in Analysis**

In preparation for our fourth class I asked the students to read selections from Gee's *An Introduction to Discourse Analysis: Theory and Method* (2nd Edition) and Fairclough's *Language and Power* (2nd Edition). Prior to this class we had spent some time exploring what action research is, what it means to be a teacher, teaching mathematics for social justice, and understanding how mathematics shapes our world. During class I showed the teacher candidates a video clip[2] explaining the history and development of the telephone number pad, to illustrate how one discourse can come to dominate and exclude alternatives. My intention in this class was to open up discussion about the way discourses around mathematics, teaching, and mathematics teaching influence us (as mathematics teachers) to teach and interact in certain (fairly consistent) ways as a group and how these discourses also influence the way students understand the nature of mathematics. The preservice teachers engaged with these ideas readily and in depth, especially in exploring the ways that discourse shapes our experiences and thinking. In later classes they regularly referred back to this class and what they learned from our discussions. The language of discourse and ideology appeared to have allowed them to articulate more critical views around mathematics and mathematics education.

The transcript that follows came late in this class. We had discussed multiple ideas about how discourses operate and their influence on us. Immediately prior we had shifted focus to identify dominant discourses in mathematics education, their sources, and their influence on us. We first discussed teacher authority and the hidden curriculum of school mathematics. This led to a discussion of the historical development of mathematics and of White male dominance in what is now school mathematics. In this transcript Lisa playfully critiques mathematics teachers (including those of us in the class) by comparing mathematics teachers to clueless nobility.

1. ***Lisa:*** I think that's true even today
2. they ((students))[3] say math is not useful in life
3. and we're like

2. http://www.numberphile.com/videos/keypad_layout.html.
3. Double parentheses ((xxxxx)) indicate clarifying comments that I have inserted into the text.

4. “oh you silly like commoners[4]
5. of course you say that
6. you don't think it’s useful” and they're [like
7. ***Teacher:*** [“You just don't understand it well enough
8. to make the connection”
9. ***Lisa:*** They don't think they're good at math
10. because we reinforce it like
11. “Well give up now.”

Lines 12-20 ((Jeff comments on the importance of mathematics in modern times))

21. ***Jeff:*** I mean you went to work in the coal mine or whatever
22. you know if you were a commoner
23. and if you were them ((nobility))
24. you didn't need it ((mathematics)) you know you had money already
25. ***Teacher:*** Kind of a game. In some sense.
26. ***Lisa:*** Math is a game?
27. ***Teacher:*** Yeah. For the elites in that sense.
28. It’s a pretty cool game
29. it’s interesting
30. ***Jeff:*** Says the math teacher.
31. ***Teacher:*** Yeah. Exactly. And you all should learn it.
32. ***Jeff:*** You're so elitist.
33. ***Multiple:*** ((laughing))
34. ***Teacher:*** So this is this is why I put misconceptions in quotes.
35. ***Lisa:*** Yeah.
36. ***Teacher:*** Because this isn't how mathematicians think about math
37. but it is how we
38. speaking of math teachers in general
39. have taught students to think about math.
40. We probably weren't trying to teach them to think about math in these ways
41. but that’s the way math has traditionally been taught
42. to emphasize these things ((indicates our list about the hidden curriculum on the board))

As this section begins, Lisa picks up a comment I had made earlier about the influence of European nobility on the development of school mathematics and turns it into a critique of the role mathematics teachers play in excluding students from mathematics. Notice Lisa’s use of “we” (l. 3, l. 10) to include herself and the rest of us in this critique. Jeff also picks up on this use of “we” (l. 18) as do I (l. 37). Further, the comparison she makes, casting mathematics teachers as clueless nobles and students as disgruntled commoners is not an obvious one. Lisa’s critique culminates in her statement to students to “give up now” (l. 11) even though most teachers would never (explicitly) tell a student to give up. Lisa’s use of a mocking voice to imitate both nobility and teachers creates a parallel between her comments in ll. 4-6 and in l. 11. In both cases they are comments that most teachers would never speak aloud. Lisa does not mean these as literal statements, rather that teachers send these messages to students in more subtle ways through words and actions.

4. The use of quotes in this transcript indicates that the speaker is making an imitation rather than reporting speech.

Jeff continues Lisa's comparison (ll. 21-24) noting that for the nobility mathematics was not a necessity for subsistence. Responding to Jeff's point I suggest that mathematics could then be a game for them. The nobility did not need mathematics to be practical, even if it was sometimes. Jeff and I play with this idea back and forth (ll. 27-33) in a way that highlights the potential for elitism in approaching mathematics (exclusively) as an abstract game. In this way the discussion has allowed us to reframe mathematics as a game suggesting a potentially disruptive discourse of mathematics education.

Lisa's initial comment and the discussion that follows occurs within the binary that mathematics must either be useful (applied, l. 2) or abstract (pure, ll. 25-26). What Lisa's comparison makes plain is the problematic relationship that this binary sets up between mathematics teachers and students. Within this binary the only possibilities for mathematics are that it be either pure or applied. Pure mathematics is considered the most prestigious and mathematics teachers, as representatives of a kind of mathematics community, feel an obligation to defend it, even when it means putting students down, as Lisa has suggested here. This obligation is connected both to the status that accompanies pure mathematics, but also because many mathematics teachers enjoy mathematics. Framing mathematics as a game potentially falls outside the pure/applied binary.

After the laughter subsides, I sum up the discussion by tying it back to where we began (l. 34). I summarize this most recent portion of the discussion (ll. 36-39) emphasizing the critique that Lisa brought in that mathematics teachers are largely responsible for what students think about mathematics. Consistently in our comments Lisa, Jeff, and I have placed responsibility on mathematics teachers for the ideas that students develop about mathematics. However, as I continue I soften this critique by excusing mathematics teachers from this responsibility (ll. 40-42). I am in these lines trying to be a "good" teacher educator. As a "good" teacher I do not want to place blame on the mathematics teachers that these teacher candidates work with nor on the teacher candidates themselves. I had been concerned going into this class that the teacher candidates would be resistant to some of my critiques of mathematics education. In order to reduce (potential) resistance I softened our critique by pointing out the lack of intentionality (l. 40) on the part of mathematics teachers. Connecting intentionality to responsibility, as I did here, is a classic way to maintain a White sense of goodness (Applebaum, 2010), and deflect taking responsibility for making meaningful change. I am attempting to make this class a "safe space" for the teacher candidates, but also for myself, as a White teacher. However, when making a conversation safe becomes a means of avoiding potentially difficult conversations then the dominant (White) discourses are maintained (Yoon, 2012). By bringing normative goodness back into the discussion I weaken Lisa's critique and reinforce the traditional teaching of mathematics that excludes so many students.

One of the challenges of disrupting dominant discourses is the creation of new or alternative discourses. As I sum up the discussion I reduce the possible alternatives by reasserting the dominant discourse. Had I either not included or not analyzed this portion of the transcript my role in the maintenance of dominant discourses would have been hidden. While there were certainly times when the students also brought in dominant discourses, recognizing my role in this process points to a common practice in teacher discourse (summarizing discussion) as a moment when dominant discourses can sneak back into the discussion. Further, the manner in which I bring the dominant discourse back in, promotes a particular form of White goodness that potentially hinders discussion of social justice.

**Secondary Analysis**

One of the challenges that I regularly faced in my analysis was to recognize and challenge those moments when we were adopting teaching strategies that I agreed with (such as constructivism or student-centered teaching), but that were not necessarily social justice focused. Because mathematics education still largely follows a traditional teacher-centered pedagogy I wanted to highlight and celebrate those moments when my students embraced more progressive pedagogies. However, since these pedagogies do not promote social justice I had to reanalyze them with a view towards social justice and how my positive presentation of progressive pedagogy may inhibit an understanding of social justice mathematics.

**Background Information**

In her reflection journal below Stella describes a change in her thinking regarding how she works with her students. Stella did her work in a small, diverse mathematics and science focused charter school. Her mentor teacher regularly used progressive reform teaching methods, but did not necessarily extend into social justice. She was supportive and encouraging of Stella, but also expected her to closely follow the textbook for the class. This mixture of support and limits helped Stella develop her ability to use reform methods, but may have limited what she could do in terms of social justice. Her writings seem to reflect this support and limits as they focus mainly on her learning about reform values and beliefs. In this journal entry Stella describes how she learns from her students to better meet their needs and not overstep her own use of authority.

Week 5, 2/18/2014

Student Teaching Reflections:

1. I had a great time with student teaching this week. I've realized lately that when I'm
2. struggling to manage my classroom, I get sort of tense and micromanage my students
3. too much.

Lines 3-10 ((Stella explains balancing student participation with keeping the lesson moving)).

11. I've also started to realize that off-task behavior is not always what I think it looks
12. like. For instance, some of my students listen better when drawing, and for some
13. writing notes down seems to be more of a hindrance than a help, etc. While I think it
14. is important to do some note writing, I shouldn't require all of my students to write
15. everything down, or to be sitting up perfectly and watching me while I talk, etc. That
16. would be insisting that students learn equally rather than equitably. I've realized that I
17. came into teaching with a picture of what learning looks like, and in some cases I've
18. tried to force that on my students. However, in reality, the best learning environment
19. for a student might look different than the picture in my head. I've tried to listen more
20. to my students, and observe the bigger picture more than the small behaviors. For
21. instance, one day this week I experimented with a student and tried to give her more
22. freedom than usual. I usually ask her several times throughout the class to get her
23. notebook out and write things down, even though her homework and tests show that
24. she is keeping up well with the material. I let her go throughout the class without

25. asking her to write things down, and I noticed she was more attentive and actually
26. wrote a few key things down in her notebook. Perhaps this is a better way of learning
27. for this student. Listening to students in this way is less stressful for me (because I'm
28. not trying to manage their every action) and I think more beneficial to their learning.
29. While allowing this kind of freedom may not be possible in every case (some
30. behaviors may be detrimental to a particular students, or even to the class as a whole),
31. I think getting to know your students in this way is an important part of teaching!

Stella starts out by describing her tendency to "micromanage" (l. 2) her students. She links this tendency to her ability to manage her classroom (l. 2). In linking these two she takes responsibility for this struggle (drawing on dominant discourses of responsibility) in her teaching rather than laying blame on her students' behavior requiring "micromanagement." This led her to question what "off-task behavior" (l. 11) is. As a result, instead of trying to be more controlling of student behavior, she tried to exercise less control. She describes her previous ways of thinking as using her authority to gain compliance ("require all of my students to write everything down" ll. 15-16 and "I've tried to force that on my students" ll. 17-18). In contrast, now Stella "tried to listen more" (l. 19), "tried to give her more freedom" (ll. 21-22), and "let her go" (l. 24). However, even in these new ways of thinking, which are more respectful to students, Stella positions herself as the main authority since she is the one giving freedom and allowing (or not) different student behaviors. This freedom for her students is conditional and will continue when the results ("more attentive" l. 25 and "wrote a few key things down" l. 26) meet Stella's approval. In this way Stella is the judge of what are acceptable ways of participating in her class, but she also is questioning the way her practices, in particular her use of authority, affect her students individually.

As Stella continued her student teaching, her thinking again shifted in regards to her use of authority in managing student behavior. This time the shift occurred as she learned from watching other teachers at her school.

Week 7, 3/3/2014:

Lines 1-6 ((Stella describes how parent meetings are set up at her school))
6. I was able to offer
7. suggestions for how we could help Amy succeed in my classroom at the beginning of
8. the meeting, and as the meeting went on I was struck by how much the other teachers
9. were asking Amy questions rather than trying to offer suggestions for help. Most of the
10. meeting was spent asking her how she was feeling about her classes, why she was
11. engaging in different behaviors, if she had friends and who they were, if she was
12. happy at this school, how they could help her in their classes, etc. I thought it was
13. so cool that it seemed like these teachers called this meeting in order to better
14. understand Amy so that they could meet her individual needs, rather than going into
15. the meeting assuming they understood Amy based on her observed behaviors (as I
16. did!).
17. I definitely learned a lot from observing these teachers interact with Amy and her
18. parents. I feel like I say over and over again that I want to get to know students and
19. understand their individual needs (i.e. teach them equitably), but I'm learning that I
20. don't always know how to do that, and oftentimes I assume things about students
21. without even realizing that I'm doing it. We found out at this meeting that Amy has

Aspergers, which no one knew beforehand (75% of the school year has gone by already!). I was amazed at how a handful of things that Amy's parents told us about herself and her behaviors changed my view of her. After this meeting, I was thinking back on interactions I've had with Amy where I would have treated her differently if I would've known she had Aspergers. Things like Amy's problem turning in homework, and her baffled, confused, nervous reaction when I ask her to get her homework out. Previously, this situation looked like Amy had not done her homework but was trying to cover it with the excuse that she couldn't find it over and over, but in the meeting I learned that a legitimate behavior of Amy's is that she has trouble remembering things like this and being consistent, and she becomes uncomfortable and nervous with confrontational interactions like I've had with her. If I would've known this, I would've reminded her about her homework at the beginning of class and given her more time and space to turn it in, or I would've talked to her one-on-one after class instead of in front of her table so she wouldn't be overwhelmed with so many people around her. I've also noticed Amy drawing a lot during class lately when she should be engaging in tasks with her team. I've been asking her to put her notebook away, but she hasn't been responding very well. Through talking about this issue in our meeting, I learned that Amy draws when she gets overwhelmed, and it's been happening more since I put her at a table with four people instead of three. I wish I would've taken the time to talk to Amy one-on-one so I could have found out this information earlier and helped her succeed and enjoy my class! This meeting opened my eyes to the fact that students' behavioral problems always have a source, and seeking to understand what that source is makes it so much easier to address that students' needs. I think teaching students' my expectations is also totally valid, but when I notice that consistently reminding students of those expectations isn't working, then I need to seek out that student and try to understand them.

The main thing that began to help Stella think differently about how she approaches her students, was observing other teachers asking questions (ll. 8-9). The other teachers asked Amy multiple questions about her learning, behavior, feelings, and how they could help her. Stella contrasts this approach with her own, which consisted of "assuming" (l. 15) that she already understood Amy. As a result Stella recognizes the limitations of her abilities ("I don't always know how to do that" ll. 19-20; "without even realizing that I'm doing it" l. 21) despite her intent to "understand their individual needs" (l. 19). The things that she learned about Amy from her parents caused her to re-evaluate past interactions. As she describes these previous situations she describes thinking from a deficit perspective about Amy ("Amy's problem" l. 26; "trying to cover it" l. 29; "she hasn't been responding very well"l. 38), but does not critique these assumptions.

While critiquing these assumptions could help Stella develop a more socially just treatment of her students, it would require that she point her flaws out to me. Stella does note that her choices made the problems worse and that she could have avoided these situations had she "taken the time to talk to Amy" (l. 41). She concludes by proposing a balance between "teaching students my expectations" (l. 45) and trying to "understand" (l. 47) her students. However, understanding comes only after there is a problem with her expectations (ll. 46-47), thus they are still given primacy. Stella's journal entries illustrate a back and forth between teacher-centered and student-centered thinking, where the teacher-centered remains dominant but is conceding to a more respectful approach to working with students.

Student-centered approaches to teaching are still fairly uncommon in secondary mathematics education (Ellis & Berry, 2005). Thus Stella's move in this direction feels like significant progress and I wanted to highlight it as I did in my responses to Stella's journal as well as in my analysis here. Stella's emphasis on these points may also reflect a White, progressive idealization of education reforms. However, just because teaching becomes more "student-centered" does not mean that it also becomes more socially just. It is tempting to suggest that student-centered teaching addresses an identity dimension of equity. However, as Gutiérrez (2012) explains, identity includes students drawing on their own resources and becoming better people by their own standards. There is no mention of that here, rather the standards are still Stella's (or the dominant discourses of mathematics education as represented by Stella), which are assumed to be universal (hence White) standards. Since these discourses, are discourses of Whiteness, my initial presentation of them as indicating more equitable mathematics education ended up reasserting the dominant hold of these discourses on mathematics education. Re-analysis, with an explicit equity focus, revealed how I am also caught up in these dominant discourses (Walshaw, 2013).

## Conclusion and Implications

As a critical methodology, CDA is an important tool to critique dominant discourses and to enact change. However, dominant discourses of Whiteness obscure truth and resist change by overtly and covertly deflecting attention away from our own contributions to dominant discourses. Truth-telling thus requires that I, as researcher and educator, critically engage my work to reveal my contributions to and entanglement with the maintenance of Whiteness (Thompson, 2003; Walshaw, 2013). This is necessary to continually remake my own educational and research practices. However, it is also meant to shake the complacency of progressive, White academics (including my own) to engage in the creation of socially just educational practices.

In this study, where my aim was to understand our efforts and struggles to bring together the apparently disparate discourses of mathematics and social justice, understanding myself in relation to these discourses and to my students became a key aspect of truth-telling. There were times when I contributed to the power of dominant discourses and times when my teaching aided our efforts to break out of dominant discourses. Including this in analysis better prepares me to change my teaching practice and to better prepare teachers to teach for social justice. Further as I presented my analysis in writing there were times when my desires to promote progressive pedagogical practices in mathematics education (such as constructivist practices or student-centered teaching) caused me to overlook the ways in which these practices may trump the promotion of social justice. Recognizing these moments and my role in them required that I reanalyze selections of text multiple times and seek the feedback of committed critical scholars who pointed out these aspects of my analysis.

The sample analyses presented above demonstrate the potential of CDA as a means of truth-telling. However, CDA alone is insufficient, and (on its own) may mask some of the truth the analyst intends to uncover. I have proposed two methodological considerations when using CDA in an educational context. First that the analyst include both student and teacher discourse use in analysis. This stance disrupts the apparent "truth" of teacher as more enlightened than the student (Thompson, 2003) and recognizes that both are caught up in dominant discourses (Walshaw 2013). In the case of teacher education this component is key to disrupting the reassertion of dominant discourses from one generation of teachers to the next. In the sample I presented above, Lisa's critique of mathematics teachers as clueless nobility opened up a possible reframing of

school mathematics as a game. While this reframing may or may not have led to a discourse of school mathematics more open to discourses of social justice, it was, an alternative to the dominant discourse of school mathematics as necessary for students. However, in my attempt to minimize the culpability of mathematics teachers I shut down this alternative and reasserted the dominant discourses.

The second addition to CDA was the necessity of submitting our critiques to analysis. In my second example, my original analysis of Stella's journal entries highlighted her improvement in adopting a more student-centered approach in her teaching. However, this analysis maintained (masking the truth) of the progressive (White) assumption that a student-centered approach to teaching is inherently socially just. This assumption (and my original analysis) fail to recognize the Whiteness of this approach to education that often assumes a universal (White) student and maintains the dominance of the content and the teacher's priorities with a mask of student-choice. In my reanalysis of this section, rather than cover up the flaws of my first analysis, I present and then critique them. This aspect of truth-telling challenges the status quo of research articles as complete and polished and instead recognizes the multiple potential analyses of data and their potential to disrupt and/or reassert dominant discourses within academia.

When used in conjunction with CDA these additional components of analysis provide both a more thorough critique of the reassertion of dominant discourse and a better understanding of why we fail to develop alternative discourses when we set out to do so. This truth-telling can further our efforts to disrupt these discourses in research and in education, thereby aiding educators in developing pedagogies which promote the development of alternative discourses. They may also aid researchers in changing the ways in which analysis is presented and in developing alternative discourses as part of analysis.

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