WHEN MATHEMATICS WORKS IN BLACK: A CASE STUDY OF EFFECTIVE MATHEMATICS INSTRUCTION FOR AFRICAN AMERICAN CHILDREN

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ABSTRACT

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The purpose of this study was to describe and explain the 5th grade mathematics teaching practice of an African American female teacher in a predominantly African American classroom that consistently meets and/or exceeds Michigan's mathematics proficiency standards. Using multiple emancipatory lenses, and a single case study method that employed participant observation, interview, and artifact, this study examined a teacher participant's practice. A set of pedagogical practices not included in the dominant discourse on mathematics pedagogy emerged. The interpretation of these practices used non-traditional, non-Eurocentric analytical criteria. That is, the dominant criteria of objectivity, reliability, and validity were considered mostly inadequate measures (Reviere, 2001). Instead, the study used Africalogical; Black feminist, and culturally responsive conceptual frameworks whose literatures are mostly silenced in mainstream mathematics education discourse. The aim was to better understand, and to push the inquiry and discourse into a place where the inquiry and the process of pedagogical construction did not take precedence over the values, interests, and perspectives of the people being researched.

One significant aspect of this study is that it challenges the absence of African American specific research in mathematics education, e.g. teacher or student successes, and the presence of Black women in teaching – who for more than 100 years represented the majority of teachers teaching Black children prior to the massive firings of Black teachers between 1950 and 1970 (Fairclough, 2007; Ladson-Billings, 2004; Powell, 2002). Significant as well is that in thirty

years of mathematics education reform African American children have not been helped to significantly reduce a woefully large and consistent gap in mathematics achievement between themselves and European American students. Although the reasons for this continued gap are complex, most (Clark, Johnson, Chazen, 2009; Ladson-Billing & Tate, 2005; Martin, 2008, 2009; Scheurich, 1997) agree that a major factor is that only recently, and still tentatively, have issues or voices of scholarship of color been included in the dominant discourse (e.g. Moses, 2002; Nasir, 2008, etc.). Hence, this work seeks to contribute to this growing chorus of diverse voices about what can and should be done to ensure that all students receive equitable opportunities to become mathematically literate.

The assistance, support, and patience of five people made this volume possible. I dedicate this work to them:
my wife, Sonya, my daughter, Nyaela, my mother and father, Sarah and Shahabuddeen, and my friend and advisor, Suzanne Wilson.

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CHAPTER 1

INTRODUCTION - BLACK ON BLACK

African[1] American children are not taught mathematics very well in this country, and such has been the case for nearly three decades of mathematics reform (Lubienski, 2002; Martin, 2003; NCES, 2007; Strutchens, 2000). A decade into the standards-based school mathematics reform movement, Tate's (1997) review of national trends, college admissions examinations, and Advanced Placement test scores revealed that although

> over the past 15 years [from 1982 to 1997] all demographic groups have improved in mathematics achievement, specifically, in basic skills…[However] 50 percent of the African American and 42 percent of Hispanic students were classified at the low-proficiency level or below.[2] In comparison, only 14 percent of Asian and 21 percent of White students performed at low proficiency or below. (p. 659)

Tens years after Tate's study, in 2007, only 10 percent of African American 4th graders and seven percent of African American 8th graders scored at or above the proficiency level (Lubienski & Crockett, 2007). Overall, forty percent of African Americans, compared to 32 percent of Hispanics, 32 percent of American Indians, 10 percent of Caucasians, and 10 percent of Asians, score below the basic level in the 4th grade mathematics (NCES, 2006). It is fairly obvious that the mathematics education offered to African American students in this country has not served them very well.

In an age in which the dominant rhetoric is "no child left behind," the fact that the African child has not been served well by reform-based school mathematics has raised many concerns. Culturally relevant theorists argue that this is due to mainstream mathematics

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[1] I use the term African, African American, and Black intermittently to refer to all children of
[2] NAEP ranks students at three achievement levels: basic, proficient, and advanced.

education's inattention to issues of race, culture, and history when theorizing what works for "all" students. Martin (2007), for example, asserts that mainstream mathematics education research and policy and has "drawn on discursive frames that support color-blind racism, that focus only on achievement outcomes, and that propose 'missionaries' and 'cannibals'[3] as the kinds of teachers most appropriate for African American children" (p. 6).

Martin is not alone in his assertions that mathematics education research and theory continues to be plagued by an inattention to ecological factors critical to teaching and learning. These factors include gesture, posture, tone, rhythm, idiom, method, spirit, and more (Chazan, Brantlinger, & Clark, 2013; Clark, Frank, & Davis, 2009; Ladson-Billings, 1997). Moreover, there is an ever-growing contention that this color-blindness perpetuates generational failures of teachers to successfully engage African students in the study of mathematics (Clark, Frank, & Davis, 2009; 2013; Ernest, 2002; Gutstein, 2006; Ladson-Billings, 2000; Martin, 2000; 2008).

The purpose of this study is to give attention to such factors by exploring the aesthetic dynamics of an African American teacher. Grounded in an African-based epistemology that centers the African American learner, this study documents and describes the aesthetic of a successful African American female's mathematics teaching practice. This teacher's students excel above and beyond the state proficiency standard, which runs contradictory to the mainstream mathematics rhetoric that normally constructs African American mathematics students as underachievers, and not as mathematically astute as European American and Asian students (Martin, 2007). The question this study sought to answer was: What is the look of a mathematics teaching practice when Black children are achieving above and beyond the national

[3] Martin (2007) describes "missionaries" as the paternalistic White teachers [could also be Black teacher] who believe they must save Black children from themselves or their culture, and "cannibals" as those teachers who focus almost completely on teaching the mathematics content, and less on teaching the student (or learning who the student is within the social milieu).

proficiency standard? My hope is that the answer might broaden what teachers, teacher educators, curriculum developers, and community members perceive to be foundational to classroom success when mathematics is the subject and African American children are the students.

This study draws, in part, on Kariamu Welsh-Asante's (2003) conceptual framework for an African aesthetic. She, and quite a few others (e.g. Thompson, 1983) have been rearticulating the African aesthetic as it existed in classical African cultures of Egypt, Songhai Empire, and Timbuktu, right up to the Harlem Renaissance, and Jazz, African American Civil Rights Movement, and the "Obamaian" Era. She writes that the African aesthetic is,

> That which draws upon the history, mythology, motif and creative ethos of a group of people by virtue of its reflection of the images and symbols of its own group. The African aesthetic is responsible for an art that resembles, mirrors and echoes the creative ethos of a specific or general African people. An aesthetic that manifests history, mythology and values will transcend time, geography and boundaries, and evidence itself in both surface and deep structure realities …[It is] the historical acknowledgement of aesthetic traditions and motifs [that] lends itself to what is called consciousness of victory. It is the consciousness of victory that produces in a cyclical fashion an aesthetic will. The consciousness of victory involves reclamation, redefinition, and reconstruction and eliminates the need for reactionary art forms that insert a Black face, scene, play, dance, and isolated solutions while adhering to the structure, format and development of a cultural aesthetic that comes out of a completely different tradition. While the artistic tradition of such a combination may work, it essentially supports a Eurocentric artistic tradition while demonstrating empathic sensitivity…An aesthetic defines and establishes

culturally consistent elements and then enthrones standards based on the best historical and artistic examples. (pp. 6-8)

Drawing on culturally relevant and Africalogical research and theory, I aim to provide an aesthetically nuanced description of this practice wherein African students are experiencing success.

Underlying Assumptions

My underlying values and assumptions are straightforward. I assume that values, interests, and perspectives are foundational to the kinds of choices an individual (e.g., teacher) makes. I assume that the educational choices of any teacher are culturally bound and politically[4] located,[5] informing how teachers teach and students learn (Asante, 1994; Gay, 2000; Hale, 2001; Kohl, 1994; Ladson-Billings, 1997).

Hence, I see teaching as a "contextual and situational process that is most effective when ecological factors such as prior experiences, community settings, cultural backgrounds, and ethnic identities of teachers and students are included in its implementation" (Gay, 2000, p. 21). Given these beliefs, I explored the "look" (e.g., location/aesthetic) of a successful mathematics teacher with hopes of unveiling something of the physical, emotional, intellectual, and relational aspects of her practice. Ultimately, my interest lies in what can be learned from the African aesthetic contours of a teacher who works successfully with Black children – especially when the lens of observation and analysis is centered in an African-based logic.

Rationale

[4] Here politically refers to idea the fact that our actions tend to serve the interests of the group that has most socialized us – that is, we serve that that has privileged us.
[5] Here "location" denotes where one is positioned with regard to one's values, interests and perspectives. For example, one could value traditional style mathematics instruction out of a need to preserve what he/she believes will work in the best interests of children.

I have two rationales for exploring a single case of an African American female mathematics teaching practice that has had success in a predominantly African American classroom settings. The first rationale is that successful mathematics teaching within the specific context of Black children is largely overlooked as a topic of discourse in mainstream mathematics discourse (Ladson-Billings & Tate, 2005; Martin, 2008, 2009). This is due to the "colorblind" nature of most mathematics education research. This leads to mathematics researchers – knowingly or unknowingly -- perpetuating the mathematics underachievement of African American children.

My second rationale is that mathematics education research using non-Eurocentric epistemological lens to understand African American history, experiences, and context in mathematics education is almost completely absent from mainstream mathematics education discourse, and largely from culturally relevant mathematics education discourse. Accepting that hegemony cannot "do its work without the support of ideology" (McLaren, 2003, p. 79), the research reported here is designed to disrupt the ritual of overlooking African American success in mathematics by using Africalogical sense-making and meaning-making tools. By Africalogical, I mean a way of viewing the world through lens that values scholarly tradition grounded in the logic, values, interests, and perspective of oppressed people, in this case, African Americans (e.g. Asante, 1998; Clark, Frank, & Davis, 2013; Collins, 2000; hooks, 1994).

The use of an Africalogical lens in the exploration of Africana educational classroom phenomena has already yielded important theory and research in education. Ladson-Billings' (1994) non-traditional investigation of successful teachers of African American children yielded a set of tenets for teaching Black children that have in many ways reshaped how we view and make meaning of successful teaching and learning practices in the contexts of African American

children. Others have engaged the dynamics of successful mathematics teaching in urban settings (Ensign, 2003; Gutstein, 2003; Gutstein, Lipman, Hernandez, & de los Reyes, 1997), but few have broached the specific uniqueness of the African American teacher (Murrell, 1994; Tate, 1995; Thomas, 2005). The paucity of research and theory regarding the uniqueness of African American teachers -- and specifically African American female teachers -- makes the potential significance of this research compelling.

Place

A principle aspect of an Africalogical approach is that it compels the researcher to "place in the foreground of the inquiry any and all subjectivities or societal baggage that would otherwise remain hidden and, thereby covertly influence the research activity" (Reviere, 2001, p. 710). Thus it is important for me to locate myself as an African American. My interest in the aesthetic of African American teachers does not arise out of a disinterested perspective. Prior to my doctoral studies, I taught in urban school settings for more than 10 years, witnessing many of the dynamics discussed in this work. I also taught mathematics every summer for 13 summers in an African-centered school, founded and directed by an African American woman, taught predominantly by African American women, and guided by a board that was occupied predominantly by African American women. In my teaching, I consistently drew on a broad array of relational methods, which included teaching through song and rap, as well as through movement – where students performed tai chi like movements that conveyed rote mathematical learning. Of course the student and I enjoyed this immensely – especially when it was combined with music.

In addition, my education was predominantly urban, up until the 10th grade where I then attended a non-public, predominantly White school – able to look from afar as nearly half of my

graduating class at my former inner-city school failed to graduate. I eventually went to college, and within the established tradition of existing European American hegemonic discourse, earned my BS in Mathematics Education. I would eventually arrive at my present station in a prestigious Ph.D. program.

The education I received was, and still is, historically and socially constructed and fully interest-bound; little of it emphasized the achievements and contributions of African peoples, although in my own teaching, I was always committed to the liberation of oppressed youth. Hence, my dissertation is driven by my interest in making space for understanding issues in the education of African Americans with and through scholarly approaches that draw directly from African worldviews. All of these issues -- my place, an Africalogical lens, and an African aesthetic – are picked up and explored in the chapters to come.

An Outline of the Chapters

Initially I went in search of a single case of a successful African American mathematics teacher. And then I met Mrs. Thande, whose energy and intelligence sharpened my question: How does an African American female 5th grade mathematics teacher create academic success in a predominantly African American classroom? Lave and Wenger (1991) explains, "Social practice is the primary generative phenomena, and learning is one of its characteristics" (p. 34). When I first began observing Mrs. Thande, she reminded of some of the teachers of my youth, indeed, she reminded me of a tradition of African American women caring and nurturing for African American children. It is this tradition that I aimed to capture in the coming pages.

Chapter two begins by reviewing the literature relevant to culturally relevant teaching in general, and on mathematics education specifically. Chapter three presents the theoretical framework for this dissertation. More precisely, it presents a conceptual model of how a

successful 5th grade African American female teacher in a predominantly African American context might convey a certain kind of aesthetic. It also presents the study's research questions, followed by a description of the study's design, its theoretical propositions, the specific unit of analysis, the logic linking the data to the propositions, and the criteria for interpreting those findings.

In chapter four I describe the study's method. I also provide a simple review of the problem, a general overview of the study's approach, a description of the case rationale, and my analytical procedures. The primary aim in this chapter is to provide the method used to collect, explain, and analyze data. Chapter four concludes with a discussion of the issue of fair interpretation, and how I perceived and dealt with any personal obstacles that potentially stood in the way of my fair interpretation of the data. In chapter five, I introduce Mrs. Thande, her interactions with students, parents, and teachers, her presence as a teacher in the school and her classroom, and a general description of the setting in which the research took place. In chapter six, I use African American historical mothering themes to examine whether the look of the study's successful African American teacher's practice confirms, or falsifies my null hypothesis that Mrs. Thande's mathematics classroom is devoid of African American mothering characteristics.

Chapter seven presents a discussion of the implications of this work as it relates to teachers, teacher educators, students, and curriculum developers. It questions the viability of the present mainstream mathematics reform to African American learners. The chapter goes on to discuss an alternate epistemological track that addresses the absence of race with an attention to the aesthetics of African American women as they teach the subject of mathematics.

CHAPTER 2

CULTURALLY RELEVANT (MATHEMATICS) TEACHING: A BRIEF REVIEW OF THE LITERATURE

> *If the Negro in the ghetto must eternally be fed by the hand that pushes him into the ghetto, he will never become strong enough to get out of the ghetto.* (Woodson, 1934, p. 34)

The goal of this research is to use an Afrocentric lens to illuminate the practice of one successful mathematics teacher. Several bodies of relevant literature – most notably culturally relevant pedagogy and culturally relevant mathematics pedagogy – are relevant. In this chapter, I lay out – albeit in broad brushstrokes – the major insights from these two literatures so as to create the study's backdrop. I begin by considering the literature on culturally relevant and responsive teaching.

Culturally Relevant Teaching [6]

Education scholars have, for some time now, recognized that mainstream U.S. schools do not serve the needs of all children equally well. Prior to Ladson-Billings' seminal work on culturally relevant pedagogy, a long line of distinguished scholars had framed the problem as one of "multicultural education." A leading voice in that discussion was James Banks (1994), who is often considered the father of the field. Arguing that "educators should carefully define concepts such as multiethnic and multicultural education and delineate the boundaries implied by these concepts" (Banks, 1994, p. 237), and Banks (2004) emphasized that a major goal of multicultural education was "to reform the schools and other education institutions so that students from diverse racial, ethnic and social-class groups will experience educational equality" (p. 3). To this

[6] Culturally relevant teaching, culturally relevant pedagogy, and culturally responsive teaching will be used interchangeably.

end, he proposed five dimensions of multicultural education (Banks, 1991; 2004; 2006): content integration, knowledge construction process, prejudice reduction, equity pedagogy, and empowering school culture and social structure (Banks, 2004, p. 5). Content integration deals with what he calls, "the extent to which teachers use examples and content from a variety of cultures and groups to illustrate key concepts, principles, generalizations, and theories in their subject area or discipline" (p. 4). The knowledge construction process involves teachers helping students understand, analyze, investigate, and "determine how the implicit cultural assumptions, frames of reference, perspectives, and biases within a discipline influence the ways in which knowledge is constructed within it" (p. 4). For example, our general tendency is speak of the White House without considering the context in which it got that name, or what that might signal about Eurocentric cultural imperialism.

Another dimension of multiculturalism is prejudice reduction, which focuses on where a student might be socially, cultural, or politically situated with regards to issues of race, and how such a disposition "can be modified by teaching methods and materials" (p. 5). Equity pedagogy describes instruction that fosters a classroom environment in which students from diverse racial, cultural, gender, class, and social groups can be assured academic achievement. The last of these dimensions involves developing an empowering school culture and social structure. This entails "restructuring the culture and organization of the school so that students from diverse racial, ethnic, language and social class groups will experience educational equality and cultural empowerment" (p. 6).

While Banks' work is considered groundbreaking, scholars that followed him both enriched and extended these ideas. For example, Sonia Nieto's (1992, 1996) multi-case study research of 10 successful multiracial students (e.g. Black, Latino, Vietnamese, Arab, etc.) in

Massachusetts challenged what she saw as the sociopolitically mute character of multiculturalism. That is, Nieto addressed the context of communities, families, and students as part of the process of education, focusing on seven characteristics of multicultural education: "antiracist, basic, important for all students, pervasive, education for social justice, a process, and critical pedagogy" (Nieto & Bode, 2008, p. 44).

For Nieto, antiracist education makes anti-discrimination explicit in the curriculum and teaches students the skills to combat racism and other forms of oppression. Basic education advances the right of all students to engage in core academics and arts; it addresses the urgent need for students to develop social and intellectual skills to expand understanding in a diverse society. Engaging in action (agency) is a key component of Nieto's vision of multicultural education for a more democratic society. In sum, Nieto brought a critical perspective to multicultural theory in the sense that she believes in proactively attending to students' cultural, linguistic, familial, academic, and artistic and other ways of knowing. Her main argument is that students must be enabled to explore within and beyond their own perspectives if they are to understand alternative perspectives that they might agree or disagree with. Nieto also argued that children must be enabled to think critically about multiple viewpoints (cf., Freire, 2000). Her major contribution was that she linked multicultural education to broader issues of power.

Many took Nieto's lead, including Christine Sleeter (2001). Sleeter examined 80 studies, seeking to better understand how teachers were being prepared to teach in more heterogeneous, multicultural, and historically underserved schools and classrooms. She found what others have subsequently found (e.g., Anyon, 2005; King, 2005; Ladson-Billings, 2005, 2006); that the recruitment of teachers for these populations, and the nature and kind of preparation these teachers receive is severely lacking. Sleeter also found an ever-widening racial, cultural, gender,

and class gap between White teachers and their racially, culturally, and often class-different students. Lastly, she learned that most multicultural research was small in scale, often producing non-generalizable work. Her work (although largely based in Eurocentric epistemology (e.g. positivism, phenomenological, narrative research, etc.) (Cochran, Davis, Fries, 2004)), provided key insights into teacher preparation, and research limitations related to the field of multiculturalism research. It also highlighted some of the structural difficulties inherent in realizing Sonia Nieto's critical multicultural ideals.

Gradually, as more scholars became involved with emancipatory study, a greater understanding of the problematic aspects of multiculturalism emerged. Ladson-Billings and Tate (1995) argued that multiculturalism's insistence upon being included in the mainstream curriculum -- when the curriculum itself was problematic -- was counter to the liberatory aims it espoused. That is, they argued that the multicultural paradigm was perhaps too beholden to Western epistemological traditions of what constituted empowerment, offering little more than what had already been presented by progressives in the decades that preceded the birth of multiculturalism (Ladson-Billings & Tate, 1995). That is, rather than offering a radical change of the current system (Bell, 1987), multiculturalism was reflecting the all-to-familiar approach of the progressive incrementalist approach to education reform. Some have argued since, that this may have added to the skewed perceptions and limited understandings of so many White preservice teachers have about what it means to teach to difference (Hale-Benson, 2000; King, 1991, 2005; Tatum, 2003). That is, "learning to see (children of color) students with strengths as opposed to seeing them solely as having needs (needing to be included in status quo)" is needed, as it "may inform the pedagogical practices of novice teachers in positive ways" (Ladson-Billings, 2000, p. 209).

Ladson-Billings, (1992, 1994) went on to develop a pedagogical approach that pushed multiculturalist ideals to another level. In her groundbreaking dissertation, she examined the successful teaching practices of eight teachers over the course of three years in a majority African American community school district in northern California seeking to identify what methodologies had been most successful in helping African American students achieve academic success. Over the course of the study, she coined the phrase "culturally relevant teaching." It became the pedagogy that described the methods she observed in these successful teaching practices. Ladson Billings (1994) argues that her culturally relevant teaching framework can be seen as a tool that can assist teachers in developing in themselves and their students' traits that empower African American children to become agents of change:

> It is a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes. These cultural referents are not merely vehicles for bridging or explaining the dominant culture; they are aspects of the curriculum in their own right. (p. 18)

That is, culturally relevant pedagogy (CRP) embraces a commitment to "using student culture in order to maintain it and to transcend the negative effects of dominant culture" (p. 17). When challenged with the claim that culturally relevant pedagogy[7] was "just good teaching," Ladson-Billing (1995) explained CRP's three critical criteria: students must experience academic success; students must develop and/or maintain cultural competence; and students must develop a critical consciousness through which they challenge the status quo of the current social order (p. 160). For some school reformers, this third criterion, in particular, would not be part of a definition of "good" or "effective" teaching. However, Ladson-Billings' use of emancipatory

[7] Culturally relevant teaching and culturally relevant pedagogy are used interchangeably.

(Dubois, 1903, 1935; Woodson, 1934), Africalogical (Asante, 1988), and Black feminist (Collins, 1991, 2000) lenses, along with some parts of Eurocentric theory (e.g., narrative research) has become a major theorist in the development of culturally attuned pedagogy and curriculum.

Ladson-Billings' (1994) operationalization of a culturally relevant pedagogy, and other African Americans creations of portraits of contemporary African American teaching/pedagogy (Clark, Johnson, & Chazen, 2009; Hale-Benson, 2000, Murrell, 2002; Tate, 1994) have historical precedence. Fairclough (2007) argues that early-to-mid 20th century "efforts to suppress [African American] classics quickly ran out of steam" (p. 172) because of the countering and competent efforts of African American teachers. He adds that, "Hundreds of Black teachers decided to found their own schools" (p. 174). Siddle-Walker's (2000) study of African American teachers teaching between the 1930s-1960s portrays those teachers as,

> Remembered for their high expectations for student success [in spite of Jim Crow], for their dedication [to overcoming], and for their demanding teaching style. These [Black] teachers appear to have worked with the assumption that their job was to be certain that children learned the material presented. (pp. 265-66)

And other scholars have taken up the charge to show the amazing accomplishments of minoritorized[8] people in education: Anna María Villegas & Tamara Lucas (2002), and Geneva Gay (2000) among them. Moving beyond a focus strictly on African American teachers, these scholars want to know how to prepare teachers who can work in schools to engage all disadvantaged children of color. For example, Villegas' and Lucas' (2002) framework of culturally "responsive" teaching, attempts to address the criticism of multiculturalism's

[8] Minoritorized describes the common practice of labeling members of groups of color as minorities. This practice is increasingly frowned upon because of the various negative ways in which the term "minority" is understood.

assimilationist-curriculum-inclusion approach by presenting culturally "coherent" curriculum and instructional practices. They offer six strands, or organizing constructs: gaining sociocultural consciousness; developing an affirming attitude toward students from culturally diverse backgrounds; developing commitment and skills to act as agents of change; understanding the constructivist foundations of culturally responsive teaching; learning about students and their communities; and cultivating culturally responsive teaching practices.

The first strand, gaining sociocultural consciousness, involves the development of an awareness that one's "worldview is not universal but is profoundly shaped by one's life experiences, as mediated by a variety of factors, chief among them being race/ethnicity, social class, and gender" (p. 27). The second strand is the development of an attitude that recognizes the validity of the perspectives, norms, and values of other groups and cultures, including their ways of thinking, talking and behavior, their experience and their knowledge. Strand three is the development of a recognition that schools are places of power, and are connected to society, and that they typically reproduce existing social inequalities, whose undoing require teachers able to look at, but also beyond instructional methods to personal vision as a means of interrupting inequitable school practices, so as to enable students with agency.

Strand four focuses on developing the practice of always beginning with the knowledge of the student, filtering through their frame of reference, and allowing them to contribute to the meaning of the content. Strand five is the developed appreciation of who students are outside of school, what their perceptions are of school and school knowledge, the relationship with the subject matter – such as with mathematics and how underserved communities tend to have a deficit of the kinds of math knowledge that would allow them to participate in today's technological markets, and the students' community life. The last strand is the development of

practices that involve the cultures of all students, building on their cultural strengths, integrity, and dignity (pp. 27-110).

One major contribution of Villegas' and Lucas' (2002) culturally responsive teaching approach is the recognition that curricular and instructional practices need to be supported and sustained by an institutional infrastructure, that itself has four parts: ongoing work to make the college/university a multicultural community by actively seeking to recruit and retain students and faculty of color; the use of multicultural criteria to recruit and select prospective teachers; support for the establishment of structures and processes that foster collaboration among faculty in education, the arts and sciences, and the public schools; and strong investment in faculty development. Their work concludes with a model for teaching in a culturally responsive way, and a review of the kind of institutional context needed to educate culturally responsive teachers.

Although Villegas' and Lucas' work has already become a classic reference in the canon of culturally relevant/responsive teaching, there are other compelling works as well. Gay (2000) offers a comparable, but less dense and comprehensive framework. Her criticism of multiculturalism aligns with many others. Some believe its conceptual and cultural agency has been co-opted, and has grown incapable of addressing the dilemmas of inequitable system of education at a pace capable of meaningfully addressing educational injustice. More specifically, Gay (1992) argues that multicultural theory development has been far outpaced by the development of practice – making it relatively inert in any discussion of teaching practice and pedagogy.

In particular, Gay asks the question: Why is it that students of color who are so successful in so many contexts outside school are so unsuccessful at school? She answers this "achievement dilemma" by linking five assertions with five culturally responsive teaching

criteria. First, Gay asserts that culture counts, conventional reform is inadequate, intention without action is insufficient, strength and vitality reside in cultural diversity, and test scores and grades are symptoms, not causes, of the achievement dilemma.

Using these assertions, Gay then proposes five culturally responsive practices to redress these issues: validating, comprehensive, multidimensional, transformative, and emancipatory ("with cooperation, community, and connectedness central" [p. 36]). Teaching practice is validating when it acknowledges the legitimacy of the cultural heritages of different ethnic groups; builds bridges of meaningfulness between home and school, and between academic abstractions and lived sociocultural realities; uses a wide variety of instructional strategies; teaches students to know and praise their own and each others' cultural heritages; incorporates multicultural information, resources, and materials in all the subjects (p. 29).

Teaching practice is comprehensive when it considers the intellectual, social, emotional, and political development of the learner, "using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1992, p. 382). It is empowering when it enables the child to be a better human being, and a better student, one who is academically competent, has high standards of self-efficacy, and initiative. It is transformative when it appreciates existing strengths and accomplishments and develops them further through instruction. And finally, a practice is emancipatory when it guides students in the understanding that no single version of "truth" is total and permanent. Ultimately, Gay's aim is for a kind of praxis, wherein there is a harmonic balance of practice and theory – a movement forward through well-informed practice.

In sum, research on culturally relevant/responsive/multicultural teaching/theory is a growing field. When viewed as a continuum (see Figure 2.1), this literature sheds important light on issues concerning teacher preparation, curriculum development, institutional context, and

student teaching in contexts that are racially, culturally, gender, and class diverse. For instance, Banks' multiculturalism, and Gay's culturally responsive theories have become dated, respectively, in that neither has the dominant themes that runs through much of contemporary emancipatory education – critical consciousness – the use of education and communication to expose and transform oppression. This is not to suggest that there is no mention of consciousness, but it does not direct their work. Villegas' and Lucas' (2002) foreground Banks and Gay because of their attention to sociocultural consciousness – the teacher's developed use and awareness of the fact that one's "worldview is not universal but is profoundly shaped by one's life experiences, as mediated by a variety of factors, chief among them being race/ethnicity, social class, and gender" (p. 27). Ladson-Billings (1994, 2009), foregrounds Villegas and Lucas because, not only does she address the issue of critical consciousness – defined as a "challenge to the status quo of the current social order" (p. 160), but, she narrows the "cultural" field to that of specific cultural group – African Americans. In this way she recognizes, along with other contemporary emancipatory theorists (Martin, 2007, Powell; 2002) that there is a system of color-blind racism – "formal" conceptions of equality which discriminate based on color – that tends to consolidate racial uniqueness all under the headings of diversity, culture, or multicultural. This is not the case with culturally relevant theory.

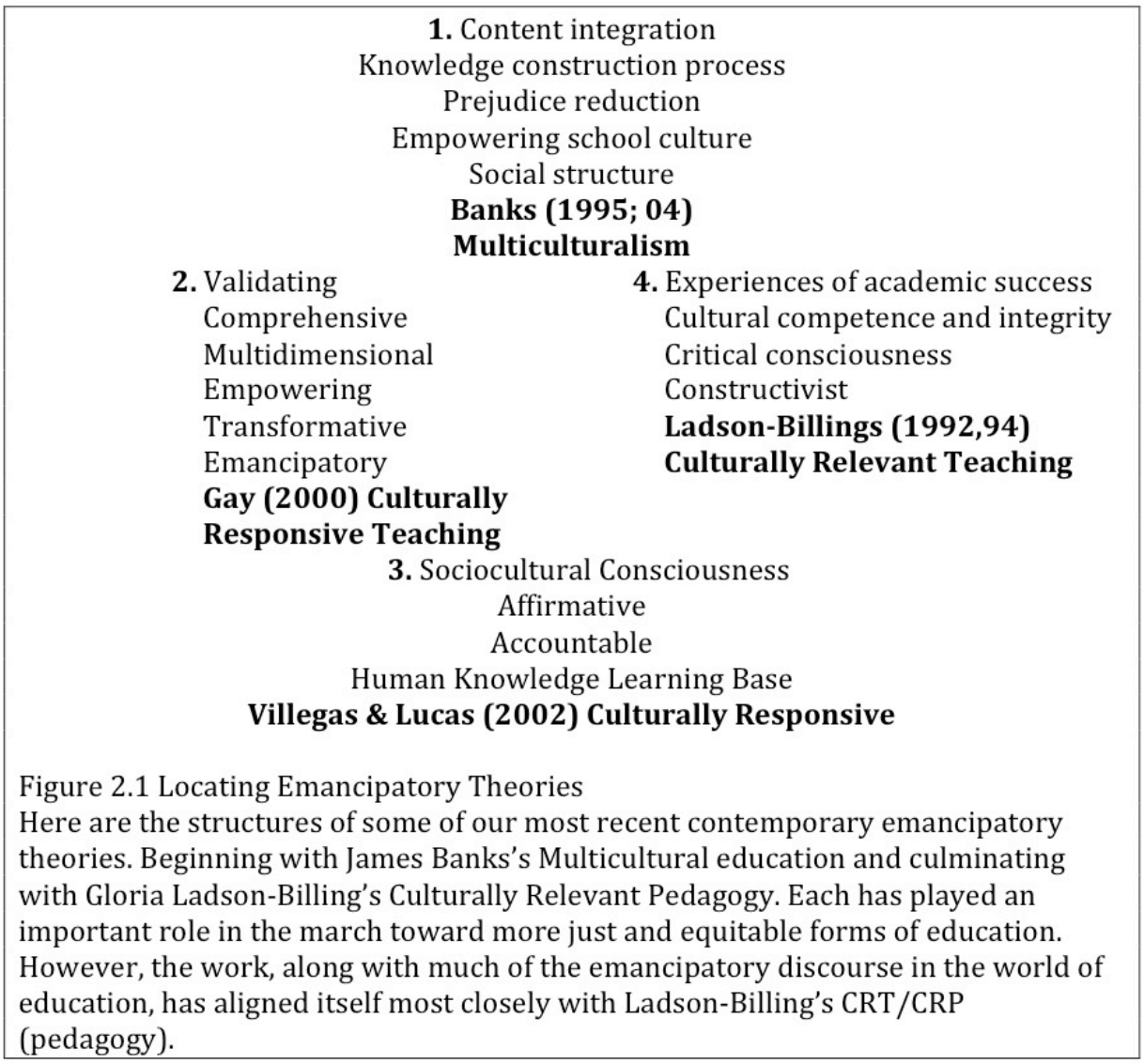


Figure 2.1 Locating Emancipatory Theories
Here are the structures of some of our most recent contemporary emancipatory theories. Beginning with James Banks's Multicultural education and culminating with Gloria Ladson-Billing's Culturally Relevant Pedagogy. Each has played an important role in the march toward more just and equitable forms of education. However, the work, along with much of the emancipatory discourse in the world of education, has aligned itself most closely with Ladson-Billing's CRT/CRP (pedagogy).

Culturally Relevant Analysis of Mathematics Learning and Teaching

These ideas about culturally relevant practice have also travelled into mathematics education, a field in which many scholars want to know why mainstream mathematics education reforms have continually failed at creating mathematics success in African American learners. The answer is complex, especially when including the racial, cultural, social and gender context. In this section of the review I consider – again, in broad brushstrokes – their major insights on mathematics so as to create a backdrop for this study.

Danny B. Martin (2007) suggests that our standards for what is best for whom are born of color-blind research that has not considered the implication of racial, social, historical, nor community context. In a study that examined the mathematics success and failure of African American youth, Martin explored how varying numbers of African American students, parents, and community members made sense of their mathematical experiences, became socialized, and developed particular kinds of mathematical identities post high school. He used a multilevel framework composed of four themes to make sense of their experiences and subsequent identities: sociohistorical, community, school, and agency. The socio-historical level examined the differential treatment participants received in mathematics-related contexts. The community level examined their beliefs, relationships with school officials and teachers, and their expectations for children and of instructional strategies. The school level theme examined institutional agency and school-based support systems, teachers' curricular goals and content decisions, their beliefs about student abilities and motivation to learn, as well as their beliefs about African American parents and communities. This level also examined student culture and achievement norMrs. The fourth theme -- agency -- was mathematics-content focused. Here Martin examined the African American students' personal identities and goals; their perceptions of school climate, peers, and teachers; their beliefs about mathematical abilities and their motivation to learn; their beliefs about the instrumental importance of mathematics knowledge; and their beliefs about differential treatment from peers.

Martin's findings were numerous. Most compelling was the degree to which race figured into his participants' beliefs and perceptions about mathematics and their mathematical identities. For example, he found that community beliefs about "mathematics and the legacy of denied opportunity and differential treatment in mathematics contexts is a potent and viable

factor that operates to inform and affect the day to day lives of many African American adults" (p. 4). For example, one of Martin's interviewees responded to a question that asked him if and how his experiences affected his educational motivation and commitment, he responded,

> Yes, those things did affect my schooling…Because I saw that I was going to eventually be a laborer someplace, you know. I could see those jobs out there. I could see what aptitude and what kind of personality was required to do what was made available to me. But I didn't pursue any more sophisticated means of employment simply because I wasn't encouraged that the opportunity was there. So, I only indulged myself in my studies to the degree that I was satisfied that I could do math up to multiplication and division of fractions and decimals, and that was good enough for me for what I was going to do. I wasn't going to be doing any math. (p. 6)

NaĺIah Nasir (2008) studied African American male students who played basketball and attended the same southern California public school. She explored their thinking and learning across contexts that included school, discovering that the young men -- who expressed apprehensions and anxiety about performing classroom mathematical tasks -- when presented with similar, -- and in some cases the very same -- problem in a basketball or dominoes, solved the problem easily. Nasir determined that students could think in complex ways about averages and percentages, but did not apply that complex thinking to the school versions of problems involving the same concepts. She theorized that this was because of the belonging and identification these students felt with the other participants in these out-of-school contexts.

Just as in Martin's (2000) study, Nasir argued that there were certain psychosocial beliefs that needed to be addressed if African American students are to be more successful in mathematics. She argued that successful "participation in the out-of-school context was

organized to support key psychosocial issues, such as belonging and identification; and [that] learning in them was scaffolded in multiple ways by expert participants" (p. 530). She also explores and discusses the potential implications for classroom learning that can foster the success of a wider range of students, including marginalized students like those in her study.

In her findings, Nasir (2008) is in agreement with Ladson-Billings' (1997) claim for the need for culturally relevant practices that support what students already do very well, e.g. rhythm, verve, movement (Ladson-Billings, 1997; 2006). That is, students would be more likely to identify with and feel as though they belonged to a mathematics that builds on what they already do well. Nasir argues for four kinds of ways to develop the belonging and identification: "fostering respectful relationships; making mistakes acceptable; giving learners defined roles; and offering learners ways to participate that incorporate aspects of themselves" (p. 530).

Another scholar taking a culturally responsive approach in mathematics is Vivian Moody (2004). Moody examined the role of socio-cultural orientations in the mathematical experiences of two African American students. Using a phenomenological approach, Moody studied the students' life histories, seeking to understand how their sociocultural orientation actually influenced their mathematical success, placing special emphasis on the students' perceptions of and responses to mathematical experiences in mathematics classrooms. Her results suggest that African American students do not perceive and respond to schooling in the same way. Significant here was Moody's commitment to avoid essentialism. That is, she found that "the ways in which African American students view (a) membership in particular cultures, (b) caring educators, and (c) role models influence their mathematics success" in ways that do not fit one specific mode or model (Moody, 2004, p. 135).

Nonetheless, Moody's overall finding is that "African American students' beliefs about

who can learn or do mathematics are influenced by who they have seen learning or doing mathematics" (p. 145). This idea connects well with Nasir's (2008) idea of belongingness and identification in that the "who" determines belongingness and identity. However, in a mathematics classroom culture in which "cultural portrayals of the mathematically adept are White males with horn-rimmed glasses and plastic pocket protectors" (Ladson-Billings, 1997, p. 699), Moody's suggestion of more role models may be an unlikely scenario for the near future. Gay's (1983) argument, and its consonance with Moody's research and most culturally relevant literature is more likely: "Without some understanding of ethnic heritages, values, priorities, and perspectives it is impossible for teachers to interact most constructively with ethnic students, or relate subject matter content and schooling processes to their experiential and cultural frames of reference" (p. 81).

In another study, Ben-Yehuda, Lavy, Linchevsky, and Sfard (2005) studied two mathematically challenged students, both 11th graders, and both in a special vocational school for students with histories of maladjustment and distinct leaning difficulties. Using interview (communicational approach) Ben-Yehuda et al explored what had been the journey these, obviously otherwise "normal" girls, had taken to end up with such low mathematics abilities. They found that certain language practices early on had severely hindered the learning of these two girls. For instance, the girls were called LD (learning disability). As well, they had certain meta rules that they use that were incorrect. Through analyses of classroom discourse, the researchers determined that certain kinds of arithmetical discourse bar or enable students' access to mathematics, and that the exclusion of students' social cultural context – of learning as central to the learning process could have disastrous effects on their ability to succeed at mathematics. Based on their results, the researchers made two claims:

> Almost any person may become a skillful participant of arithmetical discourse, provided, first, that a discursive mode is found that makes the best of this person's special strengths – [that is, success occurs when] in the process of teaching, the general sociocultural context of learning is taken into account as having a central role in enabling or barring one's access to literate discourses; Second: [I]f the potential for successful participation remains often unrealized, it is mainly because of certain widely practiced abuses of literate mathematical discourse. (p. 219)

Consider Mira, one of the study's participants, who had few difficulties in mathematics until the 4th grade, where she began to struggle with multiplication. She explained, "I lost the way…I did want to know how to do it…Sometimes I can do things and succeed. But when I have to think hard, I give up" (p. 177). The teacher's description of Mira to the researchers was that she was "the weakest student" in her class, who clearly did not have "much chance," and that any effort on the researcher's part to perform arithmetic with Mira would be "a waste of time" (p. 178). Talli, another student in the same class, displayed the same kinds of difficulties with mathematics as Mira, but was described by the teacher as someone "with genuine potential." Both young women had been subject to terrible early-life experiences, e.g. Mira was sexually assaulted at the age of 7. And yet, time and time again, Talli displayed positive sociocultural attributes, and high expectations for herself regarding mathematics. The researchers go on to argue that the difference in teachers' perceptions of the students' abilities and engagement, led to profound differences in the kinds of discourse they were subjected to and, subsequently, to differences in what they were able to learn. They conclude that Mira's failure in mathematics had much to do with her being entangled in "a vicious cycle of low expectations and poor performance," both of which fed back into her acceptance of "other people's stories

[such as her teacher's] about her" (p. 217).

Ben-Yehuda et al.'s findings connecting failure to low expectations and subpar discourse, fit well with Nasir's (2008) suggestions for countering failure: create situations where students feel they belong and can identify. Ben-Yehuda et al.'s findings also confirm Moody's claim that role models are important to mathematics success. If only Mira could have found an expert (Nasir, 2008) who she could identify with, or a teacher with some understanding of her sociocultural and historical experiences (Gay, 1983; Ladson-Billings, 1997) and how they might relate to the mathematics content and instruction she experienced.

Eric Gutstein's (2005) argues for reading the world with mathematics. His claim is that when students are helped to draw connections between the problem solving aspects of mathematics to the oppressive "problems" within their lives, the mathematics becomes meaningful. Not ordinarily considered a culturally relevant theorist, Gutstein's earlier work with Lipman, Hernandez, and de los Reyes (Gutstein et al., 1997) involved studying teachers as they participated in a school change project located in a low-income Mexican American community. Gutstein et al examined the interaction of culturally relevant instruction with mathematics instruction. The aim was to know two things: If when mainstream reform mathematics instruction (NCTM) and culturally relevant teaching were combined (a) what relational factors, or potential relational factors between the two resulted? (b) And, to understand the ways in which teachers were using the culture of students in the mathematics contexts. They used interview, observations, meetings, and participant journals, to explore the question. The first question explored beliefs and educational practices related to—

- the role of culture in curriculum and pedagogy;
- notions of cultural competence, bilingualism, and biculturalism;

• perspectives on families and community;

• relationship of students viewing knowledge critically to their role in society;

• conceptions of knowledge and the role of the teacher in knowledge construction.

Their findings were that "*potential* relationship between the NCTM *Standards* documents and culturally relevant teaching involves thinking critically about knowledge and the world and building on children's informal knowledge and experience." They added that these relationships between CRT and Standards documents are not linked without conscious effort (p. 717). I move on here instead of spending time on Gutstein et al's second question whose findings were that the teachers were using Mexican culture to engage with the NCTM documents in innovative ways that required knowledge about and commitment to change. Essentially, the teachers in their study were slowly but surely "going native."

Gutstein et al (1997) claimed that the National Council of Mathematics Teachers (NCTM) standards (1989, 1991, 1995) and CRT scholars seek to: (a) foster critical mathematical thinking/consciousness; (b) build on students' informal mathematical knowledge and their cultural knowledge; and (c) promote empowerment orientations to students' culture and experience, rather than deficit orientation (p. 710). Although such findings are encouraging, it is interesting to note that since Gutstein study in 1997, NCTM has received praise for its work in this direction (Gutstein, 2005, 2007), and criticism for it lack of support of work exploring similar research (Martin, 2007; Moody, 2004).

Gutstein et al's (1997) study was particularly salient to this review because of the attention it gave to the how there are reform efforts that support the academic success of students of color, and what teachers could do to remedy such situations. Using a cognitive science approach to study selected teachers who met the criteria of culturally relevant pedagogy, in a

school that was predominantly (ninety-nine percent) Latina/o, Gutstein et al work provides critical insights and encouragement.

In addition to their insights on the role of NCTM in CRT, the researchers learned that the teachers had very distinct beliefs that they put into practice, and that they made connections between mathematics teaching and social activism. In particular, they found that: (1) "the teachers were explicit in terms of their philosophies, (2) the teachers were explicit about the relationships between teaching mathematics and producing leaders among students from a marginalized group, (3) the teachers steadily help prepare children to be leaders of their people and society" (p. 732) - all of which is in alignment with Ladson-Billings' (1994) notion that, " "teachers … need to help arm African American children [i.e., marginalized peoples] with the knowledge, skills, and attitude needed to struggle successfully against oppression" (p. 139). The explicitness Gutstein et al. found in these teachers is also in alignment with Delpit's (1988; 2009) claim that explicitness is a trademark of African American teaching practices, and is a key method of providing students with codes of power needed to gain access into particular discourses of power. Moreover, Gutstein et al. found that the teachers' explicitness was culturally coded – again, an idea consonant with Delpit's (1988) argument.

Lawrence M. Clark, Toya Jones Frank, and Julius Davis (2013) focused on the limited attention given to the specific work, role, and experiences of African American mathematics teachers in mainstream mathematics education research and discourse. They challenged readers to consider the African American mathematics teacher as a "conceptual entity that embodies characteristics, practices, and dispositions that are potentially meaningful for students, particularly African American students, in ways that support students' capacity to participate and perform within the racialized contexts of mathematics education, the broader schooling

experience, and broader society" (p. 11).

The authors make two assertions about the African American teacher. First, they assert that the African American mathematics teacher is a "a boundary spanner[9] with membership in multiple communities – a mathematically proficient and intellectually powerful African American person within a historically disempowered African American community with a history of inaccessibility to and underperformance in mathematics" (p. 1). The second assertion is that the African American mathematics teacher, "through various implicit and explicit means and micro-interactions…has the potential to engage in liberatory mathematics pedagogy, a pedagogy that serves to dismantle racialized hierarchies of mathematics ability" (p. 1). They support both of these assertions with educational history (e.g., Anderson, 1988; Darling-Hammond, 2007; Ehrlich & Feldman, 1978; Douglas, 2005; Fairclough, 2007; Foster, 1997; Gould, 1996), and mathematics history (e.g., Donoghue, 2003; Garrett & Davis, 2003; Klein, 2003; Martin, 2000; 2006).

The authors provide the reader with two very thick vignettes that focus on African American teachers in a mathematics context as a way of showing some concrete ways in which to interrogate and challenge the paucity of research on African American teachers in mainstream mathematics education discourse, and why. Through these vignettes, they encourage researchers to continue the process of further conceptualizing the African American mathematics teacher as an entity within the field of mathematics education. In the end, their argument problematizes the notion that all teachers are cut from the same cloth, as well as recognizing the historical challenges of the African American student in the racialized domain of American education – and in mathematics education, more specifically.

Discussion

This brief review of the literature concerning culturally relevant teaching more generally and culturally relevant mathematics learning and teaching literature in particular, highlights an enduring interest among a growing number of scholars in the role that race and culture play in teaching and learning.

That said, much scholarship in mathematics education research remains color- and race-blind.

Culturally relevant theory aids this endeavor in two major ways. The first is its requirement that research should connect the African American teacher to a tradition and history of teaching (Asante, 1991; Clark et al, 2013; Douglas, 2005; Garrett & Davis, 2003; King, 1991). Joyce King (1991) points to the value of attaching history when she explains how, "an alternative view of history often reveals hidden social interests in the curriculum and unmasks a political and cultural role of schooling of which many prospective teachers (mostly White) are often completely unaware" (p. 141). It is well accepted by now that teachers and teacher educators who lack knowledge of this history and forms of pedagogy and counter-knowledge connected to it, also lack the ability to "challenge their students internalized ideologies and subjective identities" (p. 136) as they concern "difference" – thereby reproducing the disconnect between students of color and their European American teachers (Ladson-Billings, 2000, p. 208).

The second strength added by culturally relevant literature is that it requires the construction of the African American teacher as a concept (generated by cultural ideals), an explanatory device if you will. That is, to understand the African American teacher, one must explicitly engage her or his cultural experiences in and outside of the classroom. This includes her or his narrative [identity] (Martin, 2000; Sfard, 2005), ideas and beliefs of what constitutes

meaningful mathematics problems (Clark et al, 2013; Martin, 2000; Moses, 2002; Nasir, 2008; Skovsmose), her or his aesthetic (Conklin, 1970; hooks, hooks, 1995; Ladson-Billings, 1997; Sinclair, 2001), and her or his dispositions in the classroom (Chazan, Brantlinger, Clark, & Edwards, 2013; Ladson-Billings, 2000; Villegas & Lucas, 2002).

But there are limitations to the culturally relevant approach as well. The first is that culturally relevant theory does not fully conceptualize, or provide the cosmology for, what is African American, or what is race. For instance, although the race of Ladson-Billings' (1994) teachers and students are identified, her analysis, findings, and recommendations in *Dreamkeepers*, are mostly loosely tied to the historicity of African American teaching. In other words, the African American theory proposed in her work might be disputed as some ordinary Weltanschauung if a specific disciplinary matrix [set of scientific/historical habits] (Kuhn, 1970, p. 182)] is not identified as the root of its logic (Mazama, 2003). Gay (2000), and Villegas' and Lucas' (2002) work suffer the same handicap.

Admittedly, the conceptualization of the nature and aesthetic of the African American tradition of teaching has grown immensely since 1992, when Ladson-Billings first proposed her culturally relevant teaching theory. For instance, critical race theory has, in some ways moved the discourse toward a greater realization of a disciplinary matrix in that many of its concerns are not just with African American interests, but also with the larger continuum of Africana diasporic interests, and how they might "converge" with the greater Western paradigm (Bassey, 2007; Leonardo, 2005; Milner, 2008). However, Africalogy -- with African social, cultural, and historical experience as its ultimate reference point for epistemological, axiological, ontological and cosmological interpretation -- has provided a conceptual basis through which a fully operational scientific paradigm is realized, allowing for the conceptualization of African

phenomenon, such as the African American teacher (Mazama, 2003). Indeed, any analysis that neglects traditional perspective and its ability to illuminate axiological, and epistemological contingencies can only partially be depended upon to capture the essence of "concept" (Eckberg & Hill, 1980).

Another weakness in the culturally relevant literature is that it its beginning (Anderson, 1988; Fairclough, 2007; hooks, 1990). It is impossible to conceptualize successful teaching in an African American context without giving great consideration to this crucial fact? From the mid-1800s up until the 1970s – when she was being systematically fired from teaching (Fairclough, 2007; Irving, 1988; Ladson-Billings, 2004; Toppo, 2004) – the African American woman had been the predominate figure in the teaching of African American children (Fairclough, 2007; Gilkes, 2000; hooks, 1994). Moreover, given the challenges African Americans faced during reconstruction and Jim Crow, her ability to transfer the seeds of literacy and liberation was astoundingly successful (Clark et al., 2013). However, culturally relevant teaching theory has given scant attention to this historical fact. The research reported here aims to redress that fact.

A third weakness is that many culturally relevant theorists have not fully centered Africalogical epistemology into their work, but continue to center Eurocentric epistemological frames (e.g., achievement gap, constructivism, teacher-centered, at risk, math standard for "all", etc.). These Eurocentric frames are often constructed on racially biased, or color-blind structural and cognitive designs (Martin, 2007, 2008; Scheurich, 1997). They often enjoy the status of "standard," or may have become "normalized" approaches for certain kinds of research endeavors (Martin, 2007, 2008, 2009; Scheurich, 1997; Skovsmose, 2005; Watkins, 2001). Scheurich identifies "positivism, postpositivisms, neo-realisms, interpretivisms, constructivisms, the critical tradition, postmodernisms, and poststructuralisms as all racially biased"

epistemologies (p. 4). But, when Christine Sleeter (2001) examined the preparation of teacher's for underserved populations, the epistemic frameworks she used were "positivism, phenomenology, narrative research, and emancipatory (Marxist)" (Cochran-Smith, Davis, & Fries, 2004, p. 943). Similarly, when Gutstein (2006), examined issues of gentrification, racial profiling, and the disproportions in political boundaries while teaching mathematics in an underserved school, he relied on the Eurocentric epistemology of critical theory. Although critical theory is often used to unpack non-White phenomena, its neo-Marxist and racist epistemological origins in the Frankfurt School of Germany are often conveniently ignored. The celebrated sociological methods of scholars like Marx, Marcuse, Fromm, Horkheimer, and other European scholars hardly ever, if at all, engaged centuries of pervasive racism against Blacks. That is, while these lines of thought were disruptive, they were still solidly within the White and western tradition. Certainly, any central authority given to these Euro-epistemological frames when attempting to understand and interpret the axiology, ontology, or psychology of African Americans, or their phenomena, should be questioned on the premise that the structure of a discipline, though hidden, informs us of the "restricted chunk of the world studied [and not studied]" (Schwab, p. 238), and the viability of its principles in yielding understanding and insight (Asante, 2009; Oyebade, 1990).

Simply put, much can be gained by sharing the epistemological center with African American and other traditionally marginalized American people. Unfortunately, only a small amount of research exploring non-dominant group educational phenomena from non-dominant perspectives exists. The perspectives of Black women (e.g. Black feminism, womanism, Africana womanism) on African American children is amazing – but I have to travel to the psychology department, or wait for suggestions from my psychology friend because there race

theory – with its storytelling, and revisionist stance, etc.). This work seeks to add to an already rich culturally relevant discourse, that here and there incorporates Africalogical epistemic theory – as when Ladson-Billings (1995) centered Patricia Hill Collins' (1991) four Black feminist propositions to ground her work. This work adds to this Sankofic principle – reaching back (in) to go forward – not necessarily dismissing Eurocentric epistemologies, but certainly centering Africalogical ones.

CHAPTER 3

THEORETICAL FRAMEWORK

> Ideas do originate with individuals, and, to the extent that the ideas are expressed and resonate with the organic realities of the people, they become dominating ideas. (Asante, 1996, pp. 529-530)

An Africalogical theoretical framework largely guided this dissertation. As mentioned earlier, Africalogy is defined as work that centers the scholarship of scholars whose primary logic places the values, interests, and perspectives of African people at center. It does not exclude the viewpoints of other scholarship, but rather locates their relevance with respect to their proximity to African American logos, ethos, and pathos. Much of the early work in culturally relevant theory was also based in Africalogical theory. For example, Gloria Ladson-Billings (1990, 1994, 1995) explicitly employed Africalogical canons in her landmark study of successful teachers of African American children. Hence, this work also employs culturally relevant theoretical precepts as well. Some other areas used are African aesthetics, and Black feminist work – both of which fall under the umbrella of Africalogy.

Africalogy

Africalogy, in its most fundamental expression, is the scholar's assuming the right and the responsibility to describe reality according to the values, interests, and perspectives reflective of African experience according to African people. However, African experience and diversity is broad, and so to guard against diffusion, arbitrariness and misrepresentation, Africalogy delineates a specific theoretical framework. That is, this work employs an Africalogical "disciplinary matrix" (Kuhn, 1970) if you will. This matrix describes the consensual beliefs of a self-contained community that is committed to the liberation of African people. Molefi Asante (1987, 1990) developed the Afrocentric matrix. It communicates a framework that is continually

added to and improved upon by members of the Africalogical community (Conyers, 2004; Karenga, 2003; Mazama, 2003; Oyebade, 1990; Reviere, 2001; Sefa Dei, 1994; Tate, 1995). As the underlying logic of this study it serves as the logic of analysis used to verify or falsify the theoretical propositions (discussed later) of this work.

Asante (1990) initially identified grounding, orientation, and perspective as the foundational principals of the disciplinary matrix of Africalogy. That is, these three principles are thought to represent the clearest guide to the shared commitments around which members claiming to be Afrocentric can find irrefutable consensus. Grounding is understood as the necessity for Africalogical inquiry to be grounded in the experiences of African community. It is a commitment to a perspective that confirms and is confirmed by community: the ultimate arbiter of verification – an method shared with naturalistic research (Guba and Lincoln, 1982). This commitment to "groundedness" is not an essentialist pledge to an unmoving, non-fluid Africanity, but rather an acknowledgement that there are certain characteristics that identify specific contours unmistakably African. Asante (2003) asserts that, "These are not immutable characteristics in the sense of being inborn, but rather the fundamental outlines of what we regard and preserve as characteristic of our society" (p. 45). In the end, this groundedness moves Africalogy from the fringes of educational discourse by grounding the logic of its inquiry into the dynamical time/space continuum of African community.

Orientation, the second principle in the Africalogical matrix, requires a center that is germane to the historical context of African experience. That is, the scholar/researcher act from a center that fundamentally rejects the notion of a "general disembodied [from historical context] knowledge" (Dubois, 1975). We believe that everything has an orientation, a history "location." Karenga (2003) states,

> There is no real substitute for an embodied knowledge, a knowledge rooted in and reflective of the concrete situation of the student starting from what they know to teach them and assist their learning what they do not know. (p. 80)

Hence, nothing is treated as neutral in this work – in this work, everything is treated as an extension of some ideological base.

Perspective, the third principle of this disciplinary matrix, refers to "who I am" in the inquiry (Reviere, 2001). It is a way of seeing and naming the word that reflects African-best interest. African best interests is believed to be the product of a perspective grounded in a consciousness of the need to raise awareness of one's and others location/place/center (in multiple discourses) in ways that permit the personal and collective agency/liberation/equity of African people. As such, there is a willingness to grapple with and look through the complexly rich historical, social, cultural, political, philosophical, scientific, and spiritual kaleidoscope of African experience.

Important to the three principles that make up the Africalogical matrix is the assumption of African/African American cultural unity. This work, in the tradition of Africalogical theory, rejects the notion that suggests Africans of the Diaspora divest themselves of a cultural unity that holds volumes of their epic historical past. This seems only logical when the same divestiture of cultural unit is not required or expected of other racial groups (e.g., Latinas, Jews, etc.). For the Africalogist, embracing cultural unity is in effect a way of honoring African ancestry and African victory (Asante, 1994; Diop, 1990; Maquet, 1972; Smitherman, 2007). We believe this cultural unity does in no way interfere with the surface cultural uniqueness developed as a result of intra-African and/or non-African interaction (Conyers, 2004; Maquet, 1972, Thompson, 1983). In the end, Africalogy holds that cultural unity is not a claim of immutability, but rather

groundedness in foundations that have for millennia supported, empowered, enriched, and maintained diverse African culture as a distinct entity among many. Hence, this work generalizes its findings to the fullest spectrum of African Americans found in American classrooms, be they of from different Diaspora, class, or gender (e.g., Afro-Haitians, Jamaicans, poor, working class, or elite, male or female).

Aesthetics

In African culture, all art is functional, including the art of teaching children, which ultimately must lay itself bare to criticisms of its aesthetic qualities. The common African Aesthetic (Welsh-Asante, 2003), or Africo-aesthetic is a complexity of human behavior, things, events, and ideas extending across time and space, and beyond polar-like descriptions such as beautiful vs. ugly, good vs. evil. Welsh-Asante (2003), an authority in the field of Africalogical aesthetics, defines the Africo-aesthetic as,

> (T)hat which draws upon the history, mythology, motif and creative ethos of a group of people by virtue of its reflection of the images and symbols of its own group. The African aesthetic is responsible for an art that resembles, mirrors and echoes the creative ethos of a specific or general African people. An aesthetic that manifests history, mythology and values will transcend time, geography and boundaries, and evidence itself in both surface and deep structure realities…an aesthetic defines and establishes culturally consistent elements and then enthrones standards based on the best historical and artistic examples. (pp. 239)

Given that one of the primary purposes of education/school is to socialize the learner to reflect society's norms, a theory of an aesthetic that represents "surface and deep realities" based in the history and culture of those being studied (Welsh-Asante, 2003) should appear ideal. And

yet, in America's dominant White social and institutional culture (aesthetics), which includes schools, the white aesthetic is largely hegemonic (King, 2005; Kozol, 2005; Martin, 2008, 2009; Ore, 2006; Powell, 2002). That is, the purpose of education, so imbalanced, has not, and cannot socialize African American learners to be "beautiful" (e.g. socially productive). For example, one perception of the aesthetic held by the Euro-dominant discourse on aesthetics is that it is an innately human sensibility that operates as a meaning making apparatus (Dissankye, 1992; Wilson, 1998). Another dominant view argues that the aesthetics is a sensation of pleasure, discerning patterns based upon what heightens one's joy (Pinker, 1997). In the field of mathematics, many scholars have theorized that the aesthetic is perhaps a moral apparatus, motivating, guiding, or helping in the kinds of choices we make when solving problems (Davis & Hersh, 1981; Tymoczko, 1993). Natalie Sinclair (2001) has argued for more attention to the environment as an aesthetic potentiate. She argues that, "rich learning environments enable children to wonder, to notice, to imagine alternatives, to appreciate contingencies, and to experience pleasure and pride" (p. 26). I do not wish to diminish the value of these theories, as they all clearly present important pathways to explore. However, what they all lack is a sensitivity to the idea that what they have offered as "innate," "sensations," "moral," and "environmental," all have their origins in the architectonics of culture (Ben-Yehuda, Lavi, Linchevski, & Sfard, 2005; Bishop, 1991, 2010; Joseph, 2000; Ladson-Billings, 2000; Tate, 1994).

The general consensus among many scholars is that the authentic aesthetic will change according to what is historical and what is cultural (Gerdes, 1999; Welsh-Asante, 2003; Thompson, 1983). For example, a teaching standard defined by those who have experienced abject racial discrimination will differ in definition from the teaching standard of those who have

not experienced abject racial discrimination. That is, what is deemed worthy of being enthroned, as a standard of practice, will certainly have some contours and motifs that are distinctly different from the dominant according to cultural and historical experience.

Hence, "imagining alternatives" (Sinclair, 2001, p. 26), the lens of this study embraces what is aesthetic according to the history of the subject/case of this study (e.g. family, community, art, intellect, struggle, rhythm, etc.). Thus, the Africo-aesthetic constantly informs and directs observations and analysis. That is, elements that reflect the greatest and most deeply rooted of all Africo-aesthetics: liberation from inequity (Asante, 1990), are made central to the overall logic of the study. Connecting such elements to a mathematics practice is essential to uncovering models of success particularly for teachers of African children and African American children themselves.

Black Feminist Thought and Mothering

Halfway through the initial analyses of data there was a clear sense that the Africo-aesthetic in this teacher's classroom was closely tied to the work of African American women within African American community. This necessitated an investigation of African American women-centric logic (e.g., values, interests, and perspectives). Although Black feminist thought, along with Africana feminist, Africana womanist, and womanist thought "encompasses diverse and contradictory meanings" (Collins, 1991, p. 19), in general, they all highlight Black women's active struggle against racist, sexist, and classist oppression, especially as these oppressions intersect in the lives of African American women. However, "An oppressed group's experiences may put its members in a position to see things differently, but their lack of control over the ideological apparatuses of society makes expressing a self-defined standpoint more difficult" (p. 25). Thus, this work chose Black feminist thought as its primary guide for better understanding

the aesthetic within the practices of the African American teacher of this work.

Black feminist thought is a forging of the individual, unarticulated expressions and experiences of every day African American women into a collectively articulated body of knowledge – e.g. "standpoints" (Collins, 1991; Gilkes, 2000). Collins (1991) asserts, Black feminist thought is a body of,

> Specialized knowledge created by African-American women that clarifies a standpoint of and for Black women. In other words, Black feminist thought encompasses theoretical interpretations of Black women's reality by those who live it. (p. 31)

One major expression of Black feminist thought has been its theory on mothering. Because of the long-standing need for African American women to stand in (e.g., slavery) for displaced mothers, and because of the historical African tradition of othermothering, defined as, "accepting responsibility for the well-being of children who are not one's own blood-children, in an arrangement that may or may not be formal," (James, 1993, p. 45)), mothering and othermothering is deemed a large part of how Black feminist theory makes sense of the work of Black women. That is, African American women historically use their motherhood as a generator of social activism, and as a site of power[10]. This site of power is understood as – "a generalized ethic of care where Black women feel accountable to all the Black communities' children" (Collins, 1991, p. 49), which holds huge implications for how we understand the classroom practices of successful African American women. In addition to these mothers using their motherhood as site for generating social activism, the motherwork tradition of African

[10] Bell hooks (1990) connect the notion of a site of power with her idea of "homeplace," remarking, "a site (of power is) where one could freely confront the issue of humanization, restoring to ourselves the dignity denied to us on the outside in the public world" (p. 42).

American women is also matrifocal. This means that motherwork does not occur within the confines of a nuclear family and there is little to no strict sex role segregation (Collins, 1991). That is, it is just as likely that an African American mother will be found othermothering other women, othermothering communities, othermothering fellow employees, othermothering other children, as it is likely that she would be mothering her own blood children. It follows then that the relevant aesthetic within the historically and culturally relevant African American aesthetic would be the African American woman aesthetic.

The research I present here views African American motherwork as an unexamined elephant in the mathematics classroom. The conceptual framework used to represent this elephant is largely Africalogical, meaning that it centers the logics, values, interests, and perspectives of African people. The conceptual framework also borrows from culturally relevant theory, which arguably, is situated within the Africalogical paradigm. Culturally relevant theory provides, albeit indirectly, pedagogical theory that directly lends to a proper understanding of the teaching practices of African American women teachers. Hence, both Africalogy through the theoretical arm of Black feminism, and culturally relevant theory provided a set of concise themes through which to properly determine or falsify African American mothering (and African American mothering funk – described later) in this practice (see Table 3.1).

There are three African American mothering themes: protection, empowerment, and the preservation of the cultural bearing of children (Collins, 1990, 2000; James, 1993; O'Reilly, 2004). Table 3.1 describes each by presenting a short description and a list of keywords, or aspects, that are consonant with African American mothering culture and literature. For example, within the othermothering theme of protection are aspects of praise, scolding, but also the concern with the child developing an ability to think aloud (communicate). The presence or

absence of these themes and their attendant aspects are the confirmation or falsification of the presence of African American mothering in this mathematics teaching practice. Observations, interviews of the case, focus interviews of students, and classroom artifacts, were all made subject to the themes in Table 3.1.

Table 3.1 African American Mothering Themes

Protection	Empowerment	Preservation of Cultural Bearing
To instill or demonstrate whatever is necessary to insure the mind, body, and soul of African American children is protected from all forms of mental, physical, social, emotional, political, or spiritual oppression	To instill or demonstrate the legitimate right of African American children to be what they or their community has dreamed possible, on an individual, collective, structural, and civilizational levels	To instill or demonstrate the importance of using what is indigenous to African/African American culture
Keywords: praise, scold, think out loud, simplify (explicit), resist, self-reliance, resilient-struggle, readiness (hope), committed relationship, rhythm, balance, anti-individualism, anti-racism, anti-sexism, anti-oppression, importance of group, othermothering, hyper-vigilant about protection, community as survival, spirit	**Keywords:** analysis, organization, naming as control, envisioning, identifying, solving, challenge, activism, restoring, constructing new knowing onto old knowing, gathering knowledge, using choice, valuing the symbolic, critical consciousness, African literacies (e.g. gesture), experimenting, reliance on group, discovering, effective communication, community as power	**Keywords:** "history [e.g. motherline[1]]; religion/ spirituality/ethics; social organization; economic organization; political organization; creative production (art, music, literature, etc.) and ethos: (collective self-consciousness achieved as a result of activity in the other six areas)" (Karenga IMDiversity, 2012), [Social organization = integrity, authority, ownership, values, responsibility, harmony, self-determination, "homeplace," hypervigilance about preservation, identity, community as culture, voice, old knowledge, Ubuntu, ownership]

Note. "Hyper-vigilance" is an ever-present critical consciousness about one's status within an oppressive social construct (hooks, 2003). "Motherline": When one, especially a woman (or girl) comes to understand her/his life story as a component of the larger Africana mothering narrative and gains the power of female authority as a result (Lowinsky, 1992). "Homeplace" is a place/space created by African American mothers where African American people can restore to themselves the dignity and respect attacked on the outside; comfortable within their own skins, resisting the onslaught of white supremism (hooks, 1990).

Funk

African American mothering themes, like any other public practice whose integrity is valued, are protected by certain customary practices. Within the African American community, funk is thought to be a major measure by which the integrity of cultural motifs is protected. Morrison (1994) defines it as one's "cultural bearing…" and as the "funkiness of passion," the "funkiness of nature," and the funkiness of a wide range of emotions" (p. 68). Diaz (2007) defines it as "the truth of a person's heritage and self" (p. 26) - "the presence and absence of the 'ancient properties…that alters the Black maternal space" (p. 10). Thompson links African American funk with Africa's long cultural history of "coolness." However, Boykin's (1983) definition brings together much of what these other scholars have identified as funk. He presents eight integral dimensions through which African American cultural integrity can be determined: does it have a spiritual presence, does it operate in harmony with the culture of its origin, is there movement, is there sass/verve, does it move members (affect) of the culture of its origin, does it have expressive individualism, does it have an oral component, and does it have social time perspective? That is, is it responsible to what is happening in the present? In the interest of time, this work utilizes four of Boykin's key concepts to define what is meant by funk in this paper. The four aspects borrowed from Boykin (1983) and used in this work to identify the presence of funk are: affect, movement, communality, and orality.

When my grandmother spoke of the lynching of her dad in Georgia, saying, "It laid on me heavy," the funk present in here story was indisputable. Her slight rocking and steady gaze into an invisible portal was all the *movement* needed to convey the *affect* that her *story* was not a past event for her (social time perspective). When she broke her stare and took time to look into the eyes of everyone present, it connected everyone into a *community* expected to hold the story

and her father's dignity until it was restored. The use of the funkiness can be seen in scholarly work as well. For example, the African American teachers in Delpit's (1988), Hale-Benson (2001); Ladson-Billings (1995), and Tate's (1995) studies expressed themselves in ways that conveyed passion/affect, communality, movement, orality/story. Delpit found that passion was such a major part of the African American teacher's practice that European American teacher's mistook it as authoritarianism. However, when African American students were questioned about these "authoritarian" teachers, they identified them as their favorites. Ladson-Billings (1995) explains that there is a mutual understanding between the two that passionate communication is an expression of care for the well-being of the student who must contend with an unequal and inequitable society.

Looking, for example, at the concept of movement, this study is concerned mostly with gesture even though movement has a range that encompasses spirit, social movement, and even intersects with other funks to produce, for example, the oracular movements of poets like James Baldwin, Nikki Giovanni, Lauren Hill, and KRS One. The gesture most generally identified as characteristic of African American women/mothers is the narrowed focus here, and African American women focused literature provides a rich resource. For instance, Toni Morrison 1989, Zora Neale Hurston, Alice Walker, and Mary Helen Washington (1979), and others have duly captured an agreed upon profile of the movement of African American women as well as other aspects of her funk. We know from the literature that the movement of African American women movement is soft, gentle, but also sometimes hard when faced with struggle, as seen in Harriet Tubman, Fannie Lou Hammer, and in Morrison's Sula. Her movements are rhythmical as with Pearl Bailey's dance or Gwendolyn Brooks' We Real Cool. Her hands are regularly lifted in praised of God, often as she dances with praise on her lips. She communicates entire paragraphs

with facial expressions, emotions, and rhythmized body movements that speak. Her movements are often circumductive, meaning circular movements of her arms, legs, head and or hips – these circumductive movements are pervasive throughout African American women's culture. The pervasiveness indicates an implied inclusion of the whole (Welsh-Asante, 1997; Gunn, 2006), and yet "these traditional movements [especially the gyrations] and rhythms are widely interpreted within dominant culture as [lewd] rude…" (Richardson, 2002, p, 693-694). She often lays her hands on children conveying community, running her fingers through their hair. Clearly, movement, affect, the communal, and orality all intersect, sometimes simultaneously, but how shall we conceive of their ability to establish integrity? Although "Features of African American cultural expression [that] include rhythm, orality, communalism…are neither reinforced nor represented in school mathematics" (Ladson-Billings, 1997, p. 700), even in the 21st century (Clark, Frank, & Davis, 2013; Delpit, 2012; Nasir, 2006; Powell, 2002), research must continue to unveil their presence (Ladson-Billings & Tate, 2006). Hence, this work, using the concept of identity, as developed by Anna Sfard and Anna Prusak (2005), uses the presence of funk as an identifier.

Sfard and Prusak's (2005) notion of identity as an outgrowth of narrative suggest that the African American canon of literature, and African American research and scholarship offer the most definitive identification of the presence or absence of African American mothering in the mathematics classroom. They argue that identifying a person/group can be accomplished by identifying a "collections of stories about [them]." More specifically, the identity of a group is embedded in "the narratives about individuals [groups] that are reifying, endorsable, and significant" (p. 16). For example, they explain,

First person stories that the storyteller[s] addresses to ones-self [themselves - members

> sharing the same experiences, (Collins, 2000; Martin, 2000)].., being a part of [their own] ongoing conversation with [themselves], the first-person self-told identities are likely to have the most immediate impact on [a peoples] actions. (p. 17)

Because the predominant identity ethos in African American culture resembles the Ubuntu[11] concept of "I am because we are," I have replaced Sfard and Prusak's singular and individual-based language (pronouns, etc.) with group and community-based language. However, I employ their general idea, and look for proof of funk in the established African American cultural aesthetic encapsulated in the narratives of African American women's literature and scholarship, and in the voices of our people.

Putting the Pieces Together

To summarize, this theoretical framework uses a combination of Africalogical and culturally relevant perspective, particularly in its manifestation as Black feminist theory, to conceptualize a framework for what occurs in the successful mathematics teaching practices of an African American women teaching a classroom full of African American children. What we have discussed up to this point is capture in Figure 3.1.

[11] Ubuntu is a concept nearly pervasive throughout Africa. It calls upon the individual to recognize her or his dependence on the collective "we." Translated, the word Ubuntu literally means: I have significance because we exist.

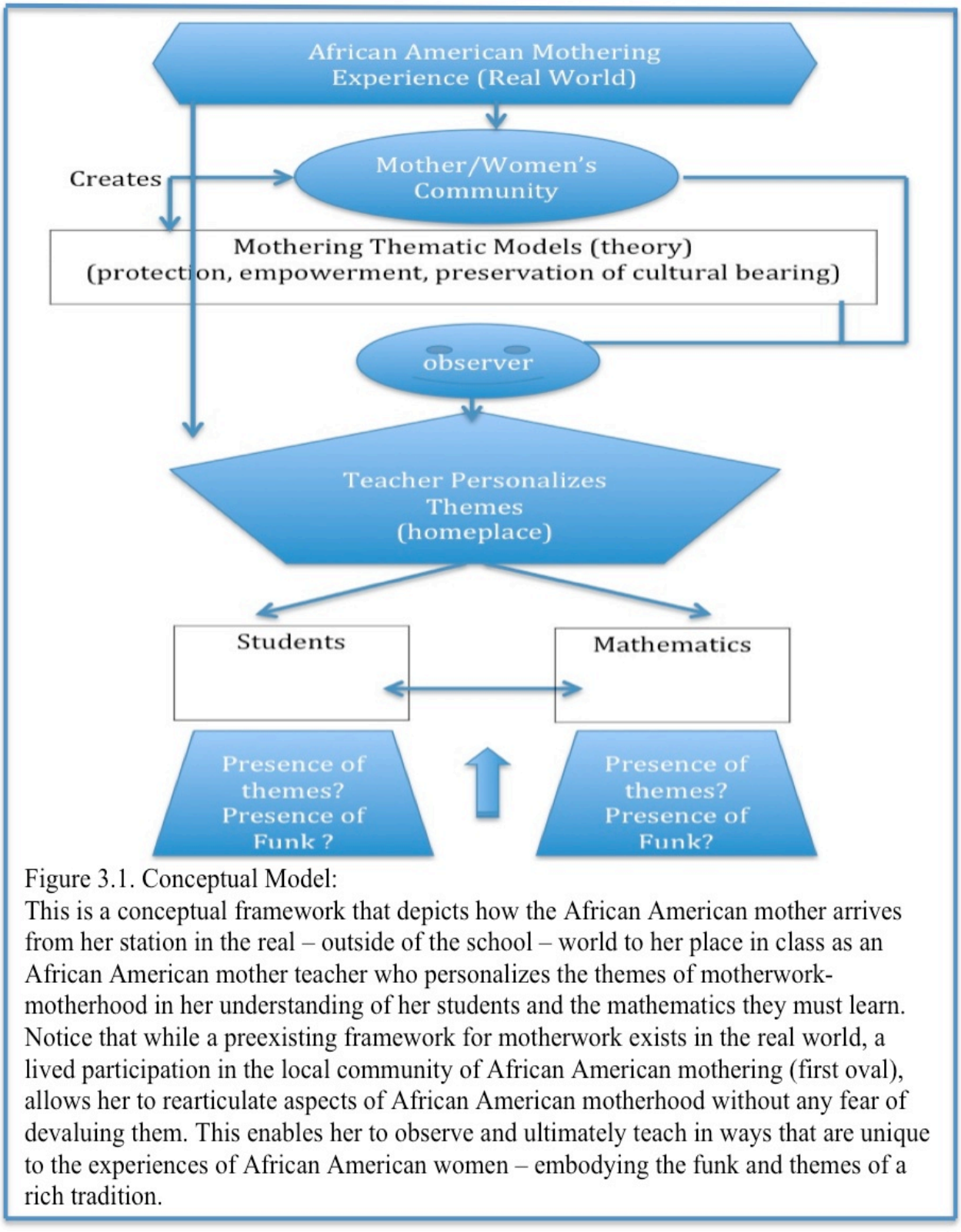


Figure 3.1. Conceptual Model:
This is a conceptual framework that depicts how the African American mother arrives from her station in the real – outside of the school – world to her place in class as an African American mother teacher who personalizes the themes of motherwork-motherhood in her understanding of her students and the mathematics they must learn. Notice that while a preexisting framework for motherwork exists in the real world, a lived participation in the local community of African American mothering (first oval), allows her to rearticulate aspects of African American motherhood without any fear of devaluing them. This enables her to observe and ultimately teach in ways that are unique to the experiences of African American women – embodying the funk and themes of a rich tradition.

African American Mother in the Real World and in School as Concept

Accepting the African American teacher as concept means first understanding that her mothering practices and teaching practices developed quite uniquely within the American context. Indeed, the nuclear family context was not an option for more than 300 years, a situation that provoked the conglomeration of mothering with multiple other tasks. For instance, the African American mother as slave was not given time to mother outside of her duties as a slave. Needing to mother her children, she mitigated this dilemma by bringing her children into her work, and her work to her children. That is, mothering never stopped. And, although formal education began for most Americans in the later years of the 19th century, it would evolve very differently for the African American teacher and student. With very little Federal monies allotted for African American education or the development of African American teachers, some home, or some church where women usually operated and taught in the Sunday schools, became the school (Anderson, 1988; Tyack, 1974). With only this, it is possible to see that the African American teacher remains an undertheorized phenomenon in education. However, what we do know about her historical journey provides incredible insights.

The conceptualization of the African American female teacher is greatly aided by Suizzo, Robinson and Pahlke's (2007) argument for several distinguishing experiences. They argue that she has navigated a terrain of harsh racial socialization. Also, they argue that she has attained educational achievement for herself and her children at phenomenal cost, and given that education her own meaning. Lastly, they argue that she has established, even within a world indifferent to the needs of Black women and Black children (O'Reilly, 2004), spaces wherein her children have access to both interdependent and independent spaces – what hooks (1990) refers to as a homeplace. Add to this Clark, Jones, and Davis (2013) assertions that the Black teacher –

who we now know has been predominantly female – "is a boundary spanner with membership in multiple communities - a mathematically proficient and intellectually powerful African American person within a historically disempowered African American community, with a history of inaccessibility to and underperformance in mathematics" (p. 1). As well, she has, "through various implicit and explicit means and micro-interactions…the potential to engage in liberatory mathematics pedagogy, a pedagogy that serves to dismantle racialized hierarchies of mathematics ability" (pp. 1-2).

Others have built upon this notion of the African American women as concept. Andrea O'Reilly (2004), in her study of Toni Morrison's canon of African American mother-centric fiction, argues for a distinct African American tradition of motherhood. She contends that the reality of this tradition is what has made possible the physical and psychological well-being and empowerment of African American people and African American culture. From her study of Morrison's work she has gathered that, conceptually, African American mothers: are othermother and community mothers; are social activist whose station as mothers is recognized in the African American community as a site of power; are matrifocal (having multiple roles – not nuclear); provide nurturance as resistance (to oppression) and; are cultural bearers.

Clearly, these conceptual frames show the African American woman's identity as unique among American women identities. The option of living in a nuclear family is a great example of her uniqueness in that most other American women were confined to their homes as housewives up until the Woman's Liberation Movement of the 60s and 70s. In addition to this, most all other American women knew their children were protected by, and not in danger of, the law, nor did they have to work to help support their families. For most other American women, there was no nationalized and generational campaign that sought to diminish and stereotype their womanhood

to all other Americans as unwomanly, rough, sex-filled, evil, and unkempt, (Collins, 2000).

Her role as teacher had to endure many of the entrapments and defamations of character. Fairclough (2007) places them in "a class of their own," arguing that their survival will one day be recognized as one of the greatest of human accomplishments.

Hence, Figure 3.1 is useful in that it presents a conceptual framework that considers the African American teacher in her/his very unique historical context. Such a context exposes the potential harm done in trying to examine the practice of African American teachers using anything less than cognitive, metaphysical, and exemplar structures rooted in epistemology that considers our "social and cultural experience as the ultimate reference" (Mazama, 2003). The first stage of the framework (Figure 3.1) presents the African American women as a human who has arrived with her mothering experiences. O'Reilly (2004) agrees with Morrison that motherhood is the pinnacle of existence for the Black woman. Unlike the White feminist who despised her motherhood as a barrier to her societal success (O'Reilly, 2004), the African American woman has viewed her motherhood as a gift from God. This is important to the concept because we are able to see that even as a young Black girl, she longs for the day when she can mother children somewhere, somehow. Moreover, she has never been able to afford setting these real world experiences, nor her motherhood aside, for real world oppression has always stood at the door, ready and willing to gobble up her children. This concept suggests that, the African American female mathematics teacher will likely have experiences that she is unable to separate from her pedagogy.

The second step in the conceptual framework is community. That is, when real world experiences negatively or positively impact individuals who belong to a (racial) group, that group actively (activist) responds accordingly. For example, African American children have not

been served well in American schools since African American teachers were fired in the tens of thousand during the 1960s and 1970s (Fairclough, 2007; Ladson-Billings, 2004; Toppo, 2004). Many have argued that they have been actively disserved (Kozol, 2005), especially by the successive mathematics reform movements over the last 30 years (Martin, 2007, 2008, 2009). And yet, despite the fact that African American students consistently perform as America's lowest performing students in mathematics (NCES, 2012) within a discourse that remains resistant to the topic of race, and that African American teachers continued to be "gaslighted," (Roberts and Carter-Andrews, 2013), there is research evidence that successful teachers of African American learners teach about community, and they do it within a racial context (Carter, 2008; Ladson-Billings, 1994; Ladson-Billings & Tate, 2005; Martin, 2000; Tate, 1994). This part of the conceptual framework is important because it suggests that the African American teacher has community-backing, and will likely teach from this stance when opportunity arises. That is, the African American mother carries community and its struggles, with her into the community – and perhaps more importantly, into the third level of the framework, her workplace: the classroom.

According to the conceptual framework, the intersection of real world and community experiences has a determinative effect on how the teacher personalizes the themes. This personalization is the generation of funk. Funk is experienced as a real world experience, the reflexively impacts community, pedagogy and content. Hence, exploring funk may reveal insights about better teacher preparation for the mathematics in predominantly African American classrooms, or other historically under-served students. In essence, teachers helped to see how their interests might converge with those of the community in which they teach, could gain personal access to the themes in ways that produce funk (authenticity) in their practices.

CHAPTER 4

METHODOLOGY

The aim of this chapter is to describe and justify this study's methodological choices. It begins with a desciption of the study's paticipants, and a description of the selection process. A timetable schedule for the study is provided. This timetable is followed by a review of the case – a successful teacher's practice in a non-typical successful context. The case is important to describing the subject of this study – the look of the teacher's practice. A general overview of the study's approach, and a detailed description of the process used to collect relevant data follow, as well as a description of the case rationale. Thereafter a description of the analytical procedures used to draw certain conclusions, and a concluding discussion of the variable of "fair interpretation" follows. That is, I will discuss how I ascertained if any personal obstacles stood in the way of a fair interpretation of the data.

Participants

The goal in selecting a mathematics teacher for this study was to identify someone whose teaching practice was characterized by several important criteria recognized as normative by culturally relevant theorists (Delpit, 1988; Gay, 2000; Ladson-Billings, 1995; Lucas & Villegas, 2003). The first criterion was that she had to have a sustained record of mathematics success. She needed to teach in a classroom that was predominantly Black and predominantly social-economically depressed. She also had to have a cultural disposition that was sensitive towards the social, economic, cultural, and political realities of the community in which taught. Mrs. Thande (a pseudonym), the teacher of this teaching practice, met all of these criteria.

The student focus group had to meet several criteria that reflected descriptions of urban-based, inner-city group students offered by many culturally relevant theorists. The focus group

had to be a mostly gender-balanced group. This group was composed of three girls and three boys. The group had to have a mixture of high performing, medium performing, and low-performing students. This group had two of each of these. The group had to be predominantly African American and Latino, with a minority of European American students. Because there were no Latina/os in this classroom, the group had five African Americans and one White American female.

The focal group students also had to be a reflection of the conditions in their community. Inner city Detroit has long suffered the ravages of systemic inequity. Of the six students, four of their parents identified their family status as "financially strapped," "struggling," "makin' it," and "just okay." One parent identified herself as middle-class, and one parent identified as "unsure" of her status. She noted that she and her husband, a security guard at a local company, along with their three young children, knew how to get the most out their collective 48 thousand dollars a year. Although she was unclear about her social-economic status, the state ranks them about the poverty line. Although the focus group was interviewed four times, the entire class was observed.

I selected Mrs. Thande's 5th grade mathematics teaching practice at Dubois Bethune Middle and Elementary for all the reasons mentioned above, but also for several other reasons. First, she provided an opportunity to witness and document what it looks like when a successful African American mathematics teacher teaches in a predominantly African American classroom. As discussed in earlier chapters, this has rarely been a topic of discussion or research in education (Foster, 1994), and is a topic that is totally absent in mathematics education research – with the exception of a few non-peer-reviewed articles. This paucity is a startling fact to consider given the National Center for Education Statistics' (NCES, 2012) finding that African American

woman are the largest minority group of teachers in the country (7 percent as of 2008). The paucity of research on African American women teachers is also startling given that the number of minority Black students has skyrocketed in recent years. Pisko (2002) and NCES (2003) found that in the year 2000, African Americans students represented more than 40 percent of the New York City Public School population, and that they are the predominant racial group in Washington D.C schools, and the predominant 4th graders in Atlanta.

A second reason for selecting Mrs. Thande coincides with the fact that African American women had, up until the 1970s, been the predominant teachers of African American children (Toppo, 2005). This provided an opportunity to verify or falsify the popular theory among African-centered scholars - African American women's' tradition of mothering is a historic, and historical, pervasive in African American culture (Collins, 2000; O'Reilly, 2004). That is, is this mathematic teaching practice devoid of African American mothering practices?

A the third reason for selecting this case concerns the possibility that, if mothering was shown to exist in this successful mathematics teaching practice, different insights might also emerge into what constitutes highly qualified mathematics teaching. It turned out that multiple insights emerged. One was that African American mothering and mathematics teaching practice interfaced effortlessly. For example, African American cultural narratives, along with African American language (Ebonics) often pushed problem-solving tasks in ways uniquely different from what is typically understood as "best practice." One example of this will be seen in a transcript to follow when Mrs. Thande comes to the realization that her students are unable to work together to solve a fractions world problem that she feels they should be able to solve. She interrupts them abruptly: "Okay little people, strategy one: We multiply the numerators and denominators straight across. How do we simplify 12/32?" A few students attempt to respond,

but she interrupts them, “Uhn uhn, don’t interrupt when I am asking rhetorical questions.” Speaking quickly and clearly, and stepping in reverse down the center aisle toward the projector screen. Then pointing at the numerator and denominator, Mrs. Thande explains: “We must find the greatest common factor. What’s the biggest number 12 and 32 have in common? And it is four. Twelve divided by *four* (emphasis added) is three, 32 divided by *four* (emphasis added) is eight. Our answer is…three eighths.” The tone, the rhythm, the speed, the “little people” remark, and even the quick admonishment of “Uhn uhn, don’t interrupt me,” were all culturally nuanced behaviors that communicated that she was not to happy with her students, but also that they needed to have their antennae up because she would expect them to know how to solve for a similar problem after she was done. The whole encounter gives new meaning to the NCTM (2000) Process Standard of communication, where adding authoritative cadence to one’s speech, along with coolness such as smoothly walking backward, and some familiar interjections could gather students attention, and need to think more deeply about the problem. In the end, it was clear that, although Mrs. Thande used the Addison and Wesley mathematics textbook, it was by no means an accurate indicator of what her practice entailed or looked like. Her culturally germane demonstrations were mother-centric; gestural, rhythmic, movement infused, and tonal – all “significant,” and “endorsable” narratives (Sfard, 2005, pp. 16-17), in the sense that her aesthetic choices were not borrowed, and are well represented in mother-centric literature.

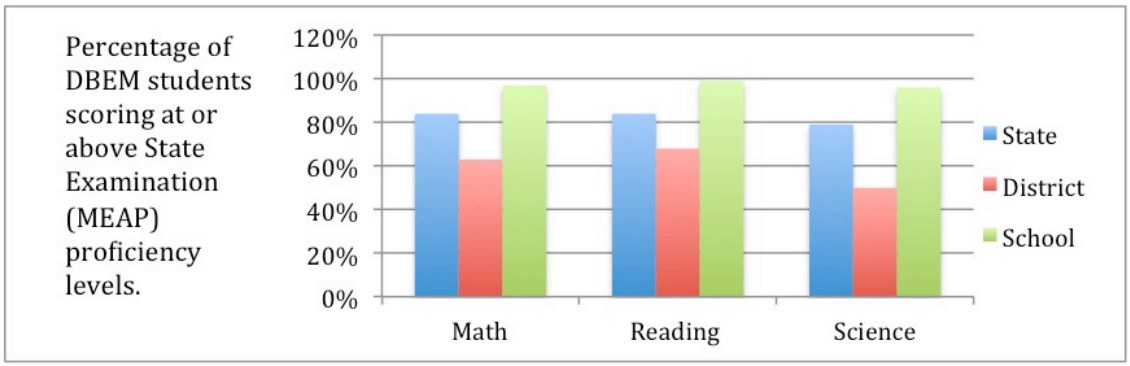
Setting:

Dubois Bethune Elementary and Middle School

Founded in 1981 by parents, Dubois Bethune Elementary and Middle School (I will refer to it as Dubois for the remainder of the study) provides educational opportunities for inner city gifted and talented children. The school has since become nationally recognized as a high

performance school (NCES, 2009), with students continually scoring above state and local proficiency standards, in all subjects (Table 4.1). However, the vast majority of these students could be any student from the "hood," according to teachers; exposed to a kind of care in the classroom, they excel to levels of "giftedness." Dubois emphasizes effective instruction of diverse learners in subject matter knowledge ahead of their grade level; and in accordance with Michigan Progress Reporting (APR), and federal measures of Adequate Yearly Progress (AYP), the school has met and exceeded state and federal guidelines since NCLB's passage.

Table 4.1 DBEM's Michigan Education Assessment Program (MEAP) test scores, 2009-2010.



The majority of DBEM's students and teachers are African American (see Table 4.2). They arrive mainly from within the city of Detroit - a predominantly African American city. A handful of Africans or first generation African Americans (Nigeria, Ghana, Ethiopian, Haiti, and Jamaican) students, along with approximately two European American students, one Afro-Hispanic student, and 14 Asian Pacific students make up its diversity.

The School and Students

Dubois Bethune Elementary and Middle School (BDEM), an urban school in the state of Michigan, was founded as a school for gifted and talented children in 1981. Since then it has undergone many important transformations. For instance, it began as an obscure, and hardly known inner city school and has become a nationally recognized inner city school.

The school tests remarkably well on the Michigan Education Assessment Program, the state's large-scale assessment system. It is also located within one of this country's most economically depressed cities and yet it ranks 187th out of 809 middle schools in Michigan. The school's physical structures and grounds are sound and attractive. Though its students arrive from a varied social economic strata, forty one percent of them receive free lunches, and three percent receive reduced lunches. The school's student-to-teacher ratio is listed as 26.7, although I counted over 30 students in every class that I visited, including the research classroom that had 33 students, with no teacher's aide. As is shown in Table 4.2, there was a 60 percent rise in the number of economically disadvantaged students at BDEM between the years 2006 and 2010 (with a subsequent rise in disciplinary incidents involving students), and yet the school's atmosphere has remained one that is more than conducive to learning, with students showing a high level of respect for their teachers and fellow students. The school has maintained an academic ethos that continues to produce excellence.

Table 4.2 2006-2010 DBEM MEAP Scores by Demographics

	2006-07 # / Z%	2007-08 # / Z%	2008-09 # / Z%	2009-10 # / Z%
Gender				
Male	319/95.2	322/91.9	344/93.8	330/97.4
Female	504/95.4	508/92.3	493/95.6	512/95.9
Ethnicity				
(1) African American not of Hispanic Origin	799/95.2	812/91.8	820/95	828/96.5
(2) American Indian/Alaskan Native	0/0	0/0	0/0	1/100
(3) Asian Pacific Islander	14/100	12/95.2	14/94.1	11/95.0
(4) Hispanic	5/100	2/100	1/60.0	0/0
(5) White, not of Hispanic Origin	5/100	4/94.7	2/100	2/100
Special Groups				
Economically Disadvantaged	194/95.7	218/91.6	307/91.4	312/96.5

Note. The symbol # refers to the number of students within a particular demographic, and Z% refers to the standard overall MEAP score of that demographic e.g., $z = x\text{-}\mu/\sigma$

In Table 4.2, the students at BDEM are represented. These students are predominantly African American, as are the teachers. Only two European American students and one Afro-Hispanic student attend BDEM. One of the European American students is also a focus group student. Of the 14 Asian Pacific Islanders, the largest minority group at the school, seven were Indian (East India), two were Pakistani, two were Korean, two were Philippinos, and one was Chinese.

Despite achieving well above state averages, BDEM's has many challenges. The school regularly faces the possibility of being closed. Even though its accomplishments speak to its ability to produce success in African American children, DBEM is not eligible to receive federal funding. Its students, teachers, administrators, and parents constantly engaged in fundraising

activities – fundraising activities that make it possible for DBEM to purchased needed supplies, as well as keep its doors open.

The school uses varied strategies to preserve its programming. For instance, it fosters ancestral pride as a strategy. Just inside the font entrance hangs a life size portrait of Coleman Young – Detroit's first black mayor. He wears a penetrating stare, a summer white suit, a slightly tilted, off-white Stetson hat, a pair of circular silver spectacles, and an air of coolness that would make Shaft raise an eyebrow. Although he faces an audience in the portrait, he has turned away from them slightly to look at students entering the building – perhaps inviting them to become a part of the discussion of their future. Mayor Coleman Young's history in Detroit is one of fearlessness in the face of white racial hegemony. Even for me, the portrait was a daily reminder of the possibilities of overcoming. It became my daily habit to greet Mayor Coleman Young upon entering the building – "Good morning, Sir."

Cultural integrity and honor seemed also a part of the schools programming – hidden curriculum. This programming was most noticeable to me through the roles elders had at the school. A woman of maybe 75-80 years of age often sits at the school's main entrance. Obviously she is too old to be on the payroll, but apparently a willing volunteer. On one occasion students were tugging and pushing at the front entrance. She reached across the entrance with her wooden cane and said in a loud voice, "Heyyyy, what yall dun' lost yawl's natural mindses." Everyone froze. Staring down at the group with a stern continence, she raised her cane to point over at mayor Coleman: "Don't come up in here with that." With her bottom lip tucked in and her brow furrowed, she looked at them for an additional few short moments, before nodding at them to proceed. With only a few words, the subsequent silence of the students clearly

demonstrated their honor for the voice of this elder, and she clearly communicated her value for cultural integrity when she pointed to the portrait of Coleman Young.

There are other ways in which DBEM seems structured to preserve an African-centered aesthetic. For example, hanging in the middle of the main hallway is an oversize black banner that reads: "Excellence Belongs to Us." The banner invokes community, an African aesthetic, through its use of the word "us." It also signifies[12] a preeminent greatness in its suggestion that the natural place for excellence is with us. This preservation of the African Aesthetic can also be seen on the walls, where in the main office there is a large bay window that looks out from the main office. Teachers and administrators use this bay window as a portal through which to praise and affirm students. On one occasion, I observed Mrs. Thande look up to see Rashad, a former student of hers, passing by. She said in a loud voice, "There he is, ladies and gentlemen, Mr. Rashad, On-top-of-his-bidness, Turner." Rashad smiled from ear-to-ear as he walked steadily to his next destination. This practice of lifting students up is so common that loud voices in the office are assumed to be speaking to a child on the other side of the window.

Community could also be seen in the actions of teachers. Once while escorting Mrs. Thande's students back to their classroom (from the library), I could hear Mrs. Quinton through her opened door, scolding one of her students. "Oh, obviously you think I am responsible for keeping you in line. That's what you think, but I got news for you, Mister." She looked out her door and gave a tender smile toward my group and me. "I have better things to do with my time than to keep looking over at you," she said as she turned back into her classroom – not shutting the door, but inviting us to listen to her chastisement. "You know what…stand up and recite the

[12] It is a practice in African-American culture involving a verbal strategy of indirection that exploits the gap between the denotative and figurative meanings of words (http://en.wikipedia.org/wiki/Signifyin', 2012).

school pledge" (see Figure 4.1). As a group, we paused that we could listen to her. When the student arrived at the line in the pledge that as: "I am responsible for my behavior," he stumbled over his words. Before he could even attempt a recovery, Mrs. Quinton was all over him. "Aha,"

Today I Pledge
To Be The Best Possible Me
I Believe That I Can Accomplish Anything I Want To Achieve
I Come To School Prepared To Learn
And Am Responsible For my Learning
I Will Listen To My Teacher
I Will Follow Directions
I Will Work Hard
I Will Succeed!
I Am Responsible For My Behavior
I Will Have A Positive Attitude,
I Will Respect Myself And Others
I Will Cooperate And Be A Good Friend
Today I Pledge To Believe In Me!

Figure 4.1: School Pledge

she said loudly, "that is your problem…you have not pledged yourself [to us] to responsible behavior." She continued on, and we continued onward. Many of Mrs. Thande's students recited the pledge as we returned to our classroom to see who could say it without interruption or pause – evidence of the communal nature of Mrs. Quinton's act. This pledge (Figure 4.1) was recited at all of Dubois Bethune's assemblies (e.g.. awards ceremonies). It always followed the Negro Anthem and the Pledge of Allegiance. A large copy of this pledge hangs in the hallway, and smaller versions can be found in various classrooms or on poster-boards outside of classrooMrs.

Community and culture is present in artistic displays of African/African American

history/cultural themes hanging throughout BDEM. Above the hallway lockers of one

	Adinkra Symbol	Akan Name	Meaning
1.		Nea onnim no sua a, ohu	He who does not know can know from learning
2.		Gye nyame	Except for God
3.		Sankofa	"Return and get it." It is yours to re-member. Reach back and perfect what is before you.
4.		Fihankra	This house keeps you, will never forsake you. Its safety is ever-abiding
5.		Funtunfunefu-denkyemfunefu "Siamese crocodiles"	Symbol of democracy and unity. The Siamese crocodiles share one stomach, yet they fight over food. A reminder that infighting and tribalism is harmful to all.
6.		Akoma ntoso	Symbol of understanding and agreement

Figure 4.2: Andinkra Symbols
The Andinkra symbols were adapted from The Andinkra Dictionary: A Visual Primer on the Language of Ghana's Andinkra (Willis, 1998). Students cut out, colored, and gave each Ghanaian symbol (approx. 30) a frame before posting them above the lockers in the school's hallways. The fact that they were Africa derived, and had African meaning that each of the students in the classroom learned, depicts growing familiarity with symbol, representation, and problem solving, but also distinctly added to the school's Afrocentric/African American cultural motif.

class hangs twenty-six 4x7 inch student hand-pain'ted Adinkra symbols on cloth squares. These symbols convey Ghanaian beliefs, and core tenets of African wisdom. This list (Figure 4.2) is only an abbreviated list of more than 30, and sometimes more, Andinkra symbols. On the issue of community, when I spoke with the teacher of the classroom that posted these symbols, she mentioned that prior to drawing the Andinkra symbols, most of her students had owned nothing that was connected to African culture. These changed this fact. The students presented their Andinkra symbols and their meaning to the whole school at a school assembly. The teacher reported that Andinkra skin tattoos drawn in ink, Andinkra drawings on desks, Andinkra markings on backpacks and notebooks, Andinkra graffiti in the restroom, and Andinkra symbols next to names on classroom work appeared. Such a full-throttled adoption of these symbols reflected, to me, a clear indication that community and culture, via a collective adoption of a historical motif, was present in the school.

Outside of other classrooms are other examples of community and culture preserved. From a poster-board of the African continent with tiny post-it notes identifying the natural resources each country produces, to posted photographs of students having fun at a recent trip to the science center, to posted photographs of students who collectively presented, during an assembly, the importance of sustaining their schools recycling program. There were also posted photographs of the school's Boy Scouts in full regalia, and of last year's Father-Daughter Day Dance promoting the community of family.

Research Questions and Theoretical Propositions

The questions that guided this work rest in the assumption that there is a "look" or aesthetic used by members of any culture when engaging others of the same culture. In this we sought to verify and falsify this assumption with regards to an African American women/mother

in a successful mathematics teaching practice, with students who are predominantly African American students, sharing in a "common culture" (Collins, 2000; Ladson-Billings, 2004; Martin, 2007). Research documenting the African American woman's presence and place within education reveals general patterns in this "look" as well as new knowledge on the significance of African American women's work (Collins, 2000; Foster, 1998; hooks, 1990, 2003). This research suggests uniqueness in African American women's culture and how that culture has shaped her work (Collins, 2000; O'Reilly, 2004). A major work for African American women over the last nearly 200 years has been the formal education of African American children. The work examines and explores evidence of a consequential aesthetic.

Additionally, my questions are guided by well-researched findings that show culture to have a profound impact on both the teaching and learning of mathematics (Ball, Goffney, & Bass, 2005; Chazan, Brantlinger, Clark, & Edwards, 2013; Clark, Frank, & Davis, 2013; Beauboef, 1999; Delpit, 2009; Greer, Swapna, Powell, & Nelson-Barber, 2009; Gutstein, 1997, 2005; Lipman, 1995; Ladson-Billings, 1997, 2009; Martin, 2000, 2007, 2008; Matthews, 2003; Moody, 2001, 2004; Nasir, 2006, 2008; Parks, 2012; Powell, 2002; Sfard, 2005; Stinson, 2006, Tate, 1995). Ladson-Billings (1994) noticed "Students' real-life experiences are legitimized as they become part of the 'official' curriculum" (p. 117). She, along with others, also found that, to the degree that these cultural experiences are brought into the classroom, African American students achieve. This was demonstrated quite well in her landmark study (1995) that showed how eight teachers using culturally relevant pedagogy were also successful in getting their African American students to achieve.

Hence, the main research question asks: "What is the look of an exemplary elementary mathematics teaching practice, taught by an African American female to African American

youth, that yields high academic performance? Some secondary questions used to help guide the work are:

- What kinds of teacher mannerisms confirm or falsify the presence of African American mothering themes?
- What patterns of "funk" (see chapter 3) emerge across this African American teacher's mathematical interactions with her students that move it beyond the cosmetic?
- How do the teacher's mannerisms look in conjunction with mathematics?
- To what extent do the patterns of manner/look connect with research on African American culture in mathematics education?

These questions rest on a set of theoretical propositions that provide a guide on where the answers to these questions might reside. According to Yin (2010), the theoretical proposition is the key to a successful case study in that they provide a hypothetical story about how the acts, events, and structure of the case (the teacher/practice – not dichotomous) are likely to look, and can be understood. These propositions have a particular sensitivity to the under-theorization and cosmetic treatment of culture, and particularly to the undertheorization of African American women's culture within mathematics education research.

Yin (2010) recommends purposely hypothesizing the absence of a phenomenon in order to rigorously and systematically examine the evidence. Thus, in this research, I hypothesize in opposition:

- Any successful teacher/practice of mathematics, teaching in a majority African American classroom context, likely avoids the mothering cultural norms of protecting, empowering, and preserving the cultural bearing of African American children.
- Any successful teacher of mathematics, teaching in a majority African American

classroom context, likely uses a form of pedagogy devoid of African American mothering "funk".

According to Yin (2010), if these theoretical propositions are verified, then we can continue to follow the prevalent culture neutral approach in much of mainstream mathematics education. However, if these theoretical propositions are "falsified" in the way the Karl Popper falsified the notion that black swans did not exist theory (Popper, 1959), then the look of the African American teacher becomes an arena for new research on mathematics teaching – not just as a call for more African American culture. If these propositions are falsified, we have a case for also narrowing the culturally relevant lens on examining the antecedent to achievement to look more specifically at African American women's practices for the ways in which they have historically brought the culture motherhood into their successful teaching practices.

Some further information on the significance of the theoretical proposition to case study is provided by Bent Flyvbjerg's (2006). He argues the idea that when "looking for critical cases, it is a good idea to look for either "most likely" or "least likely" cases. This idea was a major factor in my selection of the theoretical proposition as a tool/instrument of examination. Being a study of context-bound human affairs, the theoretical propositions, with its attention to human experiences, gave this study ample room to look for what the discourse implies is present – an absence of African American mothering culture. One does not have to look very hard or far to determine that mainstream mathematics education deems the African American female teacher as a non-factor. That is, mainstream mathematics education's discursive practice of totally ignoring the relevance of African American females 150 year history of successes and failures in teaching African American children (Fairclough, 2007) when attempting to theorize solutions to the so-called achievement gap in mathematics clearly shows a definite belief structure in

mainstream mathematics – African American women don't count. Given that such an belief is highly improbable, as we step outside of our cultural selves with great difficulty (Asante, 1990, p. 5), the theoretical propositions proposed present us with an instance of Flyvbjerg's "least likely case."

Data Collection

I collected data during May and June of 2009, returning to the school in the fall of 2009 to conduct another round of data collection from September through November. The 4th grade students, who were in Mrs. Thande's class in May of 2009, were the 5th graders in her class in September of 2009.

Consent

Before engaging in any observation of participants, each subject was required to read and sign an informed consent form (see Appendix A, B, C, D). The consent form for the teacher, focus group students, administrators, and parents or community members described (1) the general purpose of the study; (2) what each participant would do as a participant; (3) the length of the study; (4) what contributions to the knowledge of teaching mathematics the work hoped to make; (5) what the researcher would do (e.g., the general conduct of the study, including tri-weekly interviews); (6) potential risks and benefits of the study; (7) how the privacy and confidentiality of each participant would be insured; (8) each participant's right to participate, say no, or withdraw; (9) the absence of any compensation for participating; and finally (10) all contact information needed to contact the researcher for concerns or questions about the study, or to report an injury. The consent form further described to the subject how the collected data would be analyzed, stored, and used in the future.

Each participant received a signed copy of the consent form for his or her personal records. Approval from Michigan State University's Institutional Review Board (IRB) for the Protection of Human Subjects was obtained for this research project, and approval was granted prior to the start of the study.[13]

Focusing on One Class

Working sometimes as a unit with the teacher participant added Ujaamic tones, and insured the analysis what Guba and Lincoln refer to as certifiability. During the first three weeks of the study, I observed three separate classrooms of Mrs. Thande's, two 4th grade classrooms and one 5th grade classroom, Tuesday through Friday. I quickly noticed that Mrs. Thande was repeating, nearly verbatim, everything she taught in the first period. I decided that visiting one 4th grade class would provide a clear look at who the teacher was in the classroom. An added benefit of focusing on just one class was that these same 4th graders were the 5th graders I observed the following fall (2 ½ months later). That is, I saw Mrs. Thande teaching the same students in both the 4th and 5th grades. This provided a look at how she ended and began a curriculum. This was important because Ujaamic also means collective work and responsibility. Observing the beginning and end allowed me to see how the collectiveness of last year was re-engaged.

Another advantage of focused attention on one particular class (versus all of her classes) would make the data collection schedule less burdensome for both of us, most importantly preventing me from imposing too large a burden on her. Thus, I analyzed only the data collected in one 4th grade classroom (in the spring), that became a 5th grade classroom (in the fall). The other two classrooms that I observed at the very beginning of the study, were discontinued at the

[13] This approval is documented under the IRB protocol titled "When Mathematics Works in Black: A Case Study of Effective Mathematics Instruction for African-American Children," IRB #09-348/ APP# i032723.

end of the school year, but provided insights into how I might streamline the remainder of the analysis in the nine weeks of data collection the following fall. Thus I attained a characterization that took a focused looked at Mrs. Thande as she targeted one grade-level, and one class. Moreover, my engagement of the teacher as an agent in the analysis process made the process Ujamaaic, and certifiable.

Participant Observation

Following Africalogical principles, a primary aim of study was to insure that I did not separate myself from the participants. That is, not assuming oneself to be the well from which all-good and whole things flow, but accepting that worthy knowledge can also flow from the participant opens the researcher to an awareness and interpretation of the phenomena of the participant (Asante, 1995; Reviere, 2001). And so, I sought to maintain talk with various African American women, including my own African American mother, who is a teacher, about the subject of the African American woman teacher. Receiving regular feedback from these women was immensely helpful to this work.

This was especially true of my presence in the school. There, participant observation was the preferred approach used to study the comportment of Mrs. Thande. Understanding the look (e.g., ethos, mode, rhythm, mode, etc.) of Mrs. Thande's teaching within its natural setting and contextual conditions required that I make myself as much a part of the classroom as possible. I sat in the classroom with the students, raised my hand when I had questions. On occasion, I participated in praising or pushing student thinking when prompted by the teacher, and used the language (Ebonics and Standard English) most appropriate and germane to the context. I accompanied students to lunch and assemblies, and I sat with the teacher at lunch and in between classes.

The focus was primarily on contemporary events and the experiences of the teacher. Again, the theoretical propositions were helpful in guiding what I chose to pay attention to and observe. Unlike the experiment, which deliberately separates the phenomenon from its context, focusing on a number of variables, this work regarded contextual factors as seminal to the understanding of the phenomenon being investigated – all the while keeping the instructive remark of Flyvbjerg (2006) close in mind: "Predictive theories and universals cannot be found in the study of human affairs. Concrete, context-dependent knowledge is, therefore, more valuable than the vain search for predictive theories and universals" (p. 224).

Interviews

I conducted three semi-structured teacher interviews. Each was composed of approximately 16 questions. In the first interview, I sought to "locate" or situate Mrs. Thande as a text (Asante, 1990). According to Asante (1990), a text can be socially, culturally, politically, economically, etc., located or dislocated, all determined according to "certain symbolic boundaries and iconic signposts offered from the text itself" (p. 1). Location is determined when a text is in alignment with or in close proximity to the historical values, interests, and perspectives of the people with whom it interfaces. Dislocation occurs with this alignment and proximity is thin or does not exist. For instance, a teacher referring to the culture of her students as "thug culture," or to the language of her African American students as "poor language," or "bad speech," would signal a dislocated text, whereas the teacher using student culture and language as scaffolding to improve her teaching and her students learning with be identified as located text. The first interview inquired about Mrs. Thande's school experience, background, pedagogical stance, cultural disposition, social, economic, and political viewpoints, music preferences, and favorite authors.

Question in subsequent interviews built upon the ideas of the first interview. In the second interview Mrs. Thande was asked questions about classroom events, teaching practices observed, and her selection of math problems used in the classroom. This interview sought to know whether Mrs. Thande's classroom practices and her interview rhetoric (location) were synchronous. In the third interview, I asked questions similar to those in the second interview. These questions were more focused on finding out what she felt the children needed to do in particular instances observed in order to fulfill the lesson's purpose, or State learning objectives in mathematics. The focus on teacher praxis is one way in which to uncover what Morrison in O'Reilly (2004) refers to it as "funk." Hence, the proposition challenging the presence of funk in this successful teacher's mathematics teaching practices.

The interviews were carried out in a manner that ensured that each interview produced data useful to verifying or falsifying the propositions. Every interview was conducted in a quiet environment, free of distractions. Although I was the primary interviewer, I sometimes allowed Mrs. Thande to ask questions of me, and to propose ideas that she thought were relevant to understanding her practice. According to Guba & Lincoln (1981), such an approach allows for the critical confirmation of findings. As well, the interview often left the sanctity of the quiet space, occurring at times within the interstices of the day. The same is true of the focus group interviews. That is, there were times during a lesson when I had a question that needed to be answered, or when students or the teacher involved me in a questioning session. Such instances were logged as field notes.

A significant part of the data gathering process followed traditional rules. Interviews were recorded, and transcribed. Notes were also typed, filed electronically, and revisited as soon as possible after the event to ensure accuracy. Emerging issues were written, and where

appropriate, explored further. Data collection and analysis often proceeded in tandem. However, the element of subjectivity is unavoidable in any study of human behavior. It was welcomed in this study, as the traditional criteria of objectivity were not a standard for this work. The aim was for confirmability (Guba & Lincoln, 1981; Reviere, 2001), identifiable when the members of the group under study have qualified the findings. Guba & Lincoln argue that confirmability is a more rigorous method in that it does not assume that all persons can be objective in all environments, understanding all phenomenal equally.

Fieldnotes, Jottings, Audio Recording, and Classroom Artifacts

A major effort in the data collection process was collecting field notes, making spontaneous jottings, and gathering classroom artifacts. The shear number of field notes made it the most time consuming of all the different processes. They were collected in an ongoing manner: before class, in the hallways, and sometimes after class. For instance, when a visitor entered the classroom space, the classroom dynamic changed. And when the teacher or students ventured away from the lesson the classroom dynamic changed – all of which became field notes.

Jottings are thoughts or insights that came to mind as I observed the teacher and teaching practice, but also at other times. Jottings were written sometimes after watching or interviewing Mrs. Thande and her students. Thoughts leading to jottings sometimes arose long after the lesson, and well after school was over. These jottings were important, especially to the reflective component of this study, but also to how my regular observations were understood during the analysis phase of this work. Denzin and Lincoln (1982) have discussed this in detail, writing,

> Values influence decisions about what to study, how to study it, and what interpretations to make of the resulting data. The evidence for such influences is overwhelming (Bahm,

> 1971; Homans, 1978; Kelman, 1969; Krathwohl, 1980; Scriven, 1971), and most rationalists are willing to concede at least this point. Both rationalists and naturalists could agree, too, that values also enter into decisions on the part of respondents about such matters as what interpretations to make of requests for information and what responses to give (for example, whether open or guarded). (Pp. 242-243)

Notes were often the best evidence of classroom artifacts. Most of these artifacts could not be removed from the classroom. They were pin-up boards, where Mrs. Thande had posted examples of student's mathematics work, charts of mathematics algorithms taped to the wall, and charts depicting mathematics pictorial's showing how to find the area of a pyramid or the circumference of a circle. Other artifacts included non-math related flyers to parents and photographs of historical figures (e.g. Mary Bethune, Ronald McNair), hair brushes and combs used to comb heads that needed it, loaves of bread and Nutella to feed those who arrived hungry, and a radio to soothe the soul during or after stressful events. It was clear early on that this classroom could not spare physical artifacts.

Data Analysis

The primary strategy employed to determine whether the look of Mrs. Thande's practice verified or falsified the presence of African American mothering themes and of African American mothering funk is complex. It engages a continual process of countering the normative analytical practice of minimizing African ways of knowing (Asante, 1994). This involved looking first toward non-mainstream literature that theorizes African phenomena. Simultaneously it involved me resisting the learned impulse of writing in ways reflective of the dominant scholarly tradition (Ladson-Billings, 1994). The primary example of this is employing methodology that is distinctly different from mainstream methodology. This does not mean that

no dominant methodology is used, but rather that African-centered and Afrocentric methodology is the central methodology or logic for making sense of African phenomenon. Ladson-Billings (1994) employed the same approach when she adopted Patricia Collin's (1990) Afrocentric feminist approach in her study of successful teachers of African American students. She wrote, "(The dominant Eurocentric scholarly) tradition rejects my necessary subjectivity. Thus I chose to integrate my "scholarly" tools with knowledge of my culture and my personal experiences" (p. xi).

The Africalogical canon employed in this study was developed by Ruth Reviere (2001), and is based in Asante's (1990) Africalogical paradigm. Reviere conceptualized the methodological of the Africalogical as composed of five canons.

1. Grounded – in the experiences of the community being researched (Ukweli)
2. Committed – to rejecting the assumption of the need to avoid commitment to the objectives and outcomes of the research activity (Kujitoa)
3. Harmonious – avoiding creating, exaggerating, or sustaining divisions within or between communities, and striving to create harmonious relationship between and within groups (Utlivu)
4. Communal -- rejecting the analyst and subject separation, accepting the inspired interests of the community (Ujamaa)
5. Just/Equitable -- maintaining fairness to all participants (Uhaki). (Reviere, 2001, pp. 713-719)

When these methodological canons, and here methodological should be understood as distinctly different from method, are allowed to guide one's thinking, one can be certain of an un-hindered subjectivity, and of an approach that counters the normative analytical practice of minimizing

African ways of knowing. Ultimately, such an approach allows for verification or a falsification of the propositions in a way that is African centered, or as Karenga (1977) writes it,

> [S]tresses the critical and voluntaristic elements of socialism rather than the so-called "scientific objective logical" approach which denies the human person the dynamic center of history and change, and leaves it to Hegel's suprahistorical forces independent of the will of humans. p. 127

Emerging out of the complexity of the methodological, which is viewed here as the underlying philosophy, is the actual method. Juxtaposition was the primary method of determining whether the look of Mrs. Thande's practice shared traits with a long tradition of African American mothering. The tradition of mothering is complex, but this work extracted three of its primary themes: protection, empowerment, and preservation of cultural bearing. Data were juxtaposed with these themes to ascertain congruency. Where themes became motifs, or re-occurring patterns, within events or across lessons in Mrs. Thande's practice, the theme was verified. If the theme did not reoccur within an event or across the lesson(s), the theme was falsified.

To determine the funk (cool, etc.), defined as stability, healing, peace, giving, verve, poise, oral power, smoothness of movement, and the list goes on (Thompson, the meaningfulness or attention given to a particular theme, we juxtapose it too with a set of criteria. As explained in chapter three, funk is the affect, movement (rhythm), verve, and/or orality that accompany a thematic aspect (Hooks, 2003; Morrison, 2008; O'Reilly, 2004). For example, it may be determined that Mrs. Thande used the theme of empowerment by employing the aspect of envisioning when she asked her students to think about how a certain action might make someone else feel. When the aspect is accompanied by a rhythmic sway in her hips and/or an

affective (emotional) tone in her voice germane to African culture, it could be said that the selection possessed funk – for example, when she punctuated a comment as "signed, sealed, and delivered." That is, moments of funk possessed motifs, patterns of behavior, and predilections. Attending to funk helped to distinguish African American mothering from "other" kinds of mothering that could occur in a classroom.

Triangulation

Another procedure of this analysis was to triangulate the different data sources. The primary data arrived from observations, semi-structured interviews, and artifacts. These data were interposed on each other as they were analyzed along the mothering themes. Similarly, culturally relevant pedagogy (Ladson-Billings, 2009; Martin, 2000, 2007; Nasir, 2000), reformist mathematics discourse (Ball & Goffney, 2005; Boaler, 2006; Heibert, 1997; NCTM, 2000; Sinclair, 2001), and Black feminism (Collins, 2000; hooks, 1990, 1994; James, 1993' O'Reilly, 2004; Morrison, 2008), along with their differing theories/perspectives/methods, were interposed upon each other in order to cross-check the data and my interpretations (Denzin & Lincoln, 2011). Triangulating in this way allowed the work to claim a degree of *transferability*, when the description or analysis is thickened by its availability to reasoned judgment.

Triangulation revealed patterns of commonality in regards to the themes, and theoretical propositions, and across each other. For example, Mrs. Thande would touch the tops of her student's heads. She shared that she did this to, "Let them know that 'I see you, know you can, and I am in touch.'" Audre Lorde a renowned Black feminist says, "Touch them, hold them, and let them know that they are loved." Robert Moses (2001), the African American civil rights activist, said that unless you can "touch" the lives of these children with mathematics they would not see its worth. Similarly, Natalie Sinclair (2001), in many ways a reformist mathematician,

emphasized touching "aesthetically-rich learning environments [which] enable[s] children to wonder, to notice, to imagine alternatives, to appreciate contingencies, and to experience pleasure and pride" in the mathematics classroom (p. 26). All three of these scholars are in agreement about the importance of touch to achievement. Their voices bring to the analysis a measure of confirmability.

In keeping with the Africalogical tradition, this analysis was presented to the teacher, to members of the school community, and to the general community as well. Their differing perspectives served to crosscheck data, ground the analysis in community, and it brought to the work what Guba and Lincoln (1982) call, credibility, and what the Reviere (2001) calls ukweli. This interposing of data was integrated over and across the analysis, not in neat, separate sections. All of these strategies brought to the work a measure of dependability.

Keepin' It Real: A Retrospective Analysis

An in-depth examination of the variable of "fair interpretation" was central to this analysis. I used reflection as a method to ascertained if any personal obstacles stood in the way of a fair interpretation of the data. This method highlighted and allowed for the removal of many distortions and biases due to my own closeness to the study's outcomes. It involved me questioning my own induction and training in an exclusively Eurocentric academic tradition. Concerning this questioning of one's ideological training, Reviere (2001) writes, "This step is particularly important because a vast majority of scholars – even those of us who call ourselves Afrocentric – have been trained in an exclusively Eurocentric academic tradition" (p. 723).

For instance, I kept an ongoing analytical journal (Reviere, 2001) in the form of a reflective analysis. I note that "reflection" has received its fair share of criticisms, as when Fendler (2003) notes, that within the critical research discourse a major concern with reflection

has been its tendency to "provide instrumental analyses of teaching and ignore issues of social justice" (p. 16). Nonetheless, this work, and Africalogical research in general, uses reflection with the expressed aim of delving into issues of social justice. That is, reflection that reflects on the need for social reconstruction of systematic injustices is "real" reflection. For example, this examination permitted time to identify salient characteristics of the context and the problem, as well as an opportunity to develop a high degree of acquaintance with, and understanding of, the ways in which African American women have been marginalized within mathematics education discourse. Additionally, I was able to better appreciate some of my own shortcomings as a non-woman in dealing with this the female-gendered aspects of this analysis.

To ascertain the credibility of my interpretation, I, in the tradition of Africalogy, consulted with many about the politics of the analysis. I consulted with peers, especially African American women, about the accuracy of my interpretations. I consulted with my own advisor, a White woman whose breadth of knowledge on multiple subjects, provided insight into competing views. I also consulted a number of African American feminists concerning my interpretations of the data, including a Black feminist sociologist. All of this discourse pushed my thinking and my interpretation of data in ways that have encouraged critical insights into, and common ground with a mathematics discourse that has too often been unwilling to address the race-based and sociological dynamics of mathematics teaching (Martin, 2013). On this important topic of interpretation, Martin (2013) writes,

> Not only do scholarly interpretations of children's [teacher's] mathematical behaviors serve to inform societal beliefs about race, racial categories, abilities, and competence, I would also argue that race-based societal beliefs about children [teachers] from various social groups also serve to inform the ways that mathematics education research, policy,

> and practice are conceptualized and configured in relation to these children [& teachers], even when these conceptualizations and configurations are presented as race neutral or couched in social justice. (p. 46)

It is my goal, with the analysis to come, to offer a dependable, credible, thoroughly Africalogical analysis of an African American woman who is an accomplished mathematics educator and – in so doing – to insert her voice and practice into the canon of mathematics education research.

CHAPTER 5

MRS. THANDE

This study concerns one teacher in one school who is beating the odds in terms of the mathematics achievement of African American children. Here I introduce Mrs. Thande, her school, her classroom, and prototypical excerpts of her practice as a way of exposing the initial contours of an aesthetic that will receive a more thorough analysis in the next chapter. Ultimately, the aim is to provide a description that could aid in locating the teacher, and perhaps understanding her nuance within the context of largely unfamiliar settings – therein providing a primary lens for understanding the interpretive analysis of her teaching practice to follow in chapter six.

A youthful middle-aged African American woman arrives to class each day, convinced of the inherent goodness of her occupation and the community in which she carries it out. Her name is Mrs. Thande (pseudonym). She was born and raised in Detroit. “I love it here,” she says laughing at the suggestion that her city has been labeled dangerous. “It’s dangerous if you are stupid,” she laughs. “But that’s the case anywhere, isn’t it?” She earned her B.A. in business from the State’s flagship university. Years later she would earn a M.A. and her teaching certificate from a local city college. Business was not something she really wanted to do, she says, but rather a choice born out of “not knowing what she could do well.” She arrived to teaching by way of serving as a teaching assistant in an inner city school during the time she was pursuing her master’s degree. There she became “somewhat intrigued” with teaching. But, it wasn’t until she was an intern in a neighboring suburban school where she “witnessed the privilege” provided to a mostly non-African American school district and its children that she became “truly” convinced that teaching was “the profession for me.” This “change of mind and

heart," eventually led to a teaching career in the inner city public school district where she presently teaches.

Mrs. Thande arrives to school each day dressed attractively neat and stylish. She wears her hair, most times, in a ponytail that is always bouncing to the tempo of a task-oriented classroom. She wears skirts that are usually just at knee level and that swing to-and-fro with her movements, accenting the classroom tempo. She favors Capri pants that permit her many aerobic movements. For example, once after a student offered a smart response to a mathematics question Mrs. Thande expressed her appreciation with a pirouette. She wears blouses that usually grab her waist, and have sleeves that reach down to the middle of her forearm, much like what a street dancer might wear. Her shoes are either low-heeled, colorful pumps, or flats. She wears chiffon scarves, shiny necklaces, jewel studded caps, jingling bracelets, and a modest solitaire wedding band and ring. She wears very little make-up, usually only a matt lipstick, and dark eyebrow pencil. Her nails are always polished, she prefers a French-manicure. On Fridays, the designated dress down day, Mrs. Thande usually wears fitted, blue denim jeans, and multicolored sneakers or flat shoes. She is five-feet seven-inches tall, 140-pounds of energy whose attire expresses youth, as well as coherence with popularly advertised images of African American women.

The effort Mrs. Thande's puts into her appearance does not go unnoticed by her students. One day when she wore an outfit that was particularly smart, I witnessed over a dozen compliments from students: "I love your hook up Mrs. Thande, its poppin [meaning "looking good"." "Where did you find those shoes? They are hot. . . Where did you get them, and how much did they cost?" "You have the best outfits, Mrs. Thande." "My mother would love your outfit, especially your shoes." "Mrs. Thande, you are the best-dressed dresser, I mean the best

dressing…dressed…shoot, what am I trying to say? …You're the best dressed of all the teachers in the building, and that's why we (homeroom 121) are sicker[14] than every other classroom in the building." However, when I asked Mrs. Thande if she dresses for her students she replied, "Oh no, I don't dress for these kids, Mrs. Thande dresses for Mrs. Thande." However, her smile and raised eyebrow indicates an awareness of just how important and impactful her attire is to her students.

Although she may not admit to dressing for her students, Mrs. Thande moves swiftly every day in her trek to reach them. She arrives to the school parking lot bright and early everyday, sometimes before the sun has completely banished the darkness of dawn. During these early morning moments, her movements are swift and smooth, as if she were running late when, in fact, she has more than enough time. She steps from her car wide-eyed, her lips are pulled tightly over her teeth and her face usually holds a slight scowl. She quickly removes her things from the backseat of her car, periodically looking over the hood at students' parents as they sit somberly in their vehicles awaiting the opening of the schools doors, and the school building before shutting the door with her heel. Her trek from her car to the building requires that she walk through a double line of parent-driven vehicles. The parents often greet her from their cars and the sidewalk. She usually nods, waves, or responds with a "good morning."

Occasionally, the trek from the car to the school building is interrupted, and Mrs. Thande always responds with a characteristically familial attitude that garners smiles, laughter, and respect. On one morning a mother signaled with a raised index finger from her car window that she wanted more than a passing hello. "Good morning, Mrs. Thande," said Mrs. Honey. Mrs. Thande responded to this greeting by slightly changing her beeline to the school building in the

[14] Sicker = Better.

direction of Mrs. Honey's Black SUV. Her scowl changed to a smile, her gait slowed, and her attention to surrounding vehicles became more focused with occasional nods and waves. She responded to Mrs. Honey's "Good morning" with:

T How you doing girl?

H Hmph! Ahm wondering when they gon' get a better system for getting these kids in the building?

T Don't git me ta lying.

H Boy git out the car, now! Here come Rashon to help you with your stuff.

Mrs. Thande thanked Rashon while handing her things (a milk cart filled with folders) to him. As the two women spoke, Mrs. Thande laid her hand on Rashon's head and then on his shoulder. I noticed Mrs. Honey noticing (with a slight smile) Mrs. Thande's affection toward Rashon. Shortly thereafter, Rashon set the milk cart on the ground. His mother immediately remarked, "I know you ain't tired." Rashon looked at Mrs. Thande as if expecting her to say it was okay, but she only smiled at him and said to his mother that she needed to get to her classroom. The mother replied:

H Uhn uhn, he bout one of the smartest kids in his math class cause he had you, and now he gon' act like he tired. Boy, take her stuff in the building and come on back out here. I got yo tiredness.

T Honey! (She looks at Honey with quiet disdain)

H Uhn uhn, they know I don't play that. Uhn uhnnnnnnn. But, yeah girl. Yall hurtin' me with not lettin' these kids in until 8:15.

T (Walking away with a smile) - You know who to speak with about that.

H Girl, you tryin' to get me in trouble. I'm gon' talk to her too (They both laughed at the last remark).

On another day a male parent spoke to her during her trek from her car to the school building. Mr. Middleton watched Mrs. Thande climb out of her car as he leaned up against his own. He began with,

M I knew I should have gone into teaching.

T (Mrs. Thande rolled her eyes over at him and replied), It ain't too late. Her tone was even, as if what he had just said was a topic not to be played with. Mr. Middleton laughed a short laugh that ended with an "uhn." He continued on with,

M For real, it is a profession I have thought a lot about.

Kicking her car door closed, and clearly looking around at other parked cars in the lot, Thande responded with a dialogue ending "Umph." Mr. Middleton quickly changed the topic with.

M Hey, I have a 4th grader coming at you next year.

T Yeah, I know Denzel. He is a nice young man (smiling directly at Mr. Middleton, but not loosing the width of her stride).

M Yeah, he takes after his dad.

T I bet he does. Have a good day Mr. Middleton, and get that teaching certificate.

Mr. Middleton laughed heartily as Mrs. Thande walked out of range and eventually into the school building, realizing, perhaps, that he would be held to his word.

Mrs. Thande's easy repartee extends to the surrounding community. Once, when she rewarded her class with outside play, she encountered three young men (middle to high-school students) near the school's basketball court. Standing with her hands on her hips, and looking

directly at the boys, she asked, “Shouldn’t yall be in school?” One boy, we will call him Dre, responded with a smirk, “We got excused today,” never looking directly at Mrs. Thande. “Well, you cain’t hang out up here. These children are busy getting their education,” said Mrs. Thande. “We getting’ an education too,” said Lawrence with a laugh, the second boy in the group. “Not out here you ain’t.” “We studying nature,” said Lawrence. “Don’t play with me,” said Mrs. Thande. “This is a classroom young man. N’right now, you studyin’ on getting yourself arrested for trespassing on school grounds during school hours.” I interrupted to remind the three boys about the ramifications of their actions. They could simply leave the schoolyard without incident, or end up with warrants for their arrests. I asked them: “Who, in their right mind, wants to follow the same path of thousands of losers? Yall ain’t the first students to cut class, come down to the elementary school, disrespect a teacher, and then have the police tracking them down. Make a smart choice.”

Carl, the third boy who had not spoken, spoke up. “I do good in school. Only reason I’m out here today is because this school guard grabbed me by the arm.” “Yeah,” said Lawrence, “and you told him to let go of your… excuse me sir (me), he told him to let go of his f-u-c-k-ing arm.” Dre giggled at this remark. To which Carl responded,” I don’t even usually talk like that to no adults. But he was outta place grabbin’ me like that.” Mrs. Thande quickly jumped back into the conversation: “He was disrespecting you, right?” “Yes Ma’am.” “Were you disrespecting me when you showed up in my classroom today with a smart mouth?” Carl wrinkled his brow while looking directly at Mrs. Thande, “That was them Ma’am. I didn’t smart you or laugh.” “If you want respect, um hum, you know the rest,” said Mrs. Thande as she pointed at all of the boys. “See God is always on the throne. He never falls to sleep either.”

Redirecting the conversation, Mrs. Thande Asked Carl, “What’s your teacher’s name, baby.” “Mr. Redding.” “Mrs. Johnson still the principal up there, isn’t she?” “Yep.” “What’s that?” Mrs. Thande asked while stretching her eyes wide to look him straight in the eye. “Yes Ma’am,” Carl responded respectfully. Still looking him straight in the eye, she asked, “Are you ready to go back to school today and work hard today and every day from now own?” “Yes Ma’am!” said Carl. Mrs. Thande continued staring, without any words, before saying, “I believe you. Mrs. Johnson is a friend of mine. I can put a call in to her right now.” Dre and Lawrence responded simultaneously, “I’m ready too. Could you call her for me too, please Ma’am?” Mrs. Thande responded, “Oh, now I am ma’am? Yall ain’t ready.” “What’s your name, young man?” “Carl.” “Follow me, Carl.” Although this excerpt is illustrative of many things, Mrs. Thande’s directness and care for her community and its children is evident. As well, the excerpt demonstrates her fearlessness in teaching and communicating to, protecting, empowering, and uncovering opportunities to preserve what serves the interests of the community’s children. We will look more closely at these attributes in chapter six.

Mrs. Thande’s communication with colleagues, parents, and community members, though varied in content, is consistent in delivery. She is quick to laugh and tease. Once, when a fellow teacher came up behind her and pinched her while another watched from her doorway, Mrs. Thande -- startled -- jumped, turned around and laughed. On my first visit to the classroom -- she announced that, “Mr. Hakim will now take about 30 seconds to share with you where he is from, why he is here, what is his research, and how he hopes you will participate…and,” she broke into a fit of laughter. After having amused herself and me, she said, “Take however much time you need, Mr. Hakim, we are glad to have you, aren’t we boys and girls?” On another occasion, she and I were leaving her classroom for lunch in the lounge. She held in her hands

and arms two apples, a banana, a jar of peanut butter, a filled brown-paper lunch bag, a large bag of chips, and a Pepsi. I was empty-handed but had planned to sit at lunch with her. She asked: "Did you bring anything for lunch?" "No, but I'll be okay." She responded, "You're gonna have to be, cause I sho ain't sharing none of what I got." I burst into laughter. She looked at me with a furrowed brow for a few seconds and then joined in. Later, she offered me several items from her larder.

Mrs. Thande is explicit and direct, and sometimes critical in her talk and gesture. We see a flash of this directness when Mrs. Thande shows disdain for Honey's threat to scold Rashon for having sat the milk carton down. Of course she did not send Rashon back to his mother until just before the school doors opened. We see it again when she says to Mr. Middleton, "Get that teaching certificate," dismissing all of his flirtatious mannerisms as frivolous as compared to doing important work. The directness is more evident when she tells the three boys in the schoolyard, "You're trespassing on school property," and "Don't play with me."

Fellow teachers are also the recipients of Mrs. Thande's directness. Once, during an impromptu conversation with Mrs. Thande, she directly attempted to pull another teacher into our conversation by relaying one of my questions to her as we entered an already occupied teacher's lounge. "Mrs. Carlen? He is asking me why the students who know how to share end up being high performers." Mrs. Carlen responded, "I don't have any of those students, so I wouldn't know." Others in the lounge laughed. Mrs. Thande said for all to hear, "See, some folk just out to lunch. The 'A' stands for 'all for one and one for all.' She knows this but she wants to play comedian, shhh (meaning shame). How can you fail when you got all your peoples with you?" Clearly, with the remark, "some folk just out to lunch," Thande had critiqued the laughter of all four teachers in the lounge. Having spent time in the school, I can say that these teachers,

at least three of them, were just as caring and engaged with their students as was Mrs. Thande. But, Mrs. Thande's critique still managed nods of approval from her remark, "How can you fail when you got all your peoples with you?"

Every student expects clarity in Mrs. Thande's commitment to him or her – and she delivers it. In an interview, I asked her why she chose to teach in the inner city. She responded without pause,

> I love these babies. I love all children, but these are ours. If we run off and leave them what else will they have? Half of them got mommas that are babies themselves, or who can't afford to be at home with them longer than to put'm asleep and wake them up.

When I asked her whether she would accept a teaching position in one of the city's well-funded suburban teaching districts, she said:

> As tempting as it might seem…I wouldn't go if they asked me. I want to teach my own. Don't get me wrong; I know it is nice out there, and that I would like having the security, supplies, district support, prestige, and all of the benefits that come with not teaching Black children. But uhn uhn, cain't do it. Cannot do it, Khalel. Leaving here for there would be…like…I don't know…really bad…like…man…being Joe Lieberman[15] (she laughed).

Mrs. Thande is on a "mission," a common mission in some respects, to reach "my own." During one interview, she revealed that as a teacher's aide in a suburban school on the outskirts of her own neighborhood, she witnessed "firsthand a different kind of education." She saw

[15] Joe Lieberman left the Democratic Party in the middle of the final stages of then Senator Obama's bid for the presidency of the United States. After this change of guard, many people saw Lieberman as a traitor.

"teachers connecting with students." 'They talked to all of the kids like they were little professional." She recalls,

> The entire time that I was [interning] there I was dealing with a whole different demographic (White), and I could see that we (African Americans) were the minority. It just cracked me up...I wanted to experience teaching my own. I wanted to experience teaching Black kids. I wanted to (a long pause) give them some of what I saw happening out there, [some of what] I didn't see as a student.

Mrs. Thande was bothered by ("cracked up") the fact that only a few African American students were actually receiving what she thought was a quality education, and was therein inspired to not only teach her "own," but to teach them well. Her desire is deeply rooted, not only in her own limited education, but also in America's historically unfair system of education, and in African American teacher's common resistance to it (Clark, Frank, & Davis, 2013; Delpit, 2009; Fairclough, 2007; hooks)

Mrs. Thande's Classroom

Mrs. Thande's classroom has no windows, but it is not without a view. The walls of this 30 x 20 foot room are filled with posters of mathematics procedures, concepts, ideas, and even a few historical math/science figures: Benjamin Banneker, Leonardo Da Vinci, Dr. Mae Jemison. As well, there are inspirational posters and banners with rallying cries: "You Are Awesome," "Nothing Can Hold You Back Now," "Every Journey Begins with the First Step." There are also portraits/photos of non-mathematicians like Mary McCloud Bethune, Otis Boykin, and Rosa Parks. Save for the black and white photos, the walls bloom with color.

Other sections of the wall provide students with feedback and ideas from the work of others. A pin-board of student work filled with Mrs. Thande's remarks hangs directly behind her desk. On a paper that received a C, she writes:

> Better, but I need to see your work. How did you get this answer? You need to draw the place value columns because you are jumping lanes. Your multiplication is on point; you're just multiplying the wrong numbers. If you want me to read this write it in English ~ show your mamma this paper. It will cost you points if I have to spend my time trying to decipher scratch. The only reason you didn't receive an A is that you didn't finish the work. Finish the race, baby! Ask for help from someone in your group.

On a paper that received an A, she writes:

> A is for Awesome. Who can you help in your group to do just as well? A is for Ain't you bad, fabulous, terrific and fantastic. Work on making your work neater. Very good, I told you organization counts, didn't I? A is for A future teacher (lol). Help someone in you group do just as well. If everyone else in your group is getting Cs, this A stands for A selfish individual ~ how you doing?

Every square inch of floor space is used. Four large cabinets, a small file cabinet, and an activities table filled with well worn and sometimes incomplete sets of manipulatives, along with a small refrigerator and microwave, usually topped with a box of crackers, a half of a loaf of White bread, and a small jar of Nutella constituted the greater part of the furniture that filled the room. The room also had its own sink, to which Mrs. Thande had added dishes and silver, dishwashing liquid, and a washcloth. One corner of the room, shown in the bottom right hand corner of Figure 5.1, was used to create a space where students could relax. It had its own throw rug, a pillow and a rocking chair, a three-shelved bookshelf that had about 15 books – several

Scott Foresman and Addison Wesley mathematics texts for the 5th grade (used throughout the district), *The 500 Hats of Bartholomew Cubbins* by Dr. Seuss, *100 Days of Cool* by Stuart Murphy, *Shades of Black* by Sandra Pinkney, *Wings* by Christopher Myers, Rosa by Nikki Giovanni, and *Martin's Big Words: The Life of Dr. Martin Luther King, Jr*. by Doreen Rappaport. There were also a couple of Connected Mathematics project books from when the school experimented with it years earlier. The map does not show the large "*Yes We Can"* poster that hung on the front of the podium, or the *Time* magazine covers-shots of the president and first lady that rested in the chalk tray.

Mrs. Thande's desk, located at the back center of the classroom, was covered with papers, a radio that sometimes played old R&B hits, a computer, and other various desk amenities (e.g., a stapler). Thirty-four desks and chairs filled the remaining space. They were usually situated in a horseshoe shape. A narrow aisle ran through the near-center of the room, with its endpoint being a projector-topped podium where Mrs. Thande usually delivered her lesson.

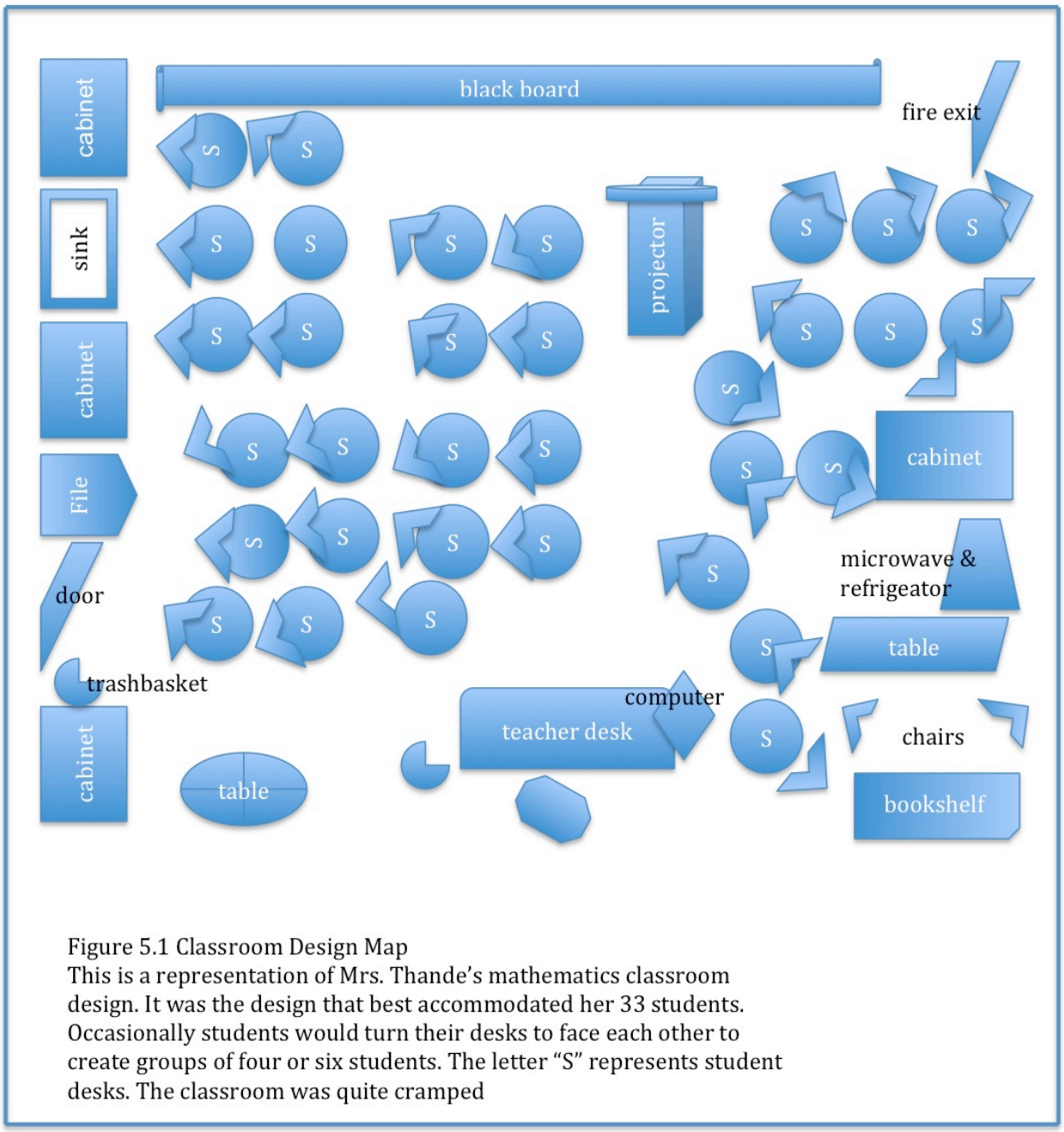


Figure 5.1 Classroom Design Map
This is a representation of Mrs. Thande's mathematics classroom design. It was the design that best accommodated her 33 students. Occasionally students would turn their desks to face each other to create groups of four or six students. The letter "S" represents student desks. The classroom was quite cramped

The circular figures in the map represent student's desks and chairs. The triangular shapes represent student chairs. Wall posters, and the throw rug in the lower right-hand corner of the map that was located in front of the bookshelf, are not shown.

Mrs. Thande and her students moved through this filled space carefully and caringly. When teaching, Mrs. Thande often touched the heads and shoulders of her students. Similarly, it was not odd at all to see students touching each other on the shoulders, or placing their hands on the desks of other students while their attention was directed elsewhere. When Mrs. Thande moved in this very tight space, every one seemed aware of her presence. There was something about the closeness of this space that worked; it seemed, in the interest of a community ethos. Of course, the students could have benefited from more space in the activity area that was so congested that it could not seat the full number of students at the table. The relaxation area was so small that one, maybe two students could relax in it comfortably, and certain cabinets couldn't be opened unless several students moved their desks.

Class-time starts for Mrs. Thande before the bell rings and the classroom doors close. Each day, before entering her classroom, Mrs. Thande interacted with students in the busy halls. Historically, the work of the African American teacher extended to wherever opportunities for social justice and liberation of African American children existed (Collins, 2000; hooks, 1990, 1994; O'Reilly, 2004). In the school's hallways, she was a cheerleader, traffic director, disciplinarian, educator, and parent. Her voice and tone varied according to what she observed, and the role it demanded of her. To a student who carried a backpack bursting at the seams, and a science project sprawled out across the top of a huge poster-board, she remarked: "You came ready today. Go get 'em girl." To one of her own students walking on the wrong side of the hallway, she dramatically used her arms to indicate his error before remarking: "On the wrong side already? Get it together now cause room 131 ain't no joke." And to Orlando, whose locker was so full that his things spilled out into the hallway, she remarked: "Orlando, you killing me with that locker. . . You don't want me to clean it out for you, but that is exactly what I am gonna

do – and half of it will go you know where." Before heading to her classroom, she called out to another teacher managing a section of hallway further down the corridor. "Can you feel it, Mrs. Riley? These babies are ready." Helping them get into a school-frame-of-mind, Mrs. Thande is empowering these hallways travelers (Ladson-Billings, 1998), praising good behavior, coaxing poor behavior, and poking fun at lethargy.

Mrs. Riley, chuckled. As Thande walked to her classroom she remarked, "Girl, let me get to my class."

A Lesson in the Multiplication of Fractions

Before turning to a more extended analysis of her practice, let us now consider a broad strokes portrait of what happens between Thande and her students as they work on learning mathematics.

Three minutes before class began, Thande returned from the hallways where she had been directing traffic, lifting spirits, and doling out high expectations. Many of her students had already finished their bellwork, which included several addition and subtraction of fraction problems. Some had begun working on extra or make-up work they retrieved from one of several baskets sitting just inside the classroom door on a low standing file cabinet – variously named: must do, extra-credit, and past due. With a wrinkled brow, Mrs. Thande quickly scanned a sea of 33 children, silently scribbling away. In a non-hurried way, she grabbed yesterday's checked homework from her desk and placed it under her arm. She also grabbed homework students had just turned in, quickly scanning and marking it with a red pen. She moved casually down the center aisle toward the front of the classroom, peeking at students as she jotted remarks on homework. "Good morning, boys and girls," she briefly turned her eyes up. She then handed yesterday's homework over to a female student, and told her, "Pass those back, Sweetie." The

class responded in unison, “Good Morning Mrs. Thande, Good Morning, Mr. Hakim.” Like Mrs. Thande, they all gave a short peek up at us before burying their heads back into their work. “We should almost be done with bellwork, huh? Ready to review yesterday’s homework Tanisha is laying on your desk?” Her habit was to scan homework just passed in, giving critical but abbreviated feedback, sometimes verbally, even though full remarks wouldn’t be ready until the following day or two.

Mrs. Thande’s readiness upon entering the classroom demonstrated the kind of adroitness one might expect in a lioness watching over her cubs. Indeed, after her motherwork in the hallway, she was already in third gear as she looked over her students, a position any protector must have when successful protection is desired. The statement, “We should almost be done with bellwork, huh? Ready to review yesterday’s homework…” demonstrated a need to get started, a need to get on task. According to The Trends in International Mathematics and Science Study (TIMSS, 2003), time on task is not only essential to achievement, but also a major factor in the success of those nations that continually outperform the U.S.

Note too that Mrs. Thande as the center of authority. Delpit (1988, 2008) argues that authority is a defining trait of the African American teachers’ practice. It confirms and authenticates the capacity and competence of the teacher for the African American student (Delpit, 1988; Perry, 2002). Mrs. Thande saluted her students good morning “boys and girls.” That is, you are children and I am the adult. As such, I am checking your papers, because I am capable of preserving a measure of excellence already established and known throughout the school community (Dei, 1994; Hale-Benson, 2001). “Pass those (homework) back, sweetie,” instead of “would you like to pass these back for me,” because I have already determined a course of action that will lead us all closer to a liberated state of being. When there is an

authoritative center the chance for "floaters" is diminished (Asante, 2003). This stance challenges the oft-dominant child-centered approaches of U.S. schools. As Annette Henry (1996) explains,

> [O]fficial child-centered philosophies are "marketed" as panaceas and instituted as if all children were homogeneously from the dominant group. Those who hold the power in governing bodies and teachers who advocate these approaches may not adequately take into account the historically specific circumstances in which child development theories have been produced and the ways that these theories reflect the middle-class biases in the dominant frameworks of thought-that is, White middle-class biases. (p. 376)

A key idea here is that for many African American educators, teacher-centered does not mean student-marginalized, nor does it mean that autonomy flows only in one direction (Ladson-Billings, 2005).

In another excerpt, Mrs. Thande asked, "Okay children, what is the first thing we need to do here (2/5 x 1/4)?" Her students, already warmed up due to a homework review of fractions, responded, "Find the GCF of two and four." Mrs. Thande gave a quick and audible catch-breath before asking,[16] "And it is. . .?" "Two," her students responded in unison. "Gerald, what's next?" she asked a daydreaming Gerald. He stammered, "Um, didn't we…" "We?" Thande exploited the pause. "You say we like you were paying attention like the rest of us." "That's what I'm saying…I was..." Thande interrupts him, "I know, you weren't paying attention and you missed. That's why you need to turn your behind forward in your seat instead of looking over at Devon while I'm talking." With her arms crossed, she rested her chin in the palm of her hand and waited with a furrowed brow. "Oh, you saw that?" asked Gerald as he changed his position to fit her

[16] By "catch-breath" I mean that there was a short and audible breath.

request. “Don’t play with me, Gerald.” “You don’t be playing Mrs. T.” “Hush Gerald, while you are ahead.” Others chuckled.

Mrs. Thande calmly continued on, interrupting the chuckling, as if the incident with Gerald had never occurred – everyone else got the message; Gerald’s intrusion was not to be encouraged. Again beginning with that catch-breath rhythm, she asked, “Class…(waiting for silence to stump out the chuckling – the silence came quickly), what should we do next?” “Cross out the two and replace it with a one, cross out the four and replace it with a two.” Again a catch-breath rhythm followed by “And next?” right on the heels of their response. “Multiply the denominators,” the replied. “And what do we get?” “Ten,” some of the students bopped as they responded, feeling the song like quality of the exchange. “And next?” Mrs. Thande continued. “Multiply the numerators” they shouted with certainty. “What is our answer, boys and girls?” “One tenth!!!” they shouted confidently.

“What are we?” Mrs. Thande regularly asked this familiar question near the end of some important instance of learning. It was accompanied by a familiar rising of an open palm to the ceiling, slowly and rhythmically, with an Egyptian-like groove. The students responded, “Family!” Many of them added their own stylish movements to the end, several of the girls striking dance poses.

Henry’s (1996) criticism is also relevant here. The call and response format used by Mrs. Thande has historical precedence as a tool of protection and preservation. It protected when the enslaved was able to call out warnings, suggestions, and meeting places, and receive immediate response so as to act in proper accordance (Bontemps, 2008). It preserved in song and dance

when story, history, learning, and social-active[17] discourse were prohibited (Foster, 2001). Formerly, call and response is

> A type of interaction between speaker and listener(s) in which the statements ("calls") are emphasized by expressions ("responses") from the listener(s), in which responses can be solicited or spontaneous, and in which either the calls or responses can be expressed linguistically, musically, verbally, non-verbally, or through dance. (Foster, 2002, p.1)

It has a rich history within African American culture. It is seen in the preceding paragraph when Mrs. Thande, using a catch-breath rhythm, asked, "Class, what should we do next?" They responded rhythmically, "Cross out the two and replace it with a one, cross out the four and replace it with a two." Mrs. Thande sucks in an audible short breath then says, "And next?" They respond, "Multiply the numerators." She calls, "What is our answer, boys and girls?"

Although the value of call-and-response has been challenged as the cousin of rote learning (that might not enable conceptual understanding in mathematics (van Der Walle, 2006)), many have also noted its value as a teaching strategy with African American children (Cazden, 1999; DeBose, 2005; Foster, 2002; Lanehart, 2009; Richardson, 2002; Smitherman, 1977). Foster (2002) explains:

> It is reasonable to hypothesize that the process [of learning] can be hastened by culturally appropriate instruction using indigenous interactive routines [call-and-response], because students are developing their awareness within nested contexts of meaning, familiar linguistic routines, and language play. (p. 2)

This idea hearkens to a Critical Race Theory concept that holds that a critical education must start from the "premise that race [nested context] and racism are central, endemic,

[17] A social-active discourse describes the kind of communication that entails strategy for engaging change in status quo (normative dominant culture).

permanent and a fundamental part of defining and explaining" phenomenon (Yosso, 2005, p. 74). Asante (1991) says in his theory of African American education that, "The most productive methods of teaching any student is to place her or his group within the center of the context of knowledge" (p. 171).

Mrs. Thande's classroom became very teacher-centered when there was a possibility of students missing important mathematics. In the following instance, Mrs. Thande, somewhat dismayed at her students' fruitless -- and time consuming -- student-centered attempts at solving a particular problem, commanded, "Okay, stop what you're doing." A few students kept fumbling about with their work.

"I said stop," Mrs. Thande shouted as she stared at them, "and that's what I mean, stop." She took a moment, placed both hands on her hips, and looked at each group before she started. "Here are three different strategies for solving this kind (4/8 x 3/4 = 12/32 = 3/8) of fraction problem." She placed a transparency with the strategies listed atop the projector screen, then quickly began demonstrating the three strategies she had taught them the previous day.

- $\frac{4}{8} \times \frac{3}{4} = \frac{4 \times 3}{8 \times 4} = \frac{12 \div 4}{32 \div 4} = \frac{3}{8}$
- $\frac{4}{8} \times \frac{3}{4} = \frac{(1^4 \times 3)}{(8 \times 1^4)} = \frac{(1 \times 3)}{(8 \times 1)} = \frac{3}{8}$
- $\frac{4}{8} \times \frac{3}{4} = \frac{2^2}{2^3} \times \frac{3^1}{2^2} = \frac{3^1}{2^3} = \frac{3}{8}$

"Okay little people, strategy one: We multiply the numerators and denominators straight across. How do we simplify 12/32?" A few students attempted to respond, but she interrupted them, "Uhn uhn, don't interrupt when I am asking rhetorical questions." Speaking quickly and

clearly, and stepping in reverse down the center toward the projector screen. Then pointing at the numerator and denominator, Mrs. Thande explained: "We must find the greatest common factor. What's the biggest number 12 and 32 have in common? And it is four. Twelve divided by *four* (emphasis added on the number four) is three, 32 divided by *four* (emphasis added on the number four) is eight. Our answer is…three eighths."

She moved on to the next fraction, "Strategy two," raising her voice in an emphatic tone while looking over at a student whose attention is not focused solely on her, "We cross cancel. Which numbers? The two numbers have common factors. How do we know which have common factors? We go home and we study our multiplication facts like Tiger studies golf, like Oprah studies talking, and like Dubois studied…um, um…" She often used this "um um" strategy of – I cannot remember - to see if students were paying attention. "Souls, Mrs. Thande," a student interrupts. "He studied Black people's souls." "Thank you, love," Mrs. Thande brought her feet together, stood overly erect, lowered her chin, and spoke with a feigned English accent, "And so nicely stated, dear."

Then, without pause, Mrs. Thande moved right back into the math. "Once we cross cancel, we multiply our numerators," pointing at the numerators she says, "boom, boom." Mrs. Thande continues on, as if the interjection of Woods, Winfrey, and Dubois was a part of the math. Not missing a beat, she says, "and then we multiply our denominators, boom, boom." Speaking very quickly, she says, "We will cover the third strategy tomorrow. Take out a piece of paper and solve these two problems (on projector) and drop them in the quiz basket. Don't leave without recording tomorrow's homework assignment from the board, and write out these three strategies (on the transparency/projector)." Turning her palm to the ceiling in much the same way as described earlier, she asked, "What are we?" "Family" the students screamed, again

performing short dance movements or striking dramatic poses. Thande smiled, and added, "And a bag chips, hello.[18]"

This excerpt evokes the themes of community, authority, protection, empowerment, preservation, and centeredness that I explore in the next chapter. Community is insinuated here when we learn that the students have been working together in groups prior to Mrs. Thande's interruption. But community is also demonstrated when Mrs. Thande requires that all of her students be on the same page, as when she raised her voice to say, "I said stop, and that's what I mean." She was not going to forge ahead without every student following her. Her usage of the pronoun "we" further reinforces the community aesthetic. "What are *we*?"

Authority is also present here. Thande had certain mathematical ideas she wanted her students to get – ideas they had not come to in their group. She ended their student-centered work with a loud "stop what you're doing." She said, "Here are three different strategies…" She began demonstrating the strategies, but first with the authoritative preface, "little people." That is, before we start, let us clarify your position as "little people" so that you don't step out of bounds as we proceed.

Clearly establishing herself as the authority – of both what the children do and how to do the mathematics -- all the while, Thande also asks questions using the communal "we." Andrea O'Reilly (2004) explained that African American women, even in their authoritative role as mother, continually provides her children room for autonomy and assertiveness. Mrs. Thande's allowance of the student who gave the "soul" answer in the middle of what appeared to be a "rhetorical" moment for Mrs. Thande, demonstrates that even when she was being authoritative,

[18] "And a bag of chips" is a phrase from the African American Language Vernacular (AALV) that suggest going beyond what was initially thought. In this instance they are family and "more."

there existed openings for students to exhibit autonomy. In fact, it appeared that Mrs. Thande may have purposely created this opportunity for her students to share in the power of what was a charged exchange. Bringing Dubois into the lesson made it preservative – even as it helped students to connect history, their souls, and the importance of devoting quality time to the study of mathematics at home.

In conclusion, Asante (2009) explains that, "there are several elements which help to locate an African American text [which could be a person] or any text: language, attitude, and direction" (p. 6). This chapter aims to locate Mrs. Thande by describing – albeit briefly -- her language, attitude, and desired direction. Mrs. Thande is a social activist, pro-Obama, and community-oriented. She is loving, responsive, caring. She's also no-nonsense, direct, and explicit. In the chapter to follow, we consider these characteristics through the lenses of Black feminist scholarship on the role of African American mothers in the lives of our children.

CHAPTER 6

THE MOTHERWORK AND FUNK OF MATHEMATICS TEACHING

> Mostly she taught by the courage of her own life, which to me is the highest form of teaching. (Alice Walker, 1983, p. 38)

Whether a policewoman, engineer, or teacher, African American women embody and transmit an aesthetic, a culturally consistent look that is reflective of a long tradition of African American women's mothering. She protects, empowers, and preserves cultural bearing in African American children and in African American people.

Using historical mothering themes developed within Black feminist thought, this analysis examines the null hypothesis: whether the look of an African American woman's successful teaching practice is devoid of the characteristics of African American mothering. To make sure that the analytical concepts can easily be referred back to, I begin by briefly re-presenting them here (refer to chapter 3 for more detail). First, there are the theoretical propositions and a brief discussion of the mathematics and how it informs the analysis. I then use those themes in analyses of two lessons, along with some analysis of other events relevant to the analysis.

This analysis is designed to test two null hypotheses, each theorizing that successful mathematics teachers of African American students do not exhibit behavior consistent with themes of African American mothering. Yin (2009) argued that such hypotheses work exceptionally well at generalizing when a "most likely" or "least likely" case – clearly confirming or irrefutably falsifying – has been chosen. That is, case selection is not only non-random, but also purposive, as already mentioned earlier. This case is a "least likely" case in the sense that African American mothering culture has, since the days of slavery, been woven up with her work (Collins, 2000). There exist a vigorous and expanding literature confirming the

inseparable nature of culture and pedagogy (Bishop, 2010; Gay, 2000; Ladson-Billings, 1997; Martin, 2000, 2008; Moody, 2004; 2005; Nasir, 2005; Villegas and Lucas, 2003), and also a literature that confirms the important impact African American women have had on teaching (Fairclough, 2007; Foster, 1991, 1998; hooks, 1990, 1994; Gilkes, 2000).

The following hypotheses (proposals) are used in the analysis to follow:

- Any successful teacher of mathematics, teaching in a majority African-American classroom context, likely does not exhibit the mothering cultural norms of protecting, empowering, and preserving the cultural bearing of African American children.
- Any successful teacher of mathematics, teaching in a majority African-American classroom context likely uses a form of pedagogy devoid of African American mothering "funk."

Re-Presentation of African American Mothering Themes

Recall the themes of protection, empowerment, and preservation, which are summarized in Table 6.1. There are more than three mothering themes. In fact, there are about seven major themes in all. I have condensed the list to accommodate the time available for this study. In future work, I will add more data and more of the themes of mothering. Until then, it is important to note that the three themes used are the three most prominent themes used throughout Toni Morrison's mother-centric canon (O'Reilly, 2004). The themes intertwine with one another. Although not always distinct; these themes, as much of most everything else in African culture, are thought to be integrated.

Table 6.1 African American Mothering Themes.

Protection	Empowerment	Preservation of Cultural Bearing
To instill or demonstrate whatever is necessary to insure the mind/body/soul of Afri-American children is protected from all forms of mental, physical, social, emotional, political, or spiritual oppression **Keywords:** praise, scold, think out loud, simplify (explicit), resist, self-reliance, resilient-struggle, readiness (hope), committed relationship, rhythm, balance, anti-individualism, anti-racism, anti-sexism, anti-oppression, importance of group, othermothering, hyper-vigilant about protection, community as survival, spirit	To instill or demonstrate the legitimate right of Afri-American children to be what they/their community has dreamed possible, on individual, collective, structural, and civilizational levels **Keywords:** analysis, organization, naming as control, envisioning, identifying, solving, challenge, activism, restoring, reconstruction of new onto old knowing, gathering knowledge, using choice, valuing symbolic, critical consciousness, African literacies, experimenting, reliance on group, discovering, effective communication, community as power	To instill or demonstrate the importance of using what is indigenous to Afri-American culture **Keywords:** "history [e.g. motherline]; religion/ spirituality/ethics; social orgnztn; economic orgnzn; political orgnztn; creative production, ethos, collective self-consciousness, (Karenga, 2012), social orgnztn = integrity, authority, ownership, values, responsibility, harmony, self-determination, "homeplace," hypervigilance about preservation, identity, community as culture, voice, old knowledge, Ubuntu, ownership]

Note. "Motherline": Is when one, especially a woman (or girl) comes to understand her/his life story as a component of the larger Africana mothering narrative and gains the power of female authority as a result (Lowinsky, 1992). "Homeplace" is a place/space created by African American mothers where African American people can restore to themselves the dignity and respect attacked on the outside; comfortable within their own skins, resisting the onslaught of White supremism (hooks, 1990).

Lesson Collage 1: Teaching Multiplication of Fractions

I start with an extended description of Mrs. Thande when she is teaching multiplication of fractions through a word problem to her students. Mrs. Thande presented to her students a mathematics word problem that read: "On average, people spend one-third of their lives asleep.

About one-fourth of the time they sleep they dream. What fraction of a lifetime does a person typically spend dreaming?"

Aliya says out loud, "I don't git it!" Mrs. Thande responds rhythmically, "What/is the question/asking us?" looking at Aliya with a quizzical frown. "I don't git it." Looking less quizzical, more direct, and placing two fingers on Aliya's shoulder, "Whaddon chu git, Sweetie?" "I don't know, is this a trick question?" "No, it is not," Mrs. Thande responds as she sits back into her hips, with hands around her waist, and her fingers turned toward her back. Aliya pauses while looking down at the problem side-ways. "Well, it seems like…um, they want us to find out how much time is spent sleepin' 'n dreamin'." Another student, Deron, attempts to interject but is interrupted when Mrs. Thande looks at him with a piercing gaze, and a pointing index finger.

"Aliya?" says Mrs. Thande. Aliya waits for a moment, sighs a deep breath as she looks intently at the problem for a few more seconds. Then, in a very soft voice she says, "Go ahead." Thande looks at her with a raised eyebrow to confirm her willingness to let it pass on. Aliya nods, and Mrs. Thande gives Deron a nod to continue. "When you sleepin' you are dreamin'. Besides, different people gonna live different ages, yi-know what'm sayin'?" Mrs. Thande points at him while he's speaking, giving him a slight nod, a slight smile, and a raised eyebrow. "Like how can you know the average (sleep time) when everybody gon' be livin' different ages?"

Murmurs, hmms, and ahahs come from the class. Mrs. Thande, who is now smiling just a bit, pumps her as if a point had been won, but continues walking up and down the center aisle. In this moment I notice a shift in the mood of the class – everyone is slightly more engaged, slightly happier. She stops. "Well, hold on." Her arms opened out toward the students, "Let's address one question at a time." Realizing her students are heading in the wrong direction – and again

speaking rhythmically (but this time much slower) -- she asks, “What/is the question/ actually asking us/tadoo?” This question is asked with her index fingers pointing to the sides of her forehead, her eyes shut as if thinking really hard, and emphasis on the word “asking.” After a long pause, she opens her eyes dramatically, pauses, and then with a pointed stare nods slightly at Aliya. Aliya responds, “Holdup, I git it. They want us to see that just because you’re sleep don’t mean you dreamin’.” “Aha!!! That’s a key insight,” I interject. “Um hum!” Mrs. Thande agrees while smiling an upside down smile.

With her palms turned upward, she asks, “So what now?” There is pause in the classroom. “Don’t start scratchin’ yo heads now,” her speech now much faster as she chuckles. Deron moves to sit upright in his chair, “If I knew how much a third of the person’s life was…” But Mrs. Thande interrupts with a concerned scowl, “Okay!” She makes a big sigh while lifting her palm so that it faces the students. “Y’all over-thinkin’ this,” she says as she places a lazy index finger on her forehead again. “What do we know from the question?” She stands still at the front of the room with one hand on a hip. Many hands are raised and then quickly lowered. “One-third represents what?”

Noticing so many hands being lifted then retracted before being called on, she lifts her hand, this time sharply, with palm forward and stretched. She takes a long pause, closes her eyes. After a short moment she opens her eyes wide and with a slight scowl, before sternly and with a methodical rhythm answering, “It/is/the part/of a person’s life/spent sleeping,” placing emphasis on the word sleeping. She says them while simultaneously holding one palm lazily to the sky, and saying in a barely audible voice, “Keep me Jesus. “Focus little people,” she says loudly and sharply while cocking her chin and glaring at her students. She then says, while waving her students toward her, “C’mon! One-fourth of this?” pointing at the projector screen and then

placing the palms of her hands parallel as if to indicate that her hands are the sleep to which she is referring. Her eyes cut over at me as she nods her head in the negative while remarking, "We are not going to waste time not giving you what you obviously don't know." This statement has cadence as well. She tilts her chin downward, while maintaining eye-contact with me and cocking her chin, "cause time is ticking, baby," she swerves her head back toward her students, "and Mrs. Thande gots to get y'all ready."

Protection

Notice here how Deron, Aliya, and Mrs. Thande slip easily between Ebonics and Standard English while puzzling about the mathematics. In using the Ebonics herself, Mrs. Thande protects her students' use of it in their problem solving. Because Ebonics is a cultural tool in which they are very familiar, their language is neither diminished nor marginalized – something that does happen too frequently in the classroom (Baugh, 1994; Kohl, 2008; Perry & Delpit, 1998). Baugh (1994) argued that Standard English as a dialect is no more logical than non-standard English; neither of the two were developed in accordance with mathematical precepts. That is, neither is less, or more, effective as a mathematical tool. What is important, argue Martin (2000), Gutstein, (2007), Ladson-Billings, (1997) and others, is that mathematics programs integrate mathematics practices that target the interest of African American students, building on and thus protecting their beloved language and culture.

Deron sounds confident as he explains how he makes sense of averages. One might argue that in allowing Deron and Aliya's departure from normative grammatical standards, Thande is tapping into their fluidity and familiarity with Ebonics – protecting their fundamental identity with the language (Delpit & Perry, 1998). It is also arguable that this engineering of classroom discourse promotes learning. Ben Yehuda, Lavy, Linchevski, and Sfard (2005) argued that

"Almost any person may become a skillful participant of arithmetical discourse, provided, first, that a discursive mode is found that makes the best of this person's special strengths" (p. 176). Thande has certainly found a discursive mode that makes good use of her student's cultural strengths, and in the process has protected and enabled them to engage the mathematics in more empowered and less alienated ways – which could provide additional opportunities for more meaningful learning.

Notice Thande's use of inclusive pronouns in the statement and question, "Let's answer one question at a time," and "What do we know from the question?" "Us" and "we" imply community membership, caring, belongingness, and protection. Connecting the function of these pronouns to learning, Beverly Tatum (1997) writes, "Refusing school or refusing to learn can be about not belonging, not fitting in and eventually about giving up" (Tatum citing Herbert Kohl, p. 26). The teacher who includes herself as a member has a long tradition in the African American community known as "othermothering" (Guifreda, 2005), "women who assist blood-mothers by sharing mothering responsibilities" (Collins, 2000, p. 178). "Unlike the traditional mentoring so widely reported in the educational literature, this relationship goes far beyond that of providing students with either technical skills or a network of academic and professional contacts" (p. 191). (Who am I citing here)

These othermother-teachers build "homeplace" (hooks, 1990), "where one could be affirmed in mind and heart…where we could restore to ourselves the dignity denied to us on the outside in the public world" (p. 42), a "public world" where "school mathematics curriculum, assessment, and pedagogy (are) most often closely aligned with an idealized cultural experience of the White middle class" (Ladson-Billings, 1997, p. 700). Mrs. Thande says, "We are not going to waste time not giving you what you obviously don't know." That is, a primary function of this

community/homeplace is to "insure" (e.g., protect). One could argue that a definite look of protection exists in Mrs. Thande's explicit recognition of herself as a member of the community; committed to not wasting time "not giving you what you obviously don't know." The look is also one of inclusion, protecting her students from the distancing and alienating discourse of mathematics education. This look may be also be a factor in the mathematics success of Mrs. Thande.

Overall, the theme of protection is apparent in the look of Mrs. Thande's mathematics teaching practice. Her language and gestures affirm community, belongingness, unity, ability, and resistance, as when Deron was encouraged to question the viability of a mathematics problem. These actions might protect against a whole set of alienating practices identified by Beverly Tatum (1997) as the "syndrome of not belonging." Citing Hebert Kohl , Tatum explains how "the pressures of trying to fit in, conform or communicate in the 'acceptable' form of the majority culture results in an anxiety that literally interferes with one's natural abilities and modes of expression"(p.26). Mrs. Thande's creation of an anti-individualistic environment that recognizes the group more than any one individual, and trumpets the value of her students, may indeed encourage Tatum's "natural abilities…modes of expression," and learning.

Empowerment

Notice how after the question, "What is the question actually asking us to do?" Thande takes a long pause, places her index fingers on her temples, and closes her eyes tightly. The gesture empowers the student with knowledge on how one might go about acquiring the "actual" meaning of a mathematical question: pause, close your eyes, and think.

The fact that Thande paused, with eyes closed, and was not interrupted in a classroom of 33 students is also illustrative of empowerment. Lisa Delpit (1988) suggested that power

communicated explicitly empowers. This demonstration, according to Delpit (1988), assures the African American student that someone worthy of respect is in charge, and that he/she should listen. Immediately following this meditated pause, Aliya says, "Holdup, I git it. They want us to see that just because you're sleep don't mean you dreamin.'"

Making connections is, according to NCTM's (2000) "process standards," is an important ability to success in mathematics. Aliya has connected meaning to this mathematics problem. One might argue that explicit examples on how to extract the mathematical meaning from a mathematics question represent one example of empowerment. Following this demonstration, Aliya realizes that dreams and sleep are different and have different values, and she is, now, closer to realizing that dreams are ⅓ of sleep, which is ¼. Moreover, Ladson-Billings (1997(, Martin (2000), and Moody (2004), have all shown that African American students' perceptions and responses to their teachers influence their success in mathematics.

When Thande opens her arms wide and says, "I gots to get yall ready," she is demonstrating a recurring motif of othermothering: "women who assist blood-mothers by sharing mothering responsibilities" (Collins, 2000, p. 178). Consider how the open arm gesture usually conveys acceptance of the many as one. In conjunction with the imperative – "I gots to get yall ready…" implies not only that Mrs. Thande views her students as one, but also as capable (high expectations) of being made "ready." Moreover, she intends – "I gots to" – to hold herself accountable for their success, in spite of the disparities in mathematics achievement that have persisted for more than two decades despite a rhetoric of "mathematics for all" (Lubienski, 2002; 2003; 2006). Thande's stance likely inspires belief, as a student remarked in an interview: "She won't let you not get it." We saw in the lesson that Mrs. Thande empowered her students by requiring them to "organize" their thinking, "analyze," engage in "critical" thinking, and rely

on classroom community to "get it." Mrs. Thande often refers to her students as "these babies." It is this othermothering stance of being totally responsible for empowering another mother's children that has allowed Black women to empower children in ways that have assured not only their survival across the centuries, but also their uplift, and the uplift of the Black community as a whole (Collins, 1990).

Thande's use of Ebonics, or our "mother tongue," is also part of Thande's empowerment of her students:

> [S]uppression of mother tongue literacy[19] further subordinates African Americans in society and in educational institutions and is unhealthy for African American identity development in that it negates the lived experience of at least 90 percent of African Americans who are members of the African American discourse community. Smitherman (1988) estimated, even then, that 90 percent of African Americans use some forms of AAVE.[20] (p. 678)

An emergent literature on mathematics success with African American learners (Moody, 2004; Moses, 2001; Nasir, 2000, 2008; Stinson, 2006) has shown that African American students learn more, and are more successful in mathematics, when the teacher's practice is responsive to their socio-cultural, political, and economic contexts. That is, when the teacher uses pedagogy oriented towards the socio-cultural aesthetic,[21] historical struggles, desires, and lessons of the particular ethnic or cultural group she is teaching, those students excel (Perry, 2002; Villegas & Lucas, 2001). In this way, Mrs. Thande's teaching practice can be seen as having been socialized

[19] Literacy involves ways of speaking, moving, listening, thinking, etc., that allow for the negotiation of power in ways that promote liberation for the individual and the group.
[20] AAVE = African American Vernacular English.
[21] Recall that I have defined "aesthetic" as something that "establishes culturally consistent elements and then enthrones standards based on the best (e.g., liberatory) historical and artistic examples" (Welsh-Asante, 2003, p. 219).

in a “racialized” context (Richardson, 2002), that, in many ways allows her to empower her students. Richardson (2002) wrote,

> African American females’ language and literacy practices reflect their socialization in a racialized, genderized, sexualized, and classed world in which they employ their language and literacy practices to protect and advance [empower] themselves. Working from this rhetorical situation, the Black female develops creative strategies to overcome her situation, to "make a way outa no way. (p. 680)

Consider when Mrs. Thande -- prompted by Deron’s misleading response, “Like how can you know the average (sleep-time) when everybody gon’ be living’ different ages” -- pumps her fist back in a congratulatory way and smiles. Following the smile, she asks, “What is the question actually asking us to do?” Pumping her fist supports Deron’s participation; redirecting with a question that urges others to share their thinking broadens participation. This move is consistent with the definition of empowerment offered by Wanda Thomas Bernard and Candice Bernard (2000), as it pushes students to “gain control, exercise choice, and engage in collective social action” (p. 46). These same attributes are similar to those found in Na’ilah Suad Nasir’s (2008) inquiry into why African American students excel in out-of-school mathematics settings (basketball, track, dominoes), but struggle in in-classroom mathematics settings. We see here that Mrs. Thande chooses not to critique but to foster more discourse and more Ubuntu – I am because we are. Deron’s mistake is accepted as a normal part of learning. Moreover, he is accepted when his use of Ebonics is not even “tripped” over; it is a non-issue.

A final example of empowerment is when Thande lifts her hand sharply and rhythmically provides the clue she has been alluding to for the last five or six minutes: “It – is – the – part – of – a – person’s – life – spent – sleeping.” She proclaims strongly and with cadence. “Focus, little

people," she urges them, with a steady and fierce stare. Finally, she ends with a with a sharp "C'mon! One-fourth of this?" Again we see that Africana[22] mothers do not mother/teach from the periphery.

Historically, it has been in the best interest of the African American child to have its mother always at the center. Henry (1998), in her study of five African American teachers, contended that African American women "are not erroneously misinterpreting "active learning" as (unstructured) play, but merely trying to underscore the urgent need for more relevant and liberatory practices for African[a] school children" (p. 370). The seriousness of Thande's "Focus, little people," conveys an urgency that is beyond the lesson. She says, "We are not going to waste time because time is ticking, baby, and Mrs. Thande's gots to get you ready." Thus, while Thande's practice reflects acceptance, belongingness, affirmation of capability, and community, that all comes with a sense that something awaits that requires a certain kind of seriousness about learning the mathematics; a gathering up of power (mathematics) in "time" to be ready for a challenge in which others like yourself have historically been left behind.

Preservation of Cultural Bearing

Notice the sensitivity Mrs. Thande gives to Aliya's doubt when Aliya asks, "Is this a trick question?" Thande says, "No it is not…what don chu git, sweetie?" Doubt is a prevalent refrain among African Americans, wrote Gilkes (2000), and African American women have historically had the responsibility of offsetting that doubt and the historical injustices that have bred it in African American children. Claude Steele (2002) speaks of this doubt it terms of "stereotype threat" – an anxiety or doubt about one's performance based upon prevalent stereotypes about a specific group (e.g., African American, Latina, etc.) in a particular content area. Martin (2007)

[22] Africana women may include Black women on the continent of Africa, or Black women anywhere throughout the African Diaspora (e.g., Haitian, Cuban, Brazilian).

argues that there is a "racial hierarchy of mathematical ability" (p. 11) in mainstream mathematics education discourse.

Thande does not dismiss the realness of this threat. She accepts Aliya's doubt, showing consideration for the possibility that "dominant language word bias" could be embedded in the word-problem (Ben-Yehuda, Lavy, Linchevski, Sfard, 2005). In other words, "What don chu get, sweetie?" communicates that Aliya's doubt is okay, 'but allow the familiarity of my idiom to assuage your doubt.' Similarly, when Deron doubts the validity of the mathematics content, saying, "Like, how can you know the average when everybody gon' be livin' different ages?" she affirms his doubt with a positive and affirming gesture that welcomes him further into the discourse. She offers corrections to his remarks, but later. For now it appears that allowing student confidence to build around the mathematics is more important than building the mathematics. Mrs. Thande appears to have some knowledge, whether consciously or unconsciously, of the detrimental role of doubt in barring some from the mathematics discourse. One could argue that Thande's demonstrations of sensitivity to doubt is preservative in that it keeps her students engaged in the mathematics. The same is true of her allowing incorrect responses in favor of discourse. That is she preserves student confidence, engagement, excitement about the problem being discussed. She also preserves their integrity as doers of mathematics – able to continue their engagement in analyzing, and critiquing, rather than questioning whether they are right or wrong about something that can be addressed after the rich conversation. In these ways she preserves an "active learning" community.

Preservation of cultural bearing can be seen in the economy of Thande's stretched palms, closed eyes, and pregnant pause when interrupting her students' unsuccessful struggle with the question, "One third represents what?" A silence follows her gesture as she slowly opens her

eyes and with cadence answered her own question: "It - is - the part - of - a - person's life – spent – sleeping!" Richardson (2002) contends that African American female literacies (both verbal and non-verbal) are "created…to carve out free spaces in oppressive locations such as the classroom…[spaces where] revolutionary life and culture-sustaining ideas and practices can be fashioned" (pp. 678-679).

One free space that is carved out here is that of knowing who is in authority. Delpit (1988, 2009) suggests that African American students expect and are comforted by the authority assumed by their teacher. They see it as proof that she knows, and will preserve the integrity of their learning at all costs. The teacher-centered practice is a culture sustaining, if not revolutionary, practice that resembles the African American style of mothering. Centering the child was never an option for the African American mother who never had a society that looked out for the welfare of her, or her children. O'Reilly, (2004) wrote that African American mothers must "raise their children in a society that is at best indifferent to the needs of Black children and the concerns of Black mothers" (O'Reilly, 2004, p. Kindle). For this reason, she has to be the center, the hub, the authority on what is best, timely, and ultimately useful learning in meeting a mathematics that still rejects, largely, the significance of culture and history to mathematical learning.

Let us consider an exchange during a focus group interview with Mrs. Thande's students to confirm preservation of cultural bearing. A student remarks:

> "We way better than (the suburban school) them," says Fatima as her classmates cheer her on. "We score just as well as those White schools."
>
> "I thought you said your school was 'way better'." I pushed.

Not smiling, she responds with a hint of attitude, "Well, our school is not rich, and we don't have the governor doing special favors for us either." Her classmates erupt with loud applause and praise. "That's right," says Deron, "We bring it old school." "And how is that?" I ask. "Hard work, man. Mrs. Thande gives us exactly what dey get out there in those White schools. Look, we ain't bout to let those White kids beat us jus cuza no racism." Cheers of "Um hums," and "yeps" follow. "Do you think racism has something to do with it?" "Heckeeyeah," and "Puleeease!" "So what do you do about it?" "Do what Mrs. Thande always be sayin: represent," says Lavelle. "What do you think she means by that?" "You know, make your people look good, and make your momma look like Beyoncé or somebody." Everybody laughs. "Yep, that's what she be sayin'," Junior says. "I seen yo momma," said Deron, "and, uhn uhn." Lavelle responds, "I saw that football player that dropped you off. Was that yo momma?" I signal them to stop. Fatima, still holding on to her seriousness from earlier, says without a smile, "Show 'em they cain't keep us down." Later in the interview I ask, "How does Mrs. Thande make the math understandable?" Beth, the only White girl in the group says, "She doesn't always make it (math) simple. I mean, she does sometimes, but…" Fatima interrupts, "It's the way she puts it." "And how is that?" I ask. "Um," says Toya, the girl who struggles with math. "She don't let you not get it."

Notice that the students offer several compelling examples of Mrs. Thande preserving cultural bearing. One example is the chorus reception Fatima receives from her classmates when she says, "Well, our school is not rich, and we don't have the governor doing special favors for us either." Its critical nature appears to resonates with a collective consciousness (preservative aspect) shared by the students. If we apply Paulo Freire's (1998) notion that the, "Truly

oppressed do not enjoy the freedom to fail, nor the luxury of experimenting…and heed only serious ideas which they can put into practice" (p. xiii). These students collectively agree on success, applying experience, and recognizing the importance of Mrs. Thande's ideas to their effective learning.

In this same interview there are examples of Mrs. Thande's students offering compelling examples that Mrs. Thande has preserved their self-esteem. The definition below, and the keywords in figure 6.1, illustrate that the development of self-esteem is a preservative process. The definition of self-esteem presented by Hooks (quoting Nathaniel Branden, 2003) is:

> The experience that we are appropriate to life and to the requirements of life…Self-esteem is confidence in our ability to think; confidence in our ability to cope with the basic challenges of life; and confidence in our right to be successful and happy; the feeling of being worthy, deserving, entitled to assert our needs and wants, achieve our values, and enjoy the fruits of our efforts. (p. xii)

Branden's idea that self-esteem is indicated by one's feelings of being "Appropriate to life and to the requirements of life," is an idea evident in Fatima's remark, "We way better than (the suburban school) them," as it is in Deron's remark, "Hard work, man. Mrs. Thande gives us exactly what dey get out there in those White schools. Look, we ain't bout to let those White kids beat us jus cuza no racism." Branden's self esteem criteria of being, "confident in our ability to think," was evident in the remark and collective applause to, "We don't have the governor doing special favors for us either." That is, we earn our way by thinking and doing the work. Although all of Hooks' criteria can be found in this interview short, a final example of the preservative has to do with the idea of "feelings of being worthy." It is demonstrated in the remark "She don't let

you not get it." This last remark seems to be a demonstration that Mrs. Thande cares for all of he students and will not leave them behind.

Lavelle remarks, "She always be sayin,' represent." Representing is preservative, in that we re-presents through a lens that is germane, and thus preservative of one's experience. This representing clearly emboldens Thande's students to believe that the disparities taken as normal in mathematics (Kozol, 2005; Martin, 2007) can and should be questioned, and re-named (Freire, 1990). Representing also pushes them to strive for a kind of academic excellence that preserves the school's overall success, evident in Fatima's remark, "Show them they can't keep us down." Having incorporated the passions of her students in this way, Thande has preserved her students' interest in the mathematics knowledge, as they are determined to succeed despite the odds. The students' unwillingness to concede even a little prestige to their suburban counterparts indicates a degree of preservation that might, at least in part, be attributed to their teacher.

It could also be argued that Mrs. Thande's use of both teacher-and student-centered approaches is a look that serves both mathematics reform-based interests and the interests of African American mothering culture. Black education researchers argue that child-centered education "ignores the historical productions…[and] deemphasizes the social circumstances and the social relations in the lives of Black working class, and poor children" (Richardson, p. 373). However, other scholarship suggests the benefits of child-centered education. Mrs. Thande's practice centers the teacher, interjecting moments where students are the center. The preservative element is clear in the fact that Thande provides a powerful cultural norm that counters a mathematics education and pedagogy often closely aligned with the idealized social and cultural experience of White middle class America (Ladson-Billings, 1997; Martin, 2009; Powell, 2002;

Romberg, 1992). Mrs. Thande's students' feelings about themselves and their learning confirm this.

In this lesson, and in the interview, it appears that Thande has created several kinds of preservative spaces. First, students are allowed to be doubtful, anxious, and questioning of the mathematics. This creates comfort and encourages her students to use their voices, and to talk about the mathematics. Her students feel comfortable using their language and voices in appropriate ways. Representing their own realities is also permitted, which preserves subject-hood, self-determination, and the belief in them-selves as thinkers of mathematics - despite poverty, hardship, and deprivation. In the end, the students' dignity has been preserved – though largely "denied on the outside in the public world" (hooks, 1990, p. 42), it is valued and preserved in Mrs. Thande's classroom.

Funkiness Across the Themes

Affect. Funk is described in chapter three as the presence of affect, movement, communality, and orality. When affect is represented by inspiration, influence, inducement, emotion, change, and drama (acting) it is more easily identified in Mrs. Thande's practice. One instance of affect noticeable in Mrs. Thande's practice is her response to Aliya's statement: "I don't get it." Mrs. Thande responded with a quizzical look and a hand on Aliya's shoulder. She then asked, "What don't you get, Sweetie?" The moment was filled with affect. The quizzical look was obviously an inducement to try again. That is, I know you can get it, and I have high expectations in you, so lets talk through it. Placing her hand on Aliya's shoulder was a gesture that said I am here with you, so be inspired, you are not alone. Re-naming Aliya, Sweetie, however, could be interpreted as an act of caring, and connection. Regardless of the math, we are connected – so be comfortable with me.

When Deron interrupted Aliya's meditation on the problem in an attempt to offer his own idea. Mrs. Thande passionately interrupted his interruption with a harsh sounding "wait." In this emotional exchange she assured Aliya and everyone else who had watched her approach to Aliya, that her position was an authentic one – she would not tolerate micro-aggressions against other students, and particularly not against female students. Milner (2006) argues that African American teachers are particularly sensitive to the protective needs of their students. He wrote,

> Indeed, Black teachers often have a commitment to and a deep understanding of Black students and their situations and needs because both historically and presently these teachers experience and understand the world in ways similar to their students. In addition, the teachers have a commitment to the students because they have a stake in the African American community. Students often do not want to let their teachers down because the teachers are concerned for the students (Foster, 1997), and this concern has been described as other mothering (Collins, 1991), and I would add other fathering. The students sense this care of the teachers, and this care pushes them to do their best in the teachers' classroom. (p. 94)

Affect was also present in the Mrs. Thande's attire. Her students often commented on her attire. She wore colorful clothes, colorful scarves, and snazzy shoes. Her students were so inspired by her attire that they often gave her praise: "I love your hook up Mrs. Thande, it's poppin." "Where did you find those shoes? They are hot..." Where did you get them, and how much did they cost?" "You have the best outfits, Mrs. Thande." "My mother would love your outfit, especially your shoes." "Mrs. Thande, you are the best-dressed dresser… of all the teachers in the building, and that's why we (homeroom 121) are sicker[23] than every other

[23] Sicker in AAEV, and when used in this context means "hipper," or "more with it."

classroom in the building." One's attire can be an essential part of one's practice in that it could influence, induce, or inspire higher self-esteem, a move that could engender greater respect for the teacher (Foster, 1992; Hooks, 2003; Hale-Benson, 2000; Richardson, 2002).

Movement. Funk as movement is present throughout Mrs. Thande's practice as well. It is more easily identifiable when we define it as gesture, rhythm (e.g., dance, spoken word), agitation, coolness, change (e.g., action), development, demonstration, centering, mobility, critical thinking, re-articulation, transit and translating. For example, when Mrs. Thande chose to walk in reverse down the classroom's center aisle while talking about the mathematics, all with rhythm, grace, and an occasional pause to glance over at some behavior that might have been on the edge, it demonstrated mobility, control, rhythm, maneuverability, and coolness. Ferris Thompson (1973) has written extensively about the central role and purpose of coolness in African and African American life.

> The telling point is that the "mask" of coolness is worn not only in times of stress but also of pleasure, in fields of expressive performance and the dance. Control, stability, and composure under the African rubric of the cool seem to constitute elements of an all-embracing aesthetic attitude. Struck by the re-occurrence of this vital notion elsewhere in tropical Africa and in the Black Americas, I have come to term the attitude "an aesthetic of the cool" in the sense of a deeply and complexly motivated, consciously artistic, interweaving of elements serious and pleasurable, of responsibility and of play. (p. 41)

Raising her hands to the ceiling in praise, performing a jig, or simply placing her hands on her hips all constitute the funk of movement, and all could very well yield credibility to her practice. About coolness, Thompson adds,

> Manifest within this philosophy of the cool is the belief that the purer, the cooler a person

> becomes, the more ancestral he becomes. In other words, mastery of self enables a person to transcend time and elude preoccupation. He can concentrate or she can concentrate upon truly important matters of social balance and aesthetic substance, creative matters, full of motion and brilliance. (p. 92)

Mrs. Thande's transition from one emotion to another is also movement. For example, she transits from the excitement of trying to get Aliya to explore the mathematics more deeply to being dismayed about Deron's interruption, back to being calm and responsive to Aliya without any outward appearing effort. Notice also how she moves (movement) between Standard English and Ebonics. In one instance, she uses Standard English to say, "Well, hold on. Let's address one question at a time. What/is the question/actually asking us/to do?" This Standard English is followed by the Ebonics command; "Don't start scratchin' yo heads now." Movement back and forth across these literacies, according to Richardson (2002), requires a multiple consciousness state of mind, which, according to her, has been significant to African Americans who have for centuries had to navigate a very unpredictable and potentially dangerous terrain. In the end, the presence of funk in Mrs. Thande's practice is evident in multiple instances, including in this last example, where it manifest as forward and backward movement in her use of different language types and idioMrs.

Communality and Orality. Communality and orality are the final two criteria of funk. They are both present in Mrs. Thande's practice, and in the focus-group interview with six of her students. If we allow the communal to be represented by what we share in common (e.g., race, class, gender), community, cooperation, and agreement, identifying the presence of funk as communality will be easier. And, if we allow orality to be represented by how we articulate

(Ebonics or Standard English), story, talk/discourse, history, and centeredness, it will be easier to locate it within Mrs. Thande's practice.

Earlier we spoke of Mrs. Thande's use of pronouns such as "we," "us," "let's" and "yall" as inclusive, and now we add that these pronouns also indicate the funk of the communal. This is mainly so because these pronouns might also convey a sense of togetherness. For example, when Mrs. Thande said to her students, "I have got to get yall ready," there was no question of who she was talking to – she was talking to all of her students – the "yall." She did not distinguish in word (oral) between the students who were doing well and those who might be struggling when she committed her self to getting them all "ready." The entire class was considered a unified whole community. Seeing the class as community, and taking on the responsibility of raising it is an African American mothering aspect of protection called "community mothering." Arlene Edwards (2000) in her article discussing the relationship between community mothers and African American children, explains this funk of the communal:

> The experience of slavery saw the translation of othermothering to new settings…[T]he familial instability of slavery engendered the adaptation of communality in the form of fostering children whose parents, particularly mothers, had been sold. This tradition of communality gave rise to the practice of othermothering. The survival of the concept is inherent to the survival of Black people as a whole…since it allowed for the provision of care to extended family and non-blood relations. (p. 80)

Mrs. Thande broadened this community to include herself, when she said, "I have got to." This imperative is also culturally rooted and definitely a part of the communal funk that is community mothering. Mrs. Thande may have recognized, consciously or unconsciously, that

her well-being depended as much on the funkiness of community uplift, and community teaching she provided as did her students.

There are other examples of the communal and oral working together. Lavelle's said, in response to a question about how to overcome, "Do what Mrs. Thande always be sayin - represent." When asked what he thought Mrs. Thande meant by "represent," he responded without equivocation, "[M]ake your people look good…" Making one's people look good certainly indicates communal funk. It shows the centrality of community in this teacher's practice. Encouraged to make your people look good by working hard in mathematics indicates a funk of communality that extends beyond the classroom into the broader community that includes family, non-family, past and future people whose sacrifices deserve the admiration and continuance offered by your hard work.

Looking again across this lesson, funk, as expressed through affect movement, communality and the oral was definitely present and definitely explicit. Each occurrence of funk, whether explicit or implicit, was clearly identified. They all appeared quite frequently, and most occurrences were moderately explicit; meaning deliberate but measured. Oral funk was most present and most explicit. However, movement and affect were similarly represented, only less dramatic. Communality, a less empirical phenomena was less frequent and less explicit, but still very present to the discerning eye.

Clark et al. (2009) argue that there are significantly more micro-aggressions than macro-aggressions of oppression against the African American child/student requiring tons more funk – micro-interactions in fact. These micro-interactions, if you will, often intersected, and even intertwined with each other creating different permutations of each other, which is to say that there are likely far more instances of each than has been recorded. I have documented what was

most apparent to the eye. When these interactions required more than a modicum of analytical insight to see, I did not record them, as the aim was primarily to determine the presence or absence of these thematic emanations – as such presence o absence would lend more weight to the falsification or verification of this study's proposals.

The fact that the funk aspect of orality occurred most often, and was the most explicit of the four aspects may indicate that more attention should be given to the function of oral strategy in predominantly African American mathematics classrooms. Ben-Yehuda et al.'s (2005) ideas about discourse and its connection to skill in the mathematics classroom provides insight:

> Almost any person may become a skillful participant of arithmetical discourse, provided, first, that a discursive mode [orality?] is found that makes the best of this person's special strengths, and second that in the process of teaching, the general sociocultural context of learning is taken into account as having a central role in enabling or barring one's access to literate discourses; if the potential for successful participation remains often unrealized, it is mainly because of certain widely practiced abuses [e.g., stereotyping] of literate mathematical discourse. (p. 176)

However, it is also significant to the interpretation of this lesson that it is understood that any count or the frequency of these funk aspects would have been a nugatory fact, as many of the instances of funk occurred only a few times but had enough effect that anything more than one or two instances would have been overkill. The same appears to be true of the mothering themes as well. I speak of frequency only to show that the teacher used one aspect of funk more frequently than another, not as a measure of a particular funks importance over another. Perhaps another study of this study's data and the occurrence of the different funks might be explored further for greater meaning.

Lesson Collage 2: More Multiplication of Fractions

Walking into the classroom on a warm day in September, I noticed that students were quietly finishing their bellwork and preparing for a group review of yesterday's homework problems posted on the overhead projector. The problems were the following:

½×⅓ ⅖×¼ 4/7×¾ □×□ ⅔ × ⅕

Mrs. Thande interrupts the silence to offer a little feedback on some of the homework passed in today. Holding up Vanessa's homework for all to see, she remarks, "Vanessa, this is impressive. I can read/your work." (She looks over at Vanessa with a smile.) "You have shown/your work," she says while holding the work up for all to see. "I don't have to guess/ how/ you got your answers," she says with cadence, indicated by the slashes, and emphasis placed on the word "how."

"And/ you have attempted," she pauses and looks at others just as a preacher might, "if not completed/ every math problem assigned/ umph!" "Chris," she takes a rhythmic pause, "I don't know…well/ this doesn't look like you did it at home. Maybe on a ship/ somewhere in the middle of a storm/ but baaaby," she sucks her tongue loudly and hisses, "I can't read this." She stands with one hand on her hip and with his paper held high for all to see. She gives him a solemn look. "Take it," she hands it back to him, "cause I am not/ going to wreck my brain/ trying to make sense of it."

"Deron/ boeeyyy/ umph!" She holds up another student's paper with a smile. Shaking her head, she says, "Deron has written the time/ next to every problem." With a serious countenance, she looks at her students: "This boy is measuring his time/ little people. He/ is on a mission. What would Dubois have to say about that?" "Who?" asks Semi. "Dubois stupid!" says Tanisha with a smirk. "You're doing a report on him in Mrs. Dee's class/ tssss." Mrs. Thande, with her

lips clinched tight, and brow stretched high, stares squarely at Tanisha for about five seconds, and then over at the students who found Tanisha's remark funny, finally bringing her stare back to Tanisha. Tanisha quickly recants, "Minus the stupid. Sorry/ Semi." "Thank you Jesus/ Lorrrrd!" whispered Mrs. Thande. The whisper was loud enough to be heard by everyone, as the classroom had become very quiet during this exchange.

"What does this problem/ (1/2 x 1/3) ask us?" The entire classroom responds on cue, "What is one half/ times one third." "Umph," Thande responds. "What is the first step to solving it?" She simultaneously takes a dramatic step forward with a hand behind her ear. "Look for cross cancellation." "Umph!" she smiles. "Are there any opportunities/ for cross cancellation in this problem?" "No." Thande nods and places both hands on her hips. "How do we know?" Unlike many others, Stephanie responds without equivocation.

Mrs. Thande spins a pirouette, "Thank you, darling/ say it again." "Because," Stephanie raises a signifying finger, close her eyes, and swerves her head, "none of the diagonals/ share/ common factors/ besides one." "Ah hahhh," Thande says, repeating the statement in a low voice but still infused with rhythm asks: "Everyone/ how do we know there are/ no opportunities/ for cross cancellation?" In class responds in unison and with the same rhythm, "Because/ none of the diagonals/ share/ common factors/ besides one." "Umph!" Thande performs another tap, spin pirouette, before stopping at the overhead projector to circle the diagonals. She then asks, "What's next?/ c'mon." She gently waves the students toward her. "Multiply the numerators," her students respond loudly in rhythmic response. Playing the confused bystander with eyes opened wide, Thande raises one hand and asks, "Nu/me/ra/tors, oh! What are those?" One of her palms turned upward at shoulder length. "The numbers/ on top/ of the bar."

She gives them a serious stare, “also known as di/vi/dends,” moving her index finger like a conductor, with each syllable. “What/ do we get?” “One,” says everyone in unison. Another serious stare, “Umph! So we multiplied the dividends. What’s next?” she asks, shrugging her shoulders, “Multiply the denominators.” Thande does a jig, “Oh,” she says, now visibly excited, “and those are where?” She points to an inverted palm. “On/ the bottom,” her students scream, now having fun. “Yes/ also known as/ di/vi/sors,” she says almost singing the sentence. “What is two/ times/ three, boys and girls?” “Six.” “What is our answer?” Some reply, “One six,” while others reply, “One sixth.” Stretching her eyes wide, and eyebrows high, Thande tilts her chin downward, and says, “Excuse me/ how/ do we read/ one over six?” Every student quickly responds with, “One sixth.” “A/men,” she responds with a sigh. “Get it together/ little people. Next problem.”

Protection

Mrs. Thande worked through all five “problems of the day” in exactly the same way. It appeared that her students became more and more familiar with the functions of dividends and divisors with each problem. Finally, she sashayed down the center aisle with the words “That/ was/ on/ point! Move into your groups.”

The protective, but also empowering aspect of praise was observable when Mrs. Thande held up Vanessa’s work with praise. She said, “This is impressive.” “I can read your work… (And) you have shown your work…(and) I don’t have to guess how you got your answers…” “You have attempted, if not completed every math problem assigned, umph!” Not only is there an interest in protecting the individual esteem of Vanessa, but also the esteem of the entire class. When Mrs. Thande raises her voice for all to hear, and explicitly comments on what is right with Vanessa’s paper, she is sharing particular “codes and rules for participating” in mathematics

discourse of power (Delpit, 1988, p. 283). These codes offer protection from alienation, and discrimination. One might argue that they also protect the African American learner from a mainstream mathematics stereotype that cast the African American child as less able that White American and Asian student (Martin, 2007).

This kind of praise is warranted when it comes to the African American learner. Martin (2007) has argued that the African American child has been constructed in such a way by mainstream mathematics research and policy that it has become normal for teachers of African American students to dawn the hat of "cannibal" or "missionary." Clark et al, (2009) and Hooks (2003) both argue that Black teachers have historically held very high expectations for Black children as the attack against their self-esteem has been an enduing one. That is, Mrs. Thande's praise is also protection. Consider Seegers, Van Putten, and Vermeer (2004) claim: "when students attributed a good performance to their personal ability, a positive effect on their estimated competence in any subsequent task confrontation resulted" (p. 307). Thus, the praise as protection may actually be variable in the success we see in Mrs. Thande's class.

In another instance, Mrs. Thande again raises her voice to get the attention of every one, while holding up the paper of another student. She says, "This boy is measuring his time, little people." Every one can see that he has placed the starting and finish time on every mathematics problem. Showing the class and example of this kind of organization is definitely and act of resistance against the negative stereotypes spoken of earlier. When Mrs. Thande says to yet another student, "Thank you, darling, say it (the answer) again," as the student repeats her response, which is a well articulated response to the problem, Mrs. Thande is allowing her students yet another explicit description of what "real" African American students can actually accomplish in the classroom. Indeed, Mrs. Thande praise gives rise to lifted self-esteems, but it

also shares codes of power, resist negative stereotypes, and establishes high expectations. In a final instance, we see Mrs. Thande using an instance of scolding in the same way. She raises her voice to get everyone's attention "Take it" (homework) she hands it back to him, "cause I am not/ going to wreck my brain/ trying to make sense of it." The code shared with the entire class: writing counts in mathematics.

Notice the cadence in Mrs. Thande's question, "So/when we multiply/these nu/me/ra/tors, also known as di/vi/dends, what/do we get?" The question has a musical like beat known as call and response. Call and response is many things, along with being a multi-layered and polyrhythmic practice (Welsh-Asante, 1993). Using this practice, Mrs. Thande is able to layer division and fractions with movement, gesture, rhythm, and mathematical doing. For instance, she says, "Numerators, Oh!" while simultaneously raising her palm parallel to her shoulder and swerving her neck, before asking, "What are those?" Her students, recognizing the gesture (open palm being a part of something, e.g., I can "hand" you the orange but not the orange tree), respond emphatically with the same rhythm she has set, "The numbers on top of the bar (shoulder)." She looks at them with a look that says "Oh, yall bad, huh" letting out a barely audible, "Umph!"

The polydynamic, or layering of things/actions (e.g., beat, words, movement) in African American culture, is meant to accentuate the importance of a thing (Welsh-Asante, 1989). Thande's students giggle as she gingerly points to the top of her palm, while simultaneously raising her eyebrows at them, while simultaneously asking, "Right here?" They are enjoying the polydynamic aesthetic – that may be heightening the learning experience.

She says, "So/ when we multiply these nu/me/ra/tors," pointing again at the same palm with chin raised, "also known as di/vi/dends," moving her index finger with each syllable, "What

do we get?" "One," everyone shouts in excited unison. Another part of what has been accomplished here according to Foster (2002) is that the teacher has helped students having difficulties pronouncing, calculating, identifying, rationalizing, simplifying, reducing, and multiplying. She "modulated the intonational contours [of the lesson] until it corresponded" with her students. Meeting her students on their cultural ground has allowed the comfort that comes when what you know is valued as important (Ladson-Billings, 1997).

Nasir (2000) has a gone a step further to argue, "…sociocultural context does indeed influence the rate and nature of development" (p. 283). She found that access to experts in real time provided a kind of scaffolding that promotes accelerated learning (Nasir, 2008). For instance, when Mrs. Thande's calls out to her students using the real time activity of call & response, then receives their response, which she then responds to with direct feedback on what their response should or could sound like, it is non-different from the direct response the novice basketball players in Nasir's study receives from the more expert player while attempting to become more proficient at playing (solving) basketball. Call and response is a key African American sociocultural norm. Its use in the classroom modifies the learning context so that the student is actually engaged in real time action with the expert, increasing the "rate and nature" of learning. This is protective in the sense that the student is escorted by an expert through the challenges of a mathematics task, that might have otherwise caused problems, using as scaffolds their own expertise, which happens to be culturally familiar to the students. In effect the teacher/expert has interrupted the "continuing stereotyping of students of color with respect to learning" (Nasir, 2008, p. 532). Nasir adds that, inattention to the racial context of sweeping the fact that all expertise, and especially classroom expertise has a cultural component, neglects the impact of the fact that "…student internalize such racialized messages about who they are and

what they can learn" (p. 532). Countering such racialized practices with the use of cultural practice (call & response) is protective.

There are a host of other noticeable examples of the protective theme in this lesson not given their due significance. A major one is the anti-individualistic approach to students. When Mrs. Thande uses individual praise, it is used mostly as a means of empowering all students. This is seen when she praises one student by showing their work to all of the students. This group-focused praise may work to protect students from the alone-ness of being a stereotype class of mathematics learners (Steele, 2002). Another aspect of the protective theme in Mrs. Thande's practice, but not covered as much in this work, is its anti-oppressive aspects. When examples of students excelling at mathematics, as when students work is highlighted before the class orally or on the classroom pion-up board, counters the underachiever rhetoric so dominant is mainstream mathematics education discourse (Lubienski & Gutierrez, 2008; Martin, 2007). Students are able to see that African American students like them, even in their own classroom, can achieve at high levels. This of course dispels oppressive and controlling myths about who can actually achieve in mathematics. The fact that Mrs. Thande's practice has a huge rhythmic aspect will certainly communicate to many students that it is accepting of African American culture. The valuing of African American culture in the mathematics classroom space also counters the oppressive notion that "mathematics is for White people" (Delpit, 2012). According to Delpit, this notion is an insidious one, and must be countered at every opportunity. The presence of this protective theme in Mrs. Thande's teaching practice is virtually ubiquitous, clearly falsifying the null hypothesis that proposes: Any successful teacher of mathematics, teaching in a majority African American classroom context, likely avoids the mothering cultural norm of protecting African American children.

Empowerment

Demonstrating that one has in her/his hand the power to achieve whatever they dream has much to do with helping them to see their own relevance, and the importance of centering their own lives (Asante, 1991). That is, the person to be empowered must first learn to comprehend his or her own significance to the whole, and then learn how that significance must be positioned (center) to thrive. When Mrs. Thande responded to the boy who turned in homework that was hardly readable, she first got the attention of all his classmates, and then spoke saying: "Chris," a pregnant pause, "I don't know…well/ this doesn't look like you did it at home." Holding the paper up high for all to see, she continued, "Maybe on a ship/ somewhere in the middle of a storm/ but baaaby," she sucked her tongue loudly and hissed, "I can't read this." Students are encouraged to look at the aesthetics of their work. Mrs. Thande's lesson is that you are responsible for how your work is received. Others will determine what they will about your work based upon the effort you place into it. She encourages Chris and his classmates to find a place in which they are most comfortable doing their work. Essentially, you are the center and when you are not taken care of, everything else, including your homework with look askew. She told Chris to "take it back" – she didn't want it. The empowerment appears to rest in the demonstration of an analysis that determined that looking at one's work objectively is an important requirement of success.

Another example of empowerment in this lesson centers on Mrs. Thande's use of W.E.B Dubois to convey significance. After highlighting one student's demonstration of organization in his work, Mrs. Thande asks the class to consider: "What would Dubois have to say about that (the students work ethic)?" Her invocation of Dubois is a clear demonstration to her students that Dubois is relevant and central to the mathematics work being done in this classroom. She had

obviously spoken with the social studies/history teacher next door, and learned that Dubois was part of the unit her students were working on. This demonstration of pulling from social studies communicates a synthesis of knowledge. This synthesis is clear in what happens next, when Semi, a fellow classmate asks, "who is Dubois?" Tanisha, another student in the class responds condescendingly, "Dubois stupid. You're doing a report on him in Mrs. Dee's class, tsk!" Tanisha takes one glance at Mrs. Thande and realizes her remark was totally inappropriate. Mrs. Thande stared squarely at Tanisha for a very long five seconds, and then at the students who had chuckled in response to Tanisha's remark. Before Mrs. Thande could utter a word Tanisha had already analyzed the error of her ways and was apologizing for her remark. "Minus the stupid. Sorry, Semi." It was a short apology, but sounded very sincere.

Culturally relevant teaching for empowerment enables students to be better human beings and more successful learners (Gay, 2000). Centering Dubois was the first example of empowerment here in that students had to contemplate themselves at the center of a phenomenal social activist's analysis. This is the very definition of what Asante (1990) calls "Afrocentricity" – placing oneself at the center of analysis. It is the first step toward liberation – seeing oneself as important. However, Mrs. Thande's question is quickly used in a totally different way that also empowers the students of her classroom. Only a glance is needed to convey to Tanisha that a quick analysis and evaluation of her response is required. Tanisha offers an apology, demonstrating to all of her classmates the empowering lesson of thoughtfulness, respect of community, respect of individuals, the importance of quick analysis, sound evaluation, and clear and authentic communication. Was this directly connected to the mathematics? Sure, the entire interaction happened in the context of a student's impeccable mathematics work. That is, the

mathematics should not be disconnected from the context in which it occurs, and should be connected to context where is likely to occur (Skovsmose, 2005).

Shor (1992) has argued that an empowering pedagogy "approaches individual growth as an active, cooperative, and social process, because the self and society create each other" (p. 15). When Chris attempts to turn in very sloppy work, one could say that he is asking if it is okay that he becomes non-integral to the development of society. This self-centered request is, of course rejected by Mrs. Thande. Her response is that he gives his best or else she won't take it. Tanisha too, is attempting to place her individual self above the cooperative, but Mrs. Thande won't allow it either. The empowering pedagogy "does not teach students to seek self-centered interest at the expense while ignoring public welfare" (Shor, 1992, p. 16). It could be argued that this event is an example of empowerment.

Notice that a part of Tanisha's apology was mathematical. Her apology to Semi was "minus the stupid." This may seem non-important, but to Matthews (2003) it is of supreme importance. He suggests that in the mathematics classroom, particularly, we should "rethink our conceptions of power in terms of hegemony, ideology, and language" (p. 64). That is Tanisha's use of "minus" to remove her negative remarks has relevance. For instance, it could be used to discus the function of a double negative (minus x negative remark = apology). Notice that Mrs. Thande did not cite this apology as incorrect English. Other scholars have argued that when the social-culturally dynamics of the child are included in the mathematics discourse (talk), that discourse becomes more meaningful to the leaner (Ben-Yehuda et al 2005; Moody, 2004; Nasir, 2006). That is, mathematics that is relevant, and that "makes sense" will likely find itself in greater use. The idea of minusing (subtracting) an offensive act indicates the subtlety with which Mrs. Thande's students are being to see

themselves as members of the mathematics discourse - a definite sign of mathematics identity development (Martin, 2000; Sfard, 2005) – and of empowerment.

Some acts of empowerment appear to occur mostly in the mind. For example, Mrs. Thande asked, "What does this problem/ (1/2 x 1/3)/ ask us?" The entire classroom responded on cue, "What is one half/ times/ one third." There were no pencils and paper involved in this exchange. All analyses and responses to Mrs. Thande's open-ended questions were accomplished on some screen somewhere in the minds of these students. "What/ is the first step/ to solving it?" She asked. "Look/ for cross cancellation," the class responded. "Are there any opportunities/ for cross cancellation/ in this problem?" "No." Thande nods and places both hands on her hips. "How do we know?" Rhythm and movement, tone, and idiom of exchange, were all present, so that what might ordinarily be considered a controlled, rote, or a skill and drill based exercise was transformed.

Concerning this transformation, Shulman (1989) argued that good teaching required an integration of subject knowledge and pedagogical knowledge. Amy Hackenberg and Nathalie Sinclair (2006), Sinclair (2001), and Kenneth Conklin (1974), all went a bit further to suggest that even when these two are integrated, they must be presented effectively, and this effectiveness is primarily determined according to aesthetic considerations. But, Kariamu Welsh-Asante (1994, 2003), and Ayele Bekerie (1994), explained that all aesthetic considerations are culturally defined. That is, an aesthetic emerges out of the historical, artistic, and culturally consistent examples of a people.

Thus, it could be argued that Mrs. Thande's integration of African American dance, idiom, tone, call & response, and history, etc., with mathematics – a malleable art form that can "collapse into either dictatorial forms…or…democratic ideals" (Skovsmose, 2005, p. 3) –

suggests a practice that empowers its learners to pursue democratic ideals as standards, serving not only the best interests of African American people, but all who seek justice and equity.

Preservation of Cultural Bearing

Though less present than protection and empowerment, the theme of preservation of cultural bearing appears to have an impinging presence in Mrs. Thande's practice. In the first lesson, Mrs. Thande's decision not to correct Deron's incorrect assumptions about a fraction problem in the interest of allowing a discussion on the problem to continue may have appeared to be a natural aspect of "good teaching." However, research has shown that her actions are not so common or natural – as the damaging and stigmatizing effects of widespread stereotyping and pedagogical discriminations against students who speak AAVE is well documented (Blake & Cutler, 2003; Godley, Sweetland, Wheeler, Minnici, & Carpenter, 2006; Perry & Delpit, 1998).

In this lesson, Mrs. Thande's amalgamation of call & response – an AAEV idiom – with Standard English as it is spoken in mainstream mathematics might also appear to be just "good teaching" – but research says that it is more (Ball, Goffney, & Bass, 2005; Delpit, 2009; Ladson-Billings, 1995, 1997; Nasir, 2008). When Mrs. Thande says, "Also known as di/vi/dends," the vernacular is Standard English, but the idiom is a call & response pattern as indicated by the slashes. "What/do we get?" she asks. "One," says everyone in a call & response fashion. "Umph!" This "umph" is a part of the AAEV idiom, generally understood to indicate that something special just occurred. "So, we multiplied the dividends. What's next?" Again, she questions using Standard English vernacular. "Multiply the denominators," her students reply. Thande follows this reply with a jig that you will rarely see any where outside of the Black church. "Oh/and those are/where?" She asked in the Standard English vernacular. "On/the bottom," comes a joyous reply. "Yes/also known as/di/vi/sors," she adds, still combining the call

& response pattern with the Standard English vernacular. This goes on until the end of this problem, where she caps the problem with an "Amen" and a "Get it together/ little people," both of which are AAEV languages. The important thing here is that rather than bashing AAEV, or totally dismissing Standard English, Mrs. Thande uses them both, and therein preserves a portion of the cultural bearing of her students. Ben-Yehuda's et al's (2005) quote is again instructional, especially as it concerns the mathematics achievement of African American students and the need to preserve their vernacular: "Almost any person may become a skillful participant of arithmetical discourse, provided, first, that a discursive mode is found that makes the best of this person's special strengths" (p. 176).

Spirituality has played a major role in African American culture, as well as in Mrs. Thande' practice. Mrs. Thande invokes it a number of times in this lesson. For example, after Tanisha apologizes for calling a fellow classmate stupid, Mrs. Thande sighs and then whispers, loud enough for the entire class to hear, "Thank you Jesus, Lorrrrd!" This example of thanking a higher, transcendental force demonstrates, and preserves a cultural motif that runs deep in Africana culture. Ladson-Billings (1997) says that although spirit is a key "African American cultural expression…[it] is neither reinforced nor represented in school mathematics" (p. 700).

However, spirit has been defined as "a meaningful relationship with a transcendent power, a sense of connectedness to people and nature, and a sense of purpose and meaning of life" (Thomas, 2001, p. 2). It is the unconditional energy, commitment, and sincerity one gives that enlivens a thing. So that when Mrs. Thande says, "thank you, Jesus," she may be invoking or thanking a transcendental force for its assistance in her work. When she utters those indiscriminate "Umphs," that in the African American vernacular that generally means something was extraordinary, she might also be conveying her connectedness to her students, as

well as a sense of purpose and meaning she has in their work. And, when she says "Amen," she is, arguably, re-emphasizing her commitment and sincerity to her students' collective work. The role of spirit is apparently present Mrs. Thande's practice.

On another occasion Mrs. Thande dances what I call a "jig." The look of the jig is one that can be seen on any given Sunday visit to an African American church: One hand is facing the earth as if ready to catch the dancer once the spirit is done making the legs do whatever it is they are during. The other hand/palm is lifted toward the sky as if giving praise. Tolliver (1997) says that, "The nature of spirituality is that it is not bound by time or physicality…it is the renewable life force, the energy that enlivens the physical, and the space where human communion is possible (p. 2). Notice that when Mrs. Thande engages this jig she transforms the energy of the students. After the jig, students respond to her next question with jubilance, "On/the bottom!!!" "Yes/also known as/ di/vi/sors," she says almost singing the sentence.

Another example of preservation of cultural bearing is seen in Mrs. Thande's usage of W.E.B Dubois, the renowned Civil Rights Activist, educator, and Pan Africanist. She told the class that Deron is "measuring his time/little people. He is on a mission," right before she invoked Dubois' name. "What would Dubois have to say about that?" Dubois is an African American historical figure whose life-long work for the liberation of African American people stands as an aesthetic (standard) of commitment to community. When Mrs. Thande insinuates that Dubois would be pleased to know that Deron is so organized, it grounds her students in their own greatness. In doing so Dubois as a cultural referent is restored, and preserved in her students' memory. Although many other instances of preserving cultural bearing exist in Mrs. Thande's classroom, these few inform us that the null hypothesis claiming the absence of preservation is false, and that more research on this area would be well warranted.

Funkiness Across the Themes

Affect. We described the definition of funk earlier as the presence of affect, movement, communality, and orality. Unlike in the first lesson, affect is the most present emanation of the themes. This is likely due to the expressive nature of call & response – the dominant strategy in this lesson. If we allow affect to represent inspiration, influence, inducement, emotion, action (change), and an acting upon, it is possible to see that affect is a ubiquitous aspect in Mrs. Thande's practice. Let's begin with inspiration. At the very beginning of this lesson, Mrs. Thande appears very passionate about the feedback on homework she is giving to her students. She even interrupts the silence to tell Vanessa how fantastic her work is. She says, "Vanessa, this is impressive – I can read/your work." Sharing Vanessa's work obviously inspires Vanessa, but it likely induces others to aspire for higher marks on their own work.

Another quality of the affective that helps us to discern its presence is that it provokes action (change) or autonomy – it is not the action itself. Her remarks to Chris that, "I am not/ going to wreck my brain/ trying to make sense of it (his homework)," appears to be a provocation to change his work. That is, this is what "I am not going to do," what are you going to do? In the same sentence she lovingly refers to him as "baby," letting him know that he should not see her as the enemy, standing in the way of his progress, but rather as a concerned mother pushing her "baby" to conquer the obstacle. In a similar instance, her long pause after Tanisha's called Semi "stupid," could be interpreted as a pause for autonomy. That is, will you take action here, or do you want me to take the action – to take charge. Tanisha obviously took charge and apologized. Giving Tanisha room to take charge was especially revealing of the affective if we consider the relationship African American mothers and daughters have created around the subject of autonomy – an aspect of empowerment. O'Reilly (2004) explains,

> [African American] daughters seek identification or connection with their mothers due to the cultural centrality and significance of the mother role and…[that] this connection gives rise to the daughters' empowerment in African American culture. (p. 149)

When after Tanisha's apology Mrs. Thande exhales a gracious "Thank you, Jesus," int is historical admissible to assume that her gratitude extends to include that Tanisha, in her autonomous act, has received some degree of empowerment and has moved one step closer to receiving the mantle of motherhood.

Affect and spirit are closely related when we define spirit as Thomas (2001) defined it: "a meaningful relationship with a transcendent power, a sense of connectedness to people and nature, and a sense of purpose and meaning of life" (p. 2). Thus, Mrs. Thande's choice to dance a jig or spin a pirouette in front of her students – given her personality – is obviously a purposeful act, if only because it engages with their emotional and aesthetic sense. However, it could also be another demonstration of coolness as described earlier – which will have greater significance when we analyze the funk of movement. Just as in the first analysis of funk, overlapping, integration, and intertwining is pervasive.

Movement. Funk as movement, is more easily identified in Mrs. Thande's practice when we allow it to be represented as gesture, dance, agitation, change (doing), development, demonstration, centering, maneuvering, mobility, critical thinking, re-articulation, transit and translating. When movement follows in the vein of the African American aesthetic it is defined as liberatory movement (Welsh-Asante, 2003), versus vacillation (Asante, 2003). For example, Mrs. Thande did not tell her students about the value and specialness of call and response, she actually made it central to the lesson. Similarly, she did not tell her students how much she

cherished the Ebonics language (AAEV), she used it, and allowed her students to use it in re-articulating and solving math problems.

Movement as translation is also very prevalent in the lesson. That is, translating the mathematics to the idiom of call and response. This kind of movement indirectly demonstrates that mathematics is malleable, and can be reformatted to meet the specific needs of one's group (Skovsmose, 2005). Students were also encouraged to use Standard English when explaining how to solve the problem. Finally, Mrs. Thande demonstrated – a kind of movement - her appreciation of Stephanie's' very African American translation of the problem into a signifying finger, closed eyes, and a swerving head, when she said, "Ah hahhh." The way in which Mrs. Thande said "Ah hah" translates into oral Ebonics as: "Thank you for showing us what its really like," or into Standard English as "Awesome!" When Mrs. Thande lifted her palm so that it faced the ceiling and represented a numerator, and lowered the other palm to represent a denominator, when she danced a jig, and when she stretched her eyes wide, and eyebrows high, these all represented forms of movement, and therein, demonstrations of the funkiness of her practice.

Communality. Communality is also present throughout the lesson. It tends to appear more as concomitant acts, but is also quite present as an explicit act as well. If we allow the communal to be what we share in common, community, cooperation, race, class, gender, agreement, understanding, laughter, rhythm, success, and victory, identifying the presence of funk as communality will be easier.

Notice at the top of the lesson, Mrs. Thande shares her students' work with all of the other students. This practice is captured in Ira Shor's (1992) quote that states that the pedagogy that empowers "approaches individual growth as an active, cooperative, and social process, because the self and society create each other" (Shor, 1992, p. 15). That is the intellectual capital

of Mrs. Thande's class is spread to every student. We see this again in Mrs. Thande's protection of Semi. Sure, she could have let it passed and continued on with the lesson. However, she addressed it in short form – a skill I admired. Something that did not occur in this lesson but that was observed on several other occasions was the disdainful look that students received from Mrs. Thande when they attempted to respond to her call ahead of the group. The communal motif is also present, as it was in the earlier lesson, in Mrs. Thande's usage of inclusive pronouns (e.g., we, us).

Communality is also shared success. Although Mrs. Thande spins as pirouette in celebration of Stephanie's correct answer, follow by a "Thank you, Darling," she still wants the entire class to listen closely and give the answer that Stephanie gave. When they have all learned to say, "none of the diagonals share common factors besides one" together, she spends a second pirouette for the entire class. Victory for all appears to be a standard in Mrs. Thande's class, assuring it the funkiness of communality.

Communality, as with race, gender, and class all seemed to be present as concomitant acts in Mrs. Thande's practice. For instance, the use of call & response was the use of a historically African American approach, as was the incorporation of AAEV. For example, the reference to Dubois, one of the most active and well known social activists of the 20th century was a reference to the issues of racism he spent his life countering. Raising girls to be mothers of the race is an African American motherwork cultural norm, but it includes gender-based practices as well. For instance, Mrs. Thande's use of feminine gesture such as bent wrists and pirouettes, classy feminine attire, and hair dress, flowery perfumes, and sassy remarks, all while demonstrating power and authority are all arguably examples of gender. As well, there are instances where Mrs. Thande seems to expect more of her girl students, giving them more

specific praise and or criticism – which connect with the historical understanding that the girls will grow to become the keepers of the race (Collins, 2000; Gilkes, 2000). Consider how Vanessa was given several items of very specific feedback, Tanisha's act was heavily frowned upon, and Stephanie was directed to facilitate a mini-lesson and teach the class. On the other hand, Deron was given one item of feedback: "You're placing the time on you paper," and although his work was critiqued, Chris was perhaps, too kindly dismissed.

Orality. Orality also had a strong presence in Mrs. Thande's practice. If we allow orality to represent articulation, narration, story, enunciation, talk, discourse, voice, what was said in the past, conference, Ebonics (AAEV), Standard English, African centered, culturally relevant, and interjections, it is will be easier to identify it in Mrs. Thande's practice. Most of Mrs. Thande talk in this lesson utilizes Standard English, however, its idiom, or the way in which it was articulated was centered in the African American aesthetic of call & response. Narration or story was another noticeable oral feature. At leas two separate kinds of stories were being told in this lesson. One was the story that countered the "master-narrative," which is the story promoted by the dominant discourse (Perry, Steele, & Hilliard, 2002). That dominant discourse, says Martin (2008, 2009) and others (e.g., Nasir, 2008; Moody, 2004) is largely color-blind, and tends to construct the African American student of mathematics as less capable than White and Asian learners, using terms such as underachievers to identify African American learners. Mrs. Thande countered this narrative by highlighting the extraordinary accomplishments of Vanessa and Deron, and later showcased Stephanie as a "darling" of mathematics. Moreover, Mrs. Thande's students appeared to understand that one of the focuses of that lesson was to articulate the math in Standard English form. For instance, when Stephanie is asked to share the correct answer with the rest of the class, she says, "none of the diagonals/share/common factors/ besides one."

Speaking in this way further challenges the deficit notion that African American children are underachievers – as they can code switch when necessary.

Another story appeared to be the communication that math is not really that hard when you operate together. Foster (2002) points out the ways in which call & response can build confidence because of its collective approach. In this lesson there was fun and laughter, plenty of talk, and plenty of correct answers (success). Even when students incorrectly refer t he answer of one-sixth as one six, Mrs. Thande's "excuse me, how/do we read/one over six?" is light and suggests that everyone really knows that answer – which they do.

The call and response oral aspect of the class allows for several kinds of orality in the class. One kind of orality/discourse is the collective kind. It allows the student(s) who may be having some difficulty grasping certain mathematics ideas to practice repeating those ideas with others without the shame sometimes associated with individual or small group work (Cazden, 1999; Foster, 2002). In Mrs. Thande's class it allowed all students to have voice where some may tend to be quiet in whole group settings. Another kind of discourse engaged in this classroom is the critical, and culturally relevant discourse. When Mrs. Thande brought Dubois in as a reference point, she also brought in his revolutionary work. The question, "What would Dubois have to say about" our success today - had the potential of engendering all kinds of thinking and responses? Although we did not get a chance to hear this piece of critical discourse [thanks to Tanisha], we can assume that Mrs. Thande had spoken to the social studies/history teacher next door about her unit on African American freedom fighters, and was about to draw a connection between Dubois and some aspect of educational excellence. Surely Dubois would have had some kind things to say about Deron's and his classmates' mathematics learning – especially given that Dubois (1934) spent his life fighting against racial inequalities in schools.

Funk Integrated

Like the lesson that preceded it, this lesson had more than its share of funk, repeating itself again and again. Affect, movement, communality, and orality all occurred quite frequently. However, affect appeared more prominently than orality in this lesson. Instances wherein students were inspired or influenced by the teacher or another student were in great number in this lesson. As well, the affective nature of call and response is unmistakable. The entire classroom seemed excited about the mathematics from beginning to end, and the number of times Mrs. Thande entertained or acted out some aspect of the mathematics lesson via gesture, voice, or intonation, appeared to further engage her students.

However, it is important to consider the degree to which these funky aspects overlap, intersect, and often intertwine with one another. For instance, call & response is oral, but it also demonstrates communality in its requirement that students work together. At the same time, it can inspire collective emotion (affect), as when the entire group responded to Mrs. Thande's pirouette, or her "Amen" at the successful completion of the lesson.

Summary

I began this analysis exploring and examining the look of a successful 5th grade African American teacher teaching mathematics to a predominantly African American classroom. The tensions that surround my closeness to this work as a native to the experiences of this study's subjects forced me to acknowledge the theoretical and philosophical biases of this work in overt and explicit ways – which are often apparent throughout. To further clarify my position, I situated this work, which includes this analysis, largely in the Africalogical tradition, and in the tradition of Black feminist thought.

The analysis began by juxtaposing the teacher's practice with two null hypotheses, both of which were consonant with the complete absence of any discussion or research theory regarding African American women's presence in mathematics education research. That is, the most likely case presumed by these hypotheses, if proven, would clearly confirm, or, if not proven, irrefutably falsify, the hypotheses. However, my belief was that this hypothesis presented a "least likely" case, and that a look at African American teaching in the mathematics classroom would likely reveal that African American women (in general) do import into their mathematics teaching practice a vast (historical and cultural) knowledge of protecting, empowering, and preserving the cultural bearing of African American children. That is, the successful teacher of mathematics teaching in a majority African-American classroom context, likely does exhibit the African American mothering norms of protecting, empowering, and preserving the cultural bearing of African American children. And, she likely uses a form of pedagogy that includes African American mothering "funk" – which are those practices that exhibit affect, movement, community, and orality.

Using this least likely case study framework, along with a Black feminist set of mothering themes that provided a general and condensed portrait of African American mothering across several centuries, I analyzed lessons and interviews. I looked at Mrs. Thande's gestures and movements. I explored her idiom, orality, and discourse with her students. I looked at how she interacted with the mathematics content, how she interacted with her students, and how she interacted with the students as they interacted with the mathematics content. I also observed her interactions with parents, other teachers, and the greater surrounding community. An although some may feel looking in this way is too subjective, tackling too much for the researcher's own interpretations, I would argue that the wealth of information provided a complexly rich and

intertwining perspective of a case that was complex, rich, and intertwining – revealing the absurdity of trying to distill some part of it from the whole context. In the end, I predicated my analysis on the ever-present disparity between the racial, cultural, and gender characteristics of teachers and our definitions of what works with the racial and cultural characteristics of students and their particular racial and cultural context.

The findings falsified each hypothesis. In the first lesson Mrs. Thande seemed to engage one of the four mothering themes with each exhalation of breath. She protected her students with praise, and critical scolding. She empowered them through demonstrations of strength, and through explicit communications of how the mathematics might be relevant in contexts that had not been considered – all while valuing their African American English vernacular (Ebonics). She preserved their cultural bearing by noticing and addressing their fears and doubts concerning the mathematics. She also preserved cultural bearing by unapologetically demonstrating culture through gesture, idiom, and movement germane to African American culture right in the midst of teaching the mathematics.

The emanations, or funk of the themes, eliminated any lingering doubts as to the presence of African American mothering themes in Mrs. Thande's practice. In the first lesson, the aspect of orality was most present, but mostly because the classroom was engaged in thoughtful discussion around solving a word problem. This lesson has demonstrated a high level of explicitness in that when Mrs. Thande did enter the discussion, her aim was to provide something that would allow her students to move on without her. The occurrence of movement, affect, and communality, and orality occurred often within the same proximity of each other. They all were delivered explicitly. The dramatic flare in the oral aspects of the practice added excitement and energy to the lesson.

The second hypothesis was also positively falsified by the incontestable presence of funk in this teacher's practice. When the findings of funk in the first lesson are compared with those in the second lesson they all appeared equally presence. However, where the oral was most frequent in the first lesson, affect was most frequent in the second lesson. This was largely because the second lesson's dominant approach was call & response which required less original thought, and thus less orality – defined as: articulation, narration, conference, and culturally relevant talk. Affect appeared most prevalent in the second lesson. This was largely because of the emotions generated by the unified response aspect of call & response and its vociferous character. Students were more excited. Movement and orality were also very prominent, with instances of communality appearing to occur less frequently.

Looking at funk across the two lessons, one of the most obvious take-aways was that these instances of funk did not disrupt or take time away from time spent on task. That is being passionate and energetic, using ones body to move or engage

in active ideas, involving students in community oriented tasks and thoughts that engage their commonality (e.g., race, class, sex), and engaging them in communication and discourse relevant to their lives and the lives of others required little effort outside of teaching mathematical content. Another take-away from my analysis of funk in this teacher's successful practice was that these funk aspects overlap and intersect so constantly. That is, it is virtually impossible to separate these aspects. Indeed, any attempt to mimic this teacher's success would have to consider the degree to which the funky aspects are not only present and intertwining, but interconnected as well.

CHAPTER 7

DISCUSSION, LIMITATIONS, & IMPLICATIONS

This chapter will reflect upon the findings of this study and their implications for future research. Clearly, qualitative case study is about the process of discovery, and how data transforms across that process (Yin, 2009). In this work that process involves making meaning of Mrs. Thande's successful mathematics teaching practice and her application of a mothering aesthetic within that practice. This chapter looks at this process of discovery, and divides it into four sections. First, I reflect on how African American female teaching was birthed, constrained, and then repressed within contemporary dominant education research, theory, and practice. With this history in mind I move on to discuss the purpose and goal of this study. Thirdly, I discuss the findings. Fourthly I discuss three possible questions likely to arise as a result of this research: can White American teachers (and others) teach an African American mothering pedagogy; how did math matter in this study; and what would be the implications of this work for mathematics teacher education. The chapter ends with some concluding remarks.

Reflections

Many are unaware of the tradition of successful teaching practices among African American teachers. James Anderson's (1988) history of African American education from 1860-1935 clearly demonstrates why African American teacher's survival through the cruelty and injustice of that time period represents a history of success. Schools were targeted, often burned to the ground, administrators and teachers killed, children scarred, electricity turned off, funding denied, sponsors terrorized, and the like, and yet the literacy rates of African Americans soared. In spite of this and other examples, the historicity of African American teaching success has largely gone unrecognized within the dominate education discourse.

However, a closer look at Anderson's (1988) work reveals the predominance of African American women in teaching African American children for those 75-years his book covers. A critical reading of Fairclough's (2007) history of African American education shows that African American women were predominant in the education of Black children through the 1960s and up until the early 1970s. Ladson-Billings (2005) and Toppo (2005) argue that between 1954 and 1964 thirty-eight-thousand African American teachers and administrators were fired in the South alone – an attempt to kill a one-hundred year old institution of education. Some would argue that this attempt is further perpetuated in the continued neglect of this institution in theorizing strategies for developing programming (e.g. curriculum) that helps to close the achievement gap between Black and White students.

It has been stated by more than a few notables, that African American culture would not have survived the brutality of America's racist and sexist past if it were not for its women (Collins, 2000; Dubois, 1920; Gilkes, 2000; 2011; Guy-Sheftall, 1995; James, 1993; Morrison, 2008). This fact is easily confirmed by recognition of the fact that she predominated at teacher of Africa America for more than 105-years of its 150 years of emancipation from Maafa. Moreover, and to the point of this study, her record of success during that time is undeniable (hooks, 1994). It is time to recognize what a Supreme Justice on the bench during the Brown vs. Board of Education case realized 60 years ago: "It was the amazing academic success of Black students [taught by Black teachers] that made Brown vs. Board of Education a winnable case" (Fairclough, 2007, p. 4). What was their primary tool of engagement? Hooks (1994) argues that it was their ability to connect to the living experiences of the children. She argues that her Black teachers taught transgression – "Education as the practice of freedom," a pedagogical form of practice born in the slave hut. She argues that "confining each pupil to a role, assembly-line

approach to learning," (p. 12) effectively countered the transgressive pedagogy of African American teachers that had successfully given rise to the freedom movements of the 1920s-1960s – movements that transformed America for the better.

This clear picture of the success of African American teachers is in effect a warrant for further investigation of African American mothers in the classroom. I use warrant here in its more general sense to mean, a justification, authority, or "reasonable grounds," for further investigation, particularly on those grounds established by historical fact. I use the phrase Black mothers and not Black females to clarify the warrant for investigation of motherhood/motherwork concept - not gender. I also use the term "motherhood" with respect to what O'Reilly (2004) notes from her readings of Morrison's mother-centered canon. That is, that Black motherhood is considered the pinnacle of womanhood within African American culture (O'Reilly, 2004). When Mrs. Thande refers to her students as "my babies," "these babies," and asks that if we do not look out for them (her babies), "who will?" she has expressed an aspect of culture that is not tied to her gender but to her learned experience that says: be concerned about the welfare of Black children, because few others will.

African American motherhood, a living aesthetic in and of itself, is defined quite differently from how motherhood is understood in most other American cultures. The nuclear family version of mother has for centuries located mothering in the home, with one or more children to care for, and a husband to serve. However, this has never been the case for the African American mother, denied the protection of her husband, her children sold away into slavery, and her home trespassed on for centuries. Her motherhood developed as a matrifocal concept, wherein mother was central. For nearly 400 years African American men were not permitted authority/centrality in anything. Indeed he was prevented from even from being called

husband (Bontemps, 2008). Her uniqueness among most other American women rest also in the fact that has worked outside of the home for more than 400 years – and not just since the Women's Liberation Movement of the 1970s – posing a monumental threat to dominant sexist propaganda (e.g. too much work outside the home will make a woman barren). In the end, much stands to be gained in studies that center the African American mother/teacher image and her practice – an image overlaid by controlling images (stereotypes) (Collins, 1991), and a practice that has been minimized as mere minutia unworthy of investigation.

Purpose and Goal of Study

The primary goal of this study was to place the experiences of Mrs. Thande at the center of analysis. I accomplished this by focusing on her look. Early on in my data analysis I became convinced that Mrs. Thande's teaching practice resonated strongly with experiences I had with my own mother, and with the literature on Black mothers in African American history and culture. Subsequent interviews and observation revealed that she was in fact operating in accordance with the concept of African American mothering – a concept I would in time become very familiar with. After exploring further the meaning of motherhood, my theoretical propositions were modified to hone in more on the mothering aspects of this practice. I was moved by the research, and the obvious connections it began to draw between the math and the mothering. I knew that I had to be suspicious of any notions of objectivity [as I was obviously moved by the connections], but to adhere to the Africalogical canons of ukweli, utulivu, uhaki, ujamma, and kujitoa (see chapter 2 for definitions). This required that I foreground any, and all, "subjectivities or societal baggage that would otherwise remain hidden and, hence, covertly influence the research activity" (Reviere, 2001, p. 710). Despite the challenges of these canons,

and those of actualizing an authentic case study, this work focused on verifying or falsifying two theoretical propositions (hypotheses):

- Any successful teacher/practice of mathematics, teaching in a majority African American classroom context, likely avoids the mothering cultural norms of protecting, empowering, and preserving the cultural bearing of African American children.
- Any successful teacher of mathematics, teaching in a majority African American classroom context, likely uses a form of pedagogy devoid of African American mothering "funk".

The specific method for targeting these hypotheses were gleaned from Black feminist conceptual frameworks on African American mothering, and Black womanist literature describing African American mothering funk. That is, three common and constant aspects of mothering were that she protects, empowers, and preserves the cultural bearing of African American children. Four common and constant elements of funk used here to verify or falsify the second hypothesis were affect, communalizing (communality), moving (movement), and oralizing (orality).

The meaning of mathematics, teaching the mathematics, and learning the mathematics was all greatly influenced by Mrs. Thande's application of this mothering aesthetic. Consequently, the explored impact on, or association of mothering with mathematics, though subtle, was significant – in the sense that Sfard and Lucas (2005) uses the term – "likely to affect the storyteller's [researcher's] feelings about the identified person…implying one's membership in, or exclusion from, various communities" (p. 16-17).

This study offers a different view of what constitutes a highly qualified mathematics teaching practice. As already stated, it moved this African American mother as teacher from the

margins of mathematics education research to the center of research, exploring how and what she did when teaching African American learners. It accepted her as belonging to a historical tradition, with cultural experiences of being a mother, Black, being oppressed, and being "victorious" (Asante, 2003). That is, it made of her station as an African American teacher a "conceptual entity that embodies characteristics, practices, and dispositions that are potentially meaningful for students, particularly African American students, in ways that support students' capacity to participate within the racialized contexts of mathematics education, the broader schooling experience, and broader society" (Clark, Jones, & Davis, 2013, p. 1).

Hence, this study fills a void in our attempts to better understand teaching and learning. It explicitly juxtaposes what appears to be a relatively "normal" practice of teaching mathematics, with a historically stable concept of teaching - African American othermothering in the mathematics classroom. This juxtaposition reveals a peculiar look. The next section offers and overview of that look/experience.

Findings

Hypotheses

Early on in my data analysis, I hit upon the idea that Mrs. Thande's teaching resonated with the literature on Black women in African American history and culture. To test this hunch, analyses were designed subsequently to test two null hypotheses. The first hypothesis theorized that any successful teacher of mathematics, teaching in a majority African-American classroom context, likely does not exhibit the mothering cultural norms of protecting, empowering, and preserving the cultural bearing of African American children. The second hypothesis theorized that any successful teacher of mathematics, teaching in a majority African American classroom context, likely uses a form of pedagogy devoid of African American mothering "funk."

Four aspects were used to confirm or falsify the hypotheses. The first hypothesis was juxtaposed with events within the teacher's practice and then examined for the presence of each of the three mothering themes: protection, empowerment, and preservation of cultural bearing. Similarly, the second hypothesis was juxtaposed with events within the teacher's practice, but was examined for the presence of the four characteristics of funk: orality, communality, movement, and affect.

Themes

My findings disproved both null hypotheses. That is, Mrs. Thande's practice was filled with events that demonstrated many examples of protection, empowerment, and preservation of cultural bearing. She protected her students in many ways. For instance, she protected her students with praise and with critical insights about the process of their learning, efforts, insights, and contributions on math problems. In one lesson, for example, after allowing students to struggle with a problem for a while, she switched to direct instruction. After explicitly giving her students the needed procedures for solving the problem, she remarked: "We are not going to waste time not giving you what you obviously don't know, cause time is ticking, baby, and Mrs. Thande gots to get y'all ready." That is, all things considered, you will not leave this lesson un-protected and/or under-prepared to confront the mathematics challenges that are often used to mis-characterize you as an underachiever.

She empowered her students with demonstrations and explicit communications of strength added as a result of mathematics. Keeping in mind that being smart in mathematics includes such verbs as communicating, describing, explaining, and relating (NCTM, 2000), Mrs. Thande shares how mathematics might be relevant in seemingly non-relevant contexts. For example, she holds Vanessa's homework up for all to see, remarking, "Vanessa, this is

impressive. I can read/your work." "You have shown/your work." "I don't have to guess/ how/ you got your answers." "And/ you have attempted, if not completed/ every math problem assigned/ umph!" "Chris, I don't know…well/ this doesn't look like you did it at home. Maybe on a ship/ somewhere in the middle of a storm. But baaaby, I can't read this." And drawing this distinction between good and poor mathematics practices, she connects good mathematics to social progress with, "Deron/ boeeyyy/ umph!" Holding his paper up for everyone to see, she says, "Deron has written the time/ next to every problem. "This boy is measuring his time/ little people. He/ is on a mission. What would Dubois have to say about that?" That is, good math is neat, exact, concise, measured, and clear, but it also conscious of time, communicative, relevant, aiming toward completion, on a mission, and connected to social progress. All in a way that would make Dubois proud, one of the greatest African American social activists and architects of the 20th century.

She preserves the cultural bearing of her students in numerous ways, but especially by noticing and addressing their fears and doubts concerning the mathematics. For example she reminds them of their rich legacy of academic excellence with the hanging photographs of Mary Bethune a civil rights leader and founder of a private school for African American children that eventually was transformed into a university during the harrowing years of Jim Crow. Another empowering photograph is the one of renowned physicist and astronomer Ronald McNair, along with others, such as W.E.B Dubois. Also empowering was her use of culturally germane gesture, idiom, rhythm, and movement to communicate mathematics content. One such example of this was her usage of the African American cultural practice of call & response, with all of its attendant rhythms, tones, and movement. She used this method to help familiarize her students with procedures required to solve addition and subtraction of fraction probleMrs.

Funk

The hypothesis disclaiming the present of funk was also roundly falsified. The orality aspect of funk, described as the articulation, narration, conference, and culturally relevant aspect of talk, was very present. For example, although Mrs. Thande demonstrated an apt capacity at code-switching, she regularly conferenced with her students using their chosen vernacular (Ebonics). This was likely due to the fact that both she and her students are speakers of Ebonics. However, because she often code-switched, it seemed that her usage of Ebonics and Standard English at various points in the lesson had specific purpose. For example, whenever Mrs. Thande interrupted her students with Ebonics speech, it was usually to make something more explicit or to make her student(s) more comfortable. For example, when Aliya admitted concerning a fraction problem, "I don't get it." Mrs. Thande replied in a soft voice, "What don't you get, Sweetie." In another instance where some of her students shouted in response, "one-six" in place of the correct response (answer), one-sixth, Mrs. Thande stretched her eyes wide, tilted her chin downward, and puckered her lips, all movement characteristic of African American mothering funk. She then replied in the rhythmical style of call & response, "Excuse me/ how/ do we read/ one over six?" Every student quickly responded with, "One sixth." To which she replied in the characteristically African American preacher style of response, "A/men," followed by a sigh. "Get it together/ little people. Next problem."

Movement, affect, and communality were also very present in both lessons. The funk of affect seemed prominent in the second lesson, perhaps because of the high use of the emotionally laden activity of call & response. Although call & response is an oral activity, the emotion with which call & response is carried out also allows it to be classified as an affective activity. Because call & response unifies the group with its rhythm, harmony, and collective

response, being out of rhythm, harmony, or not responding is usually quite apparent to the person who is leading the call & response chorus, as well as to all others, causing all parties to be highly invested in the activity. In the excerpt where Mrs. Thande calls out, "Come on, now," because students were not getting the right answer, it was her appeal to their emotions. They realized that she expected more of them. In the following excerpt we see her drawing on the emotions even more with intense stares, gestures, and dance.

> Giving her students a serious stare, she calls, "also known as di/vi/dends," moving her index finger like a conductor, with each syllable. "What/do we get?" "One," says everyone in unison. Another serious stare, "Umph! She says, raising the ante. So we multiplied the dividends. What's next?" she asks, shrugging her shoulders, "Multiply the denominators." Thande does a jig, showing her emotional excitement. "Oh," she says, "and those are where?" She points to an inverted palm. "On/ the bottom," her students scream, now having fun. "Yes/ also known as/ di/vi/sors," she says singing the sentence. "What is two/ times/ three, boys and girls?" "Six." "What is our answer?" Some reply, "One six," while others reply, "One sixth." Stretching her eyes wide, and eyebrows high, Thande tilts her chin downward, and says, "Excuse me/ how/ do we read/ one over six?" Every student quickly responds with, "One sixth." She deescalates from there.

Across these two lessons, one of the most obvious take-aways concerning funk was that instances of it did not disrupt or take time away from time spent on task. Instead, being passionate, using gestural movements, and/or unifying the group as community while engaging the mathematics content, all appeared to infuse the lesson with excitement. Another take-away was that these African American mothering funk aspects overlap, and are intertwined in such a

way that it is impossible to talk about one without engaging the other. In the excerpt where Mrs. Thande receives the response of one-sixth,

The funk of orality is clearly present in the idiom of the call & response method, but communality is present in its unifying responses, and emotion and movement are obvious in the highs and lows of the amount of energy expended in the task, and in the use of gesture and expression to convey pleasure or displeasure. Mrs. Thande's uses language from the church. Although we have not mentioned spirit as an aspect of funk, emotion/passion is thought to express spirit. The clearest example of this was in her usage of terms like "Amen," "Thank you, Jesus, Lord," and "Keep me, Jesus." These statements were very nearly followed by some sort of dance or raising of the hands to the sky, and indication of other-worldly intervention. I found it impossible to separate these elements of funk. The feature of funk was so evident in this practice, that the practice itself would not be anywhere near the same practice without it. The hypothesis proposing the absence of funk in this successful mathematics teacher's practice was stripped bare of any validity. Moreover, any attempt to mimic this successful teaching practice would have to consider not only the degree to which funk was present, but also how its different aspects were so naturally intertwine.

Discussion Questions

This section addresses three potential research questions this work provokes. The first question inquires; can White American teachers (and others) teach an African American mothering pedagogy? The second question asks; how did math matter in this study? The third question asks; what would be the implications of this work for mathematics teacher education

Can White Teachers Teach it?

Like all teacher practices Mrs. Thande's practice is learned behavior, making it accessible to all. In most ways, Mrs. Thande reflected a homogenous teaching group. She attended and graduated from a four-year institution, received a certificate in teaching, speaks English as her first language, is in her early to mid 40s, and is a mother and a wife. She used a standard traditional curriculum, incorporated elements of direct instructions and some constructivist/reform methods. Her classroom structure, though it had some African styled motifs, was not incredibly different, in that the desks were situated in small groups, the walls were covered with typical charts and designs, and the ethos was this is a classroom not recess.

And yet, there were aspects of her practice that provoked the question of: who can teach this style? One example occurred when she gestured with great emotion while pointing a shaking finger at Deron. She directed a short verbal interjection, and a harsh facial expression at him for having rudely attempted to interrupt one of his female classmates as she worked through mathematics problem. She did all of this without losing track of the mathematics task. Her emotionalism, idiomatic (African American) speech, her touching, and her explicit remarks conveying love (e.g. baby, sweetie, darling, etc.) all reflect a cultural and historical bearing unique to African American mothers. That is, her practice appears to bend towards her unique mothering experience of needing to convey to a child an array of messages all at once. Such a skill is important when Black and living in a society indifferent to the needs of the Black mother and child, and unforgiving of the smallest infraction either might commit (O'Reilly, 2004).

Stepping into the shoes of a mothering concept that is vastly different from the dominant European American mothering concept, though possible, will not be an easy task for most. Joyce King (1990) captures this difficulty succinctly in her concept of dysconscious racism, which

describes “An uncritical habit of mind (including perceptions, attitude, assumptions, and beliefs) that justifies inequity and exploitation by accepting the existing order of things as given” (p. 135). She notes that such a lack of critical judgment “reflects an absence of social ethics…that admits no fundamental alternative vision of society” (p. 135). A view of an African American mothering pedagogy in mathematics faced with the overwhelming cacophony of the dominant pedagogy as normal, likely seems an impossible alternative. Overcoming dominant “perceptions, attitudes, assumptions, and beliefs” when they are all that is presented as normal leaves the possibility of donning an African American mothering pedagogy a difficult task indeed.

Moreover, the European American teacher would have to, like African American mothers in the classroom, protect African American children from dysconscious racism, and the lack of alternative visions. For example, Mrs. Thande says, “Detroit gets demonized by White folk as dangerous,” when in fact “It’s [only] dangerous if you are stupid.” The fact is that Detroit does have one of the highest crime rates in the country. She says, “But that’s the case anywhere, isn’t it?” “I love it here,” she adds, in earshot of several of her students – talking more to them than to me. She says “here” as if Detroit is an oasis – which it certainly is not. However, she has created a set of “perceptions, attitudes, assumptions, and beliefs that will allow her children the strength to overcomes what she sees as propaganda. The European American teacher would have to reject the dominant story of African America, and project a new story, and envisioned story, that in some cases may be more mythical than factual.

Throughout Morrison’s African American mother-centered texts, O’Reilly (2004) found a uniqueness of African American motherhood that heightens the difficulty of mimicking it. She found that African American mothers tended to be communal, not individualistic, meaning that they often place the collectives needs of the community ahead of their own. For example, when I

asked Mrs. Thande if she would ever consider working in one of the wealthier suburban schools. "I wouldn't go if they asked me. I want to teach my own." She replied. Don't get me wrong; I know it is nice out there, and that I would like having the security, supplies, district support, prestige, and all of the benefits that come with not teaching Black children. But uhn uhn, cain't do it. Cannot do it, Khalel." "…I love these babies. I love all children, but these are ours. If we run-off and leave them, what else will they have?" O'Reilly (2004), in league with others who have analyzed Morrison's texts, also found these mothers to be matrifocal. Matrifocal describes a kind of mothering that extends beyond the traditional nuclear family in which the father, or the couple is central, and the children are all blood-siblings. In the matrifocal family the mother is the central figure, and children may or may not all be blood relatives. Mrs. Thande often asked her students "What are we?" to which they would respond, "Family." She also referred to them as her "children," and her "Babies," and this was never in jest or a part of having fun. That is, she literally saw her students as part of her family, a matrifocal and community mother constant in African American mothering culture. Clearly, emulating such pedagogy would involve a level of enormous care for the well being of African American children, as well as a stepping outside of accepted cultural norMrs. This stepping outside of cultural norms is consonant with the fact that African American mothering culture has been forced to the margins of dominant European American cultural (hooks, 2000). Hence, stepping into the culture of what is, perhaps, one of the most incomparable of all others mothering natures will require enormous effort.

Gary Howard (2006), suggests White teachers first learn what they do not know about African American culture, as a pre-requisite to teaching them. In the forward to his book, Sonia Neito contends that, "…including Whites in multicultural education, [it] means defining whites as ethnics…like everyone else" (p. ix). However, Milner (2008) would argue that this is likely

not enough. He argues from a critical race theory perspective that the divide that prevents the party in power from engaging in authentic compromise with the "other" party can only be closed when there is "interest convergence" (Bell, 1987). This interest convergence, Milner (2008) says, "stresses that racial equality and equity for people of color will be pursued and advanced when they converge with the interests, needs, expectations, and ideologies of Whites" (p. 3).

It is needed to counteract the deeply rooted norms of race and racism that often undermine the good intentions of many whites who "may agree in the abstract that blacks [and other people of color] are citizens and are entitled to constitutional protection"...yet still believe that injustice can be "remedied effectively without altering the status of whites" (Bell, quoted in Milner, 2008, p. 391). What makes this change, or teachers adopting it potentially difficult, is that, "Many worry about how change can threaten their own interests, position, status, and privilege…and perhaps the systems of privilege and interests that their children, grandchildren, an future generations may reap in the future" (Milner, 2007, p. 391-392). Thus, the question is not whether White teachers can teach such pedagogy, but rather where the convergence of interests lies that will make them want to teach in the interests of African American students?

Can African American Men Teach It?

The question of whether African American men can teach an African American mothering pedagogy also rest within the notion of interest convergence. However, historically, his interests are closely aligned with the interests of African American mothers. He does not have to contend with the debilitating issue of racism. His experiences and his first-person narratives involve the stories of his mother's life, and the lives of other African American women. The African American man's potential understanding and use of an African American mothering pedagogy is better explained through Lortie's (1970) theory of the "apprenticeship of

observation." It contends that we learn quite a bit about the exoteric knowledge of teaching through our twelve years of grade school observations. That is, most prospective teachers entering teacher education programs feel they already know how to teach.

However, the prospective teacher, with all of her/his twelve years of observation, is still without the esoteric knowledge needed to understand the reasoning and science that undergirds the exoteric. Hence, although African American men may have walk beside their mothers, observing her resilience, protection, empowerment, and preservation of cultural bearing, their knowledge remains largely exoteric and without deep understanding. That is, he has been subject/student to the same centuries-old controlling (stereotyped) images of African American women as everyone else, that combined with the predominance of White American women as teachers of African American children for the last 40 years (Fairclough, 2007), presents a less than major challenge, but still a serious challenge to his ability to value and teach in a mothering way.

The dilemma for Black men presented in these continuously promoted controlling images, if not a dilemma for African American women and all others, is captured in Collins' (1991) remarks concerning the complexity of overcoming these controlling images of dominant culture:

> When faced with stereotypical, controlling images of Black women, some women-such as Sojourner Truth--demand, "ain't I a woman?" By deconstructing the conceptual apparatus of the dominant group, they invoke a Black women's legacy of struggle. In contrast, other women [and men] internalize the controlling images and come to believe that they are the stereotypes (Brown-Collins and Sussewell 1986). (p. 23)

One could easily image how some African American men might demand, “ain’t that my momma you “raggin” on?” and work to deconstruct the conceptual apparatus of the dominant group. And, it is also quite possible that many African American men will have internalized the controlling images projected onto Black women – their mothers – and resist, perhaps unconsciously, any notion that an African American mothering aesthetic could have any value in the mathematics classroom.

Arguably, the African American man who learns the importance of centering his people is in effect re-learning a core Africalogical value that, due to centuries of being systematically decentered from his family, has become, in many respects, the cultural property of African American mothers. That is, the African American male teacher who centers the experiences of African American children when teaching them is already engaging a mother-centric framework. When he (male) remarked as a boy, “Don’t talk about my momma (e.g. my center),” a common defense made by African American boys, he was operating out of a mother-centric framework. This mother-centric value is also present in Mrs. Thande’s classroom, as seen in one of the focus group interviews. When asked how do they confront barriers to achievement in their classroom, Lavelle responds:

“Do what Mrs. Thande always be sayin: represent.” When asked, “What do you think she means by that (represent)?” He replies, “You know, make your people look good, and make your momma look like Beyoncé or somebody.” Needless to say, for Black men, valuing the mother-centric in thought may already present.

However, just as with the White women, thought alone, or speech in defense of, is not sufficient. Collins (1991) quoting Patrice L. Dickerson, a Black feminist college student of hers,

captures the complexity of African American men's challenge in engaging the African American mother as central. She quotes:

> It is a fundamental contention of mine that in a social context which denies and deforms a person's capacity to realize herself [himself], the problem of self-consciousness is not simply a problem of thought, but also a problem of practice,... the demand to end a deficient consciousness must be joined to a demand to eliminate the conditions which caused it (personal communication, 1988). The struggle for a self-defined Afrocentric feminist consciousness occurs through a merger of thought and action. (Collins, 1991, p. 27)

This notion of thought and action as a prerequisite is very similar to Freire's (1990) notion of praxis as action informed and linked to certain values that shape and change the world. When Mrs. Thande invites Mr. Middleton, a male parent flirting with her in the school parking lot, to keep to his word and get his teaching certificate, it is an invitation to join her world of action. That is, if he can engaged in a praxis of self consciousness – meaning, activating actions that are in alignment with his already present right-thinking to counter the conditions that plague African American students, he will have in essence activated an African American mothering pedagogy. Of course, there will be more esoteric knowledge to learn, but his will be the advantage of already sharing many of the experiences, and the historical values and interests.

How Mathematics Mattered

Only recently have debates about liberatory pedagogies began to crop up in the arena of mathematics teaching and learning. It is the opinion of many that such debate challenges or questions the viability of mathematics as a discipline and the role it has traditionally had in the curriculum. However, research and discussion of liberty in conjunction with mathematics bring

into focus a much-needed focus on relationships of power between pedagogy, learners, race, culture, gender, and class (Gutierrez, 2013; Skovsmose, 2004). Hence, a major way in which math matters in this work is that we saw it juxtaposed with race and culture in ways not normally valued in the dominant discourse, but in ways that could open doors of possibility for improving outcomes for teachers of diverse learners, especially teachers of African American learners. Mrs. Thande's students, for example, realize that their MEAP scores in mathematics are an example to many that mathematics success has everything to do with opportunity. This point was made clear in how the focus students in this study described their governor as doing more for suburban White kid's education and less for urban kids who have very little but have shown a lot of promise. This broader understanding of educational equity and the politics of opportunity inspired a different kind of classroom work ethic than normally talked about. One student says to the applause of these others, "We ain't bout to let those White kids beat us jus cuza no racism." That is, these students understand classroom work over and beyond study for a simple grade, or even study as the means to a good job. For these students mathematics matters for many reason, but they seem really interested in doing well for ethical reasons.

By now it is clear to most that African American students have not been well served during the last 30 years of mathematics education reform. However, one of the most common refrains in mainstream mathematics education concerns the achievement gap separating African American learners from European American learners. The common belief is that the gap exists largely because of social and economic factors. This is supposedly a vexing issue for mathematics education research and policy. And yet, race and racism is largely under-theorized in the face of statistical facts that report how only 12 percent of African American eighth-grade boys are proficient in math, compared to 44 percent of European American boys (NCES, 2009).

As this avoidance of race and racism in mathematics continues on, the dominant research and policy discourses in mathematics education push the standardization of mathematics teaching processes that haven't narrowed the gap in the last 20 years of standardization reform.

The reality of this unfortunate overlooking of race where its presence is clearly ubiquitous highlights major reasons why the math matters in this work. Many of us have become accustomed to a kind of math research wherein the "mathematics" takes center stage. It is possible to learn something about the mathematics without looking directly at it. The math matters in this study because it is connected to context, giving a certain kind of meaning to cultural practices e.g. "mothering." The human element in this study was not marginalized for the "all-important" mathematics.

When one of the focal students in this study says, to the applause of his classmates, "We ain't bout to let those White kids beat us (at math) jus cuza no racism," and another implicates the state governor, saying, "We don't have the governor doing special favors for us either," and yet we perform very well, it is a sign that the math has different meaning to them. One could miss this looking directly at the math. One could also miss this by looking at the students or teacher and not looking at the math. One has to look through the math at the students, through the leaves and branches at the sky – considering them both, but centering the human. Looking in this way I saw that the students had developed a commitment to political issues and relations of power that connected to the mathematics. It was obvious that Mrs. Thande had placed the mathematics such that students wanted to succeed at it for ethical and political reasons. They wanted to disrupt the inequality within the relations of power, took joy in challenging the governor's injustice – not the office of the governor, as some fear a focus on social political issues in mathematics could lead to a deconstruction of the very structures students want to have

greater access to (Price & Ball, 1998). All of this is to say that the math matters because its nested position with the study allowed for the emergence of the look of a very different kind of practice.

Another reason why the math matters has to do with the common belief that teachers can not teach it effectively while also tending to the needs, interests, and desires of communities of difference that want different things for their children. It is a question of whose interests, desires, and visions of real life counts (Apple, 1995). However, some have noted that this concern is an illusion (Gutierrez, 2008; Ladson-Billings, 1997; Tate, 1994)) given the similar social, economic, and political histories of African American, Latino, and Native American students. Although class differences exist in Mrs. Thande's classroom, she connects the mathematics to what her students have in common, e.g. dance, song, gesture, language, and history. For example, her pirouettes were something all of her students appreciated watching, the rhythm of her call & respond was an activity they all seemed to enjoy, and her sass and her connections to historical figures was something they all responded to. That is, as Ladson-Billings (1997) has remarked, the math mattered to these students because it was so ingeniously wrapped up in the features of "rhythm, orality, communalism, spirituality, expressive individualism, social time perspective, verve, and movement," the kinds of "cultural expression [that] are neither reinforced nor represented in school mathematics…" that are not so "closely aligned with an idealized cultural experience of the White middle class" (p. 700).

When considering mathematics teaching few studies consider who is teaching the math to whom, and how this might impact the matter of mathematics. Mrs. Thande is an African American, born in the same community in which she is teaching. That is, she shares has been shaped by many of the same kinds of experiences her students or their parents have been subject

to. She is also certified to teach, earned her degree, and passionate about her work. She reflects a 150 year history of African American teachers concerned about the capacity of African American children to make the existence in America one that is more fair, more liberal, and more free. The mathematics matters because we rarely get to see math in the hands of such people. The students in this class expected to become proficient learners because that's what students at their school do – but also because Mrs. Thande "won't let you not get it." Part of this "not letting students not get it involved connecting it to their informal mathematics knowledge and culture (Bishop, 2010; Ladson-Billings, 1997; Matthews, 2003). Ladson-Billings (1997) argues that most cultural portrayals of the mathematically adept are White American males, while the cultural expression of mathematics used daily by African Americans are largely left out of the dominant discussion or misrepresented as not being mathematics – totally disregarding the various ways in which mathematics has been conceived outside of the parameters of Eurocentric thought (see Gerdes, Joseph, Powell and Frankenstein, and Zaslavsky). That is, the math mattered because we were able to see it in the less familiar, century and half year old hands of African American motherwork tradition.

The math mattered in this work in the sense that it was taught to African American students with the assumption that they were capable. Although this may seem simple enough, Martin (2005) and others have talked about the ways the rhetoric of achievement and underachievement negatively influences teacher perception toward certain learners. However, Mrs. Thande regularly demonstrated her high expectations for the kinds of mathematics she felt her students were capable of. For example, she provided examples of student work to her students as examples of what was possible, expected, and what was unacceptable. We also saw her confidence in her students when she allowed them to struggle with mathematics problem,

interrupting only when it was obvious they would not solve it on their own. The math mattered in that we saw it delivered it ways that assumed the learners were capable, no doubt empowering the learners. We saw the math given to the collective instead of to individuals, in ways that drew clear lines to critical thinking.

We were also able to see math in action. Ole Skovsmose (2005) notes that, "Mathematics is brought into operation in very many different contexts, and in daily life practices we find interesting 'meetings' of different forms of mathematics in action" (p. 9). When mathematics is related to action, no matter how simple the action, he explains, it relates to power. That is, the latent lesson is that math and action are natural. The math in these two lesson's mattered because Mrs. Thande's constantly embedded them in action via cultural gesture and movement, most obvious in the call & response method used by Mrs. Thande to recover the procedures learned for solving certain problems. Although many mathematic education reformist might dismiss the exercise as mere rote memorization, it is filled with emotive, rhythmical, communal, and communicative action, making it a powerful lesson in how "mathematical knowledge could be related to power" (p. 9).

A final reason for why the mathematics matters in this work has to do with the way in which it was linked with the Ebonics language. According to Donna Kotsopoulos (2007), a students learning of mathematics can be severely hindered if he or she is unable to negotiate the interference generated at the intersection of mathematics language and representations and their own everyday language. She explains,

> As mathematics educators, we need to know how we use language to build meaning in mathematics and be aware of how our use of the mathematical register may limit our students' participation. This awareness requires that we re-conceptualize the teaching and

> learning of mathematics. Some important work has already been done in this area around code switching—that is, the use of everyday language to build the mathematical register. (p. 304)

Mrs. Thande exhibited quite an expertise at code switching between the everyday language of her students (Ebonics) and the accepted mathematics register (different from Standard English). Although many teachers are clueless about Ebonics -- viewing its users as intellectually inferior, and the language as inept (Delpit, 1998; Perry, Steele, & Hilliard), Mrs. Thande employed it just a Kotsopouslos (2007) suggested, making the mathematics more readily available to her students. In one instance she engages Deron, who is using Ebonics to make sense of a fraction problem.

> When you sleepin' you are dreamin'. Besides, different people gonna live different ages, yi-know what'm sayin...Like how can you know the average (sleep time) when everybody gon' be livin' different ages?

Mrs. Thande smiles, and pumps her fist to congratulate his effort, even though his logic is wrong and his language was outside of the standard mathematics register. She follows up with a mixture of rhythmized Ebonics mixed with the mathematics register, saying, "Well, hold on. Let's address one question at a time. What/is the/question actually asking us/tadoo?"

In this work we have an opportunity to see the math register interrelated with the Ebonics register, a scenario that matters, but often goes unseen. Dubois (1973) wrote, "The teacher has got to be something more than just a master of a branch of human knowledge…the possibilities and advancement of the world where [he/she] is to live and earn a living is of just as much importance in the teaching process as the content of the knowledge taught "(p. 78). In other words, the centrality of the language of the learner, in this case it was Ebonics, is important to

the advancement of the world in which the student lives, and therefore must become an integral part of the teacher's pedagogy with which he/she teaches/empowers that student with knowledge. In this way the math matters because it encourages original ideas that could guide us to the development of new ways of reconceptualizing old ideas.

Implications for Mathematics Teacher Education

A major rallying cry within the Culturally Relevant Pedagogy (CRP) discourse has been that teacher education has yet to value the voices (research and theory) of CRP (Hayes & Juarez, 2012). Fashing-Varner & Seriki (2013) argue that the voice of CRP, though spoken is teacher education, its ideas are often misused, which has the effect of distancing it from the hopes and aspirations of the original CRP scholarship and foundations (p. 2). Clearly, the historical existence and impact of African American motherwork has been totally neglected within teacher education, and certainly within mathematics education. Virtually nothing exist in the vast literature of teacher education, and nothing in the practical and field training of prospective teachers that actually acknowledges the existence of African American women teachers in history, nor their success with African American children prior to their 40 year tenure with failure in mathematics. Any attempts at authentic preparation of teachers must not only pay attention to the contemporary practices of African American mothers in the classroom, but to the historical, collective experiences of these mothers as well – and through foundational lenses rooted in the perspectives of particular CRTs (e.g. Black feminism, Africana feminism, womanism, culturally relevant pedagogy, Africalogy). The teacher education program willing to approach a more authentic preparation of teachers in this way may actually aid in stemming the present decent of teacher education, as we know it.

Far too often, teacher educators have sought to describe teachers and their work as if they

were a monolithic whole, without differences in race, culture, social class and economic class, and gender. Martin (2007) argues, "Rarely, if ever, in studies of mathematics content knowledge and pedagogical content knowledge is there any mention of who the teachers are as people, beyond knowing they do or do not have a deep understanding of mathematics" (e.g., Hill, Rowan, and Ball, 2005) (p. 14). This research focused on African American motherhood as a cultural and historical concept. Thus, it has a rich identity. Moreover, the narrowness of this study should not imply a limited insight that only applies to this one teacher under study. Mrs. Thande's practices are treated as reflective of a larger whole, a concept that shares its standpoints, experiences, and ideas with Black mothers who teach in general. These Black mothers have a shared experience that provides a unique mothering identity, mothering community, society and mothering teaching and researching community (Collins, 2000; O'Reilly, 2004). Thus, this research applies to a general body of African American mothers. Obviously, not all African-American [mothers] think alike, and other groups outside of African American mothers (e.g. Black fathers) play a critical role in how African American motherhood is continually modified and rearticulated. Thus, teacher education should not misunderstand the attachment to a shared commonality as essentialization, but rather as an acceptance that cultural change is slow, and identity change even slower. In this way, the way in which often use the term teacher to refer to all teachers is removed, and the field of teacher education becomes a much more diverse and interesting place.

Another major implication is that adopting an African American mothering pedagogy will compel other needed changes. One needed change for many universities is the recruitment of more racially diverse staff. Presently, a predominantly White-American teaching force is teaching a predominately non-White student body in segregated schooling structures. Moreover,

that predominantly White American teaching force has had very little contact with teacher educators who are non-White, or literature that is written by non-Whites (Fashing-Varner & Seriki (2013). Fashing-Varner and Seriki refer to this as "blinded by the white." That is, White-Americans are unable to see that way in which they engage in practices that monopolize power in ways that hinder equality and privilege Whiteness.

> In order to take CRP seriously, we need to take seriously the varied foci of research that have explored the effects, implications, and contradictions of a schooling system that is both dominated by and overshadowed by White educators (Carter & Goodwin, 1994; Haviland, 2008; Ladson- Billings, 2006; Sleeter, 2001, 2005), particularly since that composition is unlikely to change in the near future. (p. 2)

In other words, teacher education will not only benefit adopting the African American mothering pedagogy, but will benefit by taking seriously the importance of engaging research that is not a part of the Eurocentric epistemological community, research that has seriously explored issues of concerns to non-White people. Clearly, a more diverse faculty will introduce scholarship more familiar with the authentic experiences of a more diverse student body. In the end, teacher education will look more phenotypically fair, and may actually function more fairly as well. The current teaching force is disproportionately White American, female, and middle-class. According to Ball & Goffney (2005), "The profession responsible for teaching our nation's children should include people of a wider range of cultural and experiential resources, both because young learners should have access to more diversity in the teachers from whom they learn (Irvine, 2003), and because the collective knowledge, practice, and norms of the profession would be improved if its members were more diverse" (p.5).

The fact that African American mothering is thought to be a sight of power that mothers

used to liberate and empower their family, may actually serve teacher education in some very important ways. Liston (1995) quoted in Zeichner (2002) refers to teacher education as "the domestic labor of colleges and universities, the invisible, under appreciated " keeping house" work that enables others to engage in the more high status work of teaching doctoral students and conducting research. Student teaching and practicum supervision is treated as overload by some colleges and universities (something to be done in addition to a full teaching load) and is often carried out by temporary staff' p. 59. Incorporating a pedagogy that has as its focus the transformation and liberation of a people could also transform and liberate the Liston's "domestic labor ethos." That is, as Freire (1990) writes,

> Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world. (p. 58)

In the end, there is much, much more to be gained by an adoption of African American mothering pedagogy, and the implications are the stuff of CRP literature.

There is also clear evidence that student teachers leave teacher education problems underprepared to teach in culturally diverse environments. Zeichner (2002) explains, "Mentoring student teachers is not often valued as an important activity either in schools or universities" (p. 60). However, the school that incorporates this pedagogy immediately gains an entire race of mentoring experts, most willing to do whatever to ensure a quality education for all children, but especially to those who suffer the most.

Conclusion

Despite the obvious limitations of incorporating radical pedagogy into a mainstream teacher education practice, this study will contribute to our knowledge about the ways in which African American mothers have contributed to our modern education system. Through its recognition of a centuries-old pedagogy of Black motherwork this study gives voice to their lived experiences that have been largely discounted in the greater educational canon.

Given the dearth of literature on African American motherwork in educational spaces, this work has provided valuable information about the dynamics of race and motherhood as an aspect of culture intersecting with 5th grade mathematics. This has meant operationalizing African American motherhood. The complex nature of motherhood in general required attaching to African American motherhood the understanding of funk, and identifying its presence in the mathematics teaching practice of Mrs. Thande. Painting this portrait of Mrs. Thande's practice required frequent ventures outside of mathematics education research. For instance, there was nothing in the mainstream discourse that allowed me to talk about African American mothering characteristics in connection to mathematics, or the unique ways in which African American mothers have shaped the educational space. And, even though there is a small, but encouraging body of literature growing within the discourse concerning gender in conjunction with mathematics (e.g., Hyde, Mertz, & Schekman, 2009; Secada, Abidjan, & Fennema, 1995; Walkerdine, 1989), little of it concerns how the teacher's gender intersects with race (Black) or with motherhood.

The general color-blindness of mathematics education discourse African American motherwork presented a number of challenges. My desire to inquire who might be interested in a study that explores a phenomenon unrecognized by the entirety of the mainstream mathematics

education discourse quieted me. After more reflections I determine that a more appropriate question might be, who should be interested in the study of African American motherwork in mathematics? I soon realized that interest in this study would indication an interest in an actual practice of change, and less in a theory of change. Not unlike Walkerdine and others who in the 1970s and 1980s action research that challenged the norm of studying girls as the source of their own problems, this work seem also to challenged hegemonic ways of understanding teaching. Gutierrez (2013) writes,

> It used to be common practice that researchers concerned with gender inequalities in mathematics education would focus their efforts on such things as documenting the differences in achievement…between boys and girls…different levels of confidence…and cognitive strategies that helped boys…Such framings of the "problem" and associated research methodologies produced findings and policies that basically amounted to trying to get girls to become more like boys—something most people could now recognize as far from equity. And yet, similar framings of the "problem" exist today in mathematics education's preoccupation with the achievement gap, indicating much more work could benefit from adopting a sociopolitical perspective. (p. 39)

What I now understand, perhaps more deeply and profoundly than ever before, is that the historical role of African American motherwork is essentially to bring the reader to the understanding of what it means to nursed from one's own source, versus gnawing at the standards produced by those who are mostly resistant to CRP thought – your source. That is, throwing 100 years of know-how to the side without considering how the most recent know-how might be modified by it seems moronic. This work picks mother up from the side. Obviously, student success in American schools is more complex than any one pedagogy, and should not be

reduced as such as the factors of school funding, and institutional inequalities for example, require time under the light of criticisms well. However, pedagogy is one of the most significant of factor in the struggle for educational equity.

Mrs. Thande shared her perspective, experiences, values, interests, and struggles concerning teaching in a traditionally underserved school. Many of her experiences were experiences I have observed over the years as a teacher in the classroom, and many of them were new to me as a non-mother. Nevertheless, her experiences connected supremely well to my conceptual framework for determining motherwork themes that, in effect, moved her practice and African American motherwork from the margins into the center of the analysis. I resonated strongly with this movement.

Generalizing

A common misunderstanding about case study is that it is impossible to generalize from a single case, and that the single-case study cannot contribute to scientific development. However, Flyvbjerg (2006), Popper (1959) and others gave me room for hope that all might gain from this work. The misunderstanding is false on both accounts. Although it is true that it does not produce the formal generalization, itself over-rated as the best method by which accumulated knowledge can be attained, it is quite ideal for generalizing using the type of test that Karl Popper (1959) called "falsification" (Flyvbjerg, 2006, p. 227). This study used the falsification test. It required finding a critical case. The critical case is that case that is "most likely" or "least likely" to clearly confirm or irrefutably falsify propositions and hypotheses (Flyvbjerg, 2006). Having taught elementary many years prior to this study, having had four African American women as elementary school teachers, and having observed Mrs. Thande several times in advance, I was confident the data would irrefutably falsify the least likely hypotheses of this study – that neither

mothering themes or mothering funk would be present in this teacher's practice. I was correct the data did falsify both of the study's hypotheses.

Now that I have the data, and the hypotheses are proven wrong, I have reflected back on a question Mrs. Thande asked: "If we don't, who will?" I am hopeful that a teacher education desperate to prove its viability might have some interest in finally doing what they have only ever done very poorly: teach teachers to teach non-White children (Ladson-Billings, 2005). Presently, teacher education as a profession is under attack by another faction that is arguing that its century-old monopoly of education is no longer cost effective, or effective (Cochran Smith, 2001). Critics like Author Levine (2010) argue,

> The best of teacher education programs are being lumped with the worst, and there is a growing sense among critics that it would be more fruitful to replace university-based teacher education than to attempt to reform it. (p. 21)

Although this quote may sound anathematic to some, it will have appeal to others who have lived through decades of a TE whose incremental approach to CRP has been disheartening. My hope is that a TE now viewed as "subsidized, …countercyclical in generating revenues, with long-term customers, …and a significant lag between revenue accumulation and expenses" (p. 21) may become a TE ready to respond with more focus on recruiting diverse faculty, recruiting more diverse students, implementing more socially and culturally relevant programming across the curriculum, etc. Another hope is that what has been an obvious undertheorization of race-based context continues to appear unattractive, color-blind, and biased (Banks, 2009; Hale-Benson, 2001; 1990; Ladson-Billings, 2000; Martin, 2007). Could it be that convergence is afoot (Cochran-Smith, 2009; Villegas, 2003; Martin, 2007). Montclair State University's teachers have invented a system for tracking the progress of every teacher candidate toward the outcome of

teaching for cultural diversity (Cochran-Smith, 2001). Scholars like Martin (2000, 2007, 2009), Ladson-Billings (1994, 2005), Boaler (2006), Gutstein, (2007, 2012), Richard Milner IV (2007, 2008), and Gutierrez (2002, 2013), though controversial, have become more prominent in dominant mathematics education discourse.

Because not everyone is convinced that the push to deregulate teaching education will push it to ally its interest more with the underserved, anther response to Mrs. Thande's question of, "If not us, who will," is that teachers may. When White American teachers are willing to adopt CRP teaching methods it "indicates a development of a healthy white identity, one that has become able to confront the painful reckoning of Whites with privilege and power" (Howard, 2006). Like TE, the profession of teaching with its more heterogeneous student demographic, and with parents who, in the era of charter schools, vouchers, and virtual schooling, are now much more knowledgeable of what is desirable, are pickier (Anthony, 2009). Once, after parent teacher conferences, Mrs. Thande explained to her classroom how much she had enjoyed their parents, and how those conversations "with your parents makes me a better teacher." I am hopeful that as the browning of students and teachers increases, those who are in the majority will become less resistant to CRP, and interest convergence more imminent.

A common misunderstanding about case study is that it is impossible to generalize from a single case, and that the single-case study cannot contribute to scientific development. However, Flyvbjerg (2006), Popper (1959) and others have proven this misunderstanding false on both accounts. Although it is true that the single case study does not produce the formal generalization, the formal generalization may be over-rated as the main source of scientific progress, "as it is only one method by which accumulated knowledge can be attained" (Flyvbjerg, 2006, p. 227). That is, the case study is quite ideal for generalizing using the type of

test that Karl Popper (1959) called "falsification." This study used the falsification test. It required finding a critical case, defined as a case that is "most likely" or "least likely" to clearly confirm or irrefutably falsify propositions and hypotheses (Flyvbjerg, 2006). Having taught elementary many years prior to this study, having had four African American women as elementary school teachers, and having observed Mrs. Thande several times in advance, I knew that it was very, very likely that the data would irrefutably falsify the least likely hypotheses of this study. I was correct; the data did falsify both of the study's hypotheses.

Using the Africalogical lens to observe and examine shed new light. For instance, the Africalogical requirement to maintain inquiry rooted strictly in a strict interpretation of place, presented insights into teaching that countered dominant interpretations. That is, although I was sometimes pulled into dominant thinking, I was aware of the dislocation, and thus able to see and determine when and whether the logic of that dislocation was coherent with the values, interest and perspectives of the study's participants.

In conclusion, this study left me with more questions that I began with. In particular, I am interested is how these insights into mothering as an aspect of culturally relevant mathematics might inform the larger national discourse on teaching mathematics to all children. The National Council of Teachers of Mathematics (2000) has, in recent years, made important inroads into culturally relevant, and other emancipatory and liberatory theories and pedagogies. Some would argue, and I would not disagree, that there remains a lot of ground to be covered, and change to be adopted. But, how could this work better connect with work they have already engaged on gender?

My hope going forward is that the "progressive" teacher educator will see the value in engaging African American mothering pedagogy. I believe that teachers are the first and the last

line of hope for students – and that when they have powerful tools powerful teaching happens. Another hope is that future study on this topic might spend more time investigating potential convergences between African American mothering/pedagogy and mathematics teacher education. In the end, the hope is that work such as this does not end up becoming another CRP grab bag on the sidelines of mainstream mathematics research and theory, with its parts subject to the haphazard acceptance or rejection of hegemonic scholarship. I end with the hope that every racially, and otherwise under-represented child who has been without their mother archetype in the classroom, find her, or someone willing to present and authentic portrayal of her. Ultimately, their experiences will strengthen the conceptual model for understanding the African American motherwork pedagogy.

APPENDICES

APPENDIX A - Consent Form Teacher Participant

Consent Forms: Research Participant Information and Consent Form: Teacher Participant

You are being asked to participate in a research project. Researchers are required to provide a consent form to inform you about the study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Study Title: When Mathematics Works in Black: A Case Study of Effective Mathematics Instruction for African American Children

Researcher and title:

Sponsor:

PURPOSE OF RESEARCH:

As a math teacher, you are being asked to participate in a research study investigating the look of a teacher's mathematics practice that is successful in a classroom that it predominantly African American. You have been selected as a possible participant in this study based on recommendations of school administrators.

From this study, the researcher hopes to contribute to the knowledge on how to improve the quality of math instruction available to all students, and in particular, to the African American student.

Approximately 80 people are being asked to participate in the entire study. Your participation in the study will take place three days a week, approximately four hours a day, for an intermittent 12 week period, between May 2009 and November 2009.

WHAT YOU WILL DO:

The researcher will collect data as follows:

- Interviews about your educational background/certification, your prior teaching experience, your present teaching situation, your ideas about math teaching, and your math teaching practices. As well, there may be brief but relevant conversations about classroom dynamic when clarification is needed.
- Participant observations of your classroom as you prepare and teach mathematics lessons and well as your interactions with students and the classroom environment during the lessons.
- Program documentation collected when you teach a math unit on a standards-based topic you choose for the math portion of your 5^{th} grade classroom. The materials collected include teacher lesson plans/curriculum materials (e.g., lesson plans, textbook pages, and worksheets), student math grades for the present school year, and student MEAP scores for the 2008-2009 school year. Students' names will be removed from the materials and replaced with a code before being included in final research documents.
- It is important to note that participation in this research study does not require any additional work on your part aside from what has been stated above. Additionally, there will be no videotaping, but all interviews will be audio taped.

POTENTIAL BENEFITS:

You will not directly benefit from your participation in this study. However, your participation in this study may contribute to the understanding of how to improve the quality of math instruction available to all students, and in particular, to the African American student.

The study's results will provide important information to other teachers, teacher education, and curriculum developers.

POTENTIAL RISKS:

There are no foreseeable risks associated with participation in this study.

PRIVACY AND CONFIDENTIALITY:

Interviews will be conducted in a private area. Your privacy will be protected to the maximum extent allowable by law. Your identity will be kept strictly confidential throughout the study and in the dissemination of any oral or written of the study. This research is conducted under stringent university and U.S. government regulations governing confidentiality procedures. All data collected will be securely stored. Only researchers working with the study, all of whom are bound to maintain confidentiality, will review the data collected. Results of the study will be reported so that neither individuals nor the school can be identified.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

Participant interviews and conversations will be audio taped. I agree to allow audio taping of the interview.

☐ Yes ☐ No Initials_____

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Participation in this research project is completely voluntary. You are under no obligation to participate.

You may change your mind at any time and withdraw without penalty. You may choose not to answer specific questions or to stop participating at any time. You will be told of any significant

findings that develop during the course of the study that may influence your willingness to continue to participate in the research.

COSTS AND COMPENSATION FOR BEING IN THE STUDY:

You will not receive money or any other form of compensation for participating in this study.

CONTACT INFORMATION FOR QUESTIONS AND CONCERNS

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 202 Olds Hall, MSU, East Lansing, MI 48824.

DOCUMENTATION OF INFORMED CONSENT

Your signature below means that you voluntarily agree to participate in this research study.

_____ _____

Signature Date

You will be given a copy of this form to keep.

APPENDIX B - Consent Form School Principal Participant

Consent Forms: Research Participant Information and Consent Form: School Principal Participant

You are being asked to participate in a research project. Researchers are required to provide a consent form to inform you about the study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Study Title: When Mathematics Works in Black: A Case Study of Effective Mathematics Instruction for African American Children

Researcher and title:

Sponsor:

PURPOSE OF RESEARCH:

A teacher in your school, _____, has agreed to participate in a research study investigating the look of a teacher's mathematics practice that is successful in a classroom that it predominantly African American. You have been selected as a participant in this study based on your familiarity with faculty, staff, and students.

From this study, the researcher hopes to contribute to the knowledge on how to improve the quality of math instruction available to all students, and in particular, to the African American student.

Approximately 80 people are being asked to participate in the entire study. Your participation in the study will be between May 2009 and November 2009.

Because the program requires classroom data from teachers and students, we request principal consent for teacher/student participation.

WHAT YOU WILL DO:

The researcher will interview the principal at the beginning of the study to obtain background information about the school's curriculum, success and student achievement, challenges, as well as its connections to community.

POTENTIAL BENEFITS:

You will not directly benefit from your participation in this study. However, your participation in this study may contribute to the understanding of how to improve the quality of math instruction available to all students, and in particular, to the African American student.

The study's results will provide important information to other teachers, teacher education, and curriculum developers.

POTENTIAL RISKS:

There are no foreseeable risks associated with participation in this study.

PRIVACY AND CONFIDENTIALITY:

The interview will be conducted in a private area. Your privacy will be protected to the maximum extent allowable by law. Your identity will be kept strictly confidential throughout the study and in the dissemination of any oral or written of the study. This research is conducted under stringent university and U.S. government regulations governing confidentiality procedures. All data collected will be securely stored. Only researchers working with the study, all of whom are bound to maintain confidentiality, will review the data collected. Results of the study will be reported so that neither individuals nor the school can be identified.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

Participant interviews and conversations will be audio taped. I agree to allow audio taping of the interview.

☐ Yes ☐ No Initials_____

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Participation in this research project is completely voluntary. You are under no obligation to participate.

You may change your mind at any time and withdraw without penalty. You may choose not to answer specific questions or to stop participating at any time. You will be told of any significant findings that develop during the course of the study that may influence your willingness to continue to participate in the research.

COSTS AND COMPENSATION FOR BEING IN THE STUDY:

You will not receive money or any other form of compensation for participating in this study.

CONTACT INFORMATION FOR QUESTIONS AND CONCERNS

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 202 Olds Hall, MSU, East Lansing, MI 48824.

DOCUMENTATION OF INFORMED CONSENT

Your signature below means that you voluntarily agree to participate in this research study.

_____ _____

Signature Date

You will be given a copy of this form to keep.

APPENDIX C – Consent Form Parent/Guardian Participant

Consent Form: Research Participant Information and Consent Form: Parent/Guardian

Your child's classroom is being asked to participate in a research project. Researchers are required to provide a consent form to inform you about the study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Study Title: When Mathematics Works in Black: A Case Study of Effective Mathematics Instruction for African American Children

Researcher and title:

Sponsor:

PURPOSE OF RESEARCH:

Your child's teacher is participating in a research study investigating the look of a teacher's mathematics practice that is successful in a classroom that it predominantly African American. Your child's classroom has been selected by school administrators as an ideal classroom for exploring this research topic.

From this study, the researcher hopes to contribute to the knowledge on how to improve the quality of math instruction available to all students, and in particular, to the African American student.

Approximately 80 people are being asked to participate in the entire study. Your child's classroom participation in the study will take place three days a week, approximately four hours a day, for an intermittent 12 week period, from May 2009 through June 2009.

WHAT YOU WILL DO:

During the next 12 weeks, your child's teacher will continue teaching math lessons about a math topic of her choosing. These lessons are part of your child's regular math curriculum. A trained research observer will watch your child's teacher while s/he teaches. Your child will complete class work and homework during these lessons. The researcher will observe the teacher teaching mathematics as well as her interactions with students. On occasion the research observer will participate in classroom activities as a way of becoming a member of classroom community. In addition to the above observations the observer will collect portions of student work, as well as classroom grades and MEAP scores.

POTENTIAL BENEFITS:

Your child will not directly benefit from his/her participation in this study. However, his/her participation in this study may contribute to the understanding of how to improve the quality of math instruction available to all students, and in particular, to the African American student. The study's results will provide important information to other teachers, teacher education, and curriculum developers.

POTENTIAL RISKS:

There are no foreseeable risks associated with participation in this study.

PRIVACY AND CONFIDENTIALITY:

Your child's privacy will be protected to the maximum extent allowable by law. Your child's name will be immediately removed from any grades or test scores collected and replaced with a classroom identifier code and will not be associated with any data gathered throughout the observation. All data collected will be securely stored. The data collected will only be viewed by researchers working with the study, all of whom are bound to maintain confidentiality. This

research is conducted under stringent university and U.S. government regulations governing confidentiality procedures. Results of the study will be reported so that neither individuals nor the school can be identified.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Your child's participation in this study is entirely voluntary. You are under no obligation to allow your child to participate and not doing so will not affect your child at school either positively or negatively. You may change your mind at any time and withdraw without penalty. Your child may choose not to answer specific questions or to stop participating at any time. You will be told of any significant findings that develop during the course of the study that may influence your willingness to continue to participate in the research.

COSTS AND COMPENSATION FOR BEING IN THE STUDY:

Your child will not receive money or any other form of compensation for participating in this study.

CONTACT INFORMATION FOR QUESTIONS AND CONCERNS

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research

Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 202 Olds Hall, MSU, East Lansing, MI 48824.

DOCUMENTATION OF INFORMED CONSENT

Your signature below means that you voluntarily agree to participate in this research study.

_____ _____

Signature Date

_____ _____

Signature of Assenting Child (13-17; if appropriate) Date

You will be given a copy of this form to keep.

APPENDIX D – Consent Form Focus Group Students

Consent Forms: Research Participant Information and Consent Form: Parent/Guardian (focal group students)

Your child and his/her classroom is being asked to participate in a research project. Researchers are required to provide a consent form to inform you about the study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Study Title: When Mathematics Works in Black: A Case Study of Effective Mathematics Instruction for African American Children

Researcher and title:

Sponsor:

PURPOSE OF RESEARCH:

Your child's teacher is participating in a research study investigating the look of a teacher's mathematics practice that is successful in a classroom that it predominantly African American. Your child's classroom has been selected by school administrators as an ideal classroom for exploring this research topic. Your child has been selected by the classroom teacher to be one of six students who will participate in focal group interviews.

From this study, the researcher hopes to contribute to the knowledge on how to improve the quality of math instruction available to all students, and in particular, to the African American student.

Approximately 80 people are being asked to participate in the entire study. Your child's classroom participation in the study will take place three days a week, approximately four hours a day, for an intermittent 12 week period, from May 2009 through November 2009.

WHAT YOUR CHILD WILL DO:

During the next twelve weeks, your child's teacher will continue teaching math lessons about a math topic of her choosing. These lessons are part of your child's regular math curriculum. A trained research observer will watch your child's teacher while s/he teaches. Your child will complete class work and homework during these lessons. The researcher will observe the teacher teaching mathematics as well as her interactions with students. On occasion the research observer will participate in classroom activities as a way of becoming a member of classroom community. Your child will participate in three group interviews over the course of the 12 week study. The interview questions for these students will seek to know which parts of the mathematics lessons intrigued them most.

In addition to the above observations the observer will collect portions of student work, as well as classroom grades and MEAP scores.

POTENTIAL BENEFITS:

Your child will not directly benefit from his/her participation in this study. However, his/her participation in this study may contribute to the understanding of how to improve the quality of math instruction available to all students, and in particular, to the African American student. The study's results will provide important information to other teachers, teacher education, and curriculum developers.

POTENTIAL RISKS:

There are no foreseeable risks associated with participation in this study.

PRIVACY AND CONFIDENTIALITY:

Your child's privacy will be protected to the maximum extent allowable by law. Your child's name will be immediately removed from any grades or test scores collected and replaced with a classroom identifier code and will not be associated with any data gathered throughout the observation. All data collected will be securely stored. The data collected will only be viewed by researchers working with the study, all of whom are bound to maintain confidentiality. This research is conducted under stringent university and U.S. government regulations governing confidentiality procedures. Results of the study will be reported so that neither individuals nor the school can be identified.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

Participant interviews in the focal group will be audio taped. I agree to audio taping of the interviews.

☐ Yes ☐ No Initials_____

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Your child's participation in this study is entirely voluntary. You are under no obligation to allow your child to participate in focal group interviews (if you choose not to allow your child to participate in the focal group this does not necessarily exclude him/her from regular classroom observations) and not doing so will not affect your child at school either positively or negatively. You may change your mind at any time and withdraw without penalty. Your child may choose not to answer specific questions or to stop participating at any time. You will be told of any

significant findings that develop during the course of the study that may influence your willingness to continue to participate in the research.

COSTS AND COMPENSATION FOR BEING IN THE STUDY:

Your child will not receive any other form of compensation for participating in this study.

CONTACT INFORMATION FOR QUESTIONS AND CONCERNS

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 202 Olds Hall, MSU, East Lansing, MI 48824.

DOCUMENTATION OF INFORMED CONSENT

Your signature below means that you voluntarily agree to participate in this research study.

I voluntarily agree to allow my child to participate in classroom observation and focus group interviews.

☐ Yes ☐ No Initials_____

I voluntarily agree to allow my child to participate in classroom observation only.

☐ Yes ☐ No Initials_____

_____ _____

Signature Date

_____ _____

Signature of Assenting Child (13-17; if appropriate) Date

_____

Phone number

You will be given a copy of this form to keep.

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