

ABSTRACT

Title of Document: EMBRACING MATHEMATICS IDENTITY
 IN AN AFRICAN-CENTERED SCHOOL:
 CONSTRUCTION AND INTERACTION OF
 RACIAL AND MATHEMATICAL STUDENT
 IDENTITIES

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This dissertation is a report of a multiple case study of eight seventh grade African American students attending an African-centered school. This African-centered school is attended solely by children of African descent and adheres to a system of African cultural values, focusing on culture, relationships, and academic excellence. The report provides in depth case analyses of two of these students as they navigate their multiple identities. The foci of the analyses are on the students' construction of their math learner identities and racial identities and on their construction of both of these identities taken together. Phenomenological variant of ecological systems theory illuminates the challenges and supports that these students encounter in constructing their identities. The mathematics and racial socialization practices within the school and within the students' home environments are documented within this report as support mechanisms that provide opportunities for the students to construct

identities as African American mathematics learners. The findings suggest that academic spaces that reduce the stress of racism and help students to value their racial identity may be particularly important spaces for other African American mathematics learners. The findings also have positive implications for the implementation of African and African American cultural practices and programs that can help other African American learners to positively construct identities as both African Americans and math learners. The documented findings raise critical questions about whether other African American learners, despite the heterogeneity within this population, would benefit from African-centered schooling.

EMBRACING MATHEMATICS IDENTITY IN AN AFRICAN-CENTERED
SCHOOL: CONSTRUCTION AND INTERACTION OF RACIAL AND
MATHEMATICAL STUDENT IDENTITIES

By

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Dedication

To my loving parents, Andwele and Safiya Nyamekye. Thank you for inspiring this work and helping me to become the woman that I am today.

I love you.

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Chapter 1: Introduction

Attending school in Miami, Florida, I noticed that my skin color, hair texture, clothing, and style were different from most of the other students; I had more in common with students in my former school in New York. I recall the hurt I felt on a day I wore my hair in twists and was referred to as Predator (from the movie starring Arnold Schwarzenegger) by non-African American students. On another occasion, a white female student whom I considered my friend, touched my hair and said, “Your hair is so oily I could fry an egg in it.” I remember the horrible way that her comment made me feel. I was sent a message very early on that my expressions of my racial identity were not perceived as beautiful.

Near the end of the third grade, my teacher recommended that I take an intelligence test. I passed and the school placed me into the gifted program. I was tracked this way for the rest of my K-12 schooling. As the years passed, I noticed that students who looked like me were hard to find in my mathematics classes. Most of the black students in my school were in the “regular” mathematics classes. If my parents had not taken the time to tell me that I would be one of the few black students in these classes, I may not have adjusted very well to the absence of my people. At home, I was socialized to believe that the color of my skin would not be a barrier for me to obtain my education.

During childhood, my parents frequently asked me questions such as, “Who is Farhaana Nyamekye?”, and “Where are you from?” These questions seemed

irrelevant at the time, but reflecting on who, and where I am today, I realize how important it was for them to ask these types of questions. They gave me books about Africans, African countries and cultures, and prominent black historical figures and their teachings. They even changed my last name to an African name. The purpose of this exposure was to help me to maintain my identity and sense of self, and counter society's ignorance about people of African descent. I knew that my ancestors were Africans and that it was my responsibility to continue their tradition of excellence. To this day, I have maintained a strong racial identity and am very conscious of my African heritage. If asked, I would say that I am a black woman who happened to major in mathematics, not a mathematics major that happened to be black.

During my Masters Commencement ceremony, I noticed that I was one of the few black people graduating. I felt a nagging sensation that something was amiss. Where were the rest of my African-descended people? Perhaps they were attending Historically Black Colleges and Universities (HBCUs)? I personally did not attend any African-centered schools or HBCU's but realized that these schools incorporated elements of what I received at home as a child, elements that may have allowed me to be resilient and persist in obtaining my education. I began to wonder if there was something about this knowledge that I received at home that had in some way influenced my embracing mathematics and myself as an African American, knowledge that perhaps African American students in public schools or "regular" math classes were not receiving. I felt a need to speak with young students who were receiving this knowledge and explore how they understood themselves as both African Americans and mathematics learners. I wondered about the implications of

their self understandings for mathematics achievement, and for movement in the mathematics pipeline.

The quest for understanding why African American students have not maximized their potential in mathematics is a challenge that continues to intrigue me and other educators. As scholars, the search to find the answer to this question leads to a relatively untapped source, identity. This dissertation is a report of a multiple case study of eight African American students' constructed identities, and school practices. The study was based primarily upon the direct observation of an African-centered school; a seventh grade mathematics teacher and her eight students within the school; and interviews with the students, parents, and educators.

Statement of the problem

The research on mathematics learning and teaching has acknowledged identity as an important element that we cannot separate from learning (Martin, 2009; Nasir, 2007; Anderson, 2007; Martin, 2007; Stinson, 2006; Hamm & Faircloth, 2005; Rodriquez, Jones, Pang & Park, 2004; Nasir, 2002; Boaler & Greeno, 2000; Martin, 2000). Mathematics identity includes:

The dispositions and deeply held beliefs that individuals develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics to change the conditions of their lives. A mathematics identity encompasses a person's self-understandings of himself or herself and how they are seen by others in the context of doing mathematics. Therefore, a mathematics identity is expressed in narrative form as a negotiated self, is

always under construction, and results from the negotiation of our own assertions and the external ascriptions of others. (Martin, 2007, p. 41)

In particular, researchers have found racial identity to be salient in African Americans' everyday lives and experiences (Hale-Benson, 1994; Fordham, 1996; Fries-Britt, 2000; Hargrow, 2001; Martin, 2000; Plummer, 1995; Tatum, 2004; Tatum, 1997; Welch & Hodges, 1997). Racial identity refers to the ways in which African Americans view themselves in relation to their larger community and other communities, how they think others view them, how they understand their own position in society and the way others have positioned them, and their meanings and importance of race (Helms, 1990; Sellers, Smith, Shelton, Rowley & Chavous, 1998).

Researchers have traditionally studied the racial and mathematics identities of students in isolation. Ellington (2006) abandoned tradition to explore how gifted African American students' perceived the effect of their racial and ethnic identities on their mathematics achievement. It may be in the intersection of the two identities that the answers to many perplexing questions lie. For those researchers who are interested in understanding the complexities surrounding African Americans and mathematics achievement and performance, further exploration of their racial and mathematics identities may prove useful.

The term African Americans will refer to individuals of African ancestry, with socialization primarily in the United States (Sellers, Shelton, Rowley, & Chavous, 1998). In addition, this individual does not have direct ancestral connections to the Caribbean or Africa. I am choosing to exclude Caribbean and African individuals for

several reasons. First, in the Caribbean islands (commonly referred to as West Indies) and African countries, black people are not the minority, and may have fewer collective group experiences with racism. Like African Americans, West Indians also have a history of chattel slavery, but post-slavery, had very different experiences (Model, 1995; Sowell, 1978). Second, other subgroups in the United States, including African Americans, view Africans and West Indians differently in terms of culture, language, and work ethic. Third, West Indians and Africans do not view themselves as “black” American or African American and have been criticized for separating themselves from African Americans (Jackson & Cothran, 2003; Vickerman, 1994; Waters, 2000). Some West Indians and Africans may not want the label of African American or black because of the negative characteristics that have been attributed to this label in the United States, i.e. lazy.

For African Americans, racial identity and mathematics identity are connected (Martin, 2000). However, the field of mathematics education does not understand fully how racial identity of African Americans and mathematics identity inform one another. In other words, we do not fully understand the intersection of what it means to be a mathematics learner and what it means to be an African American, i.e. how African American students’ construct math learner identities and racial identities (Martin, 2007). Researchers need a place to explore how these two identities are linked. It is difficult to explore exactly how these two things connect in school spaces where these identity developments are not part of the school’s vision or mission.

Additionally, we do not have very sophisticated approaches to understanding African Americans as Americans of African descent and as math learners (Martin,

2009). Conversations around African Americans and mathematics are usually framed around deficits and deficiencies. The following excerpts taken from two slave narratives and two contemporary student and parent narratives support the idea that we need approaches that are more sophisticated.

These I mostly employed in the fishing and trafficking business, and in these occupations I have been cheated out of considerable money by people whom I traded with taking advantage of my ignorance of numbers. (Smith, 1798, as cited in Porter, 1995, p. 557)

I was afraid I would get cheated out of it cause I can't figure and read, so I tell old Master about it and he bought it off'n me. We never had no school in slavery and it was agin' the law for anybody to even show a negro de letters and figures, so no Cherokee¹ slave could read.” (McDaniel, 2003, Morris Sheppard narrative, section 5, www.murraycountymuseum.com/vann.html)

I learned about money and costs and revenues. Now I won't get cheated when I start a business. (Guckel, 1994, Feb 21 section, <http://www.gsb.stanford.edu/community/bmag/sbsm624/sbsm62406a.htm>)

You get cheated all of the time if you don't know how much change you're supposed to get...you don't know, you could lose a whole lot of money just not knowing how to count your own money and knowing how much something is, or what you're buying and you need to know, take focus of what

¹ While enslaved, African Americans often intermarried with the Cherokee. My grandmother for example, is the child of an African American mother and Cherokee father.

is going on with your own money cause you can get cheated.” (Remillard & Jackson, 2006, p. 253)

The contemporary narratives of African Americans and the narratives of their enslaved African and Cherokee ancestors are compelling. Both suggest the importance and necessity of knowing mathematics so that others would not take advantage of them, other being whites in particular, who historically, stripped Africans of their identity, culture, and excellence. For these African Americans, learning mathematics was not about the labor market or appreciating the aesthetics of mathematics. How is it, that almost two centuries later, these excerpts sound so similar? What mathematics do African Americans need to know today and why? According to Bob Moses, African Americans need algebra for political, economic, and personal empowerment. This is discussed in greater detail in Chapter 2. Who gets to make these decisions (Martin, 2006b)? What do these narratives mean for current research?

They suggest that the relationship between African Americans and mathematics learning is more complex than we might have imagined. The negative impact of slavery for African Americans is evident even in the narratives of African Americans today with regard to mathematics literacy. Researchers need to know more about what it means to be African American given their legacy of slavery and what it means for their contemporary struggle for identity and mathematics literacy in this historical context (Martin, 2006b).

Rationale

In a typical public school space, it may be more difficult to understand the intersection of being an African American and being a mathematics learner because these schools are not concerned with interventions for identity development or the relationships between racial identity and mathematics identity. In public schools, discussions about race are not open, but the messages about African Americans are there and they are implicitly negative. African-centered schools in contrast send positive messages about racial identity.

A context like an African-centered school is useful because it allows researchers to understand the overlap of these two identities. In general, African-centered schools emphasize the following: development of a strong African American identity and self-concept; superior academic achievement; transmission of culture; a sense of commitment to African American people; self-determination; implementation of education based on African values; commitment to a belief of a common African ancestry; and provision of political education (Giddings, 2001; Lomotey, 1992; Lee, 1992).

In this setting, the school has decided that the development of racial identity is the foundation for learning. Second, the school has constructed racial identity and mathematics identity as complementary. In public school settings, the racial identity of African Americans has been implicitly constructed as being in opposition to their academic identities (Fordham, 1996; Harper & Tuckman, 2006; Oyserman & Harrison, 1999; Welch & Hodges, 1997). Exploring the interaction between these identities in an African-centered school context affords the opportunity to understand

how these two identities intertwine, and to engage explicitly in the culture of a school whose primary concern is on the development of racial identity for African American students.

Fries-Britt's (2000) study suggests that an inquiry into the identity development of African American learners of mathematics can help educators promote academic interest and students' beliefs in their mathematical abilities. She contends that educators should understand racial identity development in the learning process of African Americans. Studies in the counseling literature highly advocate the exploration of identity development for African Americans, because of the psychological pressures they face as African Americans and the negative academic impact of trying to be race-less, downplaying their intellectual gifts, or desiring whiteness (Hargrow, 2001; Phelps, Taylor, & Gerard, 2001; Ford-Harris, Shuerger & Harris, 1991). According to Welch & Hodges (1997), studies on identity development of African Americans can help researchers understand how this development may serve as a barrier to academic achievement.

Conceptual framework

This study was embedded in two contexts, the context of the African-centered school and the nested mathematical context. Martin's (2000) multilevel context-based framework was used to aid my understanding of identity construction among African Americans within the context of mathematics, and structured a discussion of the African-centered context in which the students were educated. This framework is presented as Table 1.

Table 1: Multilevel framework for analyzing mathematics socialization and identity among African Americans: Key Themes

Agency and mathematics success among African American students

- Personal identities and goals
- Perceptions of school climate, peers, and teachers
- Beliefs about mathematical abilities and motivation to learn
- Beliefs about the instrumental importance of mathematics knowledge
- Beliefs about differential treatment from peers

School

- Institutional agency and school-based support systems
- Math teachers' curricular goals and content decisions
- Math teachers' beliefs about students abilities and motivation to learn
- Other staff beliefs about students abilities and motivation to learn
- Math teachers' beliefs about African American parents and communities
- Other staff beliefs about African American parents and communities
- Student culture and achievement norms
- Classroom negotiation of mathematical and social norms

The first theme is concerned with how African American students understand themselves as mathematics learners. The second theme pertains to the culture of the school. I found these themes to be essential in conceptualizing students' constructed identities and the ways that certain practices assisted them in constructing racial and mathematics learner identities.

Purposes of this study

One purpose of this study was to explore the relationships between mathematics learner identity and racial identity in a setting that promoted African American racial identity explicitly. My general hypothesis was that the African-centered school would have positive implications for both math learner and racial identity. I found that the racial and mathematics identities of the African American students developed in parallel rather than jointly. Unlike the students in Martin's (2009) study, the students did not describe their experiences of being a mathematics learner in ways that intersected with their experiences as African Americans. There were some obstacles to construction of a mathematics identity that prevented these students from co-constructing these identities.

The second purpose was to contribute to the literature on African Americans and mathematics from a perspective that was often missing. From this perspective, I did not frame conversations around deficits and deficiencies in African American mathematics achievement and performance. Instead, I focused on who these students thought they were and how they came to "be".

Research questions

The study was guided by the following research questions:

1. How does the unique environment of an African-centered school help African American middle school students construct strong identities as African Americans, as math learners, and as African American math learners?
 - a. What is the nature of students' identities as math learners and what school practices assist students in positive identity construction?
 - b. What is the nature of students' identities as African Americans and what school practices assist students in positive identity construction?

- c. What is the nature of students' construction of identities as African American math learners and what school practices assist students in positive identity construction?

Significance of the study

This study extends existing knowledge surrounding African Americans' racial and mathematics learner identities. The results of this study have implications for interventions for racial and mathematics learner identity construction. They also have implications for the approaches that mathematics education researchers take in understanding mathematics success and failure for African American students. The results of this study suggest that there are elements of African-centered schooling that are beneficial for the construction of mathematics learner identities and potentially the mathematics achievement and performance of African American students. In the next chapter, I discuss the research that has been conducted in the areas of African American student's mathematics learner identities and racial identities.

Definition of terms

African American. Individual of African ancestry, with socialization primarily in the United States, who do not have direct ancestral connections to the Caribbean or Africa (Sellers, Shelton, Rowley, & Chavous, 1998).

African-centered. This term which is used interchangeably with Africentric or Afrocentric refers to the concept which categorizes a quality of thought and practice which is rooted in the cultural image and interest of African people and which represents and reflects the life experiences, history and traditions of African people as the center of analyses. This term refers to the placement of African American people and students at the center of human process. This is based on the belief that all humans have their physical, social, and intellectual origins in Africa (Madhubuti & Madhubuti, 1994, p. 8; Shujaa, 1994, p. 65).

Mathematics Identity. The dispositions and deeply held beliefs that individuals develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics to change the conditions of their lives. A mathematics identity encompasses a person's self-understanding of himself or herself

and how they are seen by others in the context of doing mathematics. Therefore, a mathematics identity is expressed in narrative form as a negotiated self, is always under construction, and results from the negotiation of our own assertions and the external ascriptions of others (Martin, 2007, p.41).

Mathematics Identity Construction. The process of acquiring the dispositions and beliefs about one's ability to participate and perform effectively in mathematical contexts.

Racial Identity. A sense of group or collective identity based on one's perception that he or she shares a common racial heritage with a particular racial group (Helms, 1990, p. 3).

Racial Identity Construction. The process of recognizing one's racial group as a salient reference group (Smith, 1989).

Success. Receiving high grades, expressing positive attitudes towards learning, and exhibiting positive social behaviors (Martin, 2000).

Chapter 2: Theorizing math success and failure of African American learners

In Chapter 1, I argued for the importance of African-centered schooling as a context for exploration of the construction of African American learners' identities as African Americans and learners of mathematics. This unique context allows me to examine whether in such settings students develop different identities that have the potential to support different lives as African Americans and as doers of mathematics.

In this chapter, I review relevant literature to situate my study. This chapter is organized in two parts. In the first part, I examine four competing explanations for the successes and failures of African American learners in mathematics classrooms. All four explanations make assumptions about mathematics knowledge, mathematics achievement, and African American youth. Drawing upon critiques of the first three explanations, I make these assumptions explicit before moving to a fourth explanation. In doing so, I lay the foundation for an alternative conceptualization of mathematics success and failure for African American youth that as the dissertation progresses will be informed by the empirical work in the remainder of the dissertation. In this section, I reject simplistic single factor models that sometimes receive attention and instead, based on the PVEST model; argue for a multi-faceted model in which identity is central.

In the second part of the chapter, I situate my work with a review of existing literature on African-centered schooling. I show how my work will bring empirical exploration to sometimes contentious ideological debates. I conclude this chapter

with a discussion of the value of African-centered schooling as a context for examining the construction of identities and for contributing to more sophisticated explanations for mathematics success and failure for African Americans.

Four competing explanations

For decades researchers have been trying to understand the factors that contribute to the mathematics success and failure of African American mathematics learners (Lubienski, 2008; Berry, 2005; Ferguson, 2003; Martin, 2000; Viadero, 2000; Steele, 1999; Ladson-Billings, 1997; Powell, 1990; Green, 1990; Johnson, 1984). Three popular explanations for why African Americans experience academic success and failure more generally (but have implications for mathematics) are that their measured mathematical ability is substandard, they do not view academic success positively, and their culture has deficits that hinder their success.

The explanation about ability focuses on mathematics performance on standardized measures, while the explanation about minority status focuses on attitudes towards academic achievement and comparisons of achievement. The explanation of cultural values focuses on academic readiness and a perception of the inferiority of Black culture. How students see themselves as African American mathematics learners is fundamentally ignored in all three of these explanations. In this chapter, I argue that while these explanations raise interesting questions, they do not offer sophisticated explanations for the complexities involved in mathematics success and failure for African American youth.

Ability based explanations

Studies of ability have typically examined variation between African American and White students' intellectual capacities. Herrnstein & Murray (1994) suggest that cognitively, Whites and Asians have more intelligence than African Americans. In mathematics specifically, studies of ability typically characterize African Americans as underachieving, underperforming, and underrepresented in comparison to Whites in mathematics performance and participation in STEM fields (NCES, 2009). This body of work argues that the scores of African Americans on standardized measures of math ability are contributing to an achievement gap in mathematics (Barton & Coley, 2009; Vanneman, Hamilton, Baldwin, & Rahman, 2009; Koretz & Kim, 2007; Fyer & Levitt, 2004). The achievement gap is defined as an indicator of disparities between groups of students usually identified by racial, ethnic, linguistic, or socioeconomic class with regard to a variety of measures (Bol & Berry, 2005).

Much of this research focuses on how to get African Americans to perform at similar levels in mathematics to White and Asian students. The No Child Left Behind Act (NCLB) has required states to set the same performance targets for all students. Under NCLB all students, regardless of race, gender, and SES, are expected to perform equally well by the year 2014 (Wenglinsky, 2004). The general idea is that this will help schools to close the "achievement gap" between Black and White students.

Ability based explanations have been criticized for making assumptions that standardized tests are reliable indicators of skills (Rothstein, 2004). According to Rothstein (2004), standardized tests do not measure good citizenship, for example. Studies have shown that standardized mathematics test do contain biases in favor of middle class White students (Jencks & Phillips, 1998). Standardized tests ignore cultural contexts.

Another criticism of ability based explanations is that in accounts of African American mathematics achievement, they ignore access to quality mathematics education and resources (Darling-Hammond, 1997; Oakes, 1990a). Love (2004) asks,

How did the discussion change from a focus on unequal educational opportunity, as described by Brown, to a focus on unequal performance between African American and White children, described as an ‘achievement gap’? (p. 227)

The reality is that as the population of the school becomes predominantly African American, the quality of the mathematics instruction decreases (Jackson & Leffingwell, 1999). Studies show that in schools with large populations of African American students, the quality of mathematics teachers, resources, and preparation is poor, in stark contrast to Whites (Oakes, 1990a). Teachers working in schools with large populations of African Americans are less likely to have state certification in any subject (Oakes, 1990a). In addition, these teachers may not have a bachelor’s or master’s degree or even a minor in mathematics (Oakes, 1990a).

According to statistics on teacher certification, White students are more likely to have a certified mathematics teacher than African American students. To make matters worse, statistics also show that the poorer one is, the greater the likelihood that one's mathematics teacher is under-qualified. Essentially, if one is poor and African American, the probability of having an inexperienced teacher is very high (National Center for Education Statistics, 2000).

The percentage of teachers who ask their students to do seatwork such as worksheets is higher in schools with large percentages of low-income African American students in comparison to the percentage of teachers at high wealth schools. The higher the African American population, the more time teachers spend on activities that take away from instruction time (Oakes, 1990a). The academic curriculum for these African Americans is so unchallenging and expectations are so low that the students become bored (Haycock, 2001). High poverty and predominantly African American schools tend to have the worst academic curriculums (Haycock, 2001).

The larger the African American student population of a school, the more likely it is that lower level mathematics courses are offered and that African American students are enrolled in those courses (Jackson, 1982; Marrett, 1981). As a school's African American enrollment increases, the proportion of classes intended for students of high ability diminishes (Oakes, 1990a). African-Americans students are disproportionately placed in low-ability classes and non-college-preparatory high school programs (Oakes, 1990a). Ultimately, many schools track African American students away from advanced mathematics and science courses and towards

vocational education (Johnson, Kritsonis, & Lecturer, 2006; Johnson & Kritsonis, 2006a, 2006b; Atwater, 2000; Tate, 1997; Catsambis, 1994; Darling-Hammond, 1995; Hilliard, 1992; Powell, 1990; Oakes, 1990a; Stiff & Harvey, 1988).

Rothstein further suggests that ability based explanations make assumptions that achievement exists separately from social class differences in childrearing, social class differences between Blacks and Whites with similar incomes, health differences, housing, and student mobility. Martin (2009) contends that this kind of explanation for mathematics success and failure of African Americans places African Americans at the bottom of “the racial hierarchy of mathematics ability” (p. 297).

In the case of African Americans and mathematics, they are presented as inferior to Whites and Asian Americans; failure is constructed as normative; and their struggle to obtain mathematics literacy, despite barriers and obstacles, receives little attention. (Martin, 2007, p. 149)

Scholars have moved for reframing the current achievement gap discourse (Gardener, 2007; Carpenter, Severn, & Ramirez, 2006; Ladson-Billings, 2006; Evans, 2005; Ramirez & Carpenter, 2005; Singham, 2003; Singham, 1998).

Ability-based explanations are so heavily focused on the achievement of African American students in comparison to White and Asian students, but less focused on figuring out how to tap into the potential of African American students. Implicit in these explanations are that the goal is *not* for African American students to score at levels that exceed White and Asian students. The irony of this is that this implicit message conveys the very low expectations that policy makers ironically seek to counter within schools. Snipes & Snipes (2005) suggest that the historical

awareness of the education of African Americans, teacher expectations and beliefs, cultural awareness, testing, equity in the classroom, and career selections are topics that should be addressed instead.

In sum, ability based explanations attribute low mathematics achievement and performance of African American students to internal problems with teachers and students rather than to the real risks of race and class. Another major flaw of these explanations is that they fail to see that what is being called the achievement gap is actually an indication of these risks, and not an indication that African American students are incapable of mathematics success as defined by standardized tests. This focus on ability ignores the complexities of adolescence and the struggle to negotiate and form identities.

Minority status explanations

According to Steele (1999), African Americans experience academic failure (which has implications for mathematics) because of stereotype threat. Under this threat, an African American individual becomes conscious of negative stereotypes and beliefs about their group and begins to have anxiety that they will conform to these negative stereotypes; this anxiety interferes with their ability to perform well. Fordham & Ogbu (1986) suggest that African American students experience academic failure because they perceive success as being in opposition with their culture. Commonly referred to as cultural oppositional theory, they assert that this opposition to academic success is how African American students cope with stress in academic contexts. They found that for African American students in one high

school, achieving academic success meant “acting White” and that these students (whom Ogbu characterized as involuntary minorities) developed oppositional academic identities. Involuntary minorities are Black people who were brought to the United States against their will i.e. captured and enslaved. Ogbu contends that because of their involuntary minority status, African Americans resist academic success.

There have been studies that contradict Fordham and Ogbu’s findings characterizing them as examples of self-defeating resistance (Hassingier & Plourde, 2005; Horvat & Lewis 2003, Spencer, Knoll, Stoltzfus, & Harpalani, 2001; Solorzano & Delgado-Bernal, 2001). This explanation makes the assumption that African American students view the acquisition of knowledge as the domain of Whites and ignores the environment in which African American students are educated. As Debra Viadero (2000) states, “fears that classmates will accuse fellow minority students of “acting White” for excelling in school....if that were the reason, why would learning differences show up even in kindergarten , when children of every color want nothing more than to please their teachers?” For African Americans who are successful in mathematics, and hold their racial identity in high regard, the acting White theory seems less credible. Another assumption made is that the desire for these African American students to “know” exists separately from how they are perceived by others and how they perceive themselves racially.

Gibson & Ogbu (1991) found that in contrast to Caribbean Blacks and Blacks from Africa (immigrants), African American students performed at lower rates of achievement. This explanation is useful in that it acknowledges the risk of the history

of enslavement of African Americans but in other ways is inadequate. Specifically, this explanation ignores the historical legacy of African Americans and their pursuit of education and high achievement (at the risk of death), and desire to be mentally liberated (Perry, Hilliard, Steele, 2003; Anderson, 1988; Woodson, 1933; DuBois, 1903). Many African American parents want their children to go to college and get an education.

Fordham, and Ogbu's studies speculate about maladaptive solutions that African American students create to cope with their experiences of stress. There are several studies documenting the adaptive solutions that students create such as gaining interpersonal competence (Wiggin, 2007; Ellington, 2006; Sheppard, 2006, Thompson & Lewis, 2005; Berry, 2005; Hrabowski, 2001; Gutierrez, 2000). Some cope with stress by finding a balance between being a member of the African American community and being a member of a community of excellence in mathematics. They do this by navigating in both worlds through code switching (Foster, 1992). This involves using certain speech and mannerisms around their African American peers, and different speech and mannerisms in settings with non African American peers.

In total, a minority status explanation attributes mathematics failure of African American students to a view of academic success as "White" while ironically ignoring a major objective for slaves (involuntary minorities) who were brought to America: the acquisition of an education. It is fundamentally different from the ability explanation and connects to Phenomenological Variant of Ecological Systems Theory (which will be discussed in greater detail) with respect to its regard for context,

but does not consider that academic failure for African Americans might be less about acting White and more about a desire to construct a healthier Black racial identity (Spencer, Noll, Stoltzfus, & Harpalani, 2001). The problem is that this explanation is often given as the only explanation. It does however point to something important about racial vulnerability and could be reformulated to have a wider application.

Cultural values explanations

Thernstrom & Thernstrom (2004) attribute academic failure (which has implications for mathematics) to the low educational values of African Americans. They contend that Asians are academically successful in contrast because of their strong educational values. They suggest that African Americans stop making excuses and turn the television off. Similarly, Bill Cosby attributes the academic failure of African Americans to poor parenting: purchasing of high cost sneakers rather than on educational tools like *Hooked on Phonics* (Dyson, 2006). In essence, they suggest that the culture of African Americans is deficient.

In some cases parenting in certain African American homes is not adequate and thus may contribute to student failure in mathematics. The Thernstroms' attempt, however, to portray Asian achievement and domination in mathematics as a reflection of their strong culture while portraying African American achievement as a reflection of a deficient culture does not view African American culture as having any worth and ignores biases in standardized testing (Thernstrom & Thernstrom, 2004). It adheres to Asians as the model minority further contributing to stereotypes about who can do math. This explanation ignores the role of race and socioeconomic status in academic preparation (Rothstein, 2004).

Summary of single factor explanations

These explanations all make similar assumptions about who African Americans are as mathematics learners. Table 2 summarizes assumptions made in explanations that frame the issue of mathematics success and failure of African Americans in terms of ability, minority status, and cultural values. All three accounts focus on either what African Americans lack or how they deviate from other groups.

Table 2: General assumptions of ability, minority status, and cultural values explanations of mathematics success and failure of African Americans (AA)

Accounts and Focal questions→ Dimensions ↓	Ability Do AAs have the math knowledge needed to excel on standardized measures?	Minority Status To what degree do AAs manifest similar or different achievement levels as students of the same race in other countries? What are AAs attitudes towards scholastic achievement?	Cultural values What is wrong with Black culture?
Mathematics achievement	Standardized testing is the best measure of achievement. Exists separately from racism, access to quality education, and poverty.	AAs view the acquisition of knowledge as the domain of Whites. Desire to know exists separately from Black racial identity. Focus on AAs as not valuing education the ways West Indians and Africans do. Achievement exists separately from historical legacy and demand to be educated.	NAEP is the best measure of achievement. The model group for achievement is Asians. Hard work is culturally transferrable. Achievement exists separately from race and social class inequality.
AA youth	Focus on AAs failure to achieve at the high ability levels of Whites and Asians.	Focus on oppositional stance as the prevailing coping method for AAs.	Focus on academic skill deficiency, under-preparation, and misguided priorities of AAs.

What we do not see in these explanations is the heterogeneity of African American learners' experiences or how African Americans view themselves as African American mathematics learners. These explanations are concerned merely

with academic outcomes, and not with the construction of healthy identities that could contribute to mathematics success. I argue later that a more adequate explanation for mathematics success and failure would capture these views.

Before articulating the theoretical framework that I used, I briefly illustrate how neither explanations focusing on ability, minority status, or cultural values capture African American success and failure with mathematics. If I were to analyze these students' mathematical success through an ability lens, I might argue that these students were successful because they were high scorers on the state test. This view ignores the school environment, the commitment of the teacher, socialization, and the high private racial regard that each student had.

Through a minority status lens, I might argue that these students all believed that they were "acting White" or would have encountered conflict because all of these students were "involuntary" minorities. This view ignores the student's perceptions of academic success and of being African American. Through a cultural values lens, I might argue that these students were successful because their parents' valued education. This view, however, ignores the students' perceptions of education and how they viewed themselves as mathematics learners.

The success of these students cannot be fully explained by ability, minority status, or cultural values. These students reflect the complexity of what it means to be an African American mathematics learner. As I conducted my empirical work, I became convinced of the importance of attending to processes of mathematical and racial identity construction and socialization.

A PVEST oriented multi-faceted explanation for mathematics success and failure of African American learners

This study is not a study of mathematics ability, minority status, or cultural values, but rather of the phenomenon of how students see themselves as both mathematics learners and African Americans. In order to study this phenomenon, I had to make theoretical choices. The following are the main assumptions I make in adopting a different way of conceptualizing mathematics success and failure of African Americans. First, I draw upon a phenomenological variant of ecological systems theory for understanding mathematics success and failure. The theory highlights particular relationships between African Americans and achievement; specifically that achievement cannot be separated from identity. I assert that it is important to think about adolescence, risks and challenges to mathematics success, and available support. I argue for an account of African American construction of identities as African American math learners.

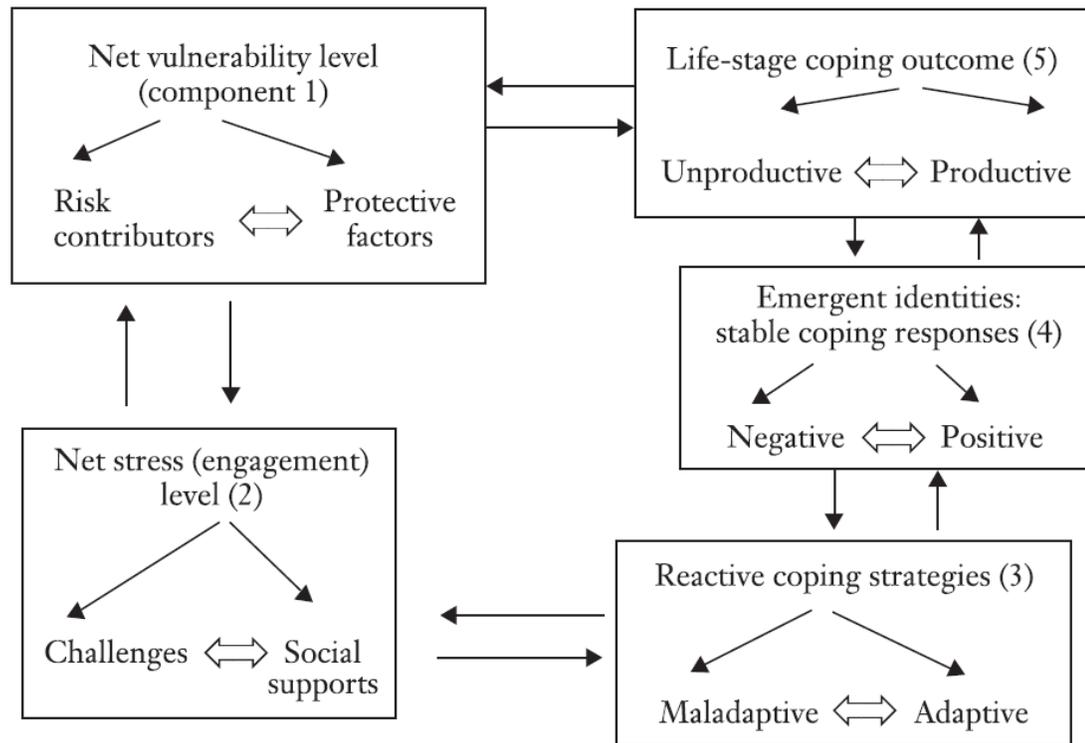
African American youth and environment: PVEST

I ground my study in identity theory rooted in the work of Bronfenbrenner (1979) and modified by Spencer (1995). A phenomenological variant of ecological systems theory or PVEST addresses the critiques about ability, minority status, and cultural values explanations by attending to identity formation. I drew on the PVEST model as the theoretical grounding for this study because of its explicit focus on African American adolescents. It is extremely useful to have a theory that was conceptualized for African American youth and incorporates factors that are relevant to them.

Spencer's (1995) phenomenological variant of ecological systems theory (PVEST) begins with the assumption that to be human is to be at risk. It is different from Bronfenbrenner's (1979) ecological systems theory in that it attends to race, neighborhood dangers, and stress from experiences of racism that are salient for many African American adolescents. Spencer argues that theories of identity development need to be adjusted for African American students in order to be effective for them. She states that African American children and adolescents carry much more complexity because of their status as African Americans (Spencer, 2008).

Although the PVEST model was not designed specifically for understanding mathematics learner identity development and construction, it can illuminate the challenges and supports involved in African Americans experiences with mathematics. The PVEST model represented in Figure 1 summarizes a view of human identity development as represented by a cyclic process of directional influences between 5 essential themes (Swanson, Spencer, Dell'Angelo, Harpalani, & Spencer, 2002).

Figure 1: PVEST model



Component One

The PVEST model recognizes that African American middle school students are vulnerable on two levels; the first is the vulnerability of transitioning from childhood to adolescence, and thereby, for example, in math, transitioning from elementary school math to algebra and symbolic interpretation. In general, transitioning from childhood to adolescence can be thought of as a risk that contributes to weak identity formation. Adolescence can be described in the following way:

Adolescence is the last and the concluding stage of childhood. The adolescent process, however, is conclusively complete only when the individual has subordinated his childhood identifications to a new kind of identification,

achieved in absorbing sociability and in competitive apprenticeship with and among his age-mates. These new identifications are no longer characterized by the playfulness of childhood and the experimental zest of youth: with dire urgency they force the young individual into choices and decisions which will, with increasing immediacy, lead to a more final self definition, to irreversible role pattern, and thus to commitments 'for life.' (Rapaport, 1959, pp. 110-11 as cited in Erickson, 1959)

Adolescence is the fifth stage of Erikson's stages of identity development (Erikson, 1950). It signals the end of childhood, the beginning of youth, and "the final establishment of a dominant positive ego **identity**" (Erikson, 1950, p. 306). During this stage, adolescents are particularly obsessed with how they appear to others compared to how they feel about themselves (Erikson, 1968, 1950). This can be thought of as a part of the self-appraisal process. It is not uncommon at this stage for adolescents to join cliques of other adolescents in an attempt to define their self, and to help others define themselves (Erikson, 1950). They also test their peers to see who will be faithful and who will betray them. Adolescents tend to be cruel to those who may have a certain skin color (a risk for some African American adolescents), cultural background, or way of dressing which does not fit in with their clique's tastes (Erikson, 1950).

Adolescents seek to find a delicate balance between believing in someone who has proven his/herself to be loyal and mistrusting the person in attempt to not seem gullible. They would prefer to act out in front of elders than do something that would cause them to be looked down upon by their peers (Erikson, 1968). They are

“eager to be affirmed by their peers, to be confirmed by their teachers, and to be inspired by worth-while ‘ways of life’” (Erikson, 1968, p. 130). However, the adolescent does not want to feel as though they cannot express themselves and will resist attempts made by others to deprive them of coming to know themselves (Erikson, 1968).

One goal of adolescence is to achieve a coherent identity that may include physical and sexual identity, occupational goals, religious beliefs, and ethnic background (Marcia, 1991). Erikson (1950) states that the danger of this stage is role confusion, where the adolescent might become confused about their sexual identity for example. At this stage, the future now begins to seem to be something real for the adolescent (Erikson, 1950). According to Marcia (1991), adolescents may first make a commitment to identity without exploring alternatives (referred to as a foreclosure identity status), then question their ideas and beliefs by exploring different social roles (moratorium status), and explore and commit to aspects of their identity (identity achievement status), or feel overwhelmed by identity development and neither explore nor make commitments to aspects of their identity, sometimes resulting in social isolation (diffusion status). Identity achievement is linked to high self-esteem and advanced thinking and reasoning (Marcia, 1991).

The second vulnerability of African American adolescents is their race that is surrounded by societal stereotypes and heightened by all forms of racism: structural, institutional, and everyday racism, vulnerabilities which are acknowledged by Spencer’s PVEST model. In mathematical contexts, negative beliefs and stereotypes about race contribute to the placement of African Americans in lower level

mathematics courses, lower expectations for African American mathematics learners and higher expectations for Asians, inferior positioning of these students in mathematics classrooms, and deficit discourse about African Americans mathematics abilities. The PVEST model conceptualizes the vulnerability levels of students as the difference between the effects of protective factors and effects of risk factors. Risks may be things like skin color, poverty, single parent homes, gender, race, and sexuality. Protective factors are things that serve to offset these risks, things like parental monitoring and high academic achievement (Spencer, 1995).

Components two through five

The PVEST model takes into account whether students perceive risks and protective factors as challenges or supports (this is done through a process of self-appraisal). The students' stress levels are viewed as the balance of perceived challenges and supports. Depending on how students perceive risks and protective factors, they develop adaptive or maladaptive coping strategies which lead to the formation of negative or positive coping responses (emergent identities) which subsequently lead to productive or unproductive behavioral outcomes. Thus, the model can explain high and low achievement of African American learners along with the heterogeneity of their experiences. The cyclic process of bidirectional influences of vulnerabilities, stress, coping strategies, emergent identities, and behavioral outcomes are all a part of the PVEST model. However, I am more interested in the counterclockwise direction because understanding the available supports that influence the development of emergent identities will likely contribute

more to an explanation of mathematics success and failure than an understanding of how emergent identities influence available supports.

The process is cyclic because at every point of transition in a human's life, new vulnerabilities emerge; for example, from adolescence into adulthood, from working in corporate America to working at home, from being healthy to being sick. From this view of human identity development, societal, parental, and institutional practices are directly involved in the process of students' negotiation and construction of their math learner identities and racial identities, and success and failure in mathematics. In conclusion, this study draws from PVEST as the theoretical perspective.

The PVEST model allows researchers to explicitly focus on African American students and how contextual factors influence their identities. PVEST enables an examination of how African American adolescents come to view themselves as African Americans, mathematics learners, and African American mathematics learners and provides concepts for understanding how context is related to these identities. This theory guides a discussion of African-centered schooling, two cases of construction in chapter 6, and the discussion of the research questions in Chapter 7.

Summary

Table 3 summarizes assumptions made in explanations that frame the issue of mathematics success and failure of African Americans in terms of ability, minority status, cultural values, and an alternative.

Table 3: General assumptions of four explanations of mathematics success and failure of African Americans

Accounts and Focal questions→ Dimensions ↓	Ability Do AAs have the math knowledge needed to excel on standardized measures?	Minority Status To what degree do AAs manifest similar or different achievement levels as students of the same race in other countries? What are AAs attitudes towards scholastic achievement?	Cultural values What is wrong with Black culture?	Alternative How do AAs view themselves as African American mathematics learners?
Mathematics achievement	Standardized testing is the best measure of achievement. Exists separately from racism, access to quality education, and poverty.	AAs view the acquisition of knowledge as the domain of Whites. Desire to know exists separately from Black racial identity. Focus on AAs as not valuing education the ways West Indians and Africans do. Achievement exists separately from historical legacy and demand to be educated.	NAEP is the best measure of achievement. The model group for achievement is Asians. Hard work is culturally transferrable. Achievement exists separately from race and social class inequality.	Achievement cannot be understood in isolation from the culture and cultural environment. Achievement is connected to opportunities for AAs to construct healthy racial and mathematics learner identities.
AA youth	Focus on AAs failure to achieve at the high ability levels of Whites and Asians	Focus on oppositional stance as the prevailing coping method for AAs.	Focus on academic skill deficiency, under-preparation, and misguided priorities of AAs.	AAs go through a potentially more complex process of identity development.

In the next part of this chapter, I discuss the literature on African-centered schools as a context where construction of identities as learners and as African Americans can

be examined for advancing our understanding the mathematics success and failure of African American learners.

African-centered school environments

Extensive research has been done on African-centered schools and models of education (Kim & Conrad, 2006; Shockley, 2003; Perna, 2001, Murrell, 2002; Murrell, 2002; Pollard & Ajirotutu, 2000; Sellers, Chavous, & Cooke, 1998; Grayson, 1996; Kifano, 1996; Madhubuti & Madhubuti, 1994; Shujaa, 1994; Shujaa, 1992; Allen & Boykin, 1992; Lomotey, 1992; Rashid & Muhammad, 1992; Lee, 1992). In this section, I illustrate the ways in which African-centered schools can provide protective factors (that could become actualized social supports) that can reduce the vulnerabilities that race and socioeconomic status create, reduce the stress of resulting challenges, and help students successfully construct identities as African American mathematics learners (which has implications for success and failure).

What is an African-centered school: Key factors

Where did the impetus for African-centered schools come from

African-centered schools emerged from a dire need of parents to educate African American children who were failing in the public school system (Giddings, 2001; Jordan, 2001; Kifano, 1996). In the 1970's, African American parents who felt that traditional schools did not meet the cultural needs of their children (unmet needs resulted in drop out and incarceration i.e. unproductive coping products) created these independent Black institutions to remedy this (Marks & Tonso, 2006; Giddings,

2001; Lomotey, 1992). African-centered schools hold the interests of people African descent as central. Aisha Shule/W.E.B. DuBois Preparatory Academy in Detroit, Michigan, is one the oldest African-centered schools, founded in 1974. More schools emerged in cities like Chicago, Atlanta, Milwaukee, Washington D.C, St.Louis, and Philadelphia. The creation of these schools is connected to the charter school movement in that though it runs on public funding, it runs independent of the traditional public school system and tailors its education to community needs, in this case the needs of the African-American community.

Proponents of African-centered schooling feel that African American students in others school settings have little sense of identity, life purpose and direction, and knowledge about how their schooling relates to their life (Marks & Tonso, 2006; Hilliard, 1997; Lomotey, 1992). Historical events may have contributed to these students having little sense of identity. African culture and identity were dismantled when White slave traders brought Africans to the western hemisphere in 1619 and enslaved them. This was enacted in an attempt to strip Africans of their identity, cultural heritage, and mathematical accomplishments in order to oppress, dominate, and pillage the continent (Morrow, 2003; Lovejoy, 2000; Akbar, 1996; Madhubuti & Madhubuti, 1994). White slave holders immediately indoctrinated Africans into Christianity, rejected their traditional African religions and languages, and prohibited the education of their African slaves (Federal Writers Project, 1941; Woodson, 1933). The creation of African-centered schools can be viewed as one attempt at piecing the various African cultures back together to form a national identity.

Physical separation to avoid discriminatory attitudes and actions

An African-centered school is an educational environment designed solely for all children of African descent (this in contrast to my focus in this study, includes children from Africa and the West Indies). These schools student and teacher/staff population are 100% Black (people of African descent). This environment supports the physical separation of African descended children from students of other races. The primary reason for this physical separation is to counter racism. One of the main challenges African American adolescents face in constructing identities as African American math learners is racism. Moody's (2003) research provides explicit examples of the racism these students encounter. Below is an example of one such encounter.

My best friend [Amber] and I were the only Black students in his class. We could tell that Mr. Miller was burning with anger because we were smart enough to be in his class. When Amber asked him for help, he would just say, "Go figure it out; you have a book. "On the other hand, I refused to ask him for anything because I was determined to be successful without his help. His racist jokes, ugly glares, and superior feelings only gave me the power I needed to defeat him. What I mean by 'defeating' him was proving that I could make good grades and learn algebra despite his feelings. (p. 34)

Epps (1995), Hallinan (2001), and Lewis (2004) discovered that negative teacher expectations and biases were particularly harmful for African American students. One consequence of negative beliefs and lower expectations is inferior positioning of these students by their teachers, within the mathematics classroom. In an African-

centered school, students are not racially isolated in their math classes or subject to racist comments. In another excerpt by Berry (2003), racism in mathematical contexts is illustrated.

The principal at the middle school evaluated Calvin's situation and argued that pre-algebra is a rigorous course for sixth grade students and only disciplined students are capable of passing this course. Even though Calvin had performed well in mathematics throughout his schooling, school personnel focused their attention on behavior rather than achievement when evaluating his academic potential. When the sixth grade school year began, the pre-algebra class had no African American students. (as cited in Berry, 2005, p. 3)

Because of racism, many teachers expect African American adolescents to fail (Bol & Berry, 2005; Rothman, 2001; Ferguson, 1998; Weinstein & Mckown, 1998; Ladson- Billings, 1997; Jussim, Eccles, & Maddon, 1996; Rech & Stevens, 1996; Gross, 1993; Delpit, 1992; McDiarmid, 1992; Oakes, 1990a). Strutchens (2000) suggests that teachers hold negative beliefs about African American students that impede their mathematical empowerment. Studies show that low teacher expectations for African American students affect grades and performance (Berry, 2004; Ferguson, 1998; Jussim, Eccles, Madon, 1996). African-centered schools do not track students and believe in their abilities to do high level math rather than contribute to the disproportionate tracking of African Americans into lower mathematical tracks and low expectations for African American students (Giddings, 2001; Hilliard, 1997; Dei, 1995; Madhubuti and Madhubuti, 1994).

African Americans in Martin's (2007) study stated that they knew that as African Americans they had to be "sharper, quicker, and brighter" because they were already viewed as inadequate (p. 153). The physical separation in an African-centered school could provide a support that offsets the stress of racism and experiences of having to prove oneself to be smarter than White students in order to be validated within the classroom.

Culture, pedagogy, and curriculum

One must be anchored in one's self, people, history, i.e. culture, before one can truly be a whole participant in world culture or multiculturalism... One cannot achieve the multi-anything if one has not explored the singular inside one first." (Madhubuti & Madhubuti, 1994, p. 10)

According to Akoto (1992) and Lomotey (1990), to develop as an African American in relation to schooling comes with the stress of being de-culturalized in schools that ignore Black culture and the challenge of maintaining an African identity. African-centered schools address this challenge by aiming to build student competence while simultaneously valuing their cultural identity² and drawing on the richness and positive aspects of the culture of the African ancestors and the derived African American culture. Students in these settings are encouraged to treat their

² Cultural identity can be defined as a particular set of ideas that are characteristic of their larger family and tribal or national identity. This may include an identification with a particular religious group, a particular ethnic or racial group, a particular country, a particular language and dialect, a particular set of foods that are thought to be good to eat or a particular set of holidays (Dombeck & Wells-Moran, 2006)

teachers with love and respect and parent involvement is integral to educating them (Lomotey, 1992). It is suggested that teachers in an African-centered school understand the following: the social ethics of African culture; the history of Africa; the need for community organization; indigenous language; African American child development; African contributions to the disciplines; specific teaching techniques; continuous personal study; reciprocity; and African principles about children as the reward of life (Marks & Tonso, 2006; Lee, 1992).

The cultural value system of these schools encompasses seven principles of blackness or Kwanzaa: Umoja (unity), Kujichagulia (self-determination), Ujima (collective work and responsibility), Ujamaa (cooperative economics), Nia (purpose), Kuumba (creativity), and Imani (faith) (Marks & Tonso, 2006; Grayson, 1996; Madhubuti & Madhubuti, 1994; Lomotey, 1992; Lee, 1992). African-centered schools rely on students' cultural backgrounds as the foundation for teaching and learning and enlist the students to become responsible for their mathematics learning.

Murrell (2002) describes African-centered pedagogical theory in terms of seven premises and five practices. The first premise is that human cognition and intellectual development are socially and culturally grounded in human activity. The second premise is that the essence of learning is meaningful activity embodied in practices and represented by ways to communicate understanding and generate a common system of meaning making. The third premise is that meaning making is the motive for learning. The fourth premise is that the appropriation of signs and practices of worthwhile adult activity is the most important form of learning. The fifth premise is that community and symbolic culture are significant to learning. The

sixth premise is that the development of children's capacity to think, reason, communicate and perform academically is a matter of practice. The final premise is that Black achievement is linked to conditions of schooling that reduce racial vulnerability.

The five practices of African-centered pedagogy are extractions of Wenger's (1998) work which suggests that African-American identity development is not independent of the basic human experience. These practices are engagement and participation, identity development, community integrity, practices of inquiry, and meaning making (Murrell, 2002). Engagement and participation refer to teacher's actions that promote engagement and participation in the learning and the learner's ways of engaging and participating in learning. Identity development refers to the teacher's actions that encourage self-exploration and self-definition in the contexts of rich inquiry and the learner's actions in defining and redefining themselves.

Community integration refers to the teacher's activities for organizing the intellectual and social life of the learners and the learner's actions of maintaining membership in the community of learners. Meaning-making refers to the teacher's activities for making explicit cultural symbols and patterns and the learner's actions of interpreting cultural forms and developing analytical skills. Practices of inquiry refer to the teacher's actions that encourage the critical interrogation of the use of symbols and the learner's ability to analyze, reflect, critique, and transform their conditions. These premises and practices seem to have potential in shaping productive life stage outcomes for these students.

African-centered pedagogy seeks to use the students' culture to transcend the negative effects of the dominant culture, another challenge to construction. It contains instructional and curricular approaches that aim to cause a shift in how students see the world, and help students shift their values and actions (Lomotey, 1992). African-centered pedagogy aims to promote a consciousness about the African contributions to fields like mathematics and some may provide opportunities for students, to engage in mathematics, for example, the way the Yoruba or Egyptians engaged.

The African-centered curriculum is designed to challenge Eurocentrism by offering African American students an African-centered cultural frame of reference whereby Africa is the center of their world. With respect to mathematics, one goal of the curriculum is to provide balanced accounts about the contributions of Africa and other cultures to mathematics (Marks & Tonso, 2006; McLaren & Lankshear, 1994; Gordon, 1993, Lomotey, 1992; Asante, 1990). Traditionally, few mathematics textbooks contain the images of, or convey the contributions that African and African Americans have made to the field of mathematics. This is another challenge to constructing an identity as an African American mathematics learner (Anderson, 1997).

Currently, if one looks inside public school mathematics textbooks, there is mention of Pythagoras and other European and Asian mathematicians, but little mention of African or African American mathematicians. There is usually no mention of Black mathematicians (Benjamin Banneker for example) in these texts, and if they do, it is usually very brief (one chapter in the whole book). This depiction

provides African American students with a false sense of their historical contributions to mathematical knowledge and may cause them to form beliefs that Black people do not do mathematics, in turn leading to disengagement and resistance to learning in mathematics classes (Muhammad, 2003; Dei, 1995; Fine, 1991). The African-centered curriculum is perceived as a tool for affirming African culture (Giddings, 2001; Grayson, 1996; Lomotey, 1992; Nobles, 1980).

The curriculum is based on the following principles: reality from an Afrocentric perspective; acquisition of higher-order thinking skills; serving community; value orientation and development of a positive concept of self; and respect for human diversity (Marks & Tonso, 2006; Grayson, 1996). The curriculum also seeks to remove low self-esteem (Marks & Tonso, 2006). Students are seen as descendants of African scholars who are capable of being educated (Grayson, 1996; Lomotey, 1992; Lee, 1992). The curriculum is designed for students to view themselves and their ancestors as the foremost contributors to the history and culture of the world in an effort to assist them in developing a deep understanding of themselves through their connection to a powerful ancestral legacy (Marks & Tonso, 2006). This curriculum can be viewed as a potential social support that offsets the challenges of Eurocentrism and the absence of Black role models in mathematics.

Reactions to African-centered schooling

Critics' concerns about African-centered schools

Schlesinger (1998) and Nicholson (1990) suggest that the establishment of African-centered schools is an example of cult formation because they follow an

exclusive system of practices and beliefs. They assert that the African-centered education being implemented with these schools is simply a history lesson of people, places, and occurrences in African and African American culture. Critics of African-centered education argue that the scholarship and rhetoric behind this movement is historically inaccurate, racially divisive, and prejudiced against other races because of its intentional and purposeful segregation of Black students from other students, which may be viewed as separatist, extremist, and anti-White (Marks & Tonso, 2006; Powell, 1991). Some theorists opposing African-centered curricula claim that Asante's premise (that the traditional emphasis on White European history and culture and disregard of African history and culture alienates black schoolchildren) has no cultural basis or real academic foundation. Critics maintain that the African-centered curriculum has little substance and suggest that it will only perpetuate racism, create racial tensions, and contributes to disuniting America. The criticisms themselves can be criticized. What is clear from the concerns of critics is that more research is necessary.

Taking an empirical stance on African-centered schools

African-centered schooling, education, and pedagogy do seem to provide potential social supports for the challenges that African American adolescents face: being de-culturalized, feeling that they have to prove they are smarter than Whites, lack of role models, racism and stereotypes about who can do mathematics, cultural differences in learning, and Eurocentrism. Critiques of African-centered schooling

are about philosophical issues. My goal is not to tackle these issues, not to get caught up in rhetoric about what counts as appropriate for all African American students, not to determine whether purposive segregation is right or wrong, or create policy, but rather to collect some empirical findings that might help us better understand the role of identity in education. Ultimately, such findings might help us help African Americans become math learners in a variety of different schooling contexts. I am seeking a way to understand whether and why this type of education might have particular affordances for the identity development of African American learners.

The value of this context in helping to examine identity-based theories for mathematics success and failure

Studies have revealed that strong racial and ethnic identities (emergent identities) influence academic achievement (a productive life stage outcome) positively (Harper, 2007; Ellington, 2006; Robinson & Biran, 2006; Chavous, Bernat, Schmeelk-Cone, Caldwell, Kohn-Wood, & Zimmerman, 2003; Davidson, 1996; Fordham, 1996; Mehan, Hubbard, & Villanueva, 1994; Heath & McLaughlin, 1993). Researchers have found that African Americans, in particular, who hold strong racial identities, tend to have positive beliefs about their math abilities, and tend to persist (Ellington, 2006). A growing body of research has emerged in support of the general proposition that knowledge and respect for African culture may also be positively associated with educational success and other healthy outcomes for children of African descent (Potts, 2003, p. 176). Robinson & Biran (2006), in particular, found that having a sense of African identity relates positively to the general academic

achievement of African American students. African-centered schools explicitly value the identity and culture of students of African descent, and thus, could have potential benefits for their life stage coping outcomes, which in mathematical contexts, could mean high mathematical competence and performance. This will be explored in Chapter 4.

In particular, an African-centered school context might be an interesting innovation to use to understand empirically identity construction for African American students, because it aims to assist students in holding strong racial identities which potentially aids them in being resilient and successful in mathematics. Understanding this phenomenon empirically can help shed light on whether African-centered schools really create opportunities for students to see themselves as capable mathematics learners without feeling that they must reject their racial identity and culture, and whether they creates opportunities for students to see themselves as African Americans without feeling that they must reject mathematics success. I want to see if this kind of school and model of education have potential for promoting healthy identities and mathematical competence for students are not in these schools.

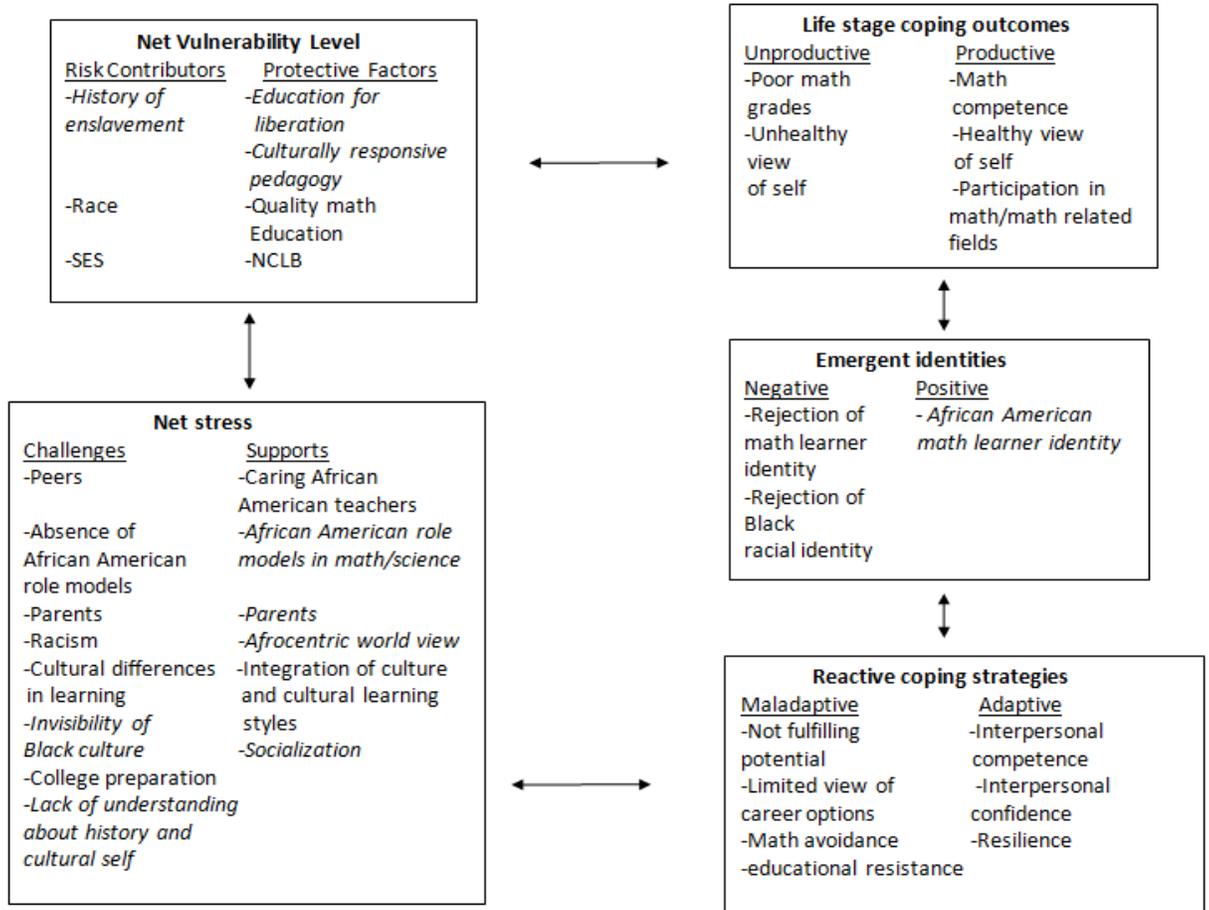
Revisiting PVEST: Examining identity-based theories for mathematics success and failure in an African-centered school environment

PVEST can aid in an understanding of this school and model of education in relationship to identity development because of its focus on context and African American identity explicitly. PVEST provides a nice framework for answering my

overarching research question of how the unique environment of an African-centered school help African American middle school students construct strong identities as African Americans, as math learners, and as African American math learners. PVEST also provides a platform for helping me to answer the sub-questions pertaining to the nature of students' identities as math learners, as African American, and as African American math learners, and the practices that assist them in positive identity construction. In the next chapter I discuss the methods that I used in conducting this study of African American adolescents and their construction of identities as mathematics learners, African Americans, and African American math learners.

An African-centered ontological perspective in mathematics education may help to shed light on the complexities involved in understanding this problem of African Americans not being able to fulfill their potential in mathematics. The figure below illustrates an application of PVEST to my focus of identity construction (with respect to the domains of mathematics learner identity and Black racial identity) as it occurs across the African-centered school context.

Figure 2: PVEST modified: Understanding relationships encountered, perceptions, and developmental trajectories of African American youth in an African-centered school environment



Italicized text represents elements that are not in the original PVEST model or seem relevant to an African-centered model of education. This model will aid me in attending to the following elements as I embark on an empirical investigation of identity construction: African Americans’ history of enslavement, education for liberation, culturally responsive pedagogy, African American parents, caring African American teachers, African American role models, African-centered philosophy, socialization, math learner identity, and racial identity.

Chapter 3: Methodology and research design

Introduction

In this chapter, I describe the kind of research I undertook. I note the importance of qualitative research methods for my inquiry of an African-centered school context and the African American students within this context. I provide detailed information about the research site, focal participants of the study, data collection sources, and methods of analysis. Finally, I discuss some of the dilemmas I encountered.

Methodology

The nature of my research questions called for the use of artistic expression, interviews, and a survey. In combination, these methods were suitable for this study because of the nature of the research questions and my desire to understand racial/cultural and mathematical contexts and emergent identities. I utilized a multiple case study research design (Yin, 2003). Each student participant was a case in this study. Yin's (2003) definition of a case-study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 13). In this study, the context was the African-centered school and the phenomena were the constructed identities of the student participants.

The use of multiple case studies research design allowed me to collect data that were based on the meanings and the experiences of the participants themselves, and

provided individual case information (Johnson & Onwuegbuzie, 2004). Additionally, it allowed me to use rich language and thick description to compare and contrast cases. The case studies could be best characterized as observational given my focus on the math classroom, student sample, and practices within the school (Bogdan & Biklen, 2003). This research design was used to aid me in providing an explanatory model based on my findings.

Research site

Flower Academy was a relatively small building nestled between an auto body repair shop and a fireworks retailer. The second level was the entrance level of the school where a security desk attendant sat as visitors signed in. I was greeted by a warm face and a friendly good morning as I reached for the pen and signed in. To the left was the main office. On this entry level, the floor split to the left and the right, separated by the library. To the right and around the corner were some of the elementary grades classrooms which made up Flower Academy's elementary academy. To the left and around the corner were the music room, the math lab, and several other elementary classes. On the first level, located downstairs from the main entry level, was the cafeteria. On the third level, one flight of stairs up, were the middle grades classrooms that make up the middle academy and student lockers. One more flight up was the faculty lounge, offices, and conference room. I walked down stairs to the cafeteria. Children sat with their friends and were dressed in the Flower Academy tee shirts and khaki pants, the school's uniform. The noise level elevated. An adult made her way to the middle of the floor and called "Ago." Students focused their attention on the adult and responded, "Ame." The students quieted down and listened to the adult. Later on the children made their way back to their classrooms. As I walked through the hallways, I noticed the inspirational sayings on the walls, the posters of African American writers, musicians, mathematicians, and political figures, students work, and the Flower academy principles. Some of the teachers were dressed in African garb and wore their hair in a locked style, while others were dressed in more modern clothing and wore their hair in a straightened style. I noticed that there were no white students in the school. Students greeted me with a friendly, "Hey Mama," and I responded with "good morning."³

³ This excerpt was extracted from my written field notes in the math classroom

Flower Academy is a tuition-free, K-8 African-centered community public charter school located on the east coast, with a focus on academic excellence and positive character development. The only criterion for selection of this school was that it had to be an African-centered or Afro-centric school that provided middle grades mathematics instruction. Flower Academy was accredited by an organization that works with colleges, universities, and charter schools. The school was characterized by small classes, highly qualified staff, and a strong emphasis on reading and technology. The teacher student ratio was 1:11 for PreK-4 and 1:22 for grades 5-8. The percentage of students by ethnicity was 100% black. Seventh graders made up approximately 8% of the school's population.

All of the staff members were black except for two individuals. Approximately 95.8% of the students were considered economically disadvantaged. The school was eligible for Title I funding. Meals were provided to all students free of cost. Students were required to wear uniforms. The school used a content-rich curriculum model and emphasis was placed on academic content integration. Individualized instruction was provided in the areas of reading and literacy. For children to attend Flower Academy, the families had to complete an interview process and were later notified of their child's acceptance.

The math learners in this study were not accepted to Flower Academy on the basis of any special mathematics ability. In an interview with the former principal, Mama Cheryl, she described the mathematical performance of the students at Flower Academy as a whole:

I guess in that sense then, how children are able to apply mathematical concepts, may not be as high as maybe public schools in [district name] and maybe some within [district name] and maybe some within this district. But overall in [the state] I think the students do really well. The elementary uses the Every Day math curriculum and that curriculum is all about application and how you apply math concepts to your everyday life... So you know, I try not to judge children and their ability only on a standardized test ... and how they were able to perform on that test, but in other assessments: partial assessments, teacher made assessments, informal and formal assessments... I think it varies; I think it varies per child... I think that [our children have] done pretty well. (Interview Transcript, June 11, 2008, p. 6)

The overall sense was that in comparison to students in the state, the students at Flower Academy performed at acceptable levels, although they might not have been as high as performing within certain neighboring counties or schools within the district. She attributed the performance of the elementary school students to the influence of the Every Day math curriculum which emphasized applications. Mama Cheryl revealed a belief that ability could not be assessed solely via standardized measures of mathematical competence, but that alternative assessments should be used as well to capture strengths that would not otherwise be captured from standardized testing.

Below is an excerpt taken from an interview in which Mama Cheryl suggested that the low scores of some students at Flower Academy were the result of the limited

nature of mathematics instruction at Flower Academy, a problem that is not uncommon in the United States:

And so you know...I believe more focus--more time--needs to be devoted to math instruction...I would even suggest that it be an hour and a half of each or, you know, to extend the school day to have two hours of reading and two hours of math ...That on the elementary level, or the middle academy level, ninety-five minutes of math instruction... [at least] on the elementary level, which is really critical because that's [where they really spend time] on those math skills so that they can do well in the middle school. There's only an hour of math and it gets short-changed all the time because of the reading block. Often times, teachers run over their time in the reading block and so, you know, unfortunately the math block maybe gets fifty minutes or forty-five minutes; and so... I don't think that it's really anything about Flower Academy that causes children to do better at math; I think that there's, you know, Flower Academy has some pretty good teachers, and even though there are some teachers who may shy away from math concepts, I think that overall they have some pretty good teachers who are able to convey the information to children effectively. But I think that it could be even more effective if more time was given. (Interview Transcript, June 11, 2008, p. 7)

The main point that Mama Cheryl made was that more time devoted to math instruction might lead to better scores on these high stakes tests. She highlighted the importance of building the mathematical foundation at the elementary level as preparation for the middle school level. She attributed the high performance of some

students to the quality of the teachers rather than to the African-centered culture of the school. There seemed to be some tension between the school's emphasis on literacy development (one aspect of the school's mission) for students and developing mathematical literacy, where literacy is given primacy and mathematical literacy suffers.

Mama Roshanda, the middle school mathematics teacher at Flower Academy, commented about mathematics test scores more generally:

I think as a statewide analysis, math is a subject that is struggled, you know, a struggle for a lot of students. I'd say, since I've been teaching math, not only in the [state], but even in the state of [state name], math is always a struggle. I think math is a weakness, a subject that both children and adults fear. And so I think test scores are really really low, in terms of math and a lot of students really do not reach high levels of mathematics. A lot of them just stop at, you know, the minimum so they can achieve high credits. I think overall math [could be] one of the strong subjects for most students. (Interview Transcript, June 24, 2009, p. 1)

Mama Roshanda highlighted the fear that math elicits in adults as well as adolescents. She explained that the students' scores in the state as a whole are perceived as low. She felt that for many students, the motivation to do math was extrinsic, for the purpose of fulfilling the minimum requirements, and thus students were not as prepared because they had not taken nearly enough math. Mama Roshanda suggested that even though math test scores were low, math might still have been a strong subject for many students.

School employees, focal students, and parents

School employees:

Several staff members and teachers served as participants in this study, namely, the former principal, dean of students, mathematics teacher, and educational facilitator for mathematics. These participants were chosen because they had key knowledge pertaining to the African-centered environment and the nested mathematics environment. The principal of Flower Academy at the beginning of the study was Mama Cheryl. I was not able to interview Mama Makeba, who is currently the acting principal.

The principal, Mama Cheryl, was an African American woman in her late twenties/early thirties. She was tall with dark brown skin and wore her hair in weaved braids that flowed down her back. She had worked in the educational system in some capacity since 1994 and had taught for 5 years in the 4th, 5th, and 6th grades. At one point in time, she was a curriculum coordinator for performing arts and humanities (in a different school) and mentored and trained others. This however, was her first year at Flower Academy.

The dean of students, Mama Kenya, was a brown-skinned African American woman in her late twenties/early thirties. She wore her hair in a natural locked style that fell down her back. Her hair was accentuated with violet highlights. I noted that her names, both first and last, were African. She had a Masters in rehabilitation counseling. She expressed happiness in being the dean of students at Flower

Academy. I learned that the dean of students was responsible for making sure that the students' needs were met. She described what some of those needs were:

Educational, social emotional, not so much financial; but if they need assistance, then I'm the one who normally they come to...I make the referral to wherever they need to go... I'm also responsible for the behavioral aspect, in terms of the discipline which includes suspensions, lunch detentions, things of that manner. If people get in a fight, this is where they come. (Interview Transcript, May 20, 2008, p. 1)

Mama Roshanda was a twenty-eight year old African American woman. She taught sixth, seventh, and eighth grade mathematics at Flower Academy. She had taught mathematics before and had Bachelor of Science degrees from a Historically Black institution. This was her second year at Flower Academy. Mama Roshanda worked with students daily on a block schedule, approximately one hour and 35 minutes, in classrooms of approximately 20 students.

Baba John, the educational facilitator of mathematics, was an African American and Ghanaian male in his forties. He had a Bachelor of Science degree from a predominantly white institution. Baba John had been working at Flower Academy for three years and taught mathematics part-time. He is currently pursuing a master's degree in a mathematical field. From my observations, I saw that he had administrative duties that involved observations of the K-8 math classrooms, attending meetings, and running the CATAMA (computer and team assisted mathematics acceleration) Lab. He described himself as a disciplinarian because of

his consistent enforcement of the school policies. Baba John worked with approximately 5-6 students per grade in the CATAMA lab for an average of 35 minutes a day.

Focal students:

The criteria for selection of the student participants were black racial status and African American ethnic status as opposed to Caribbean or South African. The participants were chosen via purposive selection. The mathematics teacher aided me in the identification of eight seventh-grade African American students, with an even distribution of males and females. Seventh graders made for a fruitful sample for several reasons. Eighth graders were preparing for transition into high school for the next school year. Sixth graders, on the other hand, had just made a major transition from elementary school (or elementary academy if they attended as fifth graders). Seventh grade students then, seemed to be a good stable sample. In addition, having seventh graders allowed me to make mental comparisons and contrasts of these students to the seventh graders in Martin's (2000) study (which my study extends).

In the next sections, I provide a general overview of the students in which I describe the physical characteristics of these students, their background/upbringing, interests, and inspirations. These components help to connect the faces to the names and upcoming narratives of the participants, aid in understanding who they are and what they like, and provide insight about who was important in their lives. To highlight the diversity within and between the gendered participants, I describe them in two separate sections.

Female Students

Chantel:

Chantel arrived for our interview wearing a large, sheer, mustard colored ribbon on the right side of her hair. Her hair was weaved with synthetic hair that forms thin braids in a corn-rowed style that sits on her head. Two three inch wide hoops dangled from her ears and 2 beaded necklaces rest on her chest; the necklaces were like those worn at Mardi Gras. Her skin is a dark hue akin to that of jazz singer Nina Simone. She appeared to be developed physically for her age in comparison to the other girls. On her right hand were 8 bangles in silver and other colors and on her right middle finger was a ring with a large stone set in the middle surrounded by smaller stones on the side. Her fingernails were painted in a shiny magenta color. She wore a blue sweatshirt and khaki pants. We began our interview. I learned that she likes all kinds of music (except classical), short skirts, and Nike shoes. As the conversation intensified, I discovered why her mother is an influential part of her life:

She actually got her first degree from college after she had my first sister, Shanee, at 19... She graduated from college and went [for] the 4-year degree; I believe and she majored in computers...She worked at AT&T; when people thought they was talking to a white person, when they actually came and met her they were talking to a black woman; she's proud of that. She also had me and my sister. We're twins' and she's doing just good with raising us ... She [has] no problem with raising us ... I really want to be just like her when I grow up. She's now blind ; she lost her eyesight. That's still not [detering her] because she could still tell you how to fix a computer and she is able to

break it down. And when you tell her what it is, she'll tell you or be able to tell you [what to do]. (Interview Transcript, March 2, 2009, p. 2)

Shanika:

Shanika is tall and very thin in comparison to most of the other girls. Over her Flower Academy tee shirt, she wore a blue, green, and off white striped sweater jacket with a zipper in the front, and khaki pants. On her feet were pink and purple sneakers with tiny white and black polka dots. Her hair was pulled back into a pony tail, and tiny thin strands stick straight out into the air. Her skin is mahogany colored. We began our interview. Her voice was very quiet, and I had to strain a bit to hear her.

I learned that Shanika likes R&B and hip hop music and enjoys wearing designer shirts and stylish clothes. I learned that she is not too fond of wearing the uniforms at Flower Academy. Shanika described the city as a great place to grow up, because she was “exposed to sights and culture.” She described herself in a very interesting way. She said, “I was a love child...The way that you [were] born, when your parents were still together”. As it turns out, her parents were not married, but still saw each other. I learned that her parents, brother, and family were the people who had influenced her life thus far. She stated, “I think I’m headed down a very successful road.”

Elizabeth:

Elizabeth is approximately 5 feet 3 inches tall and is slightly overweight. She has brown eyes and shoulder length dark brown hair. Most of the time she wears it in a ponytail but more recently she wore it pinned back with some curls framing her

face. Elizabeth's face is round and glasses sit atop her nose on select days. Her skin tone might be described as light-skinned. Her complexion was similar to that of Lisa Bonet (Denise) from the Cosby Show. To the interview she wore a white Flower Academy shirt and khaki pants. Across her shoulder, was a purse with a brown leather strap. I could tell from her body language that she was not excited about having to do another interview, as she walked begrudgingly towards me. I learned that Elizabeth is from Birmingham, Alabama, and had a Christian upbringing. She likes all types of music (except country) and loves clothing that looks nice to her. She said she wished that her family all lived in the same state; some of them reside in Atlanta.

Ashley:

Ashley is approximately 5 feet 1 inch tall and is of average build. She seemed short in comparison to the other students in her grade but is a bit more developed physically than some of the other girls. She smiled as she sits. Her hair was corn-rowed back to the center of her head and meets in the middle, the ends of the braids held by a yellow and orange hair holder, commonly known as a scrunchie. She wore what looked like a do-rag that is wrapped around the top of her head covering a little of her forehead the way a headband does. Her skin is brown. Two two-inch gold hoop earrings, with her name written in cursive across the length of each earring, dangled from the first holes of her ears. In her two second holes dangled midsized pearl ball earrings.

She wore a white Flower Academy collared shirt with khaki pants. On her feet were brown boots with thick reddish brown laces, reminiscent of hiking boots. A

brown purse was draped across her right arm; a small Mickey Mouse keychain hung from the purse. Her two front teeth protrude slightly. I learned that she likes hip hop, rap, and reggae music. She likes to dress colorfully and sees this way of dressing as being “fashionable, beautiful, and outstanding.” She enjoys eating T-bone steak, Buffalo wings, celery, and fruits. She was not raised religiously, but as she puts it ‘just regular’. We talked about her experience growing up in the city.

FN: How do you like living here?

Ashley: I don’t like it.

FN: What don’t you like about it?

Ashley: I don’t like the people.

FN: What about the people...like the adults or...?

Ashley: The adults.

FN: What’s wrong with the adults?

Ashley: I don’t like human beings.

FN: Are you serious...Do you wish that you were an animal?

Ashley: Yes.

FN: You’re serious!

Ashley: yes...

FN: ...If you could change something what would you change; if you could change 1 thing?

Ashley: ...killing the animals

FN: Where are people killing animals?

Ashley: Like the factories that [are] killing the animals, so they could have clothes and stuff. (Interview Transcript, May 12, 2009, p. 1)

I knew from other conversations with Ashley that she wants to be a veterinarian, so it was reasonable that she did not want animals to be killed. We talked about the people that had influenced her life and how they had done so.

Ashley: My mother, because she [is] teaching me how to be a woman. My father [] show[s] me how to be protective of myself and be protective of my siblings.

FN: What does it mean to be a woman?

Ashley: [] know your boundaries; know where you stand. I don’t know a lot of stuff. (Interview Transcript, May 12, 2009, p. 3)

I noted that both her mother and father were referenced which was significant as most of the other students resided in single family homes. Much of what her parents were telling her could be characterized as gender role socialization.

Male Students

Robert:

Robert walked in for our interview confidently. He is of average height and has a slender build. His complexion is similar to that of film-maker Spike Lee. His hair was cut low to his head. I noticed that his front teeth are misaligned and his ears extend out like actor Will Smith's. In his left ear, hung a one- inch long, silver and cubic zirconium earring in the shape of Michael Jordan doing a layup. Robert wore a white Flower Academy shirt and khaki pants. On his feet were Nike sneakers with a red Nike logo and a black and white lining. The back read Nike Air. He sat up straight and looks me straight in the eyes ready to begin our conversation. I learned that Robert likes to listen to hip hop music and enjoys eating fried chicken and vegetables. He likes Michael Jordan shoes, polo shirts, jeans with designs, and jewelry. He talked about why he was inspired by African American athlete, Michael Jordan. He stated, "because he succeeded in a lot of things; like Martin Luther King, I'm inspired by him."

I thought that it was interesting that he seems to place basketball player Michael Jordan along the same ranks as Dr Martin Luther King, an iconic civil rights activist. Michael Jordan is a phenomenal African American male athlete who made unforgettable plays on the basketball court, and Dr. King was a pivotal African American male figure and phenomenal orator who delivered unforgettable speeches, such as *I have a dream* on the Lincoln Memorial in Washington, D.C., in August

1963. What they both have in common is that they accomplished amazing feats and serve as role models for young African Americans. We discussed Robert's childhood, and I learned more about who he is and the forces that shaped his life so far.

Well, I had a lot of examples... [I decide] which ones [] I choose to follow, and which ones [] I choose to [do] the opposite [of]. So most people tell me I'm mature for my age. I think I get that from watching the boys around my hood...They smoke and they drink; and then they wind up getting shot...They are in the gang [lifestyle]...I choose not to live that life...I choose to be positive...It wouldn't be anything about where I'm headed; but my surroundings, I would change that, because there's a danger of me even dying [or] getting injured [to the point] where I could not [achieve my goal].

(Interview Transcript, March 17, 2009, p. 7)

From my first encounter, I also felt that Robert was very mature for his age, but after the dialog above I understood why. I carefully noted his uses of the word *choose*, and how it conveyed a sense of agency. This conversation brought to the fore the realities that this student was dealing with in his life on a daily basis, a reality very different from my own relatively sheltered youth. We delved into a conversation about the people that had influenced him.

Mama Roshanda, my math teacher, and then when I was in elementary my 3rd grade teacher; they all encouraged me to be the person I am today, a real man, and focused on my work rather than getting a girlfriend [and] having money to buy all the new clothes. (Interview Transcript, March 17, 2009, p. 3)

Maxwell:

My first impression of Maxwell was that he was eccentric, a non-conformist. I believe on one occasion, he had his hair cut in a Mohawk style reminiscent of punk rockers in the 80's, which I perceived as being viewed by some of the other African American students as a bit strange. He did not seem to care. Maxwell is fairly tall for his age of 12 and of average build. His skin is brown. To our interview, he wore his hair in a low afro, accentuating his oblong face. I noticed that during our interview he cast his eyes away from my direct, gazing as though he might have felt a bit shy. I learned that Maxwell was raised as a Christian. He enjoys playing football and basketball at his local recreation center and likes listening to hip hop and R&B music. He also likes looking different. He described his fashion choices.

Well anything creative; not too flashy but just enough...I might change it up. People just may wear the same color all the time; well, not the same color but the same type of clothes. I may just come in here with a white t-shirt and some jeans...mainly I wear something black. (Interview Transcript, March 18, 2009, p. 5)

Maxwell has a brother, a sister, and three step-brothers. We talked about the influences in his life: Maxwell stated, "My mom, because she's always been there for me; my father, he's always pushing me." He described feeling safe from outside harm. He described his feelings about where he is headed in life: "Well, I feel as though that I can make it all the way to the top."

Terrell:

Terrell is of average build and fairly tall for his age. He has a very round head like basketball player Charles Barkley and wears his hair cut low. His skin tone is sometimes described by the black community as red-boned. I observed him during a school's morning activities and noted that he appeared to be moving very lethargically. He seemed very tired, causing him to appear less enthusiastic about this cultural practice today. It crossed my mind that he might have wanted to appear "cool", and thus he was not expending much energy into participating in the activity. I noted that earlier he wore a gold chain like those worn by rappers in the 80's. Later that day, I noticed that Chantel sported the chain, I learned from the other students that they were dating. Terrell wore a white Flower Academy t-shirt, khaki pants, and white sneakers to the interview.

I learned that Terrell likes hip hop and R&B music and Nike Jordan sneakers. I noted that he does not speak very loudly. He told me that his mother and brother are the people that have influenced his life the most. He informed me that his father died the previous summer. I imagined that this loss had to be tough for Terrell. I asked him how he felt about where he is headed in life; he replied: "I feel that I can be a successful person as long as I keep doing what I have to do in school."

Malcolm:

Malcolm is considerably short compared to the other seventh grade boys. His skin tone is sometimes described by the black community as high yellow; his

complexion is like that of Raven Symone's character Olivia on the Cosby Show and his head is round. He wore a white Flower Academy shirt and khaki pants to the interview. His voice is not deep like Robert's and Terrell's, but sounds a bit higher pitched and more youthful.

I learned that he likes "clothes ... that don't bag down to your shoes."

Malcolm enjoys listening to jazz, blues, and rap with his father. I learned that during his early years he was raised by his grandparents. He shared what it is like growing up in the city. "It's good but it's also bad, because the neighborhood I'm in [has] too much violence. So my mom and my dad are trying to work their way out to get...to another neighborhood." I noted that his living conditions seem similar to Robert's. We discussed the people who have influenced his life so far.

Well, people that influenced me [are] my mom, my dad, my granddad, my aunt, and some of the people at school; they influenced me...Like, my mom and my dad told me what to do and what not to do...If I make a mistake they'll tell my sister, and my sister will let me do it [again] so I can learn from it...And then my aunt and my granddad tell me what's right and what's wrong. The people in school [help] me to learn better so I can get in a good high school [and] good college. (Interview Transcript, March 18, 2009, p. 2)

It appears that Malcolm has a good support system both at home and in school. We discussed the direction he is headed in life.

FN: How do you feel about where you're headed in your life?

Malcolm: I feel good. I not sure where I'm headed...because part of me wants me to go to college and the other me – I just daydream about what I'm gonna do when I grow up, when I'm like 21 or something. I might be on the streets, homeless, or I might –

FN: Why would you say that?

Malcolm: I have no idea.

FN: You just – because it's the –

Malcolm: Life is crazy. Yeah, I see people on the streets.

FN: You've seen people – people that you know or –?

Malcolm: No, just people I see on the streets. (Interview Transcript, March 18, 2009, p. 5)

With the current economic downturn and the gentrification that is occurring in Malcolm's city, compounded by being a black male, I sense that Malcolm is concerned about the outcome of his life. He, however, manages to maintain some optimism for attending college.

Summary of student sample:

Although my sample was homogenous in the sense that all were considered high scorers on the state math tests and were generally well-behaved, I came to see the diversity within the sample because marked differences existed in the dispositions, participation, and self-esteem of these students. Terrell, had a less productive disposition for mathematics than the other high performers (this was conveyed in his collage); Malcolm, Elizabeth, and Shanika struggled with confidence and/or self-esteem (as conveyed by their math educators); Chantel did not always feel the need to participate (as conveyed by Baba John); and Ashley, Terrell, and Shanika were struggling to negotiate with competing adolescent identities (as conveyed by their math educators).

In Chapter 3, I talk about Terrell, Shanika, and Robert in depth because they represent a range of mathematics dispositions, behaviors, outsider perceptions, and

self-perceptions. In chapter 5 I talk about Chantel, Ashley and Elizabeth in depth because they offer a counter story to the pains of being a female African American adolescent. In Chapter 6, I provide two case studies of Ashley and Robert to illustrate the challenges that African American adolescents face in constructing identities as African Americans and math learners. Throughout these three chapters, the other students are discussed to show the heterogeneity among constructed identities.

Parents:

Initially, the students' parents were not members of the research participants. In realizing that many of the students' comments were either influenced by their parents or that they made direct references to them, I asked the parents to join the study. One parent per student participated in a telephone interview. Seven of the eight parents interviewed were born in and attended schools in the state in which the study was conducted, with the exception of Elizabeth's mother who was raised in Alabama. Six of the parents interviewed were mothers, four of which were single mothers, and one of the parents (Malcolm's) had temporarily been single but was now remarried. All of the parents had, at the minimum, a high school diploma or GED. Some attained some college level education. Many of the parents described school as challenging, yet interesting.

About half of them liked math as a subject while the other half preferred other subjects like English. Most of the parents did not go beyond algebra in high school. Robert and Maxwell's mothers were the exceptions, however, going on to complete trigonometry and calculus. Most of the parents described themselves as being in the

middle group of students with respect to mathematics ability. Chantel's mother was the exception, stating that she was in the high group. All described themselves as being confident in their mathematics abilities. The abundance of responses about confidence seemed connected to the quality of the teachers in their formative school years as relayed to me by the parents. They described themselves as people in various ways, including caring, nice, a "good person", and spiritual. Most of the parents described themselves as good parents, and some mentioned that they were caring and nurturing. They also described their children in positive terms.

Role of researcher

I was in a position of perceived authority and power in relation to the staff and students and had to manage these tensions. I did this by trying to blend in with the school environment as much as possible, and making myself accessible to students while in the math classroom. I had an advantage in that as a black person conducting a study in an almost all black environment, I had insider status and thus blending in was a fairly easy task. I was, however, also an outsider due to differences in age, geography, and educational background between myself and the student participants. My experiences, nonetheless, were mainly positive and marked by respect.

Data collection procedures

Informal data collection spanned the months of October 2007 through April 2008. Formal data collection began in May of 2008 (the students were seventh

graders at this point) and was completed in June of 2009 (the students were now eighth graders). Participants were given a brief description of the study and invited to participate in the study. All participants were informed that they could withdraw from the study at any time without penalty. Consent forms were distributed to all participants and respondents were assured confidentiality. Once all consent forms (including the parental consent forms granting permission for their children to participate) had been returned, the study was explained to the participants in greater detail.

I employed culturally sensitive research approaches to the data collection as a way to “position the experiential knowledge [of African Americans] as legitimate, appropriate, and necessary for analyzing, understanding, and reporting data” (Tillman, 2002, p.6). In this study, I attempted to center students’ experiences, feelings, and thoughts, rather than place these on the margins. I used the cultural knowledge of the students to understand how learning was being experienced and how identities were being constructed. Culturally sensitive sources of data representation included self-portraits with written descriptions, collages, a journal entry, a script of a mathematics teacher speaking to his class, observations, interviews, a survey, and school and classroom artifacts. Below I provide descriptions of each source of data.

I asked students to use strips of colored paper to illustrate how they saw themselves. Second, they were asked to provide three paragraphs in which they described themselves. They were not prompted to describe themselves in terms of race, but rather left to decide that for themselves. I did not want to “lead” them in any

particular direction for my benefit. These sources provided me with significant information about the female student participants' identities as African Americans. The students were in the seventh grade when they completed these activities.

Students were given the question "who am I in my math classroom?" and asked to create a collage in response to this question. They were allowed to use graphic images and text to create an advertisement for themselves. This source of data helped to unmask the student's construction of identities. The students were in the seventh grade when they completed this activity.

The student participants were asked to respond to a series of questions pertaining to mathematics as a subject. The questions focused on how they might describe and use mathematics in their lives. The journal entry allowed me to make contrasts between how these students described mathematics and how stakeholders described mathematics. They also revealed the importance for these students to be able to count money. The students were in the eighth grade when they completed this activity.

The student participants were given a piece of modified transcript from a university research project containing dialogue between a mathematics teacher and his students. The dialogue was one in which the teacher was beginning the first day of class and establishing what would and would not take place, as well as who he was and what his role would and would not be. In this dialogue the teacher exhibited caring in many different ways, some of which might not be considered standard. The students were asked to highlight text in terms of things a math teacher should say,

things a math teacher should never say, and things *their* math teacher would never say.

The students were asked to describe why they highlighted text in the ways that they did and were asked to replace text with text that they felt was more appropriate. This activity allowed African American students' to voice their opinions of what a mathematics teacher and classroom should look like and how this in turn might shape their math identities. This data source revealed that these students found caring and coaching aspects of teaching (said to be characteristics of culturally responsive teaching) to be salient. The students were in the seventh grade when they completed this activity. I anticipated that, in conjunction with the interviews, these seeming unconventional data sources (self-portraits, collages, and script) would give me a more holistic sense of these students' multiple identities.

I informally observed the school, mathematics classrooms, and six periods of Mama Roshanda's mathematics instruction twice a week in order to understand the African-centered school environment and nested mathematics environment. Formally, I observed the students in two periods of Mama Roshanda's classrooms. Four of the student participants were in one period, while the remaining four were in a different period. The observations were weekly and/or bi-weekly, depending on what data I intended to collect, in order to understand the students' identities as participation and non-participation; as engagement, alignment, and imagination; and as expressions of blackness. In addition, I formally observed the school to understand racial/cultural socialization and formally observed lessons with the two periods to understand mathematics socialization. I had originally intended to video tape several

negotiated lessons of the math teacher instructing; however, several changes occurred within the school that prevented me from videotaping.

I conducted semi-structured interviews with school employees, parents, and students (see Appendix). I also conducted one video-taped focus group interview with the students. All interviews (with the exception of the focus group interview) were audio-taped. Parent interviews were done by phone due to time and budget constraints. Interviews were a useful method of data collection for my study in that they allowed me to counter the master narrative by accurately recording the words and experiences of the African American students themselves. Dean of student and teacher interviews were particularly helpful in combating problems of self-report that could have arisen with the student responses to interview questions or with my observations of the students. As seventh graders, the students completed interviews with a focus on mathematics identity and racial identity, but as eighth graders, completed interviews with a focus on their background, family influences, and being a teenager.

The Multidimensional Inventory of Black Identity-teen (MIBI-teen), a derivation of the Multidimensional Model of Racial identity (MMRI), was used to aid in describing students' beliefs about themselves as African Americans and racial group membership. The first scale of the MIBI-teen was racial centrality. This refers to the extent to which an African American defines him/herself with respect to race. A high score suggests that race is very significant in an African American's self-concept. The second scale was racial regard which consists of public regard and private regard subscales.

Racial regard refers to an African American's judgment of his/her race. High private regard score suggests that an African American holds more positive attitudes toward African Americans than negative. High public regard score suggests that an African American believes that other racial groups hold more positive attitudes towards African Americans than negative. The third scale was racial ideology which consists of assimilationist, humanist, minority, and nationalist subscales. Racial ideology refers to an African American's beliefs, opinions, and attitudes about how members of his/her race should behave. In this study, the assimilationist subscale was probably the most telling. Low scores on this subscale suggest that an African American does not feel the need to assimilate into the dominant culture.

There were twenty-one items total, three items per subscale. Scores were calculated by averaging the value of the responses for each subscale. The highest score being a 5 and lowest being a 1. The students were in the seventh grade when they completed this survey. I also collected and described selected school documents and lesson handouts to assist me in understanding the school and mathematics instruction.

Summary of data collection sources:

Table 4 presents a summary of the fit between the data collection sources and the research sub-questions which help to answer the overarching question of how the unique environment of the African-centered school helps African American middle school students construct strong identities as African Americans, as math learners, and as African American math learners.

Table 4: Data and research sub-questions

	Self-Port.	Collage	Journal and Script	Obs	Inter.	Instr.	Art.
What is the nature of students' identities as math learners and what practices assist students in positive identity construction?		Provided information about math identity and affect	Provided information about how students thought about mathematics as a subject	Provided information about the nested math context and math socialization	Provided information about students' identities as math learners		Provided information about math lessons
What is the nature of students' identities as African Americans and what practices assist students in positive identity construction?	Provided information about how students saw themselves as African Americans and adolescents		Provided information about the importance of caring for the students	Provided information about the African-centered context Provided information on racial/cultural socialization	Provided information about students' identities as African Americans Provided information about student perceptions of the school and teachers	Provided information about how students felt about being African American Provided information about student's beliefs about African Americans and assimilation-ism	Provided information about the African-centered context Provided information about the school's goals for the students Provided information about supports for African American parents
What is the nature of students' construction of identities as African American math learners and what practices assist students in positive identity construction?		Provided information about students' construction of identities	Provided information about students' construction of identities		Provided information about students' constructed identities		

Data analysis

Raw data was reported in multiple formats, namely, tables, matrices, figures, and narrative text. Tables were used to report findings regarding affective reactions to mathematics. Matrices were used to report general findings across the eight cases along specific dimensions of math learner identity. They were also used to present collage findings. Figures were utilized to display student self-portraits and collage images. Narrative text was used to convey the thoughts and feelings of the various participants.

I enlisted the aid of two African Americans, one an architect and the other a graphics arts designer to validate the collage and self-portrait findings. The architect helped me, in essence, to discuss the collages along the lines of the ways in which space was used and the potential information that this conveyed about the student. The graphics arts designer helped me to discuss the self portraits and collages in terms of artistic expression and the choices of images and what these images potentially conveyed about the students. I employed several methods to assist in the analysis of the data: graphic organization, memo writing, and coding. In the next sections, I describe these methods.

Graphic organization:

After having the staff interviews transcribed, I created a chart that allowed me to compare the principal, dean, and math teacher's responses about their backgrounds, the school's pedagogy, identification and non-identification with African-centeredness, and math learner and racial identity development practices. To help me

manage the transcribed data about the parents, I created a matrix of the parent participants and their responses to the interview questions. This allowed me to compare the parents' responses to each of my interview questions, and to determine which questions and responses were pertinent to helping me effectively answer my research questions.

Memo writing:

In an attempt to understand “what the students were cases of”, I used transcribed students' interviews, combined with their self portraits and collages to write memos for each student in which I provided detailed physical descriptions of the student and then discussed the student along four dimensions: student as adolescent, student as African American adolescent, student as math learner, and student as African American math learner. I later extracted portions of these memos to help me engage in conversations about these students' negotiations and constructions of identities.

Coding:

I utilized various frameworks and constructs throughout different sections of the dissertation that aided me in coding and later talking about what I was seeing. Pekrun, Goetz, Titz & Perry's (2002) framework on academic emotions was particularly helpful in discussing the student's mathematics identities. I integrated specific themes from Martin's (2000) multi-level framework for analyzing mathematics identity and socialization, with Clarke's (2009) framework (that extends Martin's framework), with Cobb, Gresalfi & Hodge's (in press) framework for

discussing math socialization and identity. I drew upon Wenger's (1998) modes of belonging (identity, engagement, imagination, and alignment) and conceptualizations of identity in terms of participation and non-participation. Johnson's (2009) study of Afro-Ecuadorians aided me in a discussion of the students' negotiations of racial identity. Additionally, I utilized Murrell's (2002) five categories of African-centered practices to structure a discussion of the racial/cultural socialization within Flower Academy. I used the PVEST model to organize analyses of two cases, and found the model to be most useful in my discussion of the research questions.

Summary of data analysis methods:

These analysis techniques allowed me to manage the abundance of data which, at times, became extremely overwhelming. They also afforded me the opportunity to identify sub-samples of the student sample that would be interesting to talk about along different lines. Finally these techniques allowed me to present rich stories about these students and the practices within the school.

I found myself struggling with whether to discuss the varying perceptions of the school as an African-centered institution. I did not want the larger story of the dissertation to be undermined or mired by conflicting information from the participants; but on the other-hand, did not want to be guilty of painting a picture that was not completely accurate. In the end, I made a decision to avoid discussing tensions and lack of consistency in implementing African-centered education. I felt that the real story lay in the feelings, perceptions, and experiences of the students.

Another dilemma I faced was wondering if there would be any great value in observing a math classroom in which the actual mathematics was not influenced by African culture and where neither multicultural mathematics, nor ethno-mathematics was employed. I am grateful that I did observe Mama Roshanda's classroom; because in doing so, I was able to have conversations with the teacher about the activities that the students engaged in and saw that although the mathematics was not *infused with* culture, the mathematical practices were responsive *to* the student's cultural styles of learning. In the next three chapters, I interweave data to tell the story of seventh grade African American math learners at Flower Academy.

Chapter 4: Mathematics identities and Flower Academy's figured world of mathematics learning

Introduction

In this dissertation, I explore an African-centered school as a space in which adolescent students construct identities as mathematics learners, as African Americans, and as African American math learners. This chapter examines the mathematics identities that students have authored, the school's mathematical practices, and how students negotiated others' perceptions of them as mathematics learners. This exploration serves as an aid in answering the following research sub-question: What is the nature of students' identities as math learners and what school practices assist students in positive identity construction?

This chapter is the first in a set of three thematic analyses of the data collected in this study. Each of these analyses will cut across various data sources as it explores its particular questions. The first analysis will examine African American adolescents' authored and assigned identities and mathematical practices within Flower Academy. The second analysis will examine African American adolescents' negotiations of their racial identities, views of self⁴, and the racial, cultural, and identity⁵ development practices within Flower Academy. The third analysis will examine students' representations of their construction of multiple identities, integrates discussion from the first and second analyses to examine practices that

⁴ Self will refer to the whole of one's personality

⁵ Identity will refer to the negotiated experiences that contribute to the self

potentially supported the construction of their multiple identities, and examines alternative identities, the role of power and privilege, the students' futures, and the students' perceptions of the school and teachers. It is important to note that in these three analyses, I tell a story about these students' identities based on the information that they relayed to me. I attempt to get as close as possible to capturing the true identities of these students.

This chapter is sectioned into three parts which; taken together, tell a story about what it means to be a math learner in this particular school within the context of being African American. In the first part, I foreground mathematics learner identity by presenting "students' reports about their affective reactions and their identification towards their participation in math learning in the present and future" (Boaler & Greeno, 2000, p.175). I use Martin's (2000) theme of agency and mathematics success among African American students from his multilevel framework for analyzing mathematics socialization and identity, and his definition of mathematics identity, to discuss students' beliefs about their mathematics abilities and disposition for mathematics learning. I draw upon students' interviews, collages, and parent interviews.

In the second part, I describe my perceptions and the teachers' perceptions of the mathematical environments in which students worked (Boaler & Greeno, 2000). These findings offer a picture of Flower Academy's figured world of mathematics learning that these students experienced (Boaler & Greeno, 2000). A figured world can be thought of as a place

Where agents come together to construct joint meanings and activities... a socially and constructed realm of interpretation in which particular characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others. The importance of this label for researchers of mathematics education resides in the characterization of a mathematics classroom as an interpretable realm, in which people fashion their senses of selves. (Holland et al., 1998 as cited in Boaler & Greeno 2000, p. 173)

This notion of a figured world provides a platform for a conversation about these students' authoring and negotiating of their mathematics identities. Authoring refers to students talk about their math learning and their selves as math learners and performers of mathematics (Boaler & Greeno, 2000). I draw upon Martin's (2000) theme of school from his multilevel framework to focus on the mathematics classroom, Mama Roshanda's content decisions and curricular goals, her beliefs about her students' abilities, her mathematics instruction, and practices that were enacted in the classroom. I draw upon the nature of mathematics teaching dimension of Clarke's (2009) working mathematics socialization framework to talk about instruction and practice. According to Clark, Johnson & Chazan (2009), the framework

provides us a way of organizing and describing teachers' practices as potentially socializing acts that intentionally or unintentionally serve as opportunities to influence their students' mathematics identity development. (p. 47)

These themes and dimensions address the significance assigned to acts in the classroom. I describe classroom and mathematical expectations for this figured world of mathematics learning using Cobb and Gresfaldi's (2009) framework on normative and personal identities and classroom and mathematical obligations. These expectations address outcomes that are valued in this figured world.

In the third part, I discuss how three students, Terrell, Shanika, and Robert, negotiated what was said about their positions in this figured world by their mathematics educators in relation to their own beliefs and dispositions (these three students seem to be representative of the eight math learners that make up the student sample). The perceptions of the two mathematics educators at Flower Academy offer different insights into who these students are and the challenges they face as math learners. These perceptions address how characters and actors are recognized within this figured world. In a concluding section I draw upon the three parts of the chapter to make an argument about the school's practices in relation to the students' mathematics identities. Before I foreground these identities, I will describe the ways they experience mathematics in contrast to students with math anxiety. I draw upon student interview data.

Math Learners who like math

Math anxiety, the most common and widespread emotional reaction to mathematics, is defined by Buckley & Ribordey (1982) as "an inconceivable dread that can interfere with manipulating numbers and solving mathematical problems within a variety of everyday life and academic situations" (p. 1). It can also be

thought of as “the panic, helplessness, paralysis, and mental disorganization that arises among some people when they are required to solve a mathematical problem” (Tobias & Weisbrod, 1980, p. 65). Jackson & Leffingwell (1999) cite that math teachers can cause math anxiety in students if they are hostile, exhibit bias, are uncaring, do not communicate well, and deliver poor quality instruction. Research by Zemelman, Daniels, and Hyde (1998) suggests that math teachers can reduce this anxiety by creating cooperative groups, encouraging discussion and justification of thinking, using problem-solving approaches, using calculators, and making assessments part of instruction. Meece, Wigfield, & Eccles (1990) found that one characteristic of math anxiety is dread in doing mathematics.

Below are statements made by students with math anxiety in studies by Furner & Duffy (2002), and Bishop & Pflaum (2005). The sentiments to the left are reflective of dread, frustration, and boredom; while the sentiments to the right reflect the exact opposite of those sentiments.

Table 5: Comparison of responses

Responses by students with math anxiety	Responses by students in this study
I really don't like math, but I do okay- Julie, 14 (Furner & Duffy, 2002)	I love math. I learn different types of math, like measuring, countin' stuff like that (Ashley)
I just don't like math; it's the same thing and big numbers, and I don't like big numbers-Brian, 13 (Furner & Duffy, 2002)	You get to learn more stuff, and it's challenging (Malcom) I just like doing math, in other classes, it seems boring (Shanika)
It's really hard for me I'm not that good at it- Paula 7th grade (Bishop & Pflaum, 2005)	In math, it feels much easier and relaxing (Chantel)
Math was really my least favorite subject. – Nad 5 th grade (Bishop & Pflaum, 2005)	Math was always one of my favorite subjects....I feel like it's great for me to learn math (Robert)
When I think of math I don't get nervous, I get bored-Chad, 11(Furner & Duffy, 2002)	I like math because it is interesting, it has my interest (Elizabeth)
I'm not really good at Math to begin with...It's my worst subject...I just didn't understand from fifth grade on. I just didn't –I got it but it took me a while – Amelia 8 th grade (Bishop & Pflaum, 2005)	When everyone else is doing the same page that the teacher wants them to do I ask for something harder (Maxwell)

The statements made by the students in this study were chosen because they illustrate the fundamental differences between the ways they experience mathematics as compared to the ways that students with mathematics anxiety experience mathematics. The students with mathematics anxiety are experiencing mathematics as an odious, incomprehensible, boring subject while the students in this study seem to be experiencing mathematics as a favorable, easy, and interesting subject.

Students' experiences with mathematics are connected to how they author their identities in their math world. For example, students in highly procedural and/or didactic mathematics classes might author identities that lack intellectual agency or might reject mathematics because they do not want to be passive receivers of knowledge (Boaler & Greeno, 2000). In the following section, I explore these students' authored identities in Flower Academy's figured world of math learning.

Authored identities

Below I present a graphical representation of the general findings for each of the eight student participants.

Table 6: Matrix of Math learner identity

	Self-understandings [beliefs about math abilities]	Disposition towards math learning	Perceptions by math teacher (how they are seen by others)	Perceptions by educational facilitator for mathematics (how they are seen by others)
Chantel	Smart and well educated, does good in math, not an A student, but can get A's	Favorite subject, sees doing well as getting A's , and trying her best	Phenomenal math ability, excellent mathematician, cares about her work	Brilliant, gets distracted, doesn't live up to her potential
Shanika	A little bit talented and gets her work done, does not want to be seen as a top student	Loves math and believes it is for everybody, sees doing well as doing the work and keeping up with the teacher	Kind and determined student who did not apply herself as a 7th grader, but as an 8 th grader did and whose esteem is boosted and is now an excellent mathematician	Brilliant but doing negative things to fit in, awkward, shy, does not realize her potential
Ashley	A top student, smart and hardworking, has the ability to do math	Loves math, sees doing well as getting a passing grade, knowing what she is doing, asking for help, and trying her hardest	An excellent mathematician and critical thinker who finds her mistakes, is confident, creative, and a leader	Referred to as "my veterinarian", she is seen as a female thug who is very smart but gets distracted
Elizabeth	Respectful, does her work, has the ability	Likes math, one of her favorite classes, sees doing well as getting good grades, putting in effort, and hard work	Excellent mathematician who rises to the challenge	Has self esteem issues, if she applied herself would do well
Robert	Completes his homework, is good in mathematics	Loves math and sees it as universal, sees doing well as getting good and grades and preparing for his future	An excellent mathematician, a leader, and a student who makes careless errors because he rushes	A stubborn, arrogant student who rushes, and doesn't ask questions, but has leadership qualities
Maxwell	Smart positive student, is good in math	Math is one of his favorite subjects and he likes challenging problems, sees math as universal, sees doing well as paying attention, doing homework, being on time, getting A's and putting in effort	An excellent mathematician, a very advanced student, a critical thinker, a leader who helps of others	Smart, focused, and confident
Terrell	Smart, respectful student, is good in mathematics	Math is one of his favorite classes but does not feel challenged by the classroom, sees	An excellent mathematician, who initially had average skills, but was now a stronger student,	A ladies man and athlete who is caught up in trying to be cool and does not apply himself

		doing well as knowing that he is smart, regardless of grades	described as obedient	all the time
Malcolm	Smart, good, but says he can't prove it on assignments	Sees math as universal, sees doing well as getting good grades and having fun	Has a lower confidence level than the others, excellent mathematician, gets frustrated, but just needs to take his time	Doubts his math ability before trying the problem, is a follower, immature

The domains used in this matrix, self understandings, dispositions towards learning math, perceptions by the mathematics teacher, and perceptions by the educational facilitator for mathematics, were extracted from Martin's (2007) definition of mathematics identity, and from his agency and mathematics success among African American students theme from his 2000 framework. Mathematics identity can be thought of as:

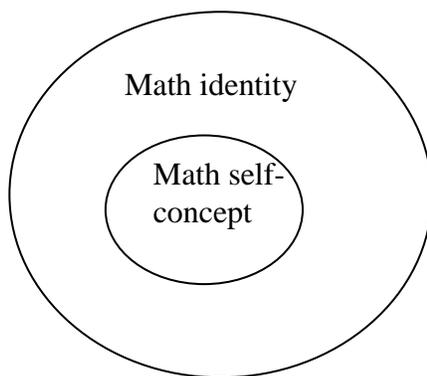
The dispositions and deeply held beliefs that individuals develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics to change the conditions of their lives. A mathematics identity encompasses a person's self-understandings of himself or herself and how they are seen by others in the context of doing mathematics. (Martin, 2007, p. 41)

The component from the agency theme that I focus on here is student's beliefs about their mathematics abilities. A discussion of these findings allows me to describe the students' affective reactions as embedded in their talk about math learning and talk about themselves as math learners highlighting their identification towards their participation in mathematics learning.

Findings pertaining to the students' self-understandings

Across the eight cases, what emerged from the data were students' articulations of a mathematics self concept, a construct which I interpret to be embedded in Martin's (2007) definition of mathematics identity, specifically, "a person's self understandings of him/herself." In relation to mathematics identity, self concept can be visualized in the following way:

Figure 3: Math identity and math self-concept



Self-concept, in general, can be thought of as a composite view of oneself that is shaped by comparisons of self with other students, standards set by the teacher, factors to which students attribute their success and failure, others perceptions of themselves, prior experiences with mathematics, and self-esteem (Bong & Skaalvik, 2003). Self-concept includes knowledge and perceptions students have about themselves in achievement situations and perceived competence (2003). The following are examples of statements about math self-concept (Marsh 1999 as cited in Bong & Skaalvik, 2003).

- Mathematics is one of my best subjects

- I often need help in mathematics
- I look forward to mathematics classes
- I have trouble understanding anything with mathematics in it
- I enjoy studying for mathematics
- I do badly in tests of mathematics
- I get good grades in mathematics
- I have always done well in mathematics
- I never want to take another mathematics course
- I hate mathematics
- Work in mathematics is easy for me
- Compared with others my age, I am good at mathematics
- I learn things quickly in mathematics
- I am hopeless when it comes to mathematics
- It is important to me to do well in mathematics
- I am satisfied with how well I do in mathematics

The statements were derived from a self-description questionnaire designed by Marsh (1999) in which students expressed their feelings about how well or poorly they were doing in a particular subject. These statements provide me with a way to distinguish between the complex constructs of math self-concept, math self-efficacy, and math attitudes. Whereas math self-concept encompasses a person's beliefs about abilities and skills, math self-efficacy encompasses a person's beliefs about what their abilities will allow them to accomplish, and math attitude encompasses a person's confidence levels and beliefs about the usefulness of mathematics. Mathematics self-efficacy

statements would include statements such as I am confident that I will pass math class or I will not get a grade higher than a C in math (Bong & Skaalvik, 2003). Math attitude statements would include statements such as Math is a worthwhile subject or Women are smart enough to do well in math (Fennema & Sherman, 1976).

Similarly to the students in Ellington's (2006) study, all eight participants said that they were good in mathematics. This is usually reflective of a positive math self-concept. Some students described themselves as math learners using the language of the state test in mathematics. Below are some examples of this.

I am **proficient**. (Shanika)

The reason I consider myself to be **good** is [be]cause like when we are in math or like social studies I get **proficient**. (Malcolm)

I'm thirteen; I'm **advanced** in math. (Chantel)

An analysis of these statements reveals that the students are in essence stating "I am good in mathematics," but their adjectives are much stronger and heavily influenced by standardized testing. These standards of proficient and advanced are set by the state. These statements indicate that the students are using their knowledge about themselves in achievement situations to define themselves as math learners (Bong & Skaalvik, 2003). These statements could be described as reflections of authored identities of intellectual prowess (Boaler & Greeno, 2000).

Below the students in my study reflect on the state assessment in mathematics.

Well I feel like my class in general is ready for it. **We can take anything they can throw at us**. (Mawell)

It's easy. **Piece of cake**. (Shanika)

It was okay. **It was easy.** (Ashley)

[The state test?] **It's easy** when it comes because **the teachers teach us so well**, and it's like, you can't answer the question before working out the problem, it's so easy. (Chantel)

An analysis of these statements reveals that they are tantamount to saying “work in mathematics is easy for me,” where work is defined as doing mathematics problems in order to pass the state test (Bong & Skaalvik, 2003). It seems that these students were demonstrating authored identities of social and intellectual agency. The phrase “the teachers teach us so well” suggests that students were given the kind of agency that they needed in order to achieve success on the state test.

Ashley's positive math self concept was potentially reflected in her math collage. Below is a snippet of her collage.

Figure 4: Snippet from Ashley's math collage



I asked Ashley to explain each word on her collage clockwise from approaches to almighty. She declared:

In my math class, who am I in math class? I'm a person who approaches my goals, I'm a **superstar** in math, I **feel beautiful** in math, I **glow** in my math, I'm an **almighty** person in my math class. (Interview transcript, June 11, 2008, p.1)

The phrase "I'm a person who approaches my goals" indicates that she is self-efficacious (Bong & Skaalvik, 2003). Her statements about being a superstar and almighty are superlative statements about being good at mathematics compared to others her age (Bong & Skaalvik, 2003).

The African American graphic arts designer (introduced in Chapter 3) stated, "She has some type of spiritual superstar thing going on with the glow and the almighty." He made connections to spirituality which never even occurred to me. An African American architect commented, "I imagine these words and images are how they think of themselves at math time, at the task of doing math. So "almighty," "beautiful," "superstar," again, positive things..." Ashley's mother stated:

The teacher told me that Ashley was better than that school and she said that Ashley was smarter; she said that I need to move her from that school environment and put her in a better place...I went to a couple of their meetings and I liked their school... Well, **since Ashley's been there, I think that they like get, just get deep into the math.** It's like if they see them not really caring about math ...The teachers they get to calling, and they get to letting the parents know, 'well this is the problem which, you know, she's not

focusing on this and she's having a hard time.' (Interview transcript, October 27, 2008, p. 9)

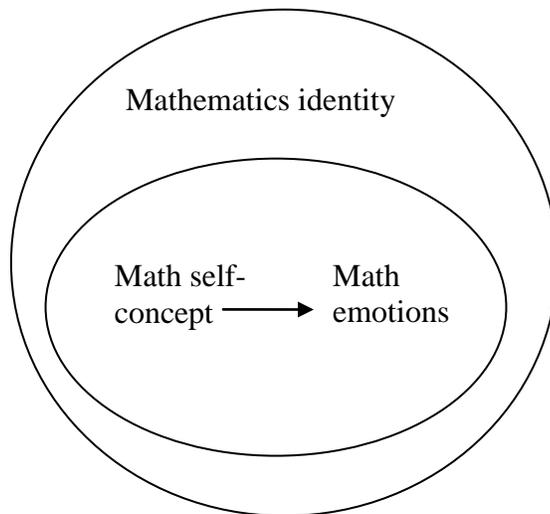
There is a sense here that in Ashley's former school, she was not being challenged, but that at Flower Academy, not only did they "get deep into the math" but they informed parents about problems that students encountered. Her statements suggest that there is a connection between Ashley being at Flower Academy and her representation and description of who she was as a math learner.

Shanika referred to herself in one instance as "the best in the class" as validated by her status as a former math queen (this will be described in the third part). Maxwell referred to himself as "a rock star in math." Robert stated that he was a quick learner, the equivalent of saying "I learn things quickly in math" (Bong & Skaalvik, 2003). The students' statements seem surprising in light of the messages that are sent to African Americans about their achievement in math. Messages include statistics about gaps between African Americans and whites, remedial algebra courses which are predominantly African American, statistics about STEM degrees awarded to African Americans, and dropout rates of African Americans. These messages might subconsciously condition these students to think that they are incapable of achieving. There might also be assumptions that students from more privileged backgrounds will have more positive math self-concepts, yet these students were not from privileged backgrounds.

Findings pertaining to their dispositions towards math learning

The construct of mathematics emotions emerged from the data. Bong & Skaalvik (2003) contend that emotions are one predictive outcome of self-concept. Mathematics emotions are defined as emotions that are directly related to mathematics learning and achievement (Goetz, Zirngibl, Pekrun, & Hall, 2003; Pekrun, Goetz, Titz, & Perry, 2002). In relation to mathematics identity, mathematics emotions can be visualized as follows:

Figure 5: Math emotion in relation to mathematics identity and self-concept



Whereas math-self concept statements were more likely to begin with “I am,” “I have,” and “I get,” math emotion statements are more likely to begin with “Math was,” “In math,” “I like/love,” and incorporate the term “feels.” In a journal assignment, the students’ statements conveyed positive emotions. Some examples include:

I feel like I can learn any type of math problem if I work my hardest -

Terrell

I feel smart and above the class - Chantel

I feel **very confident** in a math class - Elizabeth

These statements seemed to convey a kind of strength about these mathematics learners. I interpret Terrell’s statement to mean that he viewed himself as a student who could learn anything if he worked hard. I interpret Chantel’s statement to mean that she viewed herself as an exemplary math learner. Elizabeth’s statement suggests that she viewed herself as a confident math learner.

Math learning:

All eight students said that mathematics was their favorite subject. Pekrun, Elliot, &Maier’s (2006) framework of academic emotions, allowed me to categorize the students’ mathematics emotions. Below is their framework.

Table 7: Taxonomy of Achievement emotions (p.585)

	Valence	
Object Focus	Positive	Negative
Activity	Enjoyment	Boredom, anger, frustration
Outcome		
Prospective	Anticipatory Joy, Hope, Anticipatory relief	Anxiety, Hopelessness
Retrospective	Joy, Pride, Gratitude	Sadness, Anger, Shame

In this framework, emotions result from three different foci: emotions that one experiences during mathematical activity; emotions that one experiences before doing mathematics activity (prospective); and emotions that one experiences after success or failure with mathematical activity (retrospective). These emotions can be classified as either positive or negative. The students' responses are categorized below.

Table 8: Classification of student’s responses about math

	Valence	
Object Focus	Positive	Negative
Activity	<p>Enjoyment</p> <p>I just like doing math; in other classes, it seems boring (Shanika)</p> <p>I like math because it is interesting, it has my interest (Elizabeth)</p> <p>When everyone else is doing the same page that the teacher wants them to do I ask for something harder (Maxwell)</p> <p>I love math. I learn different types of math, like measuring, countin[g] stuff like that (Ashley)</p> <p>You get to learn more stuff, and it’s challenging (Malcolm)</p> <p>In math, it feels much easier and relaxing (Chantel)</p>	<p>Boredom, Anger, Frustration</p>
Outcome		
Retrospective	<p>Joy, Pride, Gratitude</p> <p>Math was always one of my favorite subjects....I feel like it’s great for me to learn math (Robert)</p>	<p>Sadness, Anger, Shame</p>

Six of the statements can be described as expressions of positive activity-related emotions. Words such as like and love are indicators of their enjoyment. The use of terms like “interesting,” “easier,” and “relaxing” (by Elizabeth and Chantel) also suggest that the students are not bored or frustrated by mathematics activity. In

Shanika's case, she contrasts her enjoyment with math with the negative activity-related emotion of boredom that she feels in her other classes. Two of the six statements (by Ashley and Malcolm) explicitly link enjoyment with learning "different types of math" and "more stuff" which may be challenging. Robert's statement could be described as an expression of positive emotions that have followed success outcomes in his math learning. An indicator is his use of past tense in saying "math was always." The words "favorite" and "great" signify feelings of joy and gratitude. The students seem to have authored identities that embrace rather than reject mathematics.

In Goetz, Pekrun, Hall & Haag's (2006) study of academic emotions in students ranging from the seventh through tenth grades across the various domains of Mathematics, Latin, German, Music, Sports, and English, they found that measures of enjoyment were lowest in the domain of mathematics, and measures of anxiety and boredom were the second highest in the domain of mathematics. In a 2007 study by Frenzel, Pekrun, & Goetz, fifth grade girls scored lower than boys on measures of mathematics enjoyment, pride, and competence belief and higher on measures of anxiety, hopelessness, and shame. In this study, anxiety was not present, and both boys and girls seemed to enjoy mathematics. According to Pekrun (2000), these emotions are linked to students' environments with respect to competence support, autonomy support versus control, achievement expectations and goal structures, achievement outcomes and feedback, and social acceptance support (pp. 291-292).

These students' emotions may have been influenced by engagement, a specific mode of belonging that encompasses their direct experience of the world and

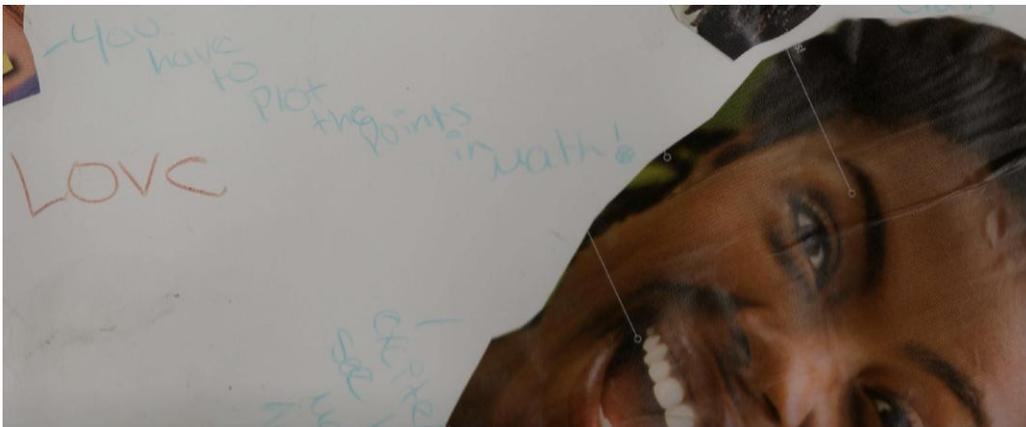
active involvement with others students (Wenger, 1998). Certain collages reflected emotions that students had about being in Flower Academy's figured world of mathematics learning. Malcolm's collage provides an example of this.

Figure 6: Snippet taken from Malcom's math collage



Below Malcolm describes this snippet from his collage. He says, "Sad, Yeah...[be]cause I don't wan[t] [to] leave it...math class..." Malcolm's expression of sadness was not due to entrance into his math class. On the contrary, his sadness arose from exiting the math class. Chantel's collage provides an expression of her feelings about math class.

Figure 7: A snippet taken from Chantel's math collage



Chantel described this snippet of her collage stating, "face, because I'm eager to get to math class and I'm eager to learn..." Statements like "I'm eager to get to math class," "I'm eager to learn," along with the image of the smiling girl and the word

love, suggested that Chantel did not dread or fear mathematics learning the way a student with math anxiety would. An African American graphic arts designer claimed, “I guess it seems like she’s happy about it; excited to see her math teacher” noting her affective reaction. An African American architect reacted to her collage responding, “So, here [is a] female image, laughing and joyful, and they’ve written next to the laughing one, excited to see math teacher.” Like the graphics arts designer, the architect also picked up on her positive affective reaction towards math class and math learning.

Using the framework, these students’ responses regarding how they felt about math class could be analyzed in the following way:

Table 9: Classification of students’ responses about math class

	Valence	
Object Focus	Positive	Negative
Prospective	Anticipatory Joy, Hope, Anticipatory relief I’m eager to get to math class and I’m eager to learn (Chantel)	Anxiety, Hopelessness
Retrospective	Joy, Pride, Gratitude	Sadness, Anger, Shame Sad, Yeah...[be]cause I don’t wan[t] [to] leave it...math class...(Malcolm)

Chantel’s statement is an expression of the positive emotion of anticipated joy in attending her math classroom as indicated by the word “eager.” Malcolm’s statement is a retrospective expression of the negative emotion of sadness, a reflection of his

feelings when it is time to leave the mathematics class. These emotions were likely connected to the math tasks and activities in the classroom and student's involvement with one another.

I think that the students' emotions are also shaped by their parents' beliefs about the importance of learning mathematics. Maxwell's mother stated that it was important to learn mathematics "to help you be able to calculate things...to handle things and be able to juggle things and see what weighs more in life." Robert's mother stated that it was important to learn mathematics because "mathematics is in everything nowadays that you have to do. Through electronics... numbers on the roads, they just everywhere." Malcolm's father stated:

If [he] know[s] mathematics, he could be an astronaut... math can take you to a lot of places, a whole lot [of] places... If I would [have] stayed and you know tried geometry a little bit harder and got my calculus, I mean you can basically base your life on numbers. (Interview transcript, October 29, 2008, p.16)

Terrell's mother stated that mathematics was important for Terrell to learn because, "he might wan[t] [to] be a[n] accountant...architect -... you know they have to know the measurements. Math is very important." Ashley's mother stated that it was important for Ashley to learn mathematics "[Be]cause in the long run she's going need to know math as far as like dealing with money and you know paying bills and stuff like that." Elizabeth's mother stated it was important for Elizabeth to learn mathematics because Elizabeth was "interested in technology."

Shanika's mother stated that African Americans might develop negative dispositions for math learning if, "[they] got somebody that don't sit there and take their time to [help them] understand it, to understand math like they're supposed to."

Maxwell's mother stated that African American students

could have a lot of things that they're dealing with inside of their life like maybe their parents is not encouraging them or maybe they just don't feel strong enough to do it.

Peer pressure, anything. (Interview transcript, December 15, 2008, p.8)

Robert's mother suggested that dispositions for math learning might be negative if students "just wanted to complete it" to get out of high school. Elizabeth's mother stated:

Some people are intimidated by numbers and because of fear of failure, look hard and they don't wan[t] [to] try and fail. I think if I can encourage her to try anyway, you won't really know until you try...[Be]cause you might like it. And then you'll exceed but if you have a fear of going into it, then you go into a field with fear, you're not going to do well. (Interview transcript, March 24, 2009, p. 10)

Shanika's mother stated, "[be]cause you got some of [them] that's scared. Some of [them] probably don't know the math like other kids do." Ashley's mother stated, "I mean they might not just think – they might think they don't really need it." These students seem to think that they do need mathematics. None of the above mentioned responses about the importance of learning math were linked to race.

Extended math learning:

“When students align their energies with institutional boundaries and requirements” they are said to have mathematics alignment (Anderson, 2007, p.10). The intent to avoid taking more advanced math classes is usually enacted by students who find mathematics difficult. All eight participants, however, stated that they intended to take more mathematics in college. Below are two excerpts that highlight the students’ intent to face mathematics beyond middle school algebra.

I might wan[t] [to] do Calculus (Shanika).

I prefer taking like, if there’s like 10 classes for me or 8, I prefer taking like 4 classes of math, and like the other 4, the other 2 for reading, and the other 2 for science (Malcolm).

An analysis of these statements shows that these students are essentially expressing the sentiment “I want to take another mathematics course” (Bong & Shaavik, 2003).

Findings pertaining to how they are seen by others

Generally, within the context of doing mathematics, all eight of the student participants were perceived quite positively by Mama Roshanda. Below Mama Roshanda described the performance of the student participants in this study:

All of them, every student except Shanika, last year...scored proficient to advanced on the state test. And so, that just speak deeply of their love that they have for math and of their success that they’ve experienced in math... Before I had them, I looked at their test scores and they were basic. And so, to reach proficient (get the higher end of the proficient close to advanced) I think that, you know, I felt proud; I know I did my job, but they felt proud of themselves because on this year’s test, they were like...only a couple points

away from advanced. [They had] to get advanced; you know, that was their driving power all year, and they felt good. They actually felt that ‘I scored proficient almost advanced’. To some it’s like proficient, that’s what everyone should score but everyone knows that in the [state] and in most schools the average child doesn’t score proficient in math. It’s basic and below; and so these kids they’re just really serious about their grade...Chantel scored advanced like I said, and Elizabeth was the next highest up in the school; she was one point away from advanced; and so she and Chantel were like at the top. One point away, and so you know all of their scores were just so high; they were very pleased [with] their success; and I think that was their driving force to come back and work even harder this year. (Interview transcript, June 24, 2009, p. 6)

Mama Roshanda highlighted the pride that the students felt and the goals that they set for themselves to reach the advanced level and how this motivated them. The high scores of these students suggest that they were comfortable with these mathematics assessments. Mama Roshanda suggested that her instruction took the students from the basic levels that they were scoring at before they had her as a teacher, to the proficient and advanced levels that they were now scoring; and thus she was an integral part of their success. She also suggested that in other schools in the state students did not score very well. Perhaps students in those schools were not comfortable with mathematics and/or did not like it.

She frequently used adjectives like smart, brilliant, and excellent to describe these mathematics learners. The math learners in this sample were characterized as

mathematicians by Mama Roshanda in this setting. Webster's dictionary defines a mathematician as a specialist or expert in mathematics. It is important to acknowledge that Mama Roshanda perceived these math learners not merely as students, but as experts, a perception which could positively impact their math self-concepts and how they positioned themselves. Baba John, on the other hand, tended to perceive the students as either not fulfilling their potential or struggling with issues of adolescence and negotiation of their multiple identities. This domain will be explored in greater detail in the third part of this chapter.

This section provided descriptions of how the students understood themselves as math learners, their dispositions towards math learning, and the perceptions of their mathematics educators about them as math learners. Students described themselves in ways that illustrated mathematical competence, described mathematics as a subject that they enjoyed, and were described by their mathematics educators as mathematicians, some who fulfilled their potential, and others who did not. In the next section, I explore the school's mathematical practices.

The figured world and mathematics socialization practices

As students move through school, they come to learn who they are as mathematics learners through their experiences in mathematics classrooms; in interactions with teachers.... (Anderson, 2007, p.8)

Context

Mama Roshanda's content decisions

Mama Roshanda was supposed to follow the 6-8 grades mathematics

curriculum for the state. She felt, however, that the current curriculum was not designed to advance the students mathematically. She stated,

In 6th grade, it's just generally Everyday, It's called Everyday math; it's general 6th grade math...different in [this state's] schools. They don't really have labels on it for 6th grade and 7th grade; 7th grade is almost like Pre-algebra; honestly, I...advance them. I don't think kids should be set at a limit... 8th grade is Algebra, because I actually think that holds kids back. If they're advanced why not [do] geometry or calculus? So even though I guess, politically 6th grade is 6th grade math, 7th grade is 7th grade math, 8th grade is 8th grade math, I don't really teach it like that. I have my 7th graders...pre algebra, algebra; by 8th grade they're doing Algebra One, geometry. you know...In sixth grade, I'm introducing them to 7th [grade math], the hypothetical other state 7th grade math. (Interview transcript, July 15, 2008, p. 5)

I remembered from my observations that the student's Prentice Hall textbooks had not even arrived yet and would not arrive until late in the school year, so Mama Roshanda had to use her own resources. Some of these resources, I observed, came from James R. Choike, Department of Mathematics at Oklahoma State University. According to the state's curriculum guide for 8th grade mathematics, students were supposed to understand concepts of slope, line, rate of change, table of values, equation, graph, and solution of problems. Grade 7 algebraic standards do not require students to go beyond understanding the concept of ratio, line, and slope of a line.

From Mama Roshanda's lonesome road trucking lesson by Professor Choike, I observed that students were expected to write an equation that expressed a distance in terms of elapsed hours, find the slope of the given graph of a line, and find average speed. From her analysis of cell phone calling plans lesson by Professor Choike, I note that students were expected to complete tables, describe patterns in the tables, write algebraic rules for cost, plot the data, apply the rules to complete tables, find equation-cost points, and analyze the plans.

While the state curriculum did not require seventh grade students to be able to collect and display data using different graphical representations, I observed Mama Roshanda's seventh grade students doing these things. The students were indeed performing above their grade level. Mama Roshanda described why she felt the necessity to create her own curriculum.

I do my own curriculum simply because I feel like it is geared towards what children need to know. I don't think [the current curriculum] really imports a lot of critical thinking. I think it's really basic... The curriculum is really just based on passing the test and no critical thinking, no real world connection; and then I think [the state's] curriculum holds the kids back. I don't think it allows the flexibility to be promoted. So if you're in the eighth grade, why can't you be doing calculus? You know, I think it keeps them right there at that level and hinders them. And so...I like to take them way above that level, because if I follow the curriculum...I would be doing a disservice...

(Interview transcript, May 13, 2009, p. 3)

Mama Roshanda makes a conscious choice to abandon the standard curriculum which is devoid of real connections and designed for passing the test. Instead she uses a curriculum that consequently prepare students for standardized testing but is inherently designed for advanced learning and is not state test driven. Her use of a curriculum that was not state test driven seemed to complement the class time (accelerated math time) allotted specifically for test preparation, along with the test driven nature of the Catama lab.

Mama Roshanda highlights the importance of critical thinking, a skill that the National Council for Teachers of Mathematics emphasizes. Although current structures are not designed for these students to develop critical thinking skills, Mama Roshanda navigates around these structures and ensures that her students will be able to think critically in mathematics. She states,

And so I think that really gets their critical thinking going; it gets them thinking-- gets them really involved and really interested in math class as opposed to it becoming very boring. I like to give them a lot of ways they can actually use their math, and I think that promotes their critical thinking skills.

(Interview transcript, July 15, 2008, p.5)

Mama Roshanda's goals

Mama Roshanda stated:

I want them to be leaders in whatever they do. Whether it's a mathematician, to be able to make positive decisions and make change in their world; whether it's a leader, it doesn't necessarily have to be a mathematician or scientist, but

just someone who could stand up and know what they want and what they believe in and actually be able to apply that knowledge, a knowledgeable leader in their community, to evoke change, that's what [I want]. (Interview transcript, May 13, 2009, p. 2)

She does not actually say that mathematics is important for becoming a member of a particular profession or for developing particular mathematical skills, but rather talks about her students becoming change agents. During one observation, Mama Roshanda has an extensive conversation with one of her male students. This student voiced problems that he was having with one of the other teachers. Mama Roshanda explained that he was not doing what was expected of him. She told him that he was letting other students bring him down and asked “if all of them did crack would you do it to?” She wanted him to make positive decisions and not allow people to influence him to make bad choices.

When I asked her about who she would like her students to be, she responded: Well, overall I just want them to be **productive citizens**... really just taking their education, learning to **raise their potential**, and you know using all their selves to be greater people. (Interview transcript, July 15, 2008, p.5)

The term productive citizens is interesting because they are also used by NCTM. 2008 NCTM president Henry Kepner stated, “A high school mathematics curriculum based on reasoning and sense making will prepare students for higher learning, career success, and productive citizenship.”

Mama Roshanda's beliefs about her students' abilities

Mama Roshanda stated,

First of all I think they're all excellent students, and I think the key to all students, any student, is having the right teacher to tap into their learning ability. Not only are they all excellent students, they all learn very differently. So, some of them can learn, they pick up things quick. I wouldn't say that anyone is...smarter than the other [be]cause I don't think anyone's grades can reflect how smart they are. Yes, it shows they did well, but I think from the intelligence, you know, there are some other factors that go into that... I know they'll all do excellent things and achieve in their math classes. (Interview transcript, June 24, 2009, p.2)

I am struck by how positively she speaks about her students. She correlates their ability with having the "right teacher." For her, grades are not the totality of a student's intelligence. Below, she talks about her students' strengths, weaknesses, and some of the difficulties that they encounter.

I think their biggest strengths are--they're very strong in the algebra...The number sense and operations, they're very strong in that area. I think the biggest weakness is, well it is a weakness, but I'm not go[ing] [to] put all the blame on the students, because sometimes it's not really emphasized that much. Just like the...critical thinking and the problem solving, a lot of them are used to, especially with math, just plugging in a number; it's easy, you know. But when it comes to applying that same concept in a word problem

format or in a critical thinking or real world setting, they're lost. So I think that's their biggest weakness, when they have to read. Reading, it's essentially, a strong weakness that a lot of kids face, because they don't like to read, especially when it comes to math. They don't like to read period... I mean, math problem solving aspect which involves...the reading and the solving problems and the critical thinking. (Interview transcript, July 15, 2008, p.2)

I note first that she explicitly stated that she will not place the blame on the students. She explained that their critical thinking and problem solving skills are an issue of exposure and not an internal problem within the students. Literacy is a factor that accounts for their struggles with math word problems. Below we discussed her thoughts on how her students perceive their mathematics abilities.

FN: Do you think your students feel like they're very capable, like highly capable of doing mathematics?

Mama Roshanda: Yes, I do; they're very excited; I had a lot of them tell me that they really like...math. I try to make it easy... They say I make it really easy for them and I break it down. But I think they're very capable; I think I have a very bright set of kids who are very hard working, of course. They're kids, so some of them you have to push, but they're not kids who [will] see a failing grade and just be okay with it... They get upset, like almost in tears; and so I think that's really good because it encourages them to want to do better. They always want to know how they did so they can improve... their grade... With the quizzes that I give them, I think that always helps with them always trying to do their best and study more...

FN: Do you have a sense that the students see themselves the same way that you see them? Or differently?

Mama Roshanda: I think it depends on the student.

FN: Can you sort of pick out which students you think maybe feel the same way you do and which maybe don't.

Mama Roshanda: I think Chantel feels the same way I do, [also] Elizabeth, Maxwell, Robert, Ashley. Malcolm, Shanika, and Terrell, I think they know they're smart but they don't know how smart they can be if they don't have someone really pushing them and telling them. Then I think sometimes that

can get lost. And like I said, I think that comes along with their confidence issues because you know, they weren't always used to seeing success, and so a lot of times they think they can't and I have to say 'oh yes you can.' 'All right, so you're telling me you can't, you'll just go on ahead and do it.' ...and like I said, because I think they might be intimidated by some of the stronger people who are fast. (Interview transcript, July 15, 2008, p. 9)

I note Mama Roshanda's use of the words capable, excited, bright, and hardworking. She also commented on their drive to improve their grades. Her tone seems absent of any deficit frames. This is very important because a lot of the literature has highlighted the negative perceptions and low expectations that teachers of all races may hold simply because their students are African Americans, particularly when they are low income (Ferguson, 2003; Ladson-Billings, 1997; Irvine, 1990). Grades and being quick in mathematics seem to be important to these students. Mama Roshanda raised an important issue of how experiences with failure can diminish confidence in mathematics and thus teachers have to provide positive reinforcement and encouragement.

Mathematics socialization practices

Mathematics socialization refers to the experiences that individuals and groups have within a variety of mathematical contexts, including school and the workplace, and that legitimize or inhibit meaningful participation in mathematics (Martin, 2003, p. 16)

A description of the class structure and assessment practices, instruction and classroom practices, and classroom expectations reveal how these African American students experience mathematics at Flower Academy and may illuminate how these

students came to author their identities and “fashion their senses of selves” in part one of the chapter.

Class structure and assessment practices

I note that there is no distinction at Flower Academy between students with learning differences and students without. Flower Academy does not practice tracking. Everyone is placed in the same class. There is, however, a special education mathematics coordinator who helps those students with learning and behavioral differences. Mama Roshanda described below how she used the students’ varying mathematical abilities as an instructional tool.

My philosophy of teaching is [to] meet the students where they are. I never assume that [a student] should know something by a certain time or a certain age..., because you really never know a child’s background, or who has taught them before you...so I kind of meet students where they are, whatever works. (Interview transcript, July 15, 2008, p.1)

Mama Roshanda uses her students’ abilities as a starting point from which she can build upon. Cochran-Smith (2004) suggests that teachers should build on what students bring to school, which could be viewed as a culturally responsive practice. The practice of maintaining heterogeneity within the classroom in terms of mathematical ability may aid these students in understanding themselves simply as math learners and not as learning disabled, or regular, or honors, or gifted and talented, labels which all come with certain connotations, which are not always positive.

I learned that the student's grades on their report cards were initially listed as A,B,C, D, F, but now appeared as 4 (advanced), 3 (proficient), 2 (basic), or 1 (below basic.) Baba John explains this grading system in more detail.

Each grade has certain standards that the students need to learn or master before they graduate; in fact when I work with my students this is what I use...for example, this is for grade three. This is the standard code...and then this is the actual standard. And for example, number sense and operations-- this is the category and test points [it] tells you how heavily it would be weighted on the [state test]; so the more points it has here, the more heavily weighted it would be on the [state test]...more problems of this type the students would more than likely see. So this represents, compares, and orders numbers to 10,000 using various forms including expanded notation. So they're go[ing] [to] be expected to know this, this particular standard. So on the report card, for that particular quarter or advisory period, there are certain standards that need to be taught in that advisory period based on the pacing guide. So the pacing guide is telling you what needs to be taught throughout the year in terms of when you need to cover it. So the report cards will, instead of having reading A, math B... [for] the grade, we'll have the standards, and we'll have this little number code beside it, telling you how they did. So it'll have the standard, and then it'll have, for example, 4 next to it. And that four means advanced, 3 means met the standard, and so on.

(Interview transcript, May 13, 2009, p. 2)

Numbers on a students' report card indicated mastery or non-mastery of the standards that were covered for that particular quarter (commonly referred to as advisory) for the school year.

Instruction

Below is an illustration of the type of instruction that occurred in Mama Roshanda's classroom.

Mama Roshanda: What did they start charging you?

Student: 8 dollars and 25 cents

Mama Roshanda: That's the pattern, but what did they start charging?

Student: 35.

Mama Roshanda: look at your equation. In our plan, what did they start charging you?

Students: 35 cents.

Mama Roshanda: 35 cents. **Okay, so that's an excellent response.** Venice just said...no the patterns not the same...question goes on to say is this the same and the answer is no because the first response is our price stayed the same; but on the second chart, it actually started increasing right? We're looking at question 11and **Venice gave the correct response.** She said those two charts were different because the first chart represents our free minutes and the second chart represents the minutes that we go over.

Excellent. So you should be writing that response. I'm not going to repeat it...**Venice did a great job of saying it.** (Observation transcript, June 23, 2009, p. 6)

This excerpt was taken from a lesson on cell phone rate plans. Mama Roshanda explained that Venice's response was an excellent response, that it was a correct response, and that she did a great job of conveying the response. According to Murrell (1994), this kind of instruction between teacher and student is characterized as an NCTM influenced IRE pattern of discourse whereby the teacher initiates, the student responds not only with the correct solution but with their reasoning, and finally the teacher evaluates the response. Her evaluation is reflective of praise. Praise is defined as an expression of approval, admiration, and commendation.

Mama Roshanda shares her perspective on the role of praise in her instruction. She states,

I feel I help them by...always giving them praise. I tell them a lot that it doesn't necessarily mean the grade. It's also the effort that you put into it... and so for me, a 70 is just as good as a 100... a 80 is just as a 100, because that 70 person might have come from a 40 or 50...So I think just always promoting success and hard work...helps them to develop a strong math identity. I also think that helps them build up their self confidence. For a student who has been struggling all their life to get a 70, that's like an A...so that goes on...my classroom wall of superstar geniuses and they're just excited, you know. So I think just always supporting someone and not looking at everything as a number grade...Whether it's in the 70's or the 80's, looking at where they came from towards where they are now, whether it's from a D to a C or a C to a B..., just always encouraging the improvements they are making in their education. I think that helps them build a strong math identity. And when they see that they are achieving success, they want to do more. They want to do more work, they want to learn more. They want to challenge themselves, because now it's like, I got a 70, so it gives them hope [that] now I can get an 80. But...if someone says 'okay, oh gosh this isn't good, it's a 70 but I mean it's still a C,' it...tears down their self esteem. But I think just always uplifting (even when it might not always be a 100)...builds someone's, and not only a child's, but anyone's math identity. (Interview transcript, July 15, 2008, pp.6-7)

She believes that part of helping her students develop a strong math identity involves praising them continually, encouraging improvements, and promoting success and hard work, and not necessarily 90's and 100's. This praise and encouragement is documented in the literature on culturally responsive teaching as being important (Gay, 2000). I note her mention of academic self-esteem and confidence, and how praising the students serves to motivate them to improve by doing more and challenging themselves. This praising could also be seen as validating the students performance by recognizing what they contribute (Stiff & Harvey, 1988).

Mama Roshanda also incorporates students' learning styles into her instruction. She explained:

I think everyone has different learning styles, some are tactile, some are auditory, some are visual. So I try to implement all those different things into my teaching plan...to make sure that I can touch on everyone's learning style. But just never assuming that someone knows something, but just taking the time ...and really hitting on their learning style to ensure success on whatever they're learning. (Interview transcript, July 15, 2008, p.1)

Stiff & Harvey (1988) contend that attending to the learning styles of African American students is important. In addition, Mama Roshanda also encourages students to solve problems in multiple ways stating:

I always let them know [that] math was something that you might be able to get the same answer by doing it in many different ways; and so a lot of students when they became...- especially very comfortable with me and [I]

had them for two years in a row...a lot of them were able to derive different ways; and they were very excited about showing me, 'well I did it this way and I could get the answer' and actually it was right, but they didn't know why they did it that way and...got the answer. So it could have been something as simple as multiplication is commutative so when I multiplied the 3 by the 4 first. And even though you multiplied the 4 by the 3 first, we still got the same answers. So they were able to derive a lot of different things. You know they were able to come up with ways in which you could get the same answer. But we do a lot of work where I would say, this is my way, but I want you to show me another way, depending on the topic at hand, and how you could get the same answer. And they did a lot of that interaction with their partners. (Interview transcript, June 24, 2009, p. 2)

This is another way that Mama Roshanda validates the students as math learners and provides them with security within the classroom. Mama Roshanda understands that students will not solve all problems in the same manner. She values the variety of ways that a problem can be solved. Mama Roshanda wants students to know that there are many paths to accurate solutions. She helped these students see mathematics as having flexibility and not being static. I note that she highlights the peer-peer interaction that students engage in while solving tasks in multiple ways. This peer-peer interaction also provides security for African American math learners (Stiff & Harvey, 1988).

In a description of some of the mathematical activity that occurred at Flower Academy, I got a sense of the nature of instruction. In the next excerpt, Mama

Roshanda describes Math Madness, a day of math activity designed to get students excited about math.

Well Math Madness, which is the day that's meant to show things you can do different or out the box in math. So you can do different activities ... So you can incorporate math however you might want to do it. Whether you want to set your classroom up, let's say as a lounge, and you're serving coffee and or doughnuts and they're counting change. Whatever you want to do, but just...something that's out of the box and still get...that math piece in and have...the kids do their math skills...So I will set my activities up,...they'll have different math games, like card games, that are very math related and...very competitive. [Also]board games [which] are math related and they have geometry cards... There were math relays, where the two teams had to compete to see who got to the finish line first; so it's just very fun ways to incorporate math into the curriculum...It's just a day of fun with a math background ... I think it was just a way to ... get the kids ... excited...[It's] almost like a **differentiated instruction** piece. To show the kids that they could still learn the same topic but in a different way or a different manner. And it's ... like a laid back,... different way to learn and just to keep the kids excited about learning...The kids loved it because it was all day. And there were different stations, and sometimes when they went to other classrooms, they were still doing math, but they were doing it across different classrooms; incorporated into science or incorporated into English, or incorporated into social studies. ... they loved it. I would do a lot of logic

with them where they didn't know they were doing logic...And it was just like I couldn't print out enough, because they were so competitive with it. But they didn't know they were actually learning logic, and so after I would tell them. ... it was kind of an out of the box experience. (Interview transcript, July 15, 2008, p. 11)

Competition is one aspect of motivation that is used in math days, specifically the board games and math relays. Math Madness served several purposes. First, it got students excited. Second, it provides students with an informal and fun context for doing mathematics.

During a focus group interview, I asked students about what Flower Academy was doing to help them feel like they should be doing math and they responded "math days..it's like a game." (Based on their description of "math days" as a game, I think that they probably meant Math Madness.) Third, it demonstrates the use of mathematics across various disciplines. Fourth, it provides a platform for doing more advanced mathematics like logic. It aims to provide non-traditional instruction in mathematics, instruction that some researchers claim is more beneficial for African American math learners, particularly aspects of creativity, flexibility, variety, and uniqueness (Marks & Tonso, 2006; Bailey & Boykin, 2001; Boykin & Bailey 2000; Hilliard, 1992). Some aspects of Math Madness, the coffee counter and counting change scenario specifically, seem to be making use of situating mathematics in real world contexts.

Math Madness activity is an activity in which students were required to create a budget for themselves and had to decide between whether to use the money for

clothing or for child care, and figure out how much they would allot to each living expense. Math, then, was situated within the real world context of budgeting and money management. Math Madness was another mathematics activity that provided non-traditional instruction.

Baba John gave his description of Math Madness.

Math Madness, that's something that we've been doing for a couple of years now and we do that in conjunction with our raising readers program. And basically ... we try to have a fun day, maybe two different times within the school year. It's a fun day dedicated to math, so we do games. We have food, we have prizes; we try to have ... speakers. The one I think I talked to you about [was] at the beginning of 2007 where we actually invited a speaker and he talked to the students about some of the African origins of mathematics and science. What we did this year, we had collaboration, where we had teams comprised of middle school students. Say for example, one team consisted of a 5th [grade], a 6th grade, a 7th grade and a 8th grade student. So they all worked together on problems that were applicable for each of the grades, and we had a competition. So the problem set, whoever got finished first won prizes, and it was fun. We had the movement where they had to go to different rooms to solve puzzles. They really, really enjoyed it; they got into it and was the most excited I had ever seen the students with regards to math. You know, ... going into it I was a little skeptical because I was thinking, 'they'll probably be bored' or think it's corny, but no, they were running down here [saying] 'did we get it, did we get it?' If they got it wrong, they

were upset ... then they had to go back and get ... with their team, then there was a lot of excitement, a lot of fun. We had prizes... the first place prize was pizza, ice cream was second, and popcorn was third ... They loved it so.

(Interview transcript, May 13, 2009, p. 1)

Bringing in a speaker is another motivational tool for getting students excited about mathematics learning. Having students from different grade levels work together gives younger students the opportunity to work with and learn from students who are more cognitively advanced. Baba John did not anticipate that the students would enjoy Math Madness but they did, perhaps because of the movement from class to class that was involved. The work of Boykin & Bailey (2001) supports the incorporation of movement into the mathematics learning of African American students. Another source of motivation for these students was the incentives or rewards of food. The combination of student testimonies and Baba John's observations of the students during these activities serve as evidence that the school is helping students to develop positive feelings about mathematics. This explains in part why the students enjoy mathematics.

Below, Mama Roshanda describes math day, a day of non-traditional math instruction, at Six Flags theme park.

Math and Science Day is an exclusive event at Six Flags, where the math behind the rides are incorporated...Throughout the day, the kids learn about the math and science behind the rides. ... What makes the rides really move, acceleration, speed, different math formulas, different math concepts; and so all of those things, patterns, observations, rates; they did a lot of experiments

with time, like how long does the ride last. What we did in class, for instance, we looked at the Ferris wheel and when the first Ferris wheel was built. We studied the Ferris wheel; we looked at how things have changed over time in terms of how the old Ferris wheel carried sixty people. You know, the difference, the height, [the] width; we looked at all that, and we looked at the Ferris wheel at Six Flags and compared it to that. And so math day is a hands on day in which kids can be in a laid back environment and really understand the math and science behind ... these activities that they enjoy ... (Interview transcript, May 13, 2009, p. 1)

I learned from Baba John that this event was organized by the park and not Flower Academy. The main point of Mama Roshanda's description was that students could see the applicability of mathematics in the world and do it in a non-traditional way that also had science connections. Lampert (1986) suggests that connections between student learning and interests outside the classroom can motivate students to learn mathematics. Anderson (2007) states that teachers can help students develop strong math identities by reinforcing the importance of it and its interesting nature, and by providing opportunities where they see the usefulness of math in professions and outside of school. Math Madness likely aids students in seeing mathematics as interesting while math days serve to help students see the usefulness of math outside of school.

Classroom practices

Students met every day for approximately 70 minutes since the school operated on a block schedule. In one observation of the students, I watched students work at six “stations” in the classroom solving problems like $m + 3 = 12$ and other equations requiring them to use multiplication, division, subtraction to solve for the given variable. They rotated and seemed very excited to get up and move to the next stations. It seemed that one aim of this competition is for them to do the problems quickly, as they were under time constraints. This reminiscent of the research of Boykin & Bailey (2000) in which they found that African American math learners in particular perform better if the activities they engage in incorporate creativity, movement, and variability.

In another observation of one lesson, I saw students engaged and interacting with each other in various ways. Mama Roshanda posed the following mathematical problem: How long can you ride your bike without stopping? They discussed factors that could affect how long they could ride their bikes, such as speed and weather conditions. Mama Roshanda asked students to form small groups, where one person would be the jumper, the other would count the number of jumps, and another student would record the number of jacks after various time intervals. This kind of group could be characterized as a formal cooperative learning group whereby role interdependence is established because each member is assigned a role, specifically the jumper, counter, and recorder. This group allowed students to have positional identities in their groups (Esmonde, 2009). Positional identities can be defined as an identity that is invoked and may shift depending on the context the person is in (Esmonde, 2009). It did not seem like students were being shut down by other

students because of their race or gender as Esmonde (2009) found in her study, but that the students genuinely seemed to work together during this particular activity.

Students began doing jumping jacks to simulate the bike ride. They eventually discovered how many jumping jacks they could do after 30, 60, 90, 120, 150, and 180 seconds and equated that with how long they could ride at these various time intervals. Success in this learning group was achieved when students could answer the question of how long they could ride their bike without stopping. Students saw that as the intervals of time increased, the number of jumping jacks they could do decreased.

In another classroom observation, Mama Roshanda had students working in groups on a project where they had to create various graphs (line graphs, bar graphs, and dot plots) which conveyed information about various topics such as favorite football teams, favorite shoes, and favorite foods. One member of each group was required to ask their peers about what their favorite teams were, for example, and record the data. Another member in the group was responsible for displaying the information graphically on a poster. The third member of the groups was responsible for retrieving pictures from the internet to enhance the look of their posters. I noticed the neatness of the work and how the pictures from the internet visually enhanced their groups' projects. The students' work was later displayed in the hallways directly outside of the classroom. In this case, students positioned themselves as experts in order to complete their project (Esmonde, 2009). Cooperative group learning was a common practice in Mama Roshanda's classroom. Stiff & Harvey (1988) suggest that cooperative groups provide black students with a sense of

security. According to Zemelman, Daniels, & Hyde (1998), cooperative groups reduce math anxiety.

During the last 20-30 minutes of class (accelerated math time) several students were pulled out of class to go to the CATAMA Lab (computer and team assisted mathematics acceleration) with Baba John. In my observations of the CATAMA lab activity, students show Baba John their completed or incomplete homework out, take a 5-minute timed mini test on the lab computers and work various problems on the board. The remaining students stayed with Mama Roshanda and took sample state assessments in mathematics. They entered their answers on a scantron sheet and a computer in the back of the classroom, scored and printed the results of the assessment. The students looked at their results and generally expressed positive and negative emotions depending on how they did. It was almost a daily practice for these students. All of the students had folders where they kept their accelerated math work.

Classroom expectations

I use Cobb, Gresalfi, & Hodge's (in press) constructs of normative and personal identities of math learners to discuss classroom expectations and preface a discussion of what teachers say about their students and how the students negotiate what their teachers say about them in relation to their own beliefs and dispositions. Below Cobb, Gresalfi, & Hodges elaborate on what is meant by the normative and personal identity.

In the case of classrooms where some students are resisting and of classrooms in which there is no oppositional discourse, an analysis of general and specifically mathematical obligations specifies the role of an effective mathematics student. We call this role the normative identity established in a particular classroom because students would have to identify with this role in order to develop a sense of affiliation with mathematical activity as it is realized in that classroom...it is important to emphasize that normative identity is a collective or communal construct rather than an individualistic notion...The construct of personal identity concerns the extent to which students identify with the role of an effective doer of mathematics constituted in the classroom...[it] enables us to understand why the students are making these different valuations in their classroom obligations (p. 4)

I interpret the normative identity to be the identity that students are expected to have to be successful in Flower Academy's figured world of math learning, while the personal identity is the identity that the student actually establishes which may or may not meet the expectations of the math teacher. From observations of the math classroom, I came to understand that the general classroom obligations that Mama Roshanda expected students to identify with were mutual respect, quiet when she or another student was speaking, working hard, following directions, paying attention, and not eating in class. On several occasions, I witnessed Mama Roshanda send students that were being disrespectful upstairs to detention. In other instances, she would call that person out on why they were talking or were not paying attention. If a student was eating in class, she asked them to put their food away.

The mathematical obligations that I observed were for students to identify with applying themselves, doing their homework and doing it neatly, showing their work on all problems, thinking critically, paying attention, contributing to class discussion, understanding concepts and procedures, being intrinsically motivated, and either getting good grades or improving upon a bad grade. “Actors” who identified in these ways were recognized by Mama Roshanda or the school via placement of their work on their walls and via praise during the morning announcements (Boaler & Greeno, 2000). In an interview, she described her expectations for her students.

I really want them to definitely achieve a higher education outside of high school... to really be sharp in their math skills ...to just be positive and hardworking, particularly hard working...Not being lazy...Just being the best they can be, and doing it [not] because someone wants them to do it, but to do it because they want to -- not because they want an award, or they want a treat or something, or someone is treating them but because they want to be [their best] (Interview transcript, July 15, 2008, p. 5)

Mama Roshanda expressed a desire for her students to be sharp, which might include being able to do mathematics quickly. She emphasized hard work and a productive disposition. Mama Roshanda wants her students to maximize their potential (a word Baba John has used on multiple occasions in his description of the students) and be educated internally and externally. She wants them to counter the stereotype of the lazy black student and be intrinsically motivated to work hard. Using the work of Jackson & Gurin (1987) as cited by Demo & Hughes (1990), Mama Roshanda can be perceived as teaching students “to take an individualistic and/or universalistic attitude

without specific racial references: work hard, excel, take a positive attitude toward self..."(p. 368)

Below Mama Roshanda shared her views on the importance of mathematical justification in the classroom.

I certainly require them to justify their thinking. I'm the type of teacher [that's] not fine with the answer. [they] could get the answer great, but they definitely have to show their work. I like to do a lot of problem solving so it requires them to speak through and critically think about how they got to the answer; and so for me, justification for their thinking, that's like the key in my class. [They] have to be able to justify and tell me why either if it's just computation why you did what you did or the order of operations. Definitely, problem solving, how [they] derived the answer. (Interview transcript, June 24, 2009, p.1)

Mama Roshanda placed a lot of weight on student's showing their work. She heavily emphasized problem solving as a means for encouraging justification. For Mama Roshanda, an answer was not complete unless a student could explain their methods for attaining it. What counted as an acceptable mathematical justification were the steps for how an answer was derived. Significance then was assigned to the act of justification (Boaler & Greeno, 2000).

This section provided my descriptions of Mama Roshanda's content decisions, her goals for her students, and her beliefs about her students' math abilities. It also provided images and examples of the classroom structure, instruction, classroom

practices, and expectations. These descriptions served to paint a picture of Flower Academy's figured world of math learning. In the following section, I discuss how three students negotiated the perceptions that their math educators conveyed to them in light of their own beliefs and dispositions, and, how the mathematical practices at Flower Academy contributed to their math identities.

How three students negotiated perceived positional mathematics identities

Positional identities refers to

ways in which people comprehend and enact their positions in the worlds in which they live...the day-to-day and on-the ground relations of power, deference, and entitlement, social affiliation and distance-with the ...structures of the lived world (Holland et al., 1998, pp.127-128 as cited in Boaler & Greeno, 2000, p. 173)

I describe two math educators' perceptions of how three students, Terrell, Shanika, and Robert, enacted their positions in Flower Academy's figured world of math learning and how these students negotiated these perceptions. One element of identity construction for adolescents is self-appraisal that is partly based on how one thinks others perceive them. Understanding how the math educators perceived the three students helps to reveal how the students were able to use these perceptions to shape their own self-perceptions.

Terrell

Below is how Terrell was perceived by his teacher Mama Roshanda within the context of doing mathematics.

Terrell has come far because I wouldn't initially consider Terrell [the] strongest math student. He was average. He wasn't as strong when I first got him last year... Terrell was like one of those students, he did everything I asked, but I could tell he was only concerned with getting the right answer. And so a lot of times I had to make Terrell do his work over and say "no Terrell this is not going to help you do your work." But once Terrell listened, his skills just went totally up. Even his mom and his teacher before said Terrell's getting A's and B's [where] he used to get C's and D's. Terrell was never a weak math student, he was average, but I could tell he was never pushed before. And so after he was trained, like this year, it was no problem, because he knew exactly what I wanted; he was just an excellent student. He's very obedient; he knows what's expected of him... when I try to-- "come on let's just get through this"--Terrell gives me A+ plus answers; and so he has excellent critical thinking skills; he's an excellent mathematician. He's willing to show his work; he'll correct himself when he doesn't get the right answer; he'll go back and say "oh I did this" or he's able to find others mistakes; he cares about his grades. He was one who always wanted to know how he [was] doing in my class which I admired, because it showed that he really cared about how he was doing... So again, a very excellent student... Like I said, with Terrell (getting the history of my students), he was

intimidated by math; math used to be his worst subject. And so, I think it's that confidence level really still being built in Terrell. (Interview transcript, Jun 24, 2009, p. 4)

Terrell was described as a math learner who would do whatever Mama Roshanda asked, but seemed primarily concerned with getting the right answer, rather than understanding the problem. This can be interpreted as Terrell having a personal and positional identity characterized by identification with the general classroom objectives of following directions, and being obedient, but resistance to a mathematics obligation of understanding the steps involved in solving a problem. As Mama Roshanda explained, once Terrell identified with listening to the teacher, he gradually became a math learner who showed his work, corrected his mistakes, and cared about his grades. Terrell's personal and positional identity shifted whereby he identified with agency by correcting his mistakes and no longer resisted the mathematics obligation of understanding mathematical procedures.

Terrell described himself as a good student who had a B average. Terrell felt that he could learn anything in his math class if he worked as hard as possible and considered himself to be a top student. In my interview with him, he mentioned that he did not find himself challenged by mathematics in the classroom. He suggested that his grades did not explain the totality of his ability to do well, but knowing that he was smart and that his teachers knew he was smart, was good enough. His mother mentioned that Terrell could do better in math. She felt that if Terrell pushed a little more, he could get the A's and B's as opposed to C's and D's.

Terrell was described as behaving with less math confidence than some of the other students, but working to build this confidence. Terrell progressed from being a student who made C's and D's to B's and A's. In some instances, he exhibited very strong critical thinking skills. Mama Roshanda used adjectives ranging from weak to average to excellent to describe Terrell. From a slightly different perspective which takes into account Terrell's identity as an athlete, below is how Terrell was perceived by Baba John, the educational facilitator for mathematics, within the context of doing mathematics.

Terrell's at the point now where he's starting to "feel" himself, if you know what I mean... he's played... a little basketball; he's in the basketball [and] the football teams; and, you know, the young ladies--.... So I think he's at that age now where he's ... like "I'm Mister, I'm what's up... I'm what's happening type of thing... all I gotta do is just, you know, wink or whatever, and the homies are go[ing] [to] do whatever"... I mean, he's at that point now. ... If he applies himself, he can be smart; but again, a lot of these students get caught up in trying to be cool, they trying to be whatever ... and we have to fight this thing of if you're smart then that's not the thing to be. Like being dumb is cool basically. And if you apply yourself then it's like "oh, no, I don't wan[t] [to] do that cause that's go[ing] [to] make me look - I'm not go[ing] [to] fit in if I actually try to learn". You know what I mean? Which is crazy. I used to get on him a lot with stuff. Whether it's 'take a pick outta your hair. Why're you combing your hair?' Even yesterday I got on him; he was in class combing his hair and I had to walk up to him and [say] 'Terrell,

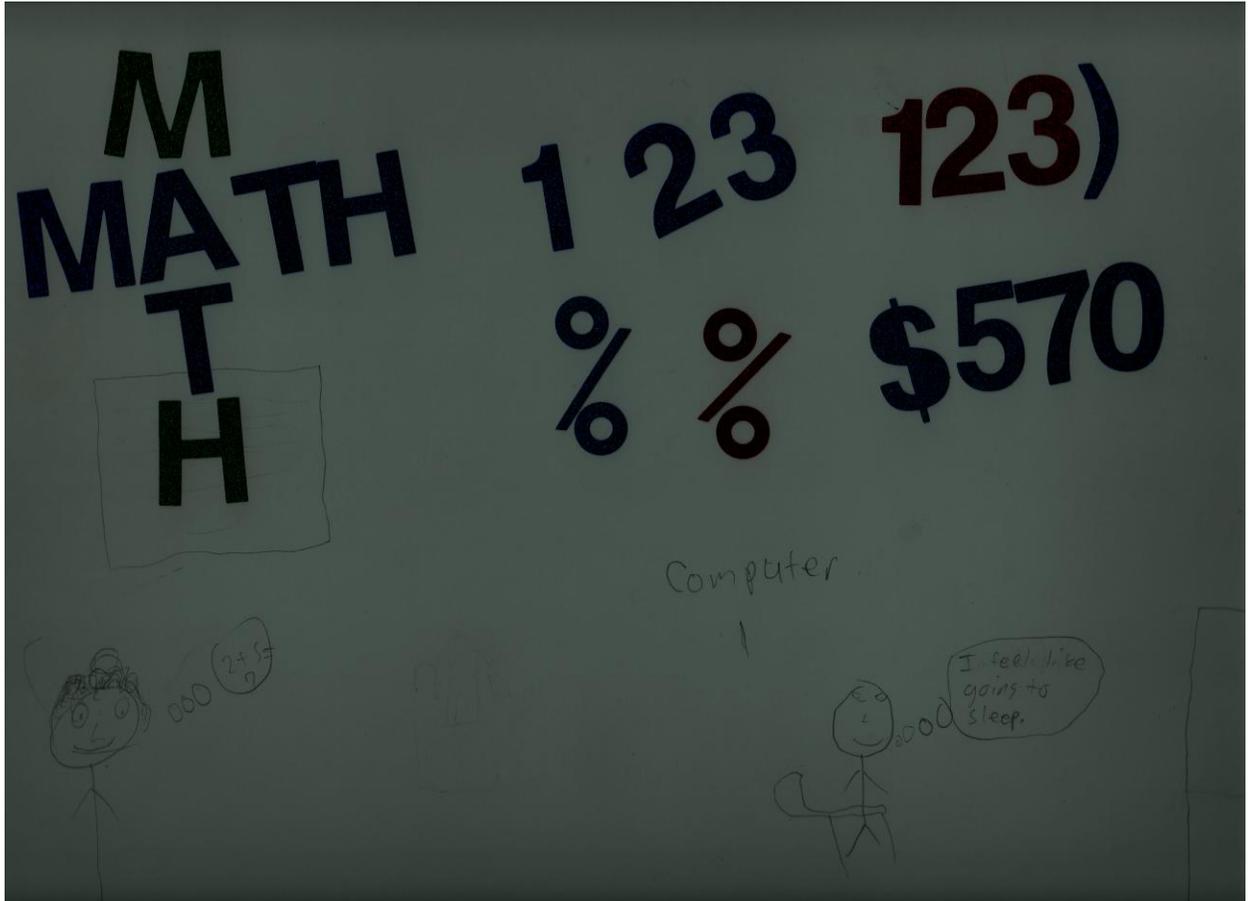
can you stop combing your hair in class?’ He’ll – you know, but he’s respectful. Once I correct him he’ll comply. Sometimes he’ll get mad and upset but he usually complies ...Once he does apply himself, I’ve seen him actually do good work... and [be] confident in his answer; yes..., [be] able to answer questions and explain why he did what he did. And other times, he [gets] caught up in trying to be cool. You know and trying to be with the ladies and trying to be an athlete and all that kind of stuff. ...If he realizes his potential...he could really be smart. (Interview transcript, March 18, 2009, pp. 8-9)

From Baba John’s perspective, Terrell’s personal and positional identity were characterized by identification with the general classroom obligation of showing respect. Although Terrell seemed willing to cooperate by putting away his comb and doing his work, at times he still resists his mathematical obligation of applying himself and preferred to identify with being cool. Being smart was in opposition with being cool, which could be interpreted as a marker of black racial identity. Baba John attributed his behavior to his desire to maintain his athlete persona. This was a mechanism for Terrell to avoid social exclusion and social identification as a nerd.

In other instances, however, Terrell’s personal and positional identity was characterized by identification with his mathematical obligation of participating and justifying his work. For Baba John, Terrell sometimes behaved in ways that were detrimental to his math learning (i.e., not applying himself) and in other times, behaved as a confident and smart doer of mathematics.

Below is Terrell’s mathematics collage.

Figure 8: Terrell's math collage



Below he describes his collage,

All right, this picture right here is how sleepy I be feeling when I'm in math class, cause sometimes Mama Roshanda be talking too much and this is just showing how, what class I'm at, math, and that's just numbers and the money sign. (Interview transcript, June 11, 2008, p.1)

No images or text from magazines were used, although they were made available to him. The top half of his collage seems to be about representing the subject of mathematics with symbols and words, while in the bottom half he positions himself as a passive receiver of knowledge as indicated by the stick figure representation of

self, the insertion of Mama Roshanda teaching, and the math symbols that overpower the top half of his collage. Perhaps, the most interesting aspect of his collage is the way he chooses to represent the words math, as words which intersect each other at the letter “a”. His comments about going to sleep suggest that his disposition towards mathematics was more negative.

Below is the analysis of Terrell’s collage by an African American graphic arts designer.

Did he have any magazines? ... I feel like he could have integrated some more magazines into his collage ...some numbers, some letters kind of in a sentence structure...he did the math this way and the math going like a crossword puzzle. (Interview transcript, May 25, 2009, pp. 7-8)

In his analysis, he highlights the lack of effort on Terrell’s part to produce a quality collage. He also highlights the interesting way that Terrell has arranged the words math. Below is the brief analysis of Terrell’s collage by an African American architect.

There are no images at all; it only has numerals and letters and a few hand drawn images, which is interesting. “I feel like going to sleep.” ...This person may not be as excited about math class as the others because they didn’t put positive images on here. They only put math and a few numbers and the little bit they told us isn’t as positive. This is sort of interesting. They made like a – letter puzzle of math and figured out that –Yeah. Which I guess is sort of another way to do math, you know? (Interview transcript, January 29, 2009, pp. 6-7)

Like the earlier analysis, he also highlights Terrell's placement of the words math in which the "a"'s intersect each other. He also illuminates the lack of excitement that Terrell has for his math class which relates to his negative disposition towards mathematics in the classroom, which seems to contradict his belief that math is important for life.

Figure 9: A snippet from Terrell's math collage



Below he describes this portion of his collage,

That's the computer center, cause that's a part of the class; on the computer we do our Renaissance math. We got to put our paper in there to see what we got; and this just show we have it's like a test exercise and practice test, for when we do the state test. (Interview transcript, June 11, 2008, p. 1)

The collage was meant to be a response to the question "Who am I in my math classroom?" Terrell's choice to include the computer which grades their practice exams suggests that he sees himself as someone who prepares for the state test.

Terrell's identity was not completely compatible with the identity that was required to be successful in Mama Roshanda's classroom. Imagination, the mode of belonging characterized by locating oneself in a particular context and yielding and affinity for an athlete and ladies man identity, was a source of identification for

Terrell. Through imagination, he negotiated identities of both participation and non-participation whereby he pictured a world of athletics and women and participated as an athlete, but dissociated from math learning at times (Wenger, 1998).

In summary, the general consensus among the mathematics educators was that Terrell was compliant with classroom policies. There seemed to be some differences, however, in perceptions thereafter. Mama Roshanda described him as a case-in-progress, while Baba John described him as a case of misdirected energies. The case of Terrell calls to my mind researchers Lee, Spencer & Harpalani's (2003) article "Every shut eye ain't sleep" whereby Terrell may not have appeared to be interested in mathematics, but was still in the mathematical loop. I move now to discuss perceptions of Shanika.

Shanika

Below is Mama Roshanda's perception of Shanika within the context of doing mathematics.

So I think Shanika [is] a very determined young lady. She did very well this year. I had her last year; she struggles with self esteem issues...Shanika, she's the kind of student where because her self esteem is so low, once she...[is] not really getting something, she gets really down on herself. But this year I had her and it was totally different. I always knew if Shanika would apply herself she'd get excellent grades. But that was minimal. She wouldn't apply herself last year. But this year she [is in] a higher level math class and she got A's across the board. She's very excited about learning;

always wanted me to advance her ‘can you teach me 10th grade, can you teach me 9th grade math?’ So I think she’s a very determined young lady. So she receives success; you know, she’s always asking me ‘can you give me some more, can you give me some more work?’ ..She likes to help others; she likes to help her peers, and help really boost up her self esteem. Knowing that so many people come to her for help...she actually knows what she’s doing. So, I think [she is] just a very determined young lady; her self esteem has went up; she’s an excellent mathematician. She has excellent critical thinking skills. And that’s Shanika...I think over the years, her confidence is going to keep going up, going up and going up; and Shanika is definitely going to be-- I see Shanika as like a school teacher. She has a very kind and loving spirit.

(Interview transcript, Jun 24, 2009, pp. 2-3)

Initially, Shanika’s personal and positional identity could be characterized by resistance to applying herself in the math classroom, but one year later (as an eighth grader) she was characterized by identification with participation and excitement. It seems that Shanika likely resisted participating within this context as a result of self esteem and confidence. As her confidence developed, Shanika identified with her own personal mathematical obligation of helping other students in the classroom, a behavior which Mama Roshanda partly attributes to her “loving spirit.” According to Nasir (2007), shifts in identities are also associated with changes in math learning. Shanika began to identify with wanting to become more mathematically proficient by asking for more work and more challenging problems, a behavior Mama Roshanda

attributed to her “determined” nature (which she referenced on three occasions). In asking for more challenging problems, she may have gained confidence and positive perception of her competence.

Shanika was described as being able to process information well enough to receive the highest grades and possessing high critical thinking skills. Mama Roshanda used adjectives like excellent to describe Shanika’s mathematical competence. Shanika perceived herself as a relatively quiet and bright student who listened to her teacher and might have talked at times, but still got her work done. In an interview she stated,

I’m a little bit **talented**; sometimes I’m quiet, sometimes I’m loud [but] I **get my work done**; sometimes I talk to friends and that’s it... I **listen** to teachers; I **get my work done** ...I think about doin’ the work and I’m able to **keep up** with the teacher. (Interview transcript, September 3, 2008, p. 1)

Below, Baba John described Shanika within the context of doing mathematics by addressing Shanika’s experiences with peer-pressure.

Shanika’s another one – she can be brilliant when she wants to be. I think that she gets caught up in trying to fit in as do a lot of students at that age. And I sometimes see her doing things that are totally not her, just to fit in. Like I see her trying to do things with the girls who are, for lack of a better word, just sort of the bad girls, so to speak...And she’ll be in the class, in Mama Roshanda’s class, with them, and I can just see her acting out because the other girls are acting out. Sometimes she’ll say something that’s extremely rude just because the other girls around her are doing it. Sometimes she’ll let

the other girls use her to do their work. I literally see them, there like, “Oh, she’s helping me, Baba, she’s helping me.” And she has Denise’s assignment, and she’s doing her assignment. And I’m thinking, “You don’t understand that they’re using you. You’re trying to fit in, and you don’t understand that.” And I think that she seems kind of shy. So I think that she may have some self-esteem issues as well...But the interesting thing with her is that she shows flashes of brilliance. Sometimes when I’m in class, she’ll do the accelerated math assignment...She’ll be scanning, and she’ll get like 100s...and I’ll tease her, “Yeah, I need 100 from you, Shanika. I need 100.” And she’s like, “Okay, all right.” And she’ll do it. Sure enough, 100. Get another assignment, go sit down, a couple minutes later, joop, 100. I’m like, wow... She is [doing better this year]. She’s another student where if she focuses, and realizes her potential, oh my gosh. She could really be smart...she’s going through that stage, where she’s trying to fit in. She’s a little bit awkward, and she wants to feel accepted. She’s a little shy. And she’s going about it, I think, in the wrong way...But again, I think she’s a brilliant, a potentially brilliant, young lady if she realizes her potential... (Interview transcript, March 18, 2009, pp. 2-3).

Baba John’s perception of Shanika seemed consistent with Mama Roshanda’s with respect to Shanika’s struggles with self-esteem. The difference between their perceptions was his references to Shanika’s personal and positional identity as characterized by resistance to the classroom obligation of respect, whereby she acted rude in order to gain the approval of her peers. In line with trying to gain approval,

was Shanika's behavior of doing the homework of some of the other students. As a math learner, Shanika was also described as shy (when she was not trying to fit in by being rude). Even in this awkward phase, Shanika came to identify with the mathematical obligation of high grades as Mama Roshanda noted earlier. Cognitively she was described by Baba John as being able to achieve high practice state test scores. Baba John used words like brilliant to characterize her mathematical competence.

Distinguishing her from the other students, Shanika was asked to create two mathematics collages to see if the second would capture the growth in her self esteem and mathematical confidence that Mama Roshanda reported.

Figure 10: Side by side comparison of Shanika's seventh grade and eighth grade math collages



In the collage on the left, completed as a seventh grader, I noticed that most of the contents on her collage had to do with gender, beauty, style, and behavior. She explained her choice of images and written text.

I put beauty because I have my own style, the way I put clothes together. I put behavior because I sit and listen to what the teacher tell us to do; I get work done. I put girl because I do what girls do. I put Beyonce because she's my idol. We have the same first letter in our name. Math is my favorite subject; I do well in it. I'm quiet. (Interview transcript, April 12, 2009, p. 1)

Beyonce was someone Shanika looked up to. She made one reference to her behavior in the math classroom and how she listened to the teacher, conveying her performance as a well behaved student. This contradicts what Baba John said about her. She used very little from the magazines, and instead hand wrote most of what she had to convey about herself. The empty space suggests that she might have struggled a bit with trying to convey who she was in her math class. Because of the size of the picture of famous African American singer, Beyonce, I got the sense that she wanted Beyonce's confidence and success.

Only one reference to mathematics was actually made, in which she said that she loves it. There are no representations of math in her collage, almost as if math sits on the peripheral of her identity. It could perhaps be a reflection of the fact that she did not want to be seen as a top student, a statement she made in her interview, and thus had excluded any trace of numeracy from her collage. My overall impression of her collage was that who she perceived herself to be in her math class had less to do with being a math learner and more to do with who she wanted to be.

Below is the analysis of Shanika's collage by an African American graphic arts designer.

As far as relating to beauty (and she's the first, surprisingly so, the first girl that used Beyonce)...this is their quintessential beauty icon; and so when you see her face it's like, you know, somebody that I look up to, more so than I think about math. This is what I see in this one. It's like she's struggling to find her own personal identity, beauty, and stuff and can't really even – maybe not even focus on math at all because of that...it has the most as far as how she sees herself...or struggling to see herself. (Interview transcript, May 25, 2009, pp. 13-14)

Again, this struggle that Shanika faces in coming to know her self is highlighted. This is also confirmed by how her mathematics teacher Mama Roshanda understands Shanika. He also notes that mathematics is not central, almost non-existent in her conception of self in the mathematics context.

Below is the analysis of Shanika's collage by an African American architect. Beyonce. So again, personalizing themselves in the likeness of someone else. But just three words cut out from the magazine, "beauty," "behavior," and, "girl." So there, as opposed to the more masculine one here, is fashioning themselves as, you know, status symbols. This person, who probably is a female shows only three words and they all are about herself image which is interesting about her beauty, her behavior and her femininity. (Interview transcript, March 17, 2009, p. 2)

Similarly, the architect senses that Shanika is mainly concerned with her appearance, gender, and behavior in the classroom, and the mathematics is virtually non-existent.

He alludes to a notion of Shanika seeing herself or wanting to see herself in the likeness of someone else, perhaps as I suggested earlier, she wants to look like and exude the confidence of her idol. Given that she has been teased by other students about her thin weight and shyness, it is not surprising that most of her identity centered around her appearance and particularly around someone who was bold, beautiful, and confident.



In the collage on the right, completed as an eighth grader, there were still no representations of mathematics, but I finally gained a sense of how she saw herself as a math learner. She explains her choice of words clockwise from superfly to friend.

I'm always quick to save my work, and quick to find the answer. [FN points to the word **think**] I think about ___ and I question right in my work. I help my friends in their work. I show love when I work. Life, if I grow up, and I'm on my own, math can help me enjoy life. Like money or work and all that. I'm lovely to the teacher. [FN points to the word **confidence**] Like if Mama Roshanda ask a question, I raise my hand because I'm confident about

the work. I'm the best in my class. [FN points to the word **superfly**] In my work, As and Bs ... [I was the] Math queen. (Interview transcript, March 18, 2009, p. 1)

I had more of a sense of the process that Shanika went through in doing mathematics, such as questioning the accuracy of her solutions. She used adjectives like quick, confident, best, and superfly to describe her perception of self as a math learner. Her reference to "math queen" is very significant. For Shanika to be the math queen, in a class of 25 or so peers, it meant that she was the girl who answered *all* her questions correctly.

Even the composition of this collage feels different; the space seems to be used quite efficiently. It appears clean, full, yet uncluttered, and structured in a circular fashion around the word love. I noted that there was no written text in this collage which also seemed to convey a certain confidence about her. The second collage seemed to reflect a student who had negotiated an identity of intellectual and social agency (helping her friends). Shanika negotiated an identity of participation and also reconciled her different forms of membership so that other demands for belonging would not compete with her membership as a math learner (Wenger, 1998). For Shanika, the "bad girl" group was a source of identification that resulted trying to fit in. As an eighth grader she re-directed her energies towards learning more challenging mathematics, helping other students, and retaining her power as an individual.

In summary, the general consensus among the mathematics educators was that Shanika was bright mathematically but was struggling with her self-esteem. Shanika

was a rare case in that her identity seemed to be in flux. She was able to transition between grade levels from a student trying to fit in, to a student who had confidence.

I conclude with perceptions of Robert.

Robert

Below is Mama Roshanda's perception of Robert within the context of doing mathematics.

Let's see, Robert, excellent excellent, excellent, excellent student. He was an A student since seventh grade. He was an A student in 8th grade. His critical thinking skills are tremendous. Robert is the type of individual [who] is so determined, he is not going to give up. He will challenge you. If he takes a quiz, or gets something wrong, he'll ask me how... He wants to be perfect. Sometimes Robert doesn't take his time; he wants to be done first... A lot of Robert's mistakes are computation error[s]. If he were to just take his time, you know, instead of getting a 90 he would have got[ten] a 100; so Robert, he doesn't like to get anything below an A. He's very, very outgoing. I saw Robert as a leader, because he'll quickly tell students 'now you know Mama Roshanda is not going to accept this. It has to be nice and neat; you have to show your work.' He gives you exactly what you want. His critical thinking skills are phenomenal. He is definitely proficient in applied concepts; he'll come back to class, you know, he might be somewhere out of the classroom, and come back and apply how he'll use what he learned from the [other] classroom and share that with his peers. One thing that I really admire about

Robert is [that] he truly takes his education seriously and that's definitely one of the things I admire about Robert... (Interview transcript, June 24, 2009, p. 3)

...I'm so impressed by Robert ... His leadership ability is just so powerful; so I see Robert as he's going to be the head of something. I always say he's going to be the president...I mean he is just awesome, you know, he was the president of his class here... he's just phenomenal. (Interview transcript, June 24, 2009, p. 7)

Robert's personal and positional identity was characterized by identification with doing work neatly, showing all his steps, understanding his errors, exhibiting leadership, but resistant to taking his time to perform the standard mathematical calculations that contribute to his errors. Robert was described as being able to transfer learned concepts in the classroom to circumstances outside the classroom. Cognitively, Robert possessed high critical thinking skills and was able to process the information well enough to receive the highest grades. Mama Roshanda used the adjectives proficient, phenomenal, and tremendous to describe Robert's mathematical competence. Robert described himself as an A student in mathematics who learned quickly.

Below was Baba John's perception of Robert within the context of doing mathematics in which he attended to Robert's external locus of control, suggesting that there were ways that Robert could have better control over his math learning.

I like Robert. Yeah, Robert is the type of brother...that could actually be brilliant...I see leadership in him. He's the type of brother that could be a leader...you know what I mean? A lot of times when he's in class, if something's going [on] and he'll try to help out...you could just tell like he has those kind of qualities in him. The one thing he needs to do is what I [call] humbl[ing] himself sometimes. What I mean by that is [that] a lot of times Robert thinks he knows more than what he actually knows. So when you[re] going over a concept [with him], he'll be like, 'Oh I already know that.' 'All right Robert, do this' and he gets it wrong. And it's like, 'oh man'; it's always '...oh it was this, oh that was'.... What you need to do Robert is take your time and don't – just don't be afraid to ask questions and if you don't know that's good, that keeps you open to learning. [Be]cause you wan[t] [to] stay open to learning. And so I'm trying to...work with him on that because sometimes he's just stubborn and gets the arrogance; and it's like, 'no, I know this already'.. So potentially, I mean he's the type of brother I could see him...in a few years, really, whatever he wants--, I haven't talked to him about what he wants to be, but I could see him being like a leader of something. He just has that kind of personality. (Interview transcript, March 18, 2009, pp. 4-5)

Baba John's perception of Robert within the context of math is similar to Mama Roshanda's with respect to his identification with leadership (by assisting other students) and resistance to taking his time when doing mathematics. Where his perception differed was with regard to Robert's resistance to being a humble student

who asked questions and to remain open to learning. Robert's behavior was characterized as stubborn and slightly arrogant which Baba John attributed to Robert thinking he knew more at times than he actually did.

Robert stated, "As a student I would say I follow directions. I'm respectful of my elders and I complete all my homework." He reflected on himself commenting, "Out of everyone, [when] they[re] joking and laughing, and I look around and realize I'm the only one that's focused and doing my work." This suggests that part of Robert's self concept is the importance of doing well in mathematics. This statement is an expression of math self concept, in particular, of getting good grades in mathematics and learning things quickly in mathematics. He believed that people who did not exhibit mathematical competence on tests did so because despite knowing the material, they did not take the tests seriously. He explained that he was motivated by teachers saying that he could not do something. From Robert's math collage, I gained a sense that he held himself in high regard as a math learner. Below is a snippet from his math collage.

Figure 11: Snippet from Robert's math collage



I asked Robert to explain each word on his collage clock-wise from advance to loyalty. He stated,

... I put advanced because my teachers, they like, wanted me to go in the **advanced class** because of how **smart** I was. And I put **balance** because I'm always balanced...put **quick** because I'm like a quick learner, and if there's an emergency and I don't hear what to do, I can pick up what to do... I put this one because I'm **loyal** and always doing my duty; I'm

respectful...Honor because I'm an honor student... and **personal courage** for like, I'm always encouraging people to do stuff, and I'm also courageous.
(Interview transcript, September 24, 2008, pp. 1-2)

An African American graphic arts designer commented “so he seems like he’s a thinker...he’s got a pretty decent grasp on himself.” According to Bong & Skaalvik (2003), Robert’s math self concept consists of statements about learning quickly in mathematics and being good in mathematics compared with others his age, as reflected by his use of the word advanced. Unlike Terrell and Shanika, Robert had consistently shown competence in mathematics, exhibited agency, and seemed to identify with all of the general and mathematical obligations of the classroom. It seems that Robert’s social identification as a leader encouraged him to perform at high levels (Wortham, 2006). During an interview he stated “I feel like education is the most important thing for you ... You give me all the opportunities in the world and I wouldn’t know what the right one was without education.” Robert’s source of identification was engagement, or the ways he engaged others and how those ways reflected who he was (Wenger, 1998). Through this mode of belonging, he negotiated an identity of participation, whereby he invested himself into his education and tried to get other students to adopt his behaviors (Wenger, 1998).

Comparisons and contrasts of how these three students met their obligations

Below I categorize these three seventh grade students along the lines of how they met their mathematical obligations and general obligations in Mama Roshanda’s classroom at the beginning of the study.

Table 10: Matrix of obligations

Mathematical Obligations			
General Obligations		High	Low
	High	Robert	Terrell
	Low	Shanika	

Robert seemed to be high in terms of meeting both the general and mathematical obligations of the classroom. He seemed to negotiate an identity that was compatible with Flower Academy’s figured world of math learning, where he valued education and adhered to the belief that he was capable of succeeding if remained focused and worked hard. Robert could be described as resilient, because he had an internal locus of control, was self-efficacious, and was involved in positive activities. Robert was similar to the middle school African American male students described in Berry’s (2005) study in that he was motivated to succeed in mathematics and school, expressed strong beliefs in his mathematical ability, engaged in positive self-definition; and identified his teachers as people who expressed care and provided encouragement and motivation.

Shanika, while meeting the mathematical obligations as a seventh and eighth grader, did not meet the general obligations of the classroom as a seventh grader. Shanika’s quest to avoid social exclusion by socially identifying herself as a “bad

girl” disrupted her learning, because she was busy doing other students’ homework. Her initial negotiation process brought about a role that was incompatible with Flower Academy’s figured world of math learning. Her negotiation as an eighth grader, however, brought about a role that was harmonious with this figured world.

In contrast, Terrell met the general obligations of the class, but could have done more to meet the mathematical obligations. His competing identity affected his math learning, because it caused him to focus on being cool rather than doing the work. In Stinson’s (2004) study of African American males practices of accommodation, resisting, and reshaping discourses about themselves as a part of their mathematical achievement, he found that some students engaged in cool pose. Majors and Billson (1992) contend that “cool pose is a ritualized form of masculinity often incompatible with school academics that allows Black boys to cope and survive in an environment of oppression and racism” (as cited in Stinson, 2004, p. 162). This is similar to what I saw with Terrell as illustrated by the pick in his hair that he wore in class, as well as his athletic feats. What feels different here, though, is that Terrell was not in a school environment where racism is overt, suggesting that something else is at play. For Terrell, this implementation of African-centered education had not been successful in helping him to abandon a cool pose stance (Majors, 1994 as cited by Stinson, 2004). His negotiation brought about a role that was not completely compatible with Flower Academy’s figured world of math learning.

The main parallel between Shanika and Terrell was that both had moments in which they did not want to apply themselves in the classroom. A secondary parallel was that both wanted to fit in, Terrell by acting cool, and Shanika by doing other

students' homework and being rude to the teacher. Boehnke (2008) found that high achieving middle school students across three different cultural groups tended to underachieve to avoid what he calls social exclusion and that girls were more likely to fall victim to peer pressure. These results help to explain why Shanika and Terrell were not fulfilling their potential. Unlike Terrell, however, Shanika eventually abandoned her resistance toward applying herself as a math learner.

Discussion and Conclusion

At Flower Academy in Mama Roshanda's class, these students were expected to do much more than just copy notes, complete numerous handouts, and listen to the teacher, which is probably linked to their enjoyment and interest for mathematics. There was no pedagogy of poverty in Mama Roshanda's classroom, a pedagogy which is typically found in predominantly African American settings and in schools with poor students (Haberman, 1991). The pedagogy of poverty is defined by Haberman (1991) as the teaching acts of giving information, asking questions, giving directions, making assignments, monitoring seatwork, reviewing assignments, giving tests, reviewing tests, assigning homework, reviewing homework, settling disputes, punishing noncompliance, marking papers, and giving grades which appeal to teachers who have low expectations for poor minority youth.

Students had access to math activity, such as Math Madness, that was characterized by movement, creativity, verve, and variability, features that have been attributed to the learning style preference and high performance of African Americans (Boykin, 1986). When mathematical activity is designed to generate interest and is

aligned with cultural patterns of behavior, African American students benefit. The benefit was that students perceived mathematics as enjoyable.

These African American students were being equipped with the necessary tools to succeed on the high stakes tests via quality instruction and allotted time for test practice shaping their perceptions of selves as competent. The practice testing in Mama Roshanda's class could be one kind of response to the call for African American students to perform well on these standardized tests of achievement in mathematics which so often serve to categorize these students as underperforming and underachieving in comparison to white students. The testing structure in this particular classroom seemed to aid in the development of their math identities by reducing math test anxiety. Testing was a mode of engagement that aided them in seeing themselves as a "capable math learner" (Anderson, 2007, p. 8).

I had limited data on the enacted mathematics curriculum. In addition, I did not have data on the role of peers in mathematics socialization. Finally, my results are based on the observations of one mathematics teacher.

From the data I was able to collect, I found that authored identities of students at Flower Academy were reflective of quality instruction, one form of competency support. Students' math self-concept statements were reflective of Flower Academy's expected goals of scoring proficient and advanced on the state test, teachers' expectations for high grades on classroom assignments, achievement in competitive situations, and the fun that they had during class and on Math Madness day. The student participants seem to be reflective of the normal population with

respect to not wanting to be perceived as know-it-alls, thus being assigned into the social category of nerd by their peers.

Within the context of the PVEST model, the overall findings in this chapter suggest that the absence of tracking, the rejection of deficit thinking about African American students' abilities, practice testing, praising, and engaging math activity help students respond to the risks of transitioning from arithmetic to algebra. The effect of these practices can be seen in the lack of mathematics anxiety on the part of the student. All of these things served as mathematical supports that aided adolescent African American students in developing emergent mathematics identities characterized by seeing themselves as capable learners and enjoyment for mathematics. There was then, a positive relationship between the practices of the school and the ways that these African American adolescents saw themselves as math learners. Ultimately, the school's mathematics practices presented opportunities for these students to construct healthy mathematics identities. To be a mathematics learner meant having social and intellectual agency and being a participant in a culturally responsive field dependent mathematical environment.

Mama' Roshanda's perspectives provided insight about who these African American students were as math learners along the lines of their mathematical skills, while Baba John's perspectives highlighted the challenges these African American students faced as math learners, specifically with wanting to fit in. Baba John had many opportunities to sit in and observe Mama Roshanda's students, while she taught, thus allowing him to comment on the other identities that students' brought to the classroom. The insights that Baba John provided regarding the challenges that

students face as math learners in negotiating the multiple identities that they brought suggest that this exploration of mathematics identities and practices does not completely tell the story of who these students are. An examination of the student's negotiations of racial identity and the school's racial and cultural practices will help to complete this story. This analysis will explore what it means to be an African American at Flower Academy in the context of math learning.

Chapter 5: Racial identities and African-centered pedagogy at Flower Academy

Introduction

This chapter fits into the overall story by exploring African American students' modes of racial identification, the racial, cultural, and identity development practices at Flower Academy and how students experienced their African American identities. This exploration serves as an aid in answering the following research sub-question: What is the nature of students' identities as African Americans and what school practices assist students in positive identity construction as African Americans?

It is the second in a set of three thematic analyses of the data collected in this study. Ultimately, I want to explore how this school supports the construction of racial identity and thus this chapter appears second in the data analysis. It does not build on what came before but will be integral in the next chapter in which I focus on the construction of both of these identities.

The chapter is sectioned into three main parts which taken together tell a story about what it means to be African American at Flower Academy. In the first part, I foreground racial/ethnic identity by exploring how students' negotiated their identities as African Americans. I focus on four themes: self identification, how they define Black racial identity; their understandings of racial inequality and discrimination; and how they embrace and escape their blackness.

In the second part, I discuss the school and its racial and cultural socialization practices to create a sense of the racial/cultural space in which these students were educated. I describe the school context and the non-mathematical practices that take place within the school. I include descriptions of the school, the staff and background of the teachers, African-centered education, the school's mission, vision, philosophy, and principles. I draw upon Martin's (2000) school theme in his multilevel framework for analyzing mathematics identity and socialization to describe the school as a potential support system for parents and students. I use Murrell's African-centered pedagogical practices to categorize the various practices within the school that define the culture of the school. I also share parent and student perspectives on Black racial socialization and on Flower Academy.

In the third part, I discuss how three students, Chantel, Ashley, and Elizabeth, saw themselves as African Americans. I also describe how their parents aided in their identity development. In a concluding section, I draw upon the three parts of the chapter to make an argument about the school's practices in relation to the students' racial identities.

Understandings and negotiations of race and racism: Embracing and escaping blackness

I draw upon Johnson's (2009) study of student and teacher negotiations of racial identity in an Afro-Ecuadorian region to organize my findings for this part. Johnson suggests that to understand the students' negotiations of their racial identities, I must first recognize how they self identify and then explore their understandings of racial

inequality and racial discrimination. In his study he found that some students distanced themselves from blackness. He uses the terms “embracing” and “escaping blackness” which I found to be helpful in describing these students. My findings are, therefore, organized around four areas: students’ self-identification, defining Black racial identity, understandings of racial inequality and racial discrimination, and embracing and escaping blackness. I will first describe the importance of exploring these four areas within the context of adolescence.

The importance of understanding how students self-identify

The construct of racial/ethnic identification is important to understanding adolescent racial identities (Scottham, Sellers, & Nguyen, in press; Sellers, Rowley, Chavous, Shelton & Smith, 1997; Spencer & Adams, 1990). “Ethnicity refers to a characteristic of shared unique cultural traditions and a heritage that persists across generations. It is not identical to race,” but can overlap (DeVos, 1982 as cited in Spencer & Adams, 1990, p. 292)

Ethnic and racial identification implies a consciousness of self within a particular group. Rotheram and Phinney (1987) define self-identification as ‘the accurate and consistent use of an ethnic label, based on the perception and conception of themselves as belonging to an ethnic group.’ (p. 17 as cited in Spencer & Adam, 1990, p. 292)

For adolescents in general, the question of “what one is” becomes increasingly difficult in the face of racial mixing, political and social implications for various

labels, and particularly affinities for various labels; racial labels may be confusing: Latino, Hispanic, White, Caucasian, etc. The terms colored, Negro, and Black were all used at one point to describe the people that have now been labeled by the U.S. census as African Americans. The racial label “African American” was introduced in 1988 by Ramona Edelin, the president of the national urban coalition, at a meeting of Black leaders in Chicago, Illinois (Smith, 1992). Jesse Jackson, a spokesperson for the Black leaders, felt that the term had more cultural integrity stating,

Just as you have Chinese Americans who have a sense of roots in China ... or Europeans, as it were, every ethnic group in this country has a reference to some historical culture base.... There are Armenian Americans and Jewish Americans and Arab Americans and Italian Americans. And with a degree of accepted and reasonable pride, they connect their heritage to their mother country and where they are now (Jet 1989; Lacayo, 1989; Newsweek, 1989; Williams, 1988a, 1988b as cited in Smith, 1992, p. 503)

The goal of using this label was to help Blacks to identify with their ancestral homeland and create a level playing field with white ethnic groups (Smith, 1992).

For youth of African descent, figuring out what to call oneself can become increasingly difficult because of their dual status.

The self-concept is likely to contain both personal identity and also racial identity - a sense of what it means to be both American and of African heritage. In this way, racial identity deals with the dual membership of African Americans. (Oyserman & Harrison, 1999, p. 1)

To illustrate the struggles that some African American students encounter in the process of self-identification, I introduce the narrative of an African American student named Maggie in Fordham's (1996) study of race and identity at Capital High. Below Maggie stated,

I consider myself as a Mongoloid...When I was small, people used to say I was yellow, right? So I really thought- I thought, I really thought I was yellow. I didn't think I was Black. I thought I was a Mongoloid. So all these...all this time I've been-well, not recently-I thought I was yellow until I got into...maybe around the sixth, seventh grade. Then my mother told me I wasn't yellow,'cause on the papers when we used to fill out, I used to put "Yellow" on it, you know, for "Black, White, or Other"? I would either put "Other" or put "Yellow" on it, 'cause people used to call me "yellow." And my mother told me that I was Black. (pp. 262-263)

This excerpt illustrates that Maggie did not understand: (1) that Mongoloid was an anthropological term used to describe people with yellowish-brown skin pigmentation and straight black hair that were indigenous to central and eastern Asia; and (2) that her skin color was not a socially recognized racial group label. Mongoloid is a term attributed to a person with Down Syndrome. The implication of this narrative is that it is important for parents and teachers to help African American children navigate self-identification. Some of students in my study were yellow, but yet did not refer to themselves as such. The students in this study did struggle with whether they should use the term Black or African American.

The importance of understanding how students define Black racial identity

What does it mean to be Black? How adolescents understand racial identity is important because it helps us understand the attributes that adolescents ascribe to belonging to a racial group and the meanings behind membership in a particular group. Caldwell, Zimmerman, Bernat, Sellers, & Notaro (2003) found that the meanings that African American adolescents give to their racial identity might be critical to their psychological well being. Unfortunately, meanings for being African American in this society are bound by stereotypes and negative perceptions. Below, an African American student named Martin in Fordham's (1996) study of predominantly African students at a high school states,

Like I said, they [Black Americans] don't care. That's what I say. They don't care... I mean, they'll stand out on the corner, smoke marijuana and all that. And I think it's –I don't know why nobody...you know, they won't get theirselves together, but I think that they just don't care... They don't try...'cause most of them rob and steal...(p. 277)

Martin seems to have a very negative image of African Americans and there is a lack of pride here on the part of Martin regarding African Americans.

A student named Paul stated,

To me, Blacks really don't have a culture in America. They do, but it was the sort of things that have developed from being in America. They aren't like Africans or other people of that type. They don't actually have their own culture. I mean, the things that we have in America are really a White culture

with maybe,...with Black cultural survivals, that type of thing...Blacks have a culture all their own, but their culture doesn't deviate that much from White Western society...Blacks judge other blacks according to white standards... (p. 280)

Paul seemed to belittle the African American culture that emerged from the enslavement of African Americans or really acknowledge that African culture is part of Blacks' culture. He suggests that Black culture does not deviate much from White culture and that standards of Blacks are White standards. The nature of these comments suggests that African Americans may need the assistance of a school like Flower Academy to help them reclaim their own culture, a culture which originated in Africa but which became dismantled by the enslavement process.

The importance of understanding students' understandings of racial inequality and racial discrimination

Adolescents may develop identities of academic achievement as a response to racial discrimination (Sanders, 1997). In some cases, students affirm their ethnic and racial identities in response to understandings of racial discrimination through self-segregation (Tatum, 1997). Understanding how adolescents perceive racial inequality and racial discrimination helps us to understand the psychological stresses that adolescents face (Phinney & Chavira, 1995).

The importance of understanding students' embracing and escaping of blackness

One goal of adolescence is to achieve a coherent identity which may include ethnic and racial identity (Marcia, 1991).

In figuring out whom they are “Black youth must struggle to create a sense of self that is both interdependent and independent, achieving and connected ...connectedness with the Black community and heritage. (Oyserman & Harrison, 1998, p. 4)

Adolescents may not necessarily achieve this connectedness with their heritage. In Fordham’s (1996) study Paul stated,

Everybody’s sort of trying to lean toward a Uncle Tom type. They don’t- nobody likes it if you play up to a White person or that sort of thing, they don’t really like that. But they will try and be White. Look at the dress and hair styles and clothes styles. Nobody would be caught dead with a big bush- nobody. I mean, they would die... And nobody would be caught with red, green, and black on... (p. 281)

Paul essentially stated that students at Capital High did not want to wear hairstyles that could be viewed as too Black or African and would not wear red, green, and black colors representative of black liberation (As quoted in a Bob Marley song, red is for the blood that flows like the river, green is for the land Africa, Black is for the people they looted from so Marcus [Garvey] says). This suggests that those African American students were not comfortable with who they were and did not want to be affiliated with African liberation symbolism.

In some cases, adolescents tend to be cruel to those who may have a certain skin color (Erikson, 1950). For African Americans, the origins of this cruelty projected by Africans towards other African Americans, lies in the enslavement of Africans. Throughout slavery, slave masters had sexual relations with their black slaves and fathered children. Some African women were raped by the slave holders whilst still on the slave ship en route to various locations in the New World (Muhammad, 2004). This interbreeding between white masters and black slaves created a class of African Americans that were noticeably lighter than black slaves who were born of slave parents.

The first generations of lighter skinned African Americans were labeled mulattos, second quadroons, and third, octoroons. Some of these lighter skinned African Americans were even mistaken for being White. This racial mixing between master and slave can be described as a strategic process intended to create division between lighter skinned and darker skinned Blacks. The lighter skinned blacks were deemed more favorable, sexually desirable, and more intelligent. Their privileges included less strenuous work, residence in the master's house, and in some cases education. This was attributed to their more European features, skin color, and hair texture (Keith & Herring, 1991; Hughes & Hertel, 1990).

Darker skinned Blacks, on the other hand, were viewed as incompetent animals and were relegated to hard field labor, forced to live in slave houses, and fed the unhealthy leftovers of animals, like the pig. In addition, they were not allowed to learn to read or write, tasks that were punishable by death. Their treatment was attributed to their more African features: broad noses, dark skin, and kinky hair. This

variation in the treatment of lighter and darker skinned Blacks was done to create bitter sentiments between lighter and darker skinned Blacks and ideally keep them from uniting to escape their oppression (Heaggans, 2003; Hassan-El, 1999).

One consequence of the interbreeding that occurred during the enslavement process of Africans, was that it caused darker skinned Blacks to hate their skin color and other African features and pine for lighter skin (high yellow, redbone) and finer features. Some African Americans today (4 centuries later) still hold deep seated beliefs about lighter skin being “better” than darker skin, a consequence of the psychological damage of the enslavement practice. These individuals tend to marry lighter African Americans, alter their own features to achieve an alleged better appearance, or make derogatory remarks about those individuals with darker skin. Some even go to the extreme of staying out of the sun so that they will not get darker. These could be viewed as practices of self-hatred by psychologists. Some African Americans cringe at the thought of being called an African because of Africans’ dark skin. The message that lighter is better is reaffirmed by the hiring practices of agencies and the images portrayed in the media.

Self Identification findings

I draw upon interviews, self-portraits and collages to discuss students’ self-identification. I also draw on the results of the racial centrality scale of the MIBI teen to discuss the students’ self-identification because the MIBI teen was created specifically for adolescents. Racial centrality refers to the extent to which an African American defines him/herself with respect to race. A high racial centrality score

suggests that race is very significant in an African American adolescents' self-concept. The centrality scale of the MIBI-teen which seems to capture sentiments about feeling a sense of relatedness to the Black racial/ethnic group consisted of the following three statements.

1. I feel close to other Black people.
2. I have a strong sense of belonging to other Black people.
3. If I were to describe myself to someone, one of the first things that I would say is that I'm Black.

Below were the scores on this dimension. Scores were obtained by taking the average of the values the students assigned to each of the three items.

Table 11: Centrality scale scores

	Shanika	Maxwell	Chantel	Ashley	Elizabeth	Robert	Terrell	Malcolm
Centrality	3.33	5.00	3.67	3.67	4.33	5.00	3.67	3.67

Robert and Malcolm described themselves as “Black African American” in their self portrait descriptions. Robert’s mother self-identified as Black and Malcolm’s father described himself as being “mixed with Sioux, Italian, Irish, and German” in their interviews. During the focus group interview, Maxwell self-identified as African American. His mother also self identified as African American. Shanika was neutral on the item, “If I were to describe myself to someone, one of the first things that I would say is that I’m Black.” This suggested to me that she only partially self-identified as Black and/or African American. Shanika’s mother self identified as African American.

In Chapter 4, Robert and Maxwell were described as students who steadfastly identified with general and classroom obligations and socially identified as focused

and intelligent math learners. Robert, in particular, was characterized as a leader. I notice that both of these students scored the highest on the racial centrality dimension. Shanika, who was described as a student struggling with issues of self-esteem, had the lowest score. According to Crocker, Luhtanen, Blaine, & Broadnax, (1994); Phinney, (1996) as cited in Eccles, Wong, & Peck, (2006),

“social psychological research indicates that feeling a sense of relatedness to one’s ethnic group is associated with higher self-esteem ...for Asian Americans, Hispanic/Latinos, and African-Americans.” (p. 411)

This explains why Shanika’s racial centrality score was so low. At the start of the study, I did not know that there was a relationship between self-esteem and feelings of connectedness to one’s racial/ethnic group, and thus I hypothesized that because these students were in an African-centered setting, that all would have scored 4.0 and 5.0’s on this dimension. The most variation within the student responses occurred on the second item, I have a strong sense of belonging to other Black people. In particular, Shanika disagreed to some extent with this statement. Her sentiments were probably connected to being teased by other Black students.

Terrell described himself as African American during the focus group interview and his mother self identified as both Black and African American in her interview. During the focus group, Ashley stated, “I don’t consider myself anything,” yet Ashley described herself as Black in her self portrait description and wrote, “I see myself as a Black person who’s been around a long time.” There is a contradiction here. It was not clear from the interview data how her mother self identified.

Chantel assigned a value of 5, or really agree, to the item, “If I were to describe myself to someone, one of the first things I would say is that I’m Black.” Her mother self identified as Black, but commented that she did not like to describe herself in terms of race, but rather preferred to see the value of people instead.

Elizabeth was neutral about the statement “If I were to describe myself to someone, one of the first things that I would say is that I’m Black.” Her mother expressed that she did not like either of the labels of African American or Black and instead described herself as “a whole lot of things, lot of blood mixed up in here.” Elizabeth’s mother stated that her mother was full blooded Indian (Native, not East) and that her father was Black.

At the end of our focus group discussion, most of the students agreed that they would self-identify as African Americans. This too is interesting because some African-centered schools would want their students to self-identify as Africans or ‘Africans in America’ a phrase that scholar Asa Hilliard used to identify himself (Hilliard, 1997). He felt that this label was more appropriate. He stated,

We began to refer to ourselves as “negroes”, “colored”, “blacks”, “minorities”, “disadvantaged, at risk”... Were these names derived from Africans or were they one of many outside efforts to deny and suppress our cultural heritage and unity? In any case, the use of such names to refer to a group of people effectively serves to remove them from time and space. They become a people without a tradition, without a homeland... Whitening is the process of absorbing Africans into the culture of their oppressors. This makes

them less threatening... In fact, whiteners often push a color blind melting pot theory of inclusion that claims to stress the value of all cultures ... (pp. 32-33)

For Hilliard, the label African American was not enough to connect “African Americans” to their heritage and, additionally, made them seem less African and less threatening.

Defining racial identity findings

Seven of the eight students represented themselves as being a person of African descent either in their self-portraits and/or their self portrait descriptions in terms of skin color and hair texture more specifically. Despite their representations, questions did surface about what it meant to be Black. During the focus group interview Chantel asked, “what’s the difference from being African American and from being Black?” I probed the students about what they thought the difference was.

FN: I don’t know, what do you guys think?

Student: Same thing.

FN: You think it’s the same thing?

Maxwell: I think it’s different, because black is just a color.

FN: Black is just a color, but African American is what?

Maxwell: Like a culture. (Interview Transcript, May 20, 2008, p. 2)

Maxwell seems to be making a distinction between Black and African American along cultural lines. For him, the term Black as a racial descriptor does not attend to the aspect of culture, while the term African American does. This perspective was interesting to me. I note that the standard dictionary defines black as dark, harmful, and threatening, words that all have negative connotations attached to them. The

dictionary's definition suggests that black is more than just a color, but an ominous force almost. This definition reinforces that black the color, is not a nice word, and that maybe African American, has a more favorable connotation.

During the focus group interview, some students seemed to make distinctions between African Americans and people of other races. The following is an excerpt from our dialogue.

Elizabeth: I think it's different because [if] you just a person, you could be any race, but if you African American, that mean you, you, it's just different.
FN: It's just different; how is it different?
Chantel: 'Cause if you a person, you can be any race; but if you African American you African American.
FN: Okay, so you're saying if you're African American you can't be-
Chantel: Another race. (Interview Transcript, May 20, 2008, p. 3)

Elizabeth begins by implying that being African American is different. Chantel elaborates on this point by highlighting that "a person" can represent a member of any of the other races, but that an African American can only represent a member of the African American racial group.

What was interesting was that Elizabeth and Chantel seemed to be consciously making a distinction between "a person" and an African American, suggesting that either the African American was not a person at all, or a particular kind of person. I interpret Chantel's first statement "cause if you a person, you can be any race; but if you African American you African American" to mean that "a person" can navigate racial boundaries, while an African American cannot. Their comments are significant, because they complicate the colorblind rhetoric that we are all the same and that race does not matter.

Robert was the only student participant who assigned a value of 1 (really disagree) to the following items: Being an individual is more important than identifying yourself as Black, and Blacks should think of themselves as individuals, not as Blacks. This response suggests that for him, being Black is different from being an individual or as Elizabeth phrased it “just a person.” In the next few paragraphs, I discuss student and parent participants’ experiences of being Black/African American in a broader societal context.

Understandings of racial inequality and discrimination findings

“Members of devalued sub-cultural groups may have very different experiences from those more in the mainstream” (Spencer, 1999, p. 48). Below is an excerpt from the focus group interview in which Terrell shares one of his experiences.

Terrell: There was one time when I was at a basketball game at my school. We was playing against a team, and they had mostly white kids on their team; one time one of the players had fouled us and they called me nigger...I was mad.

FN: But you couldn’t do anything?

Terrell: I could if I wanted to.

FN: But you chose not to; why?

Terrell: ‘Cause I didn’t want to get thrown out the game.

FN: So you chose to stay in the game; good choice. (Interview Transcript, May 20, 2008, p. 15)

Terrell had described an event in which he was subjected to racial slurs within the context of athletics by a team of identifiably white players. It caused him to become upset, but he had to withhold his emotions in order to stay in the game. His mother’s narrative about what it meant for her to be African American provided insight into the emotional restraint that her son and African Americans have to invoke in order to

effectively deal with racism. She stated, “I think that black people are very strong will-minded. And I’m glad I’m Black. For real, I don't know if I could cope being any other color right now.”

Terrell’s mother’s response highlights the resilient nature of **Blacks**, a consequence of slavery and daily dehumanization that accompanied this. These are traits which continue to characterize many African Americans because of their desire to overcome obstacles. She makes her racial pride explicit immediately thereafter. For her being Black requires a very tough skin, and yet an attitude of defeat is absent from her statements.

For Ashley, the experience of being African American includes being stereotyped. During the focus group interview Ashley gives an example of the stereotypes that African Americans are ascribed in society. She stated, “Black people like you love hot sauce,” a comment that her stepfather made. According to Spencer & Adams (1990), “the preponderance of negative stereotypes about minorities in general is also counterproductive to acquiring a solid sense of self” (p. 303). Sellers, Morgan, & Brown (2001) stated, “African Americans are treated poorly on a regular basis because of their race.” Ashley’s mother’s narrative on what it meant to be African American reflects this poor treatment. She stated,

Being an African American, you[’re] looked down on more than if you [were] white and it [is] harder to get jobs. It’s, you know, it’s not because you’re African-American but if you [were] white, it wouldn’t be so hard. (Interview transcript, October 27, 2008, p. 5)

Ashley's mother's response alludes to racial inequality, covert racism, and white privilege. She equated being African American with difficulty getting access to the same opportunities as whites. She suggested that African Americans were not looked down on because they were African American, but because they were not white. She may be alluding to the notion of marginalizing or "othering", whereby racial and socioeconomic markers served to socially differentiate African Americans and make them seem deviant (Briscoe, Arriaza, & Henze, 2009; Hooks, 1990).

Similar to Ashley, during our focus group interview Maxwell gave an example of the ways that African Americans are stereotyped in society. He stated that people might say things like "they know how to throw down a barbecue" where they, refers to African Americans. In response to a question about what it meant to be African American, Maxwell's mother stated, "the struggle to get freedom for so long and just the fact of having freedom." His mother's response sounded like that of a freed slave. I interpreted her response to be a reaction to enslavement and the struggle for humanity.

When I asked the students during the focus group interview if they had experienced discrimination, they interpreted the question to mean, "had they experienced discrimination at Flower Academy." The response was "discrimination? Ain't no White kids!" I interpreted this to mean that for these students discrimination is directly linked to the presence of Whites. Elizabeth was the only student participant who assigned a value of 1 (really disagree) to the following racial identity item: There are other people who experience discrimination similar to Blacks. This was important because she was essentially saying that the experience of African

Americans as a racial group was unique. I gain a clearer picture of why Elizabeth responded in this manner, from the interview with her mother.

I didn't understand as a Black person, the people, that we were being crucified like we were. We were-you know, they [were squirting] the water hoses on us and siccin[g] their dogs on us and we had to run... (Interview transcript, March 24, 2009, p. 3)

I learned that Elizabeth's mother witnessed the civil rights era firsthand. Her response illuminated the prejudice that African Americans faced because of their race.

Robert's mother's narrative on what it meant to be Black in society serves as a direct contrast to the narratives of the other parents. She stated,

Black. What it means for me to be Black...in society? Other than to show my children that color does not matter, it really comes to anything you [want to] do in life. The knowledge you have has no color. It will take you far as you [want to] go. (Interview transcript, December 17, 2008, pp. 7-8)

Spencer & Adams (1990) would classify this response as one which

Indicate[s] a parental focus on the rearing of "human beings" versus the more reality-based conclusions that they are socializing human beings who happen also to be people who are negatively stereotyped by the larger society as a function of color, racial group membership, or ethnicity. It is argued that this reluctance may reflect a defensive strategy on the part of the parents that

leaves their children exposed to the continuing problem of racial intolerance, albeit expressed in subtle forms (p. 303)

Color however does indeed matter in this society. It has been documented that many African Americans have been refused employment for example precisely on the basis of color (Bertrand & Mullainathan, 2004; Darity & Mason, 1998; Mays, Coleman & Jackson, 1996; Mays, 1995). Her response is, however, connected to her choice to send Robert to Flower Academy, a place where color did not matter. For Robert's mother, being Black meant knowing that your race was not a marker for intelligence and what could be achieved. These various student and parent responses highlighted the hardships of being African American, the struggle, and the necessary strength for daily survival.

Embracing and escaping blackness findings

I begin with a general discussion of the students' feelings about themselves, because it is an important element of adolescence. Below are the statements the eight student participants made in response to the question "How do you feel about yourself and the way you look?"

I feel good about myself and the way I look, I look beautiful-Chantel
I feel as though I shouldn't worry about the way I look. It's what I know. That's what's gonna take me places, not how I look-Robert
I feel good-Shanika
I feel good about the way I look and myself-Terrell
I'm comfortable with how I look. I'm not ugly any more-Nasty-Elizabeth
I feel proud of the way I look, because that's how God made me-Maxwell
I feel good-Malcolm
I love the way I look...my body, the way I talk, and the way I stand...[I would change] my teeth (the front teeth protrude slightly)-Ashley

These statements suggest that the students had very high self esteem. Self-esteem can be defined as “the extent to which one prizes, values, approves, or likes oneself”

(Blascovich & Tomaka, 1991, p. 115)

Shanika did, however, describe some struggles that she had with the other students, which according to her teachers impacted her self-esteem.

FN: Do any of the other students ever tease you about yourself? And if they do, how do you handle it?

Shanika: Well they do. I just ignore it. Keep on moving.

FN: What are they teasing you about?

Shanika: I don't know; about weight and all that. (Interview transcript, March 18, 2009, p. 4)

I recalled an incident in the classroom in which Elizabeth was placing pieces of paper in Shanika's shirt from behind and Shanika was yelling “Stop!” while Elizabeth just laughed and laughed.

Children who are teased or picked on by their peers at school are more likely to do poorly in school, to have low self-esteem, and to feel lonelier than children who are not so victimized (Kochenderfer & Ladd, 1996; Ladd, 1990; Wentzel & Asher, 1995 as cited in Eccles, Wong, & Peck, 2006, p. 409)

This evidence provides a rationale for Shanika's perceived low self-esteem.

Now, I focus specifically on the students' feelings about being African American and about having African/African American culture. Racial regard (public and private) refers to an African American's judgment of their race (I will only be focusing on private regard). A high private regard score suggests that the African American adolescent holds more positive than negative attitudes toward African Americans. The private regard scale of the MIBI-teen (an instrument used to measure

the racial identities of adolescent African Americans) which seems to capture sentiments about being African American consisted of the following three statements.

1. I am happy that I am Black.
2. I am proud to be Black.
3. I feel good about Black people.

Below were the scores on this dimension. Scores were obtained by taking the average of the values the students assigned to each of the three items.

Table 12: Private regard scale scores

	Shanika	Maxwell	Chantel	Ashley	Elizabeth	Robert	Terrell	Malcolm
Private Regard	4.67	5.00	5.00	5.00	5.00	4.67	5.00	5.00

All eight students scored between a 4.5 and a 5.0 on this measure which indicates that they held very positive beliefs about African Americans and felt very positively about being members of the African American community.

These high scores are important because historically society has not made it easy for African Americans to feel happy, proud, and good about themselves as African Americans. One reason why African Americans may not feel happy about being African American is because African features have traditionally been devalued. African Americans have felt unattractive because of their broad noses, dark skin, and kinky textured hair. It is a problem that continues to exist today as evidenced by African Americans who lighten their skin and in some cases have plastic surgery to narrow their noses. Some argue that processing of one’s kinky hair is a practice of self-hatred; this is a controversial issue within the African American community.

African American figures like James Brown created songs with lyrics “say it loud, I’m Black and I’m proud” to boost the morale of African American people.

Singers Donny Hathaway and Roberta Flack belted out the lyrics “be real Black for me.” Rapper Tupak Shakur rapped “the darker the skin the deeper the roots.” Stokely Carmichael (Kwame Ture), a key figure in the black power movement, coined the phrase “Black is beautiful.” These mantras served as a way to assist African Americans in feeling good about themselves and their people in light of their experiences with racism and discrimination.

Mama Cheryl stated,

You know, that’s interesting because one of the things about Flower Academy and the children that attend that school [is] that, you know, children-;...I guess it could also just be the area...in which you live; but [the] children are very much comfortable in being who they are in their own skin...When I compare Flower Academy to other schools, we don’t have as much of the teasing about, for example, light skin and dark skin, not that it doesn’t happen, but...it’s just, it just seems so unnecessary. And I think the children feel it’s unnecessary. It’s nothing to see children, boys and girls, with natural hairstyles, and particularly with the girls and natural hairstyles, they’re not teased or made to feel, you know, in any way inferior. And particularly when you get to middle school and upper elementary grades that is, a girl’s hair can be a source of great pain...The comments that are made about their hair, but that just doesn’t take place at the Flower Academy...I think that’s wonderful, because...all the children, boys and girls, can feel comfortable within their skin..., they don’t want to perm their hair, or they want to grow locks. They see so many people around them just doing something that isn’t frowned on at

all. And I think that's really great in regards to their identity as children of an African people. (Interview transcript, June 11, 2008, p. 5)

The issue of skin color is a problem, but she suggests that the students know better even though they still engage in teasing. Her mention of the comparison between Flower Academy and other schools suggests that there is something different occurring here. Because the school is intentionally segregated, the students view natural hairstyles as the norm, and not something that "others" them. The comment that students do not want to perm their hair, from some psychological standpoints, suggests that they do not desire to look European.

Their feelings about being happy to be Black may be influenced by their parents and their teachers. Half of the female teachers and all of the male teachers wore their hair in non-processed styles, mainly locks. Some also dressed in African garb. This sent a message to their students that it was okay to wear your hair in a non-Eurocentric style and dress in ways that countered the dominant modes of dressing. Mama Cheryl highlighted the benefits of having African American teachers who are comfortable with who they are sends a message to students that being who they are racially is acceptable. Her description feels different from the literature which documents the pains that African Americans undertake in trying to be African American, particularly in settings that are predominantly white.

These pains of navigating identity in educational settings include African Americans feeling like they have to dress in modes that conform to dominant culture, having to speak in the dialect of the dominant culture, and wear hairstyles that are more Eurocentric in order to be accepted (Fordham & Ogbu, 1986). In extreme

cases, some African Americans have recalled feeling rejected by their family and friends for sounding too white or dressing too white, being called an Oreo (derogatory term used to describe a person who is black on the outside but white on the inside) or being accused of forgetting where they came from, and feel socially isolated (Omari & Cole, 2003). In this school both Standard English and Black vernacular English were valued for different social contexts.

These students might feel pride because of the positive messages that they received from their parents about the worth of African Americans. During a focus group interview, the students discussed what their parents told them about being African American.

FN: ...all right, so growing up, how did your parents talk to you about being African American?

Ashley: That I should I love it.

FN: You should love being African American? You agree?

Ashley: Yes.

FN: How about you?

Elizabeth: That you should be proud of it.

FN: That you should be proud of it; what else? Is all they say you should love it and be proud of it.

Malcolm: You should honor it.

FN: You should honor it. Okay, honor it how?

Malcolm: Respect it.

FN: Respect it.

Malcolm: Be thankful.

FN: Be thankful for it; do they say why?

Chantel: [Be]cause that's what you were born to be; that's what God wanted you to be. (Interview transcript, May 20, 2008, pp. 3-4)

I note the use of the verbs love, proud, honor, respect, and the noun God. The word respect and the underlying meanings of the other words are reminiscent of the language used in Flower Academy's principles and philosophy. These responses are what Jackson & Gurin (1987) as cited in Demo & Hughes, (1990) would refer to as

being taught to take a positive group-oriented integrative/assertive attitude in terms of racial pride and the importance of black heritage. These parents have instilled in them a certain pride that they should have as African Americans. This instilling of pride most likely has its roots in the Black power movement.

Terrell's mother stated,

Oh well, I let him know that- well with the president that we have, I told him if you know **if we can get a Black president, you can be anything you wan[t] [to] be.** And I just encourage him to – **all I want him to do is go to school to get an education.** I worry about everything else; the payin[g] the rent, the grocery, you know the clothes. And I'm – you know, **I tell him that Black people are important** [be]cause I think we're very important. And just be himself. Don't be a follower, be a leader. (Interview transcript, December 17, 2008, p. 6)

Her comments seem influenced by the fact that the current president of the United States is half Black, the first president of African descent in a long line of White presidents. Implicit in these comments may be that Terrell can use the fact that the president has African ancestry as motivation and as a buffer for experiences with prejudice and racism (Constantine & Blackmon, 2002). She stressed her desire for Terrell to educate himself. I noted her explicit wording, "I tell him that Black people are important." This feels different from some of the other conversations. Here I get the sense that she is trying to help Terrell see the value in himself and his racial group. Spencer & Adams (1990) would see this kind of talk as an example of an

African American parent confirming the worth of Black people “as a mechanism for offsetting cultural identity confusion” (p. 302).

“Other work with adolescents of color indicates that building a sense of connection to one’s heritage group is intertwined with emphasizing achievement and discussing discrimination” (Branch & Newcomb, 1986 as cited in Eccles, Wong, & Peck, 2006, p. 423). This is illustrated in Terrell’s mother’s description of her conversation with Terrell in which she not only talks about wanting her son to get an education, but also highlights the importance of Black people, thereby helping Terrell to feel connected to his Black heritage.

In an attempt to affirm African culture, Malcolm’s father had specific conversations with Malcolm. He stated, “I try to teach my kids as well about the background that we have and who we have as our ancestors...because we follow in their footsteps... Yes, **our African ancestors...**” This message seemed designed to teach Malcolm about African culture (Constantine & Blackmon, 2002).

Racial ideology, the third scale in the MIBI teen, refers to an African American’s beliefs, opinions, and attitudes about how members of their race should behave. One sub-dimension of racial ideology is assimilationism. A low assimilationist score suggests that the African American adolescent does not feel inclined to assimilate or completely abandon their cultural ways in favor of the dominant culture. The assimilationist subscale of the racial ideology scale of the MIBI-teen which seems to capture sentiments about the dominant culture consisted of the following statement.

1. It is important that Blacks go to White schools so that they can learn how to act around whites.

Below were the scores on this item.

Table 13: Item #10 from the MIBI-teen

	Shanika	Maxwell	Chantel	Ashley	Elizabeth	Robert	Terrell	Malcolm
It is important that Blacks go to White schools so they can learn how to act around Whites	1.0	3.0	1.0	1.0	2.0	1.0	3.0	2.0

Six of the eight participants either really disagreed or kind of disagreed with this statement (1.0, 2.0). This indicates that the students did not feel a need to assimilate into the dominant culture.

These findings led me to believe that these students embraced blackness, but I learned that in other ways, the students within the school were trying to escape blackness. This is due in part to the enslavement of African Americans which created division among African people of the Diaspora and has created a cultural disconnect between African Americans and their African American descendents. Research has shown that separation exists between Africans, African Americans, and Caribbean Blacks, whereby no one wants to identify with the other while ironically, all are historically connected. The self-hatred that was cultivated among enslaved Africans because of their African features has been transformed today into self-hatred by some African Americans in the form of devaluing African people who depending on their country/region of origin, are much darker skinned than some African Americans.

Below I illustrate this cultural disconnect with comments made by African American students at Flower Academy (not necessarily the student participants) about themselves with regard to Africans. Baba John stated:

Miss was going on and on about, you know, ‘these Africans and these Africans.’ And she apparently had some discussion with some people out in the street. ‘Some African and I don’t like Africans.’ ... ‘I’m not African! What you talking about? I ain’t.’ That’s like a cuss word... Yeah, she was like, ‘I’m not African’. They[‘re] different from us. They[‘re] different.’ ... ‘I don’t come from no Africa!’ (Interview transcript, March 17, 2009, pp. 15-16)

The phrase “these Africans” that was used by this African American student signifies intent to consciously separate herself from her ancestors. Her further mentioning of “I don’t like Africans” is a direct sentiment of dislike and may imply that Africans are bad in some way. The statement “I’m not African” further serves to distance herself from Africans from the continent. The interpretation of this sentiment however is complex.

On the one hand, some might argue that ancestrally, all African Americans are African; and on the other, some might argue that because African Americans have been culturally disconnected for so long from Africans, that they are not African. In the statement “I don’t come from no Africa,” the student is essentially shunning the very continent of her ancestors. Here again, it is implied that “Africa” is negative. These sentiments are directly related to the poor treatment of people with African features as well as the portrayal of Africa as a “dark” continent of primitive people

stripped of their resources. “The way blacks within this society negotiate the contradiction of their heritage as Africans and Americans plays a major role in shaping their individual racial identities” (Sellers, Shelton, Cooke, Chavous, Rowley, & Smith, 1998, p. 275).

This quote highlights what Dr. W. E. B. Dubois (19th-20th century civil rights activist, historian, and author) referred to as two souls at war, one African and one American fighting each other. For Baba John, who is African American and Ghanaian, having these students acknowledge that they are connected to Africans was important.

Below he explained how he countered their negative remarks about Africans.

For me that’s a big thing, because I had a discussion with one of my students last year, ... And I said, ‘Do you realize that what you’re saying is a form of self hate?’ And we – I shut the class down. **So the whole math lesson was out the window at that point.** I had to...get into it with the students in terms of just having a discussion. And I was telling them...‘That’s a form of self hate [is] what you’re saying. So you realize you’re African?’... I said, ‘The only thing that’s different, you know, you have a little – your accent is a little different. You have an American accent because you grew up here.’ But, I said, ‘if you go there...people gonna look just like you. Literally look just like you and look just like me.’ I said, ‘Why? Because that’s where we come from.’ And so, you know, we got into this whole thing. So I was trying to open their eyes to get them to not be ashamed and embrace it and say, ‘Hey, that’s a beautiful thing.’ (Interview transcript, March 17, 2009, pp. 15-16)

Baba John attempted to get the students to think about themselves as Africans who have been displaced, by recognizing that even though they don't live in Africa and have American accents, they are African. Baba John also tried to get his African American students to see the African aspect of their cultural identity as something that existed, and something that was beautiful. Because Baba John's father is African American and his mother is Ghanaian, thus his talks to the students come from a place of authenticity.

Even though seven of the eight students in this study self-identified as Black or African American, some of the students at Flower Academy (which may or may not include the students in this study) shunned African Americans with darker skin. Flower Academy, even with its all African American student population and its African-centered pedagogy, was still plagued by the problem of the color line (Dubois, 1903). Mama Cheryl seemed to downplay it. What was promising, however, was that Mama Roshanda and Baba John confronted it with their students and tried to counter it. I will now discuss the sentiments that the students had about light and dark skin and the conversations that their math educators had with them about skin color.

The passage below by Mama Roshanda, highlights the problem of the color line at Flower Academy.

You know, you hear them say "Oh he's so black" or "he's so light"...And of course, the negative things they say to each other is playing, because its so accepted in culture that they've grown to think its okay to say "oh you black nigga." I hate that or when they're playing they'll come up and say 'oh you're

so black’, or ‘dark’, or you know I hear this in their everyday conversations they say ‘dark skin guys aren’t cute’ or ‘light skinned girls’, or ‘I only like light skinned girls.’ (Interview transcript, July 15, 2008, p. 6)

Skin color is a means for identification for these students, a way perhaps of singling other students out. It is interesting to note the use of the terms “black nigga”. Nigga is a term that is frowned upon by some members of the African American community, particular those of the older generations because of their deep and profound experiences with racism. For them nigga is not distinguished from nigger and conjures painful remembrances of the brutality that African Americans were subjected to. Being a nigga, might be viewed by adolescents who identify with rap music for example, as being some ones friend or home-boy/girl, a term of endearment, but in conjunction with *Black*, it takes on a new tone. It becomes darker, less endearing, and more intentionally degrading. The meaning may be more in alignment with “black nigger” a phrase that slave masters and KKK members might have been inclined to use to refer to a slave as a way to emphasize their perception of the American Negro as dumb and ignorant. This use of the terms black nigga by the students could be perceived as a subconscious form of self-hate.

From comments like “Dark skinned guys aren’t cute”, it becomes clear that black or dark skin color is in opposition with beauty. During the segregation era, if an African American passed the brown paper bag test then they were considered to be okay in terms of a level of attractiveness, meaning that they are no darker than the shade of a brown paper bag. The fixation of African Americans with light skinned girls with café au lait complexions is fostered by the depiction of African American

women in film playing the love interests of African American men. These women are usually lighter and have long hair. Darker skinned African men in the media are usually portrayed as villainous and threatening, and thus may be perceived as less desirable by African Americans. Some African American parents have been known to tell their children not to bring home dark skinned mates because of fear that they would produce dark children who would be treated harshly by society (Keith & Herring, 1991).

During the 60's or 70's, African Americans joked "Light is all right, if you're brown you're down, and if you're black, don't come back." This implied that blackness was not desirable. A part of this joking, or informal game of racial insults, was a game called the dozens. Someone would say "your mama is so black ..." and then another individual would respond in the same manner, each insult becoming increasingly worse. Below, I provide an example of this kind of joking at Flower Academy. Mama Roshanda explains,

It's always like the kids think it's funny. Like I'll turn the lights off, or we're going somewhere you know the class is real-and they'll be like 'oh my gosh I can't see you any more' and even the young children might be laughing, [but] the fact [is] that it's not funny. (Interview transcript, July 15, 2008, p. 8)

The students were essentially saying that because some students were very dark skinned, when the lights were turned off, no one could see them.

Mama Roshanda describes below how she attends to these types of comments in her math classroom.

So, for example,...if I hear a dark comment I'll say...black is beautiful, or the darker the better, or, you know, something like that or...the same for if it's a light skinned child...putting myself in that situation...with kids...sometimes it has to play out, like if it's a dark skinned comment I'll say "well I love dark skinned young men and ladies" and then everyone's like okay, well then dark skinned is cool [be]cause she likes it. So you kind of play off it and...I always enforce to them not to call people things of that nature even though its playing ...Because when you go outside of the classroom and you [are] out in the street, you never know who's listening whether its White or its Black or whether it is a dark skinned girl who's really struggling with her identity, because she's always been called things [and] she was dark. Or whether it is a light skinned person hearing these remarks who's always struggled with their identity because they were always too light. So I just try to, you know, stop it completely and it has never been an episode where it turned into a big thing. And I don't want them to get into the habit of accepting that and thinking that that's acceptable talk like I want them to get to the point where that's like oh my gosh, you know like a curse word, that's how I try to help them establish identity and just help them embrace who they are. (Interview transcript, July 15, 2008, p. 8) I try to teach them to just love themselves... you know despite any skin color. (Interview transcript, July 15, 2008, p. 6)

The darker the better comes from the phrase "the darker the berry, the sweeter the juice," an affirmative statement about dark skin. Mama Roshanda employed positive phrases about the beauty of dark skin color, and paradoxically, had to attend to

negative remarks about light skin color. Light skinned African Americans are sometimes the victim of assaulting remarks by darker skinned African Americans because of their features and the preference that the lighter skinned African Americans are shown by larger society. Some lighter skinned African Americans are even accused of thinking that they are better than other African Americans because of their complexions.

The kinds of comments made by the students highlight the complexities that teachers contended with in trying to affirm an African-centered pedagogy that ideally holds all shades of blackness in high regard. She attempted to get them to see the destructive nature of these comments. Because Mama Roshanda is a darker skinned woman who they held in high regard, having her conveying that black is beautiful might have been more authentic for the students.

The impact of the media is re-affirmed in the following statement.

I know a lot of that has to do with what they see on TV, what they hear in songs... What they hear on the radio, so sometimes, a lot of times, what they just see you know from their parents, maybe teaching them or saying, so I really work with them on their identity and try and do away with those ignorant thoughts, those ignorant notions, so that they don't deal with self-esteem issues later down the road. (Interview transcript, July 15, 2008, p. 6)

Baba John described a situation in which an African American student was brought to tears by their peers because of their skin color.

You know, I had students that [say], 'such and such, [is] black!'... They get into this whole...skin color thing...and try to break that down. Some of them

say, 'I ain't black.' ...They had this kid in tears. This was like three years ago,...this kid was almost in tears because he's really dark skinned. And they were just mercilessly teasing him. 'Oh, you black.' (Interview transcript, March 17, 2009, p. 16)

The phrase "I ain't black" more than likely means that though the students identified with Black racial identity, they did not want to be perceived as black in skin color, because in their mind there was a negative association with black skin. If you are very dark-skinned, then you can be a victim of vicious assaults. Adolescents are more prone to engage in this type of jeering.

Baba John described how he attended to these types of comments in the Catama Lab.

I'm [] just trying to break down the whole idea of another form of self hate and how you should be proud of your skin color and don't let anybody – I'm like, 'No, we're not doing that in here.' And I had to try to educate and say, 'Look, that's not what you want to do. You need to be proud of it and that's part of this whole self hate thing that you're – it's in your mind and you don't even realize it.' 'And it's coming out and you just – you don't even realize it.' (Interview transcript, March 17, 2009, p. 16)

Here, the notion of racial pride in terms of skin color is highlighted. Baba John viewed this skin color devaluing as a form of subconscious self-hatred and insisted that students counter that by being proud of themselves.

The deeply rooted problems at Flower Academy surrounding skin color are not uncommon. What is significant, however, is that these mathematics educators are working to liberate their students from this type of negative thinking surrounding blackness and being African. In a critique of African-centered pedagogy, Mama Roshanda stated,

I don't think, honestly, that the whole African-centered piece...does embrace everything, but I suspect it doesn't hit on those types of things that are really plaguing young children, like light and dark....When they're singing the songs, they're not talking about don't call each other black, don't call each other white, so you know I don't think it really hits on that piece. (Interview transcript, July 15, 2008, p. 8)

So it seems as though students at Flower Academy simultaneously negotiated racial identities that embraced and escaped blackness. Having positive feelings about being African American, did not translate into valuing dark skin or African ancestry. It also meant that although students self identified as Black or African American, they tried to escape connections to Africans and dark, black skin color. These students may not be consciously aware that their lighter skin in comparison with the skin color of Africans from the continent is a result of centuries of racial mixing between slave master and slave, where in some instances, this mixing was by force. In any case, by being in this setting, these African American students are privy to conversations about who they are, where they come from, and the importance of self-love, whereas in a traditional school setting, they might not have access to these kinds of conversations. This is significant because African American students' comments

about skin color in public school settings may go unchecked, furthering the negative cycle of subconscious racial self-hatred. In the next section I explore the non-mathematical practices at Flower Academy.

Flower Academy: Non-Eurocentric ideologies and collective practices

Research site

School Philosophy

Flower Academy's Philosophy stated:

Each child is born with great potential. **Each adult is responsible** for helping to manifest this potential. **Culture and relationships are essential components** of a child/family-focused learning environment. Each child is born into a family, community and the planet. His/her relationship within those circles must be nurtured, integrated into and fostered in an effective learning environment. **Academic excellence** in literacy, language, math, science and social studies are essential for world citizenship. Student success is strongly enhanced when instruction is provided by competent teachers that possess high expectations for student achievement, receive **quality training** and embrace the school principles. Student success is strongly enhanced when **students are agents**, as opposed to solely subjects, in their learning environment. Early and continuous assessment is essential for optimal student achievement, instruction and parental involvement. The **learning environment must be flexible** to respond to individualized and changing needs of students and families; technological proficiency is essential for world citizenship. Social skills development is key to becoming a productive and responsible adult; and an integrated system of **family services** is critical to each child's success. (Artifact)

I would like to draw attention to the bolded phrases in the school's philosophy. The phrase "each adult is responsible" is an expression of the accountability on the part of the school, staff, teachers, and parents for these African American students. The phrase "Culture and relationships are essential components" seems to be grounded in the African-centered thought that it takes a village to raise a child and to make clear a

bond between children and adults. The phrase “academic excellence” seems rooted in the African American tradition of academic excellence as referenced by Perry, Steele, & Hilliard (2003).

The term “quality training” is important because researchers like Oakes (1990b) found that poor African American students are more likely to have the poorest preparation, particularly in mathematics. The philosophy makes explicit that *these* African American students will have an opportunity to learn what has been denied so many of their racial counterparts. The phrase “students as agents” calls to mind literature from multicultural education which calls for students to be co-creators rather than merely depositing knowledge (Banks & Banks, 1995). It also seems to conjure images of students that are described in the social justice literature whereby students develop agency (Gutstein, 2006). This phrase may also have roots in Freire⁶ and education for liberation and emancipation whereby students become agents of change.

The statement “the learning environment must be flexible” is supported by the literature on African American learning (Bailey & Boykin, 2001; Boykin & Bailey 2000; Hilliard, 1992; Hale, 1982). Marks and Tonso (2006) capture differences in African-centered learning and European centered teaching in the table below where European centered teaching is viewed as inflexible.

⁶ Author of book entitled Pedagogy of the Oppressed

Table 14: A comparison of European centered teaching and African-centered learning
(p. 12)

European Centered Teaching	African Centered Learning
Rules	Freedom
Standardization	Variation
Conformity	Creativity
Memory of Specific Facts	Memory of Essence
Regularity	Novelty
Rigid Order	Flexibility
Normality	Uniqueness
Differences Equal Defects	Sameness Equals Oppression
Precision	Approximate
Control	Experience
Mechanical	Humanistic
“Thing” Focused	“People” Focused
Constant	Evolving
Sign-Oriented	Meaning-Oriented
Duty	Loyalty

The word flexibility appears six words down from the top of the African-centered learning list. Flexibility is juxtaposed with the terms rigid order. Social skills will be elaborated upon later in the staff and school-community links sections. Family services at Flower Academy include family growth and support. Family strengthening for example involved linking families with existing community services through strong partnerships. Free before and after care programs, free meals, and transportation are provided to the students. The before and after care programs provide homework assistance for those students who may need it.

School Pledge

Flower Academy’s Family Pledge read:

We are an Afrikan people. We will be leaders and workers to bring about positive change for our people. We stress the development of our bodies, minds, and souls and consciousness. Our commitment is to family, development, self-determination, self-defense, and **self-respect for our race.**

We want all families to feel appreciated and welcomed and eager to assist in the way they can. (Artifact)

Afrikan is spelled with a “k” as a mechanism for redefining and reconnecting descendents of Africa. The phrase “We are an Afrikan people” is an affirmation of shared, values, tradition, and heritage. This pledge is explicit about the students being a non-European people. The word consciousness, or awareness, is introduced. Family appears again as it did in the mission, vision, and philosophy accentuating its importance in African-centered education. ‘Self-respect for our race’ is an explicit statement about valuing racial identity. The statement about wanting families to feel welcomed is an explicit statement about valuing black parents.

Parental Involvement

Parental involvement is important to Flower Academy. Below the former principal describes this in detail below.

I think **parents are extremely important and need to feel welcomed in the school**. But I am also a person who, as an administrator,...feel very strongly about not allowing parents to run the building. And sometimes that kind of, you know, it seems contradictory because you want parents to be there. But sometimes in our community, parents will come into the building and they will cause a lot of ruckus and they will set examples of their own behavior that are not the types of behavior that we want our children to emulate. And as I am very adamant that parents will respect the school environment..., and I just don’t allow them to get away with coming in and being disrespectful to teachers and cursing in hallways and things like that;... unless you set the tone

that that is absolutely not allowed then parents will come in and take advantage of that. (Interview transcript, June 11, 2008, p. 4)

The principal explicitly acknowledges the importance of parents and implies that traditionally African American parents have not felt welcomed in schools. It is not all praises that she touts, however. She suggests that the behaviors of the parents are not always desirable models of behavior for the students. I learn from school artifacts that parents are included in the decision making processes involving their children, including the creation of individualized learning plans.

A message on the wall of the school read,

One of the most accurate predictors of a student's achievement in school is a student's family becoming involved in the child's education at school. Assisting in school or program events/activities communicates to a child, 'I care about what you do here.' We want all families to feel appreciated and welcomed, and eager to assist in the way they can.

I learned that parent involvement took shape in the form of participation in school committees and a required fulfillment of 30 hours of school service during the school year. These parents sounded like the parents that Siddle Walker (2000) describes in her research on valued segregated schools in which parents contributed funds and were very involved in their children's education.

Like the segregated schools described in Siddle Walker's research, the school supported parents. It provided incentives for parent involvement. Parents had access to a resource center in the school where they could garner resources about computer programs as well use a computer, phone, scanner, fax, and internet. The center was designed to help parents become advocates for their children and be actively involved

in their child's education. Children received character building sessions, counseling, and evaluations and were involved in clubs, like chess club; sports, such as basketball; psycho-educational groups; and student government. I had the opportunity to witness a student government election in the cafeteria in which students made speeches to gain votes for presidency, vice-presidency, secretary, and treasurer.

Flower Academy even published a Family Newsletter that made parents aware of the theme of the month. In the spring of 2009, the theme was Kuumba or creativity. Parents were cautioned to have the children arrive on time in their uniforms. Breakfast hours were listed. Important dates included dates for testing, field trips, school pictures, fashion shows, holidays, and conferences. I was particularly intrigued by a date for a parent empowerment meeting. From informal conversation, I learned that these meetings entailed conversations about how parents could obtain resources within the community and assist their children with homework and discipline. The newsletter provided information about African Drum nights, scout leader openings, free dental screenings for the community, community events, like Cinco de Mayo, and parent workshops about child-rearing.

A page of the newsletter was even devoted to "kitchen math and science." Adults could use the kitchen to help students with addition, subtraction, and fractions using items like plates, forks, pizza, eggs, and bread. This was interesting in light of sentiments that African American children do not have basic math skills that more privileged children have because they are not in the kitchen with their parents measuring and doing mathematics. These sentiments are rooted in beliefs that

African American parents are working longer hours and may hold more jobs so kitchen time with children is limited. Flower Academy seems to advocate for parents to make time for math and science with their children and is giving them the resources to do this.

Racial and cultural socialization practices

Achieving group identity is difficult without the consistent guidance of important socializing agents (Spencer, 1983, 1985). African American parents, relatives, and teachers must actively and continually struggle to present evidence to children that confirms the worth of black culture and people as a mechanism for offsetting cultural identity confusion. (Semaj, 1985 as cited in Spencer & Adams, 1990, p. 302)

Below I describe the racial and cultural practices within the school that help to confirm the worth of Black culture and people. I categorize these practices according to Murrell's (2000) essential cultural practices in an African-centered pedagogy.

Engagement and participation practices

During the focus group conversation, the students explained what the teachers were telling them about education.

Chantel: And they be like, “‘cause back then, you would have to pay to get to the eighth grade, seventh grade”; stuff like that.

FN: What do you mean pay?

Chantel: Like pay for your education, like was going to college, private school.

Ashley: And they got beat up for us.

FN: Oh okay, so they got beat up; so you guys could have an education?
Ashley: Education, free education. (Interview transcript, May 20, 2008, p. 11)

Chantel: Some of the teachers at the school be like “ya’ll gotta prove to people that Black people are not stupid” and stuff like that ... get working and stuff like that.

FN: What else?

Elizabeth: They say that stuff so you wan[t] [to]work; they say that stuff so you could feel like you could, so you could ...and sometimes they be like...

Chantel: Sometimes they [say], as Black students you should wan[t] [to] do the work. (Interview transcript, May 20, 2008, pp. 10-11)

This excerpt brings to the fore the teachers’ explicit messages to the students about the racist society they live in and the devaluing of African American intelligence.

The teachers want these students to be motivated by their historical struggle for literacy as well as a necessity to have to show dominant society that they are capable individuals. These messages are incited to propel these students to want to work harder and prove their worth. Conveying these messages can be viewed as engagement and participation practices that serve to encourage student interest, engagement, and participation in activities of learning (Murrell, 2002).

Identity development practices

Selecting teachers that are “credible role models in culturally recognizable and experiential significant contexts” could be viewed as an identity development practice (Murrell, 2002, p.71). Former principal Mama Cheryl was an African American woman in her late twenties/early thirties. She was tall with dark brown skin and wore her hair in synthetic weaved braids that flowed down her back. The dean of students, Mama Kenya, was a brown-skinned African American woman in her late twenties/early thirties. She wore her hair in a natural locked style that fell down her

back. Her hair was accentuated with violet highlights. I noted that her names, both first and last, were of African origin. Baba John was a multi-ethnic, (Ghanaian and African American) dark skinned man in his forties. Mama Roshanda was a twenty-eight year old darker skinned African American woman. Although the school's counselor and audiovisual technician were Latina and Filipino, all of the other staff and teachers at Flower Academy were Black.

Helping students to express themselves through modes of discourse and language can be viewed as an identity development practice. Mama Kenya stated, **Our** children are lacking social skills and so that's why I admire our teachers, because they have to teach social skills and the education and you can't teach all of that to every child, you know. And so they're not getting paid enough, let me just say that... they have to deal with so much. At the school **we have to be mom, dad, teacher, dean, principal, friend, [and] confidante**. We have to be so many things that you know it can be really draining, but our teachers here are really good, really **caring** teachers. (Interview transcript, May 20, 2008, pp. 5-6)

I noted her use of the word "our" in the beginning of this excerpt. She may have used this term to refer to the Flower Academy students, but I gather that our in this context meant African American children, where "our" implies ownership or accountability for these children. Like other teachers in public schools, according to Mama Kenya, these teachers were not getting paid what they deserved, given the multiple roles that they had to take on, and yet there is a sense of commitment that seems to be conveyed from her perspective on the part of these African American teachers for their African

American students. Her reference to the teachers as good and really caring, lends support to the empirical data that states that caring teachers are a must for students, particularly for African American students (Moody, 2003; Brown, 2003; Weinstein, Curran, & Tomlinson-Clarke, 2003; Gay, 2000; Lumpkin, 2000; Walker, 1996; Noddings, 1984; Ladson-Billings, 1994).

The dean elaborated below on the social skills, specifically within the context of modes of speech, that she felt that African American students were lacking.

I mean I can sit here and I can kick slang with the best of them, but I know when out in the professional sense in the professional world, I have to adapt. So that's what I try to tell them... one of the stories is, I took some brothers to the hospital because their mom was in the hospital and they didn't find out until today. So I took them to the hospital and, you know, I was just driving and I was talking on the phone to my girl. And I'm like 'yeah girl, such and such and such and such'...and I get off the phone. And they said, 'mama you are so different outside of school'; and I said, 'well how am I supposed to be?' And they said, 'you w[ere] using the same words that we would use.' I said, 'well sweetie, [when] I'm at school I'm supposed to be that way' and they were so amazed by that. You know...it was something I didn't even notice, you know what I'm saying....But they were so amazed because a lot of the times the parents are like, I don't wanna- they just act that way all the time, but they don't know that I'm at work and this is the way I act at work. And on Saturdays, I don't wan[t] [to] see you, just like you don't wan[t] [to] see me. (Interview transcript, May 20, 2008, p. 6)

The dean suggested here that the African American students seem to be unaware that certain modes of speech that are appropriate for their friends and home are not appropriate for professional settings. Hale (1982) talks about this duality of socialization in which “black children have to be prepared to imitate the ‘hip’, ‘cool’ behavior of the culture in which they live and at the same time take on those behaviors that are necessary to be upwardly mobile” (p. 62). I sensed that the message being communicated was not “renounce your blackness,” but rather understand that there are different ways to speak in different social environments. In fact, Ashley in particular, seemed to have issues with Ebonics or “Black English.” During the coding of the script activity, Ashley went beyond the intended goal of the activity to critique the teacher’s use of phrases like “I ma” and “um.” She wrote that the teacher, who was in actuality African American, was using improper English. Students seem to be acquiring some of the cultural capital that they would need to navigate in society at Flower Academy.

Helping students to define themselves can be characterized as an identity development practice (Murrell, 2002). Mama Kenya explained, “so I try to instill in them the African American aspect in that yes, I want you to be proud of who you are, proud of your heritage, proud... that you are a product of greatness.” Mama Kenya seemed to convey the sentiment that instilling pride in African American students was important. Demo & Hughes (1990) refer to this as teaching students to take a positive group-oriented integrative/assertive attitude in terms of racial pride and the importance of black heritage.

Mama Kenya elaborated on identity development and addressed issues of power and of self-esteem.

You can tell which teachers promote African identity and which teachers promote African American identity. I mostly promote African American identity, because we do not live in society with just Africans, with just Black people. Even in Africa there's not just Black people, so you have to learn to get along and adapt to situations... But yet, I mean truth be known, the White people [are] the one[s] holding the money, we [have to go] to, you know, to Bill Gates. You know what I mean, we [have to go] to **these people** to give us money so you have to know how to do that, and use that knowledge which you have for something else. So I try to teach that. But prime example, my employee...[the] school suspension coordinator, he teaches from **the African standpoint**, where he wants you to be proud of being an African. That's in, I'm not saying that he believes that White people are all bad but, you know what I'm saying. It's like bam bam, this [is] it, **black people need to rise up**, some Marcus Garvey stuff. And you[re] like 'ok now Baba, wait a minute, wait a minute now, **somebody [has to] sign my check**'. But we get along well because even though I don't agree with some things he does, and sometimes I guess he doesn't agree with some of the things I do, but at least the children are getting both aspects...I want them to be proud of who they are. **Our children are lacking also in self-esteem** and that is not a generational thing. That is something that at this age that they are go[ing] [to] have to go through, but my job is to help them go through it. And so I want

them to have more confidence about themselves. Even though ,yes, your mom’s on drugs; even though, yes, your two brothers are locked up; even though, yes, you don’t have much financially; even though those things are still happening, you still can be good at what you do. (Interview transcript, May 20, 2008, p. 7)

Mama Kenya, however, did not seem to think that she should be assisting students in adopting a nationalist attitude. Black Nationalism would require African Americans to generate and distribute wealth within their own communities, a task that could be daunting because of unequal power relations between Whites and African Americans.

Mama Kenya alludes to this power relation in her statement “we gotta regress to these people to give us money.” Here the use of the word “these” is intentional and refers to White people, or financially privileged. Mama Kenya used the phrase “our children” again, likely implying that African American adolescents in general, and not just Flower Academy’s students, had issues with self-esteem in part because of economic disadvantage. I wonder how these students will maintain this African pride indefinitely if they come to accept a perspective that “White people [are]...holding the money.”

Community integrity practices

In the mornings before first period, students and their teachers gathered in the front of the classroom for a practice called morning circle. During one observation, I heard Mama Roshanda and her students singing Lift Every Voice and Sing, the national black anthem. “Lift every voice and sing, till earth and heaven ring, ring

with the harmonies of liberty. Let our rejoicing rise, high as the listening skies, let it resound, loud as the rolling sea.” I heard them singing “...don’t fall too far from the tree...” I heard clapping and lyrics about precious freedom and chants of hallelujah. I thought for a moment that I was in a church. This daily practice is a community integrity practice of using the culturally familiar discourse practice of song.

When a teacher wants to get the attention of a room full of noisy students the teacher will call “Ago” and the students respond “Ahme.” Employing the use of the words Ago and Ame in the school can be interpreted as a community integrity practice of using culturally familiar discourse practices (Murrell, 2002). This is a common practice in the school and is reminiscent of the African tradition of call and response.

Call and response is a pattern of overlapping communication consisting of a solo voice and an overlapping chorus that has its origins in traditional African narrative performances (Peek & Yankah, 2004). Chimombo (1988) describes call and response as a “means of establishing a ‘ritual contract’ that brought the performer and her audience closer together as the story unfolded.” The important aspects of call and response are repetition and improvisation (Peek & Yankah, 2004). Enslaved blacks also used call and response for worship of Christ and sometimes as a secretive way of communicating their intent to escape via the Underground Railroad (Peek & Yankah, 2004).

Mama Roshanda stated:

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difference, different kids who I work with, in terms of the climate of the school...I think because it's African-centered and or Afrocentric and the root word, the root of Afrocentric culture is really like, you know, everyone takes care of everyone; it's a family. I've seen a lot of parental support as opposed to in the public school. You could call a parent and they're like, whatever. But here, it's a lot of parental support, you know. There's no really debating with parents or teachers. And the parents are really involved... So I think it really has made a difference. I mean the kids are enthusiastic about coming to school, and I think if you have stuff for kids to do, then they all will be-but honestly, I've seen a difference in terms of the places I've been at before. (Interview transcript, July 15, 2008, p. 4)

Mama Roshanda highlighted the initial discomfort of being referred to as mother in this setting. She highlighted the family oriented nature of the school which was one of the main elements of the school's mission, as well as parental support which will be discussed in the school-community links section. She seemed surprised by the level of parental involvement, not because the parents were African American, but more so because traditional schools do not seem to be set up to include African American parents in the educational process of their children.

African-centered holiday celebrations at Flower Academy could be described as the community integrity practice of building a sense of Harambee or evoking community reflection (Murrell, 2002). Below Mama Cheryl describes Kwanzaa at Flower Academy.

I think that that energy has been very, is very, positive in the building.... I also think that definitely the principles of Kwanzaa overall are highly promoted throughout the building, you know, throughout the entire school...I don't necessarily think that they're necessarily communicated that way but that's what has happened; but I definitely see collective responsibility and things like that. I see the principles of Kwanzaa throughout the building even though it may not necessarily be communicated. (Interview transcript, June 11, 2008, p. 5)

Kwanzaa is celebrated as an alternative to Christmas. The principles of Kwanzaa are Umoja (unity), Kujichagulia (self-determination), Ujima (collective work and responsibility), Ujamaa (cooperative economics), Nia (purpose), Kuumba (creativity), and Imani (faith) (Karenga, 2008). These make up what is referred to as the Nguzo Saba or seven principles of Kwanzaa (Karenga, 2008).

I observed posters with the Kwanzaa principles listed along with pictures of Black families standing around red, green, and black candles. More pictures of Kwanzaa celebrations could also be seen in the cafeteria. This sends an explicit message about cultural customs at Flower Academy. It sounds like Mama Cheryl is suggesting that although posters about Kwanzaa engulf the building, there may not have been explicit talk about its origin, what the principles represented, and what it meant to celebrate Kwanzaa instead of Christmas. Instead of celebrating Valentine's Day, a widely celebrated European day, the school promotes the celebration of an alternative called Black Love Day, where students are encouraged to evoke fictive kinship, or bond with each other (Murrell, 2002).

Fictive kinship bonds between teachers and students are an integral part of the community integrity practices at Flower Academy (Murrell, 2002). One way that teachers and students created family like links was that students referred to the teachers as Mama [first name] or Baba [first name], which is very family-oriented. In public schools, students usually refer to their teachers as Mrs. [last name] and Mr.[last name], a more impersonal reference. It is also more family-oriented because Mama and Baba in Swahili, literally translates as mother and father. Essentially, the students are addressing their elders in the school as parental figures. Mama Cheryl commented on the practice of referring to elders as Mama and Baba.

...After that has gone on for, you know, an extended period of time then you have a different type of connection with that person and the manner in which you communicate with that person. It's hard to be disrespectful to somebody you're calling mama, you know. (Interview transcript, June 11, 2008, pp. 4-5)

This interaction in which students refer to their teachers as Mama and Baba promotes a relationship of mutual respect between them. From these comments, it seems that it may be easier for students to disrespect Miss Roshanda, but harder to disrespect Mama Roshanda. This is subtle yet seems effective and powerful.

Fictive kinship was also developed through the bonds that were formed between teachers, between teachers and students, staff and students, and staff and parents. Below Mama Roshanda describes her relationships with the students.

Well my role is- I think I have several roles; I think...they overlap. I think it's first and foremost a teacher trying to get the information to the kids, but also

you are a motivator. I think you are, or I am, someone they look up to, **a role model**. To some I might be a parent; to some, I think to all, I am a friend. So I think I wear a lot of different hats depending on the situation, but I think all those hats are worn at once. **The children are very close, very, very close to me** and they confide in me about a lot of things; I think a lot of children confide [in] teachers...but **I think the whole mama piece really brings them a little bit closer**...because I mean...these kids calling you mama!...it's just like mom; and [at] first I was just like- I didn't really like that at first... You know, this is new for me; I didn't really like that; I don't think this is appropriate. But I have to get used to it-and I'm just being honest, I didn't like it. I was just like 'oh my gosh... you know I was just like, **oh my gosh these kids are calling me their mother**...But I got used to it and I appreciated it; it was something new for me so it was...a learning experience for me, because I was in a situation that I wasn't used to...It opened my eyes to a lot of things that also help[ed] build strong bonding relationships with the students. Because they have that relationship with you **there are certain things that they will not do or say**...and so, although I was reserved about it in the beginning, I think it has helped in the relationship with the kids and how the interaction with the kids and students are because of the respect that is given between the student and the teacher. (Interview transcript, July 15, 2008, p. 9)

Her statement about being a role model is important because African Americans may need more role models that share their racial and cultural identity. Research suggests

that for African Americans, role models that share their identity help them to navigate pressures of drugs and violence within their communities and provide inspiration which impact youth self-esteem and ethnic identity (Brookins, 1996.)

Mama Roshanda may be attributing the students' reference to her as Mama with the bonds that they share. It seems that there may be a connection. In my observations, I noted that students were always hugging Mama Roshanda and inquiring about her well-being. During lunch, they do not let her eat by herself; they want to eat with her and she frequently has to shoo them away. Work by (Dee, 2004) may support this relationship or bonding as a direct effect of the teacher sharing the racial group of her students.

It seems from Mama Roshanda's statements that her experience at Flower Academy was culturally different from previous work environments and that was very new to her. The statement "there are certain things that they will not say or do" suggests to me that the Mama expression framed interactions between her and the students in ways that were nonexistent with other African American students she taught in other schools.

Below Mama Cheryl describes her interaction with the students.

I'm a student oriented principal. First of all, one of the things I believe about being a principal is that often times you don't have an opportunity to get to know and spend as much time with children. I like being around children, and so I go out of my way to develop those relationships with the children and talk with them, get to know them and try to get to know them more than as a piece of paper...As administrators we're looking at data and so I want to get to

know the child...I want to know their parents...what are the home circumstances that cause the child to develop in the way they have. And so one of the things that I really enjoy doing is being a part of our students 3 or 4-week observations and we talk specifically about teachers who are having difficulties with children as well as the academic, behavioral, emotional or particular crisis. I'm a consistent member of that team, and so I have an opportunity to really get to know what's going on with our more challenged students, you know. (Interview transcript, June 11, 2008, p. 3)

Communication seems to be central to interaction with students for Mama Cheryl. She works to understand their parents and home life, which helps to shape her interactions. Her mention of understanding the home circumstances of the children feels different from NCLB and achievement gap literature, which seems to ignore these factors. Her interaction, however, is less intimate than Mama Roshanda's as she is in an administrative role, and that involves evaluation of the students from a distance.

Mama Kenya commented on her interaction with the students.

I think I have a very good relationship. I cannot imagine not working with children...sometimes there's a thin line between me being the dean of students and me getting along with the students...To know there is somebody that **cares**, then that's what I have to do. (Interview transcript, May 20, 2008, p. 4)

The dean expresses having to navigate the boundary between dean and friend. Again, the word cares appears, supporting the literature on the importance of caring for African American students (Siddle Walker, 2000; Ladson-Billings, 2000; Gay, 2000).

The literature on teachers and parents of African American students (particularly poor parents) suggests that parents do not feel included in the process, or that teachers think that parents do not want to be involved in the education of their students (Blair, 2001; Heath, 1983). The nature of the relationships between staff and parents at Flower Academy feels very different from what I have read and heard about typical relationships between African American parents and teachers. When I asked Mama Cheryl about her relationships with the parents and staff, she replied, “I have a great relationship with all of those stakeholders.”

Mama Kenya went into great detail about the positive interactions that she had with parents.

I think I have a very good relationshipwith the parents because, I am constantly contacting them. Whether it's for a bad thing or whether it's for a good thing, I am constantly [talking to coworkers]. So not to pass judgment on our previous dean, but he left [after the last class of the day]...So, he never even had that rapport with the parents who picked them up. I'm downstairs, I'm like, yeah, I'll talk to [th]em, you know. They know me; [when] they see me coming, they're like 'oh no, what'd my baby do today'; I'm like 'nothing Mama, nothing,;he's good; he's fine' ...So now the students see that just because you're with me doesn't mean that you're in trouble. It could be anything; it could be a field trip. I do fieldtrips, you know. I do everything;

so I think I have a very good relationship. (Interview transcript, May 20, 2008, pp. 4-5)

Like the former principal, communication between her and the parents was important. Her comments about “constantly contacting” the parents seem reminiscent of how Black teachers and parents in the previous generations maintained close bonds whereby the parent knew what the child had done even before the child arrived home. Siddle Walker’s (2000) work illustrates how the principal, teachers, and parents worked together to give African American students a quality education. For the Dean, making herself visible was also important. It communicated her care and interest in the well-being of the students.

Mama Roshanda describes her interactions with the parents. She stated, “their parents are very supportive with anything that you do or anything that I need them to do. They’re very supportive.” A study by McDiarmid & Price (1993) revealed that teachers did not believe that African American parents cared.

Mama Cheryl informed me that she had a great relationship with the parents. Mama Kenya stated,

I think I have a very good relationship [with the parents] and also with the teachers. I heard you mentioned teachers too; I have a very good relationship with, I think, everybody. You know, it could be challenging sometimes, but I think I have a good relationship. (Interview transcript, May 20, 2008, p. 5)

Mama Roshanda affirmed their remarks with the statement, “and the staff we all work as a team.” I did not get the sense that this was an environment of disgruntled

underpaid African American teachers. The school structure seemed to provide opportunities for relationship development between the students and teachers. In the following sections I describe the school's practices in terms of Murrell's five African-centered pedagogical practices.

Practices of inquiry

Baba John stated:

I think it's important that students learn that Africa has a lot of wonderful things, and **Africa has contributed a great deal to this world** and that in addition to studying those other cultures, you know...as well as Euro-centric and European...they've got great stuff, but let's not forget what we've got and **let's not forget our history; let's not be ashamed of our history.** (Interview transcript, March 17, 2009, p. 15)

I noted his use of the phrase "let's not forget our history." This is significant because philosopher and poet George Santayana stated, "Those who cannot remember the past are condemned to repeat it." I interpret the phrase "let's not be ashamed of our history" as a call to acknowledge enslavement and move forward. It seems that Baba John is engaging in a practice of inquiry, whereby he is trying to get students to tap into their collective memory (Murrell, 2002).

Meaning-making practices

Most holidays that have been identified by the founder as Eurocentric are not celebrated at Flower Academy. I did, however, observe students wearing four leaf

clovers on Saint Patrick's day, an action which seemed contradictory to the culture of the school. In particular, Thanksgiving Day was not celebrated because for them it represents the celebration of the genocide of Native people, and goes against the meaning-making practice of understanding the differences in African American and European American epistemology (Murrell, 2002). Instead, teachers are encouraged to celebrate the Fall Harvest.

There seems to be a heavy emphasis at Flower Academy on identity development and community integrity practices. This suggests that in this school, learning is perceived as self-definition and belonging (Murrell, 2002).

Parental perceptions of the importance of Black racial socialization

Achieving group identity is difficult without the consistent guidance of important socializing agents (Spencer, 1983, 1985). African American parents, relatives, and teachers must actively and continually struggle to present evidence to children that confirms the worth of black culture and people as a mechanism for offsetting cultural identity confusion. (Semaj, 1985 as cited in Spencer & Adams, 1990, p. 302)

Below I describe the racial and cultural practices within the school that help to confirm the worth of Black culture and people. I categorize these practices according to Murrell's (2000) essential cultural practices in an African-centered pedagogy.

Engagement and participation practices

During the focus group conversation, the students explained what the teachers were telling them about education.

Chantel: And they be like, “’cause back then, you would have to pay to get to the eighth grade, seventh grade”; stuff like that.

FN: What do you mean pay?

Chantel: Like pay for your education, like was going to college, private school.

Ashley: And they got beat up for us.

FN: Oh okay, so they got beat up; so you guys could have an education?

Ashley: Education, free education. (Interview transcript, May 20, 2008, p. 11)

Chantel: Some of the teachers at the school be like “ya’ll gotta prove to people that Black people are not stupid” and stuff like that ... get working and stuff like that.

FN: What else?

Elizabeth: They say that stuff so you wan[t] [to]work; they say that stuff so you could feel like you could, so you could ...and sometimes they be like...

Chantel: Sometimes they [say], as Black students you should wan[t] [to] do the work. (Interview transcript, May 20, 2008, pp. 10-11)

This excerpt brings to the fore the teachers’ explicit messages to the students about the racist society they live in and the devaluing of African American intelligence.

The teachers want these students to be motivated by their historical struggle for literacy as well as a necessity to have to show dominant society that they are capable individuals. These messages are incited to propel these students to want to work harder and prove their worth. Conveying these messages can be viewed as engagement and participation practices that serve to encourage student interest, engagement, and participation in activities of learning (Murrell, 2002).

Identity development practices

Selecting teachers that are “credible role models in culturally recognizable and experiential significant contexts” could be viewed as an identity development practice

(Murell, 2002, p.71). Former principal Mama Cheryl was an African American woman in her late twenties/early thirties. She was tall with dark brown skin and wore her hair in synthetic weaved braids that flowed down her back. The dean of students, Mama Kenya, was a brown-skinned African American woman in her late twenties/early thirties. She wore her hair in a natural locked style that fell down her back. Her hair was accentuated with violet highlights. I noted that her names, both first and last, were of African origin. Baba John was a multi-ethnic, (Ghanaian and African American) dark skinned man in his forties. Mama Roshanda was a twenty-eight year old darker skinned African American woman. Although the school's counselor and audiovisual technician were Latina and Filipino, all of the other staff and teachers at Flower Academy were Black.

Helping students to express themselves through modes of discourse and language can be viewed as an identity development practice. Mama Kenya stated, **Our** children are lacking social skills and so that's why I admire our teachers, because they have to teach social skills and the education and you can't teach all of that to every child, you know. And so they're not getting paid enough, let me just say that... they have to deal with so much. At the school **we have to be mom, dad, teacher, dean, principal, friend, [and] confidante**. We have to be so many things that you know it can be really draining, but our teachers here are really good, really **caring** teachers. (Interview transcript, May 20, 2008, pp. 5-6)

I noted her use of the word "our" in the beginning of this excerpt. She may have used this term to refer to the Flower Academy students, but I gather that our in this context

meant African American children, where “our” implies ownership or accountability for these children. Like other teachers in public schools, according to Mama Kenya, these teachers were not getting paid what they deserved, given the multiple roles that they had to take on, and yet there is a sense of commitment that seems to be conveyed from her perspective on the part of these African American teachers for their African American students. Her reference to the teachers as good and really caring, lends support to the empirical data that states that caring teachers are a must for students, particularly for African American students (Moody, 2003; Brown, 2003; Weinstein, Curran, & Tomlinson-Clarke, 2003; Gay, 2000; Lumpkin, 2000; Walker, 1996; Noddings, 1994; Ladson-Billings, 1994).

The dean elaborated below on the social skills, specifically within the context of modes of speech, that she felt that African American students were lacking.

I mean I can sit here and I can kick slang with the best of them, but I know when out in the professional sense in the professional world, I have to adapt. So that’s what I try to tell them... one of the stories is, I took some brothers to the hospital because their mom was in the hospital and they didn’t find out until today. So I took them to the hospital and, you know, I was just driving and I was talking on the phone to my girl. And I’m like ‘yeah girl, such and such and such and such’...and I get off the phone. And they said, ‘mama you are so different outside of school’; and I said, ‘well how am I supposed to be?’ And they said, ‘you w[ere] using the same words that we would use.’ I said, ‘well sweetie, [when] I’m at school I’m supposed to be that way’ and they were so amazed by that. You know...it was something I didn’t even notice,

you know what I'm saying....But they were so amazed because a lot of the times the parents are like, I don't wanna- they just act that way all the time, but they don't know that I'm at work and this is the way I act at work. And on Saturdays, I don't wan[t] [to] see you, just like you don't wan[t] [to] see me. (Interview transcript, May 20, 2008, p. 6)

The dean suggested here that the African American students seem to be unaware that certain modes of speech that are appropriate for their friends and home are not appropriate for professional settings. Hale (1982) talks about this duality of socialization in which “black children have to be prepared to imitate the ‘hip’, ‘cool’ behavior of the culture in which they live and at the same time take on those behaviors that are necessary to be upwardly mobile” (p. 62). I sensed that the message being communicated was not “renounce your blackness,” but rather understand that there are different ways to speak in different social environments. In fact, Ashley in particular, seemed to have issues with Ebonics or “Black English.” During the coding of the script activity, Ashley went beyond the intended goal of the activity to critique the teacher’s use of phrases like “I ma” and “um.” She wrote that the teacher, who was in actuality African American, was using improper English. Students seem to be acquiring some of the cultural capital that they would need to navigate in society at Flower Academy.

Helping students to define themselves can be characterized as an identity development practice (Murrell, 2002). Mama Kenya explained, “so I try to instill in them the African American aspect in that yes, I want you to be proud of who you are, proud of your heritage, proud... that you are a product of greatness.” Mama Kenya

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I think that that energy has been very, is very, positive in the building.... I also think that definitely the principles of Kwanzaa overall are highly promoted throughout the building, you know, throughout the entire school...I don't necessarily think that they're necessarily communicated that way but that's what has happened; but I definitely see collective responsibility and things like that. I see the principles of Kwanzaa throughout the building even though it may not necessarily be communicated. (Interview transcript, June 11, 2008, p. 5)

Kwanzaa is celebrated as an alternative to Christmas. The principles of Kwanzaa are Umoja (unity), Kujichagulia (self-determination), Ujima (collective work and responsibility), Ujamaa (cooperative economics), Nia (purpose), Kuumba (creativity), and Imani (faith) (Karenga, 2008). These make up what is referred to as the Nguzo Saba or seven principles of Kwanzaa (Karenga, 2008).

I observed posters with the Kwanzaa principles listed along with pictures of Black families standing around red, green, and black candles. More pictures of Kwanzaa celebrations could also be seen in the cafeteria. This sends an explicit message about cultural customs at Flower Academy. It sounds like Mama Cheryl is

suggesting that although posters about Kwanzaa engulf the building, there may not have been explicit talk about its origin, what the principles represented, and what it meant to celebrate Kwanzaa instead of Christmas. Instead of celebrating Valentine's Day, a widely celebrated European day, the school promotes the celebration of an alternative called Black Love Day, where students are encouraged to evoke fictive kinship, or bond with each other (Murrell, 2002).

Fictive kinship bonds between teachers and students are an integral part of the community integrity practices at Flower Academy (Murrell, 2002). One way that teachers and students created family like links was that students referred to the teachers as Mama [first name] or Baba [first name], which is very family-oriented. In public schools, students usually refer to their teachers as Mrs. [last name] and Mr.[last name], a more impersonal reference. It is also more family-oriented because Mama and Baba in Swahili, literally translates as mother and father. Essentially, the students are addressing their elders in the school as parental figures. Mama Cheryl commented on the practice of referring to elders as Mama and Baba.

...After that has gone on for, you know, an extended period of time then you have a different type of connection with that person and the manner in which you communicate with that person. It's hard to be disrespectful to somebody you're calling mama, you know. (Interview transcript, June 11, 2008, pp. 4-5)

This interaction in which students refer to their teachers as Mama and Baba promotes a relationship of mutual respect between them. From these comments, it seems that it may be easier for students to disrespect Miss Roshanda, but harder to disrespect Mama Roshanda. This is subtle yet seems effective and powerful.

Fictive kinship was also developed through the bonds that were formed between teachers, between teachers and students, staff and students, and staff and parents. Below Mama Roshanda describes her relationships with the students.

Well my role is- I think I have several roles; I think...they overlap. I think it's first and foremost a teacher trying to get the information to the kids, but also you are a motivator. I think you are, or I am, someone they look up to, **a role model**. To some I might be a parent; to some, I think to all, I am a friend. So I think I wear a lot of different hats depending on the situation, but I think all those hats are worn at once. **The children are very close, very, very close to me** and they confide in me about a lot of things; I think a lot of children confide [in] teachers...but **I think the whole mama piece really brings them a little bit closer...**because I mean...these kids calling you mama!...it's just like mom; and [at] first I was just like- I didn't really like that at first...You know, this is new for me; I didn't really like that; I don't think this is appropriate. But I have to get used to it-and I'm just being honest, I didn't like it. I was just like 'oh my gosh... you know I was just like, **oh my gosh these kids are calling me their mother...**But I got used to it and I appreciated it; it was something new for me so it was...a learning experience for me, because I was in a situation that I wasn't used to...It opened my eyes to a lot of things that also help[ed] build strong bonding relationships with the students. Because they have that relationship with you **there are certain things that they will not do or say...**and so, although I was reserved about it in the beginning, I think it has helped in the relationship with the kids and how

the interaction with the kids and students are because of the respect that is given between the student and the teacher. (Interview transcript, July 15, 2008, p. 9)

Her statement about being a role model is important because African Americans may need more role models that share their racial and cultural identity. Research suggests that for African Americans, role models that share their identity help them to navigate pressures of drugs and violence within their communities and provide inspiration which impact youth self-esteem and ethnic identity (Brookins, 1996.)

Mama Roshanda may be attributing the students' reference to her as Mama with the bonds that they share. It seems that there may be a connection. In my observations, I noted that students were always hugging Mama Roshanda and inquiring about her well-being. During lunch, they do not let her eat by herself; they want to eat with her and she frequently has to shoo them away. Work by (Dee, 2004) may support this relationship or bonding as a direct effect of the teacher sharing the racial group of her students.

It seems from Mama Roshanda's statements that her experience at Flower Academy was culturally different from previous work environments and that was very new to her. The statement "there are certain things that they will not say or do" suggests to me that the Mama expression framed interactions between her and the students in ways that were nonexistent with other African American students she taught in other schools.

Below Mama Cheryl describes her interaction with the students.

I'm a student oriented principal. First of all, one of the things I believe about being a principal is that often times you don't have an opportunity to get to know and spend as much time with children. I like being around children, and so I go out of my way to develop those relationships with the children and talk with them, get to know them and try to get to know them more than as a piece of paper...As administrators we're looking at data and so I want to get to know the child...I want to know their parents...what are the home circumstances that cause the child to develop in the way they have. And so one of the things that I really enjoy doing is being a part of our students 3 or 4-week observations and we talk specifically about teachers who are having difficulties with children as well as the academic, behavioral, emotional or particular crisis. I'm a consistent member of that team, and so I have an opportunity to really get to know what's going on with our more challenged students, you know. (Interview transcript, June 11, 2008, p. 3)

Communication seems to be central to interaction with students for Mama Cheryl. She works to understand their parents and home life, which helps to shape her interactions. Her mention of understanding the home circumstances of the children feels different from NCLB and achievement gap literature, which seems to ignore these factors. Her interaction, however, is less intimate than Mama Roshanda's as she is in an administrative role, and that involves evaluation of the students from a distance.

Mama Kenya commented on her interaction with the students.

I think I have a very good relationship. I cannot imagine not working with children...sometimes there's a thin line between me being the dean of students and me getting along with the students... To know there is somebody that **cares**, then that's what I have to do. (Interview transcript, May 20, 2008, p. 4)

The dean expresses having to navigate the boundary between dean and friend. Again, the word *cares* appears, supporting the literature on the importance of caring for African American students (Siddle Walker, 2000; Ladson-Billings, 2000; Gay, 2000).

The literature on teachers and parents of African American students (particularly poor parents) suggests that parents do not feel included in the process, or that teachers think that parents do not want to be involved in the education of their students (Blair, 2001; Heath, 1983). The nature of the relationships between staff and parents at Flower Academy feels very different from what I have read and heard about typical relationships between African American parents and teachers. When I asked Mama Cheryl about her relationships with the parents and staff, she replied, "I have a great relationship with all of those stakeholders."

Mama Kenya went into great detail about the positive interactions that she had with parents.

I think I have a very good relationship ...with the parents because, I am constantly contacting them. Whether it's for a bad thing or whether it's for a good thing, I am constantly [talking to coworkers]. So not to pass judgment on our previous dean, but he left [after the last class of the day]...So, he never even had that rapport with the parents who picked them up. I'm downstairs,

I'm like, yeah, I'll talk to [th]em, you know. They know me; [when] they see me coming, they're like 'oh no, what'd my baby do today'; I'm like 'nothing Mama, nothing,;he's good; he's fine'...So now the students see that just because you're with me doesn't mean that you're in trouble. It could be anything; it could be a field trip. I do fieldtrips, you know. I do everything; so I think I have a very good relationship. (Interview transcript, May 20, 2008, pp. 4-5)

Like the former principal, communication between her and the parents was important. Her comments about "constantly contacting" the parents seem reminiscent of how Black teachers and parents in the previous generations maintained close bonds whereby the parent knew what the child had done even before the child arrived home. Siddle Walker's (2000) work illustrates how the principal, teachers, and parents worked together to give African American students a quality education. For the Dean, making herself visible was also important. It communicated her care and interest in the well-being of the students.

Mama Roshanda describes her interactions with the parents. She stated, "their parents are very supportive with anything that you do or anything that I need them to do. They're very supportive." A study by McDiarmid & Price (1993) revealed that teachers did not believe that African American parents cared.

Mama Cheryl informed me that she had a great relationship with the parents. Mama Kenya stated,

I think I have a very good relationship [with the parents] and also with the teachers. I heard you mentioned teachers too; I have a very good relationship with, I think, everybody. You know, it could be challenging sometimes, but I think I have a good relationship. (Interview transcript, May 20, 2008, p. 5)

Mama Roshanda affirmed their remarks with the statement, “and the staff we all work as a team.” I did not get the sense that this was an environment of disgruntled underpaid African American teachers. The school structure seemed to provide opportunities for relationship development between the students and teachers.

Practices of inquiry

Baba John stated:

I think it’s important that students learn that Africa has a lot of wonderful things, and **Africa has contributed a great deal to this world** and that in addition to studying those other cultures, you know...as well as Euro-centric and European...they’ve got great stuff, but let’s not forget what we’ve got and **let’s not forget our history; let’s not be ashamed of our history.** (Interview transcript, March 17, 2009, p. 15)

I noted his use of the phrase “let’s not forget our history.” This is significant because philosopher and poet George Santayana stated, "Those who cannot remember the past are condemned to repeat it." I interpret the phrase “let’s not be ashamed of our history” as a call to acknowledge enslavement and move forward. It seems that

Baba John is engaging in a practice of inquiry, whereby he is trying to get students to tap into their collective memory (Murrell, 2002).

Meaning-making practices

Most holidays that have been identified by the founder as Eurocentric are not celebrated at Flower Academy. I did, however, observe students wearing four leaf clovers on Saint Patrick's day, an action which seemed contradictory to the culture of the school. In particular, Thanksgiving Day was not celebrated because for them it represents the celebration of the genocide of Native people, and goes against the meaning-making practice of understanding the differences in African American and European American epistemology (Murrell, 2002). Instead, teachers are encouraged to celebrate the Fall Harvest.

There seems to be a heavy emphasis at Flower Academy on identity development and community integrity practices. This suggests that in this school, learning is perceived as self-definition and belonging (Murrell, 2002).

Student perceptions of Flower Academy

I asked the students about their experiences at Flower Academy. Below is my conversation with Maxwell.

FN: Do you feel like your experiences here have been different?

Maxwell: Yes.

FN: In what ways?

Maxwell: Like I feel more progressive than I was there.

FN: Do you know why that is?

Maxwell: Because I feel like the teachers weren't really trying to teach as well as they do here; they're not trying to get through to us as much.

FN: I know when I was talking to Elizabeth she was talking about the African culture and how, I'm sorry it was not Elizabeth, it was Chantel, and how that was different for her here than where she was before. Do you feel like that's something that's different here?

Maxwell: Yes

FN: Do you feel that that's a positive thing for you?

Maxwell: Yes [be]cause like in the other schools that I go to **they're usually American** so it's good to go to a school that has a different culture.

FN: Okay, you feel like that's a good thing for you, do you know why you feel like that?

Maxwell: [Be]cause if I learn a new culture then it helps me learn more things about the world. (Interview transcript, September 17, 2008, pp. 3-4)

Maxwell commented, "In the other schools that I go to they're usually American so it's good to go to a school that has a different culture." This phrase "usually American" can be interpreted to mean usually European, and in essence, non-African. Below Chantel describes her experience and culture at Flower Academy.

FN: Okay, do you feel like your experiences here have been different?

Chantel: Well, yes, because here its like, based on a African culture, in the other school no African stuff was talked about.

FN: Do you feel like that's good for you?

Chantel: Yes.

FN: In what way?

Chantel: Because I **need to learn about my Black culture** instead of learning 'bout like stuff or certain stuff; but here its like they actually spoke some African languages.

FN: Okay.

Chantel: That kind of stuff.

FN: Got you; so in your other school, did they not talk about African culture at all.

Chantel: No. (Interview transcript, September 17, 2008, p. 3)

I noted that she used the word need, and not should or can, suggesting that cultural education was a necessity. Stuff seems to imply things that were not relevant to Black culture and therefore were not as relevant for her. She mentioned that the school's use of African language, an extension of the Black culture that she did not

get in her other schools. Like Chantel, Robert highlights the theme of the invisibility of African culture in schools in describing his experience.

FN: Have your experiences here been different [from] where you were before?

Robert: Yeah.

FN: In what ways?

Robert: Like in [school name] there was a lot of students and they couldn't really focus and they was always off track, same like... so I never got the lessons like I should have; and one of my teachers was always sick so there was always a substitute; and you know, they don't take control of the class.

FN: I was talking to one of the other students and they were talking about the African culture of the school.

Robert: Oh.

FN: Do you feel like that's something that's different here?

Robert: Yes, **I had never been taught African culture in schools**, like my mom and dad...

FN: Mom and dad. Was it here that you first...started to get that outside of like your mom and dad?

Robert: Yes.

FN: Do you feel like that's a positive thing for you?

Robert: Yes, very positive. (Interview transcript, September 17, 2008, pp. 3-4)

Robert is an African American student who, at the age of 13, had not been taught about his African culture in traditional schools. This is a statement that cannot be taken lightly. In most traditional schools, ethnic minority culture is relegated to one month out of the calendar year. His statement implied that the culture that he had been taught was the culture of Europeans, a culture that he did not identify with.

I asked the students to tell me more about Flower Academy and discovered that having caring teachers was an important part of their educational experience.

FN: Do you feel like you're getting something in this school that you wouldn't be getting somewhere else?

Ashley: Learning, lunch is supposed to be good.

FN: Anything else?

Voice: Connections.

Ashley: Quote, unquote.

FN: What do you mean by connections; what kind of connections?

FN: You said the connections.

Maxwell: You have some kids that like bond with teachers... The teachers relate to us.

Ashley: They sit down and talk to us... more attention.

Malcolm: Better lunch. (Interview transcript, May 20, 2008, pp. 13-14)

These referenced connections are fueled by the African-centered practice of having students refer to the teachers as Mama and Baba and the family focused mission of the school. In the students' descriptions of the schools they attended prior to Flower Academy, they mainly talked about the teachers' poor ethic of caring and lack of investment in their education.

My last school, my teacher she just give us some work that we don't know and she just go online and look at some shoes for herself, some pants.
(Malcolm)

I feel like the teachers weren't really trying to teach as well as they do here, they're not trying to get through to us as much. (Maxwell)

Elizabeth: The teachers were very mean there.

FN: So the teachers are nicer here; so you think that they care more about you here?

Elizabeth: Yeah 'cause the teachers there, they suck. (Interview transcript, September 17, 2008, p. 4)

It is interesting to note, that I learned that their former teachers were also African American. This is significant, because it suggests that having an African American teacher is not enough but that African American teachers must also be caring and invested and must be allowed to act on their connections to their students. These are attributes that the African-centered context provides these students.

Below, various student comments reflected the caring nature of Flower Academy African American teachers.

My math teacher, she's a very nice teacher... the way she show how much she love her job and the way she teaches (Terrell)

FN: How do you feel about your teachers here?

Terrell: I feel that they do the very best to teach us and help us; they really care for us.

FN: Is there anything you would change about them?

Terrell: No. (Interview transcript, March, 18, 2009, p. 3)

FN: How do you feel about your teachers at Flower Academy?

Maxwell: I feel like they're really nice and they actually care about our education.

FN: Okay, is there anything you would change about any of the teachers here, your interactions with them?

Maxwell: No. (Interview transcript, March 18, 2009, p. 6)

FN: How do you feel about your teachers at Flower Academy?

Robert: My teachers at Flower Academy? **I feel like they're trying their best to teach** and make sure we know what we have to. I think they like their job despite the disrespect and the bad things that come with it. But they take the bad with the good.

FN: Is there anything that you would change about any of your interactions with any of the teachers?

Robert: Interactions, I feel like **I'm fairly close with my teachers** but sometimes, like, I wish I wasn't so close.

FN: Really? Why do you say that?

Robert: Just sometimes because, like, in certain days when I do something and they're so sharp that they know –

FN: Because there's so close to you?

Robert: Yes.

FN: Right.

Robert: So it's like, "I know you wouldn't do nothing like that. What caused you to do that?"

FN: Right.

Robert: And sometimes I don't like that. But I like how they support me like –

FN: Because you're still human, and you're still going to do stuff.

Robert: Right. (Interview transcript, March 17, 2009, pp. 6-7)

I noted that Terrell, Maxwell, and Robert perceived the teachers as individuals who are committed to students. For Robert, the bonds between teacher and student had pluses and drawbacks. He was held to an even higher standard than he might have been by teachers in his former school.

Ashley's response continues to highlight the supportive nature and commitment of the teachers.

FN: How do you feel about your teachers here?

Ashley: **I love my teachers.**

FN: Why?

Ashley: 'Cause **they support me** in any way I need help.

FN: Is there anything you would change about them?

Ashley: Nope. (Interview transcript, May 12, 2009, pp. 6-7)

Malcolm stated, "They care about us, what we do, and then, it's like having fun sometimes." "Mama Roshanda and everybody else, they teach us the stuff we need to know." The common thread again is the caring as well as actually being educated.

When I asked Chantel how she felt about school and education she stated "school is a fun place to be; on the weekends, when I'm not doing nothing I wish I was at school." Chantel stated, "I like Mama Roshanda, I love Mama Roshanda, I love Mama Willis, and I love Mama Tamara..." Ashley stated, "I love school... I like to learn new stuff." When I asked her about her teachers she replied, "I love my teachers... [be]cause they support me in any way I need help." When I asked Elizabeth about her teachers she responded "I like Mama Roshanda... I like Mama Tamara, Mama Willis..." The common thread that runs through these statements is that the teachers are caring and supportive. I noted that the description of the school was uncharacteristic in light of how school is often characterized in the media, usually as a place students hate to go.

This section provided descriptions of the school in terms of the staff and teachers, mission and vision, principles and philosophy, and parental involvement. Descriptions of African-centered socialization practices were provided along the lines

of engagement and participation, identity development, community integrity, inquiry, and meaning-making. These descriptions served to paint a picture of the racial and cultural space in which these students were educated. Parent and student perceptions of the school were also provided in this section. In the next section, I describe how three students viewed themselves and the role of their parents in helping them to develop an identity as an African American.

How three students viewed themselves as African Americans and how their parents supported their identity development

African American girls, in particular, are especially vulnerable to feelings of self-loathing and of wanting to be White because of their kinky hair texture, skin color, and eye color. This self-loathing is illustrated in the story of Pecola Breedlove in Toni Morrison's *The Bluest Eye*, in which Pecola yearns for the attributes of White people.

Each night, without fail, she prayed for blue eyes. Fervently for a year she prayed. Although somewhat discouraged, she was not without hope. To have something as wonderful as that happen would take a long, long time”

(Morrison, 1970, p. 46)

Because of the extra burden that adolescent African American girls seem to carry, I would like to discuss three of the African American female students in greater detail to show that how they see themselves as African Americans suggest that the ways they experience being African American are fundamentally different from the ways Pecola and the Pecolas of the world may be experiencing it.

Chantel

“For African American youth, answers to the ‘who am I?’ question are likely to include ...representations of oneself as a black person in America” (Oyserman & Harrison, 1998, p. 1). Chantel, probably the darkest skinned of all the student participants depicts herself in the following way.

Figure 12: Chantel’s Self-Portrait



Chantel drew a smile on her face to depict that she is a “happy, joyful, and colorful person” as she stated in her written description of this portrait. Her hair is made from strips of paper to create the image of braids. She used the paste paper to adorn the hair with an accessory called hair bubbles, a common hair accessory used by African American parents for their young female children.

Chantel's choice to depict her hair in a distinctly African American style may be her way of conveying that she is proud of her culture and does not have to contend with issues of being teased by her African American peers for wearing braids made from her hair and synthetic hair, a style worn by Blacks. For young African American girls, hair can be a point of contention (Byrd & Tharps, 2001). Some African American girls may feel uncomfortable with their naturally kinky hair texture and may fear being teased by others for not having straight hair, a feature that is attributed to European images of beauty (Byrd & Tharps, 2001). Books entitled "Nappy hair" and "I love my hair" have even been written to help young black girls appreciate the beauty of their unique hair. Some African American girls might perm their hair to avoid being singled out (Byrd & Tharps, 2001). Even when the kinky hair is straightened or permed, the process involved in maintaining it is different from members of other racial groups. It might involve using specialized hair care products like hair grease. Jerry curl hair spray, a once popular African American hair product, had been a staple in African American comedy because of the stain it left on furniture.

Her skin tone is depicted as a dark brown. I can't overlook the importance of this depiction of her skin as true to actual physical self. Some girls have issues with their skin color, sometimes even expressing hesitancy about going out into the sun for fear of getting darker (Russell, Wilson, & Hall, 1992). Some girls with darker skin tones desire to be lighter because of differential treatment by society (Russell, Wilson, & Hall, 1992). The fact that she depicted her skin color as true to her actual skin color suggests that she is likely comfortable with how she looks. This is

confirmed by her statement, “I feel good about myself and the way I look. I look beautiful.”

When I look at Chantel’s self-portrait, I see a distinctly Black girl. Chantel’s self portrait was similar to the bold and stylized portraits created by African American artists during the Harlem Renaissance, a cultural movement in which many African Americans migrated to the north to escape Southern oppression. To show this similarity I have placed Chantel’s self portrait side by side with two portraits created by African American painter William H. Johnson.

Figure 13: Chantel’s self portrait and the work William H. Johnson



Chantel used paste paper to create her skin tone, hairstyle, shirt, skirt, and stockings. Her skin tone is true to form as she is dark skinned. Her hair is fashioned in an ethnic style. Her choice of clothing colors and background paper color are

similar to the colors in the paintings, mainly violets, browns, black, stripes, and blue. Her constructed image also seems to be dancing or exhibiting a flowing movement of some kind.

Her outfit slightly resembled the women of that time as depicted by this artist. She seemed to be dressed in her “Sunday best”, which could be interpreted as an expression of her religious activity. Chantel stated, “I wear skirts to church” in her self portrait description. The Black church is often described as an important part of African American cultural heritage because the church served as a place where African Americans could feel a sense of community, particularly during times of racial segregation.

Another important interpersonal dimension of black socialization is religious involvement. The church provides opportunities for blacks to occupy important and respected positions that may be denied them in the wider society; it also creates experiences and relationships that bolster self-respect, evaluations of one's racial group (Hughes & Demo, 1989), and psychological well-being (Ortega, Crutchfield, & Rushing 1983 as cited by Demo & Hughes, 1990, p. 366).

According to Conchas (2006), “church is important as a place to embrace differences as a resource against racism” (p. 52). Chantel’s identity seems to be rooted in a rich African American culture of art and religious expression. This is interesting given that the African-centered education attempts to center students with their culture.

In addition to representing herself as a Black person, Chantel seemed to prefer images of African Americans to images of Whites.

A commonly used procedure in studying ethnic and racial identification, preference, and attitudes is to present a child with dolls and pictures that are representative of his or her own group and of the majority group (Spencer & Adams, 1990, p. 295).

I will use Chantel's collage to discuss her racial preference as a manifestation of her feeling good about herself and Black people. I provided her and the other student participants with magazines containing many pictures that they could select for their collages. The magazines were not race specific and ranged from pop culture to home and design. Below is Chantel's collage.

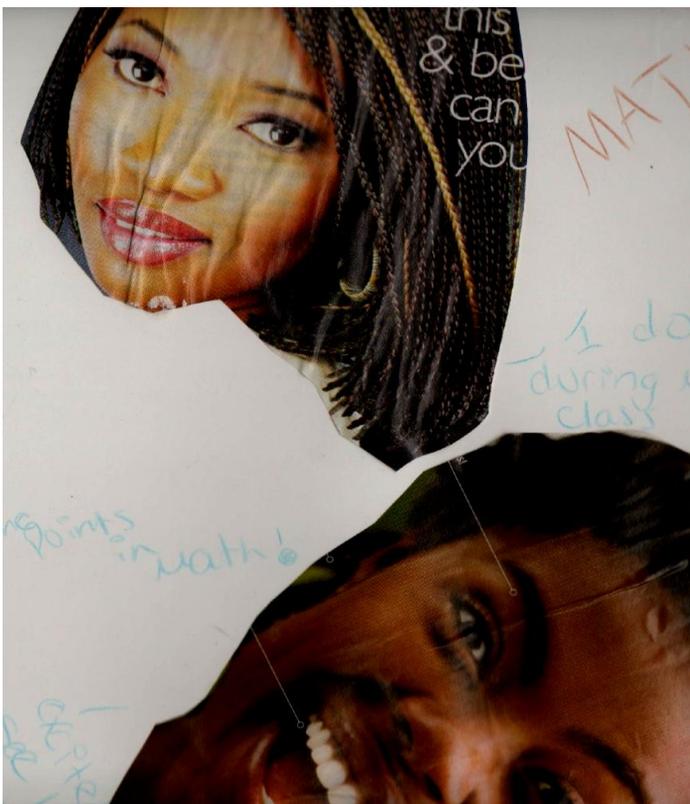
Figure 14: Images taken from Chantel's mathematics collage



Clark & Clark's (1947) doll studies revealed that African American children demonstrated a white bias, choosing White dolls over Black dolls. The children perceived the Black dolls as being ugly and the White dolls as pretty, while consciously stating that they themselves looked more like the Black dolls. In an episode of the Tyra Banks Show (2009), hosted by high profile African American model, Tyra Banks, the Clarke doll study was repeated and the young African American participants repeatedly selected the White doll over the black doll as a response to questions like "which doll is the pretty doll?" and "which doll is the nice doll?"

Unlike these African American youth, Chantel chose pictures of Black women. Not only were these selected images of smiling women of African descent, but they were not light skinned women. This is extremely important given the media's obsession with light skin. Chantel could have selected light skinned black women (who are still representative of the African American community), but her decision to use pictures of darker skinned women from the various magazines provided seemed intentional. One could say that she chose these pictures because she was dark skinned, but the Clark doll studies suggest that having dark skin does not necessarily translate into choosing to identify with it.

Figure 15: Hair representations in Chantel's mathematics collage



A closer look at the images that Chantel chose reveals that the hairstyles of the women in this collage were not Eurocentric; the braids worn by the woman at the top are a combination of her hair and synthetic hair, commonly known as weave, a hair style that can be seen on the heads of many African American females. The girl in the image below is wearing a coiled hairstyle commonly referred to as locks, a style that originated in Africa (popularized by Rastafarians) and is perceived as a very

Afro-centric style because the hair is uncombed and left in its natural state. This is important as well because of the media's obsession with women of African descent either having straightened hair, or hair that is curly, which is often times the result of the woman being bi-racial, where one parent is of African descent. Her choices of images in her collage suggest that she feels good about herself and people that have distinctly African features.

I learned that Chantel's mother had talks with Chantel, gave her real life stories, and talked to her about the consequences of actions. She had mother-daughter days on Saturdays because she found that she wasn't able to spend as much time with her children as she would have liked. She described her and Chantel as being close. Chantel stated that her mother helped her to understand who she was by "teaching [her] correctly and talking to [her] from time to time and explain to [her] which way [she's] going and stuff like that." From the phrase "which way [she's] going", I gather that these conversations were about Chantel heading down the right direction in life and the choices that she should make. Part of those choices likely included making the choice to become educated. During an interview, her mother mentioned that she had high expectations for Chantel's grades. Chantel also stated that her mother said that she needs to act like she had manners, or in essence to have respect.

Ashley

Ashley represented herself in the following way.

Figure 16: Ashley's self-portrait



Ashley used paste paper to construct her skin, hair, hair accessories, shirt, Hanna Montana purse and pants. Hanna Montana, a character played by Miley Cyrus, is portrayed as a young White female teenager with her own show and recent movie, *Hanna Montana: The Movie*. She is very popular among teenage girls, but I did not know that she was necessarily popular with African American teenage girls.

Ashley's skin tone was depicted in a manner that was very true to her actual skin tone. I noted that her hair is adorned with hair bubbles, an accessory that is very common for young African American girls. This portrayal of hair was very

significant. She could have drawn herself with long hair falling down her back, a more Eurocentric standard of beauty, but did not. Ashley drew her face with a smile suggesting that she was happy. This is confirmed by her self portrait description where she stated, “I’m smiling because I’m a happy person.”

Below is the brief analysis of an African American graphic arts designer.

Does she have long hair or is it –...Okay so then that would mean that, you know, I guess wearing a weave is all about having extra dimension or extra volume to your hair. So she was able to say that in her collage...if she could actually wear this in her hair --I’m sure she would probably do it. So it really lends to her sense of style as far as it relat[es] to her hair. (Interview transcript, March 16, 2009, p. 10)

The designer has picked up on her identification with her racial/ethnic identity through her choice of hair representation.

From Ashley’s self representation I realized that Ashley seemed to have a connection with her African heritage. To highlight Ashley’s connection to her African roots, I placed the image of Ashley’s face and hair in her self portrait next to a picture of a woman featured on a Congo stamp.

Figure 17: Ashley and the Congolese woman



What is most noticeable is that the hairstyle that Ashley has given herself is very similar to the hairstyle of the woman on the Congo stamp. In both hairstyles, the hair is jet black and parsed into fine strands that stick out into the air. I noted that her constructed hairstyle is not reflective of the hairstyles that she had during my observations, strengthening the notion that she was subconsciously identifying with African culture.

Ashley helped me to understand what she was learning about her culture and history at Flower Academy. She stated,

Our people were slaves the White people were our masters; we -we worked for free; we got beaten; and our women, the women were raped and forced to have sex with the White man...I feel that it isn't fair and our people ...our people should have had a chance for some stuff. (Interview transcript, May 22, 2008, p. 3)

I was amazed by the frankness with which she spoke about African Americans and enslavement considering that she was only in the seventh grade. Her use of the words “our people” suggested to me that she had a strong cultural connection to other Black people. From my observations, it seemed that at Flower Academy, slavery was a topic that was discussed in a fair amount of detail from an African-centered perspective. The hallways were filled with student work about slavery. This emphasis on slavery at Flower Academy is significant. There are sentiments in society that African Americans need to just forget about slavery and move on. African-centered educations call for remembrance of slavery or racial genocide which led to the fragmentation of African culture. African American students in traditional schools may be more likely to treat slavery as a minor occurrence in history because of its cursory treatment in their classes.

Ashley’s mother described the kinds of conversations she had with her daughter at home.

I try to tell her what I went through as a teenager or as a pre-teen. I tell her that **I don’t want her to take the road I went.** That I want to see [her go] further. I tell her **I don’t want you to get a GED like I had to do.** I want you to get a high school diploma, go to college... Get some degrees so you’ll **better yourself.** (Interview transcript, October 27, 2008, p. 5)

“According to several prior studies, African-American parents continuously stress to their children the importance of getting a good education ...” (Furstenberg, Cook, Eccles, Wong, & Peck, 2006, Elder, & Sameroff, 1999; Hughes & Chen, 1997; Hughes & Johnson, 2001; Phinney & Chavira, 1995 as cited in Eccles, Wong, &

Peck, 2006). Ashley's mother wanted her daughter to head down a different and perceived better path than the one that she took. I think she wanted Ashley to improve upon what she could do and make a different choice. She also wanted Ashley to understand that she too was once a teenager, and likely wanted Ashley to learn and avoid the mistakes she made. Ashley stated, "they ask me questions like what do I want [to] be; how do I describe myself, just who am I." Ashley's recollection of her parents asking her who she was reminded me of my own childhood. My parents, in an effort to help me to see my self-worth and understand where I was headed in life, would ask me if I knew who I was and where I came from. Ashley also mentioned that her parents helped her to understand who she was by telling her that she needed to work on the way that she acted in school, home, and other places.

Elizabeth

Elizabeth provides a contrast to Chantel and Ashley. Elizabeth made the following statement in her self-portrait description, "I am light skinned with hair." The fact that she mentioned that she was light skinned meant that it was an important part of her racial self-concept. The addition of "with hair" implied that dark skinned girls did not have hair like hers. For many African Americans, being light skinned and having hair is seen as good, in particular if the hair is long and less kinky, then it is good hair. This notion of "good hair" and "bad hair" is still very much a part of the African American community, so much so that African American comedian Chris Rock produced a movie entitled "Good Hair."

Elizabeth portrayed herself as light skinned with long hair in her self-portrait.

Figure 18: Elizabeth's self-portrait



She constructed herself wearing a blouse and a skirt giving her a church look similar to the one in Chantel's self-portrait. I came to learn later on that Elizabeth's mother was a reverend. Her view of self as a light skinned racial/ethnic person was affirmed by her selection of images from her math collage. She chose images, not of light skinned Black women, but of White males and females. This is evidenced in her collage below.

treat people like you wan[t] [to] be treated. And if they don't treat you accordingly, then you just **pray for 'em**; don't hate them. You know that's how I brought them [up]. Don't dislike people; there are people that are go[ing] [to] dislike you, who don't even know you, don't have a clue who you are. Or people on a face-to-face value saying that **there's a nigger** tooting there...they just can't get past it; **separate yourself from that**...And just be who you are. (Interview transcript, March 24, 2009, p. 8)

This is an example of Black racial socialization.

Black racial socialization refers to messages and strategies used by Black parents to teach their children about Black American culture, prepare them for potential experiences with racism and prejudice, and promote healthy mistrust of non-Blacks (Hughes & Chen, 1997; Stevenson, 1995; Thomas & Speight, 1999). Several researchers (e.g., R.B. Hill, 1998; Miller, 1999; Zimmerman et al., 1999) have noted that racial socialization messages may protect urban Black adolescents against some of the harmful effects of a discriminatory environment. (Constantine & Blackmon, 2002, p. 324).

There are religious overtones to this conversation as Elizabeth's mother is a minister. Her references to God and praying are indications of this. What was different about this conversation as compared to the kind that Elizabeth's and Ashley's mothers had was that it had explicit racial aspects to it. Her reference to the word "nigger" is an indication of this. In essence she is calling for Elizabeth to understand that there are ignorant people in the world and that she has to be resilient by resisting hatred and

dislike, a non-violent approach of sorts. This message seems designed to prepare Elizabeth for potential experiences with prejudice (Constantine & Blackmon, 2002).

Elizabeth stated,

They help me understand who I am in a lot of ways, 'cause we be going to church and you be seeing people in the street and if you give them stuff, it shows you have good character; if you just walk away and stuff like that, that mean you don't have no heart. (Interview transcript, September 17, 2008, p. 4)

The message that Elizabeth is getting seems to be about morals and character, which is heavily influenced by religious practices. Eccles, Wong, & Peck (2006) states, "alternatively, adolescents and their parents may respond to anticipated future racial discrimination with a more agentic response" (p. 410). The kinds of conversations that Elizabeth's mother is having with her daughter seem to be along this line of helping Elizabeth respond with agency to racial discrimination.

Elizabeth also mentioned that her mother told her that she needed to act like she had respect, specifically respect for her elders. "Structurally, being black in American society means occupying a racially defined status; associated with this status are roles in family, community, and society" (Demo & Hughes, 1990, p. 364).

Elizabeth's mother stated,

As far as education goes? I think she's go[ing] [to] be quite successful in whatever field she decides to go in. With her, with all the efforts into it to bein[g] the best, so that she can be a help. And put a mark in

society...Educationally? However high [it] will take her... [As high as] she wants to go. (Interview transcript, March 24, 2009, pp. 9-10)

Elizabeth's mother believes in her daughter and wants her to make a difference.

When I asked Elizabeth about school and education she responded, "It's very important... 'cause you're not go[ing] [to] succeed unless you know what you're doing."

Several qualitative accounts of the racial socialization by African-American parents stress the importance that these parents placed on education being the best defense their children could have against a racist society (e.g., Clarke, 1983; Comer, 1988, 1996). (Eccles, Wong, & Peck, 2006, pp. 410-11)

Chantel, Ashley, and Elizabeth represented themselves with hairstyles that would be perceived as Afro-centric and skin tones that were true to their actual skin tone. They seemed comfortable in their skins. Their parents seemed to be devoted to helping them to make the right choices in life. Similar to findings by Berry (2005), spirituality and religion were themes in Chantel and Elizabeth's portraits. Elizabeth is an interesting case in that her choice of images in her math collage is reflective of escaping blackness (as described in part one). Chantel and Elizabeth's representations and choice of images are reflective of embracing blackness. These three cases illustrate the simultaneous embracing and escaping blackness among African American students at Flower Academy. Despite Elizabeth's escaping of blackness, Chantel's dark skin, and Ashley's love for Hanna Montana, I did not get the sense that she, Chantel, or Ashley, were secretly yearning for "blue eyes."

Discussion and Conclusion

Within the context of the PVEST model, the overall findings suggest that in comparison with other school settings, there are supports for the challenges of race and racism, but not for skin color. Findings also suggest that this school provides supports for relationships and bonds among teachers, students, and parents.

Among Black adolescents, in particular, developing and maintaining a healthy racial identity can be daunting in the context of current turbulent race relations in the United States (Stevenson, Reed, Bodison, & Bishop, 1997). The task of healthy racial identity development may be especially challenging for Black adolescents because they must negotiate mainstream, minority, and Black cultural and community experiences (Boykin, 1986; Boykin & Toms, 1985; Thornton, 1997). (Constantine & Blackmon, 2002, p. 322)

In this school, the segregated racial environment afforded African American students cultural inclusion and rather than isolation and alienation, Black faculty, and students who were not culturally ignorant. Flower Academy was sending intentional messages to the students and parents by having same race students and same race qualified staff. The first message was that African American students learn best in segregated environments. The intentionality of having Black teachers who all held at least a bachelor degree, sent another message that poor Black children should receive qualified staff.

The school sent more messages to the students by using African language, displaying images of Africans and African Americans, displaying information about

Kwanzaa, and disseminating information about African drum nights. One message was that African and African American culture must be visible. The students valued their racial/ethnic identity and culture. From these self depictions and survey responses, one could say that these students were culturally connected. Traditional schools are described as Eurocentric culturally hegemonic spaces (Hilliard, 1997, Giroux, 1981). These students, however, resisted this hegemony and were likely influenced by their teachers. The student participants spoke of their culture as distinctly different and separate from White Western culture and thus were more likely connected to their African and African American cultures than African American students in traditional schools.

The nature of the relationship between the school and the African American parent community was unique. Involving parents in the student's education sent the message that the African American parent had value. These African American parents were learning about empowerment and giving back to the community. "Phinney and Chavira (1995) found that African-American parents were particularly likely to use a form of racial socialization in which they emphasize academic achievement ..." (as cited in Eccles, Wong, & Peck, 2006, p. 423). These students were socialized to make good choices, see their worth, and be survivors.

Hale (1982) states:

Black children must achieve competency in mastering the tools of this culture if they are to survive. It is not enough to wear dashikis, speak Swahili, and eat 'soul food' in education settings...we must create an educational system that not only celebrates African and African American culture but also imbues

black children with the skills they need to survive in this society and to contribute to its creative developments. (p. 3)

The school attempted to provide students with the academic and social skills they would need for participating in society. The African-centered elements of education at Flower Academy did not lie within the curriculum, but within the culture of the school and the mantra of it takes a village to raise a child. Although students are not wearing dashikis or learning a tremendous amount about Africa, they were learning to value their identity and acquire the necessary social skills.

Based on the interview data, the students had positive feelings about themselves as African Americans.

In a discussion of racial identity, Erikson (1968) speculates that minority and oppressed individuals may be prone to develop a negative identity as a result of accepting negative self-images projected onto them, not only by the larger society, but by their own group as well (Spencer & Adams, 1990, p. 299)

These African American students were generally comfortable with their African features and seem to counter Erikson's speculations about minority individuals. Their self-representations were not framed by Eurocentric ideals. None of the eight student participants drew themselves as having blue eyes, long blond hair, or white skin.

This truth in self depiction is particularly important because of the devaluing of African features by the media. African American girls at Flower Academy did not seem to have issues that many African American females struggle with in trying to achieve a more Eurocentric look to fit into their environment. Looking at three of the

students, it became clearer that being African American could be a positive experience for female African American adolescents.

None of the male student participants drew themselves wearing baggy clothing, chains, or bandanas, carrying a boom box, or robbing a liquor store i.e. stereotypical depictions. The sharing of racial/ethnic and in some instances cultural identities might have assisted the students in seeing the staff as role models and in embracing their racial identity. Students' positive identification with their minority status has been linked to academic resilience (Swanson, Spencer, Angelo, Harpalani, & Spencer, 2002). It seems that at Flower Academy, group identification as African Americans is not a risk factor that makes them susceptible to prejudice and racism, but instead is a promotive/protective factor against racial discrimination (Eccles, Wong, & Peck, 2006). According to research, a positive racial identification can be linked with higher self esteem and better mental health (Eccles, Wong, & Peck, 2006).

How students view their racial identity influences how well they function in other aspects of their academic lives, where impaired development could lead to disrupted intellectual performance (Gay, 1984 as cited in Helms, 1993, p. 210)

Using the work of Gay, these students' positive racial identities as reflected by their self portraits, collages, and survey responses are related to their status as high achieving math students in Mama Roshanda's classroom.

What did seem to be a risk factor for students at Flower Academy was dark skin. The feelings about dark skin being more beautiful than light skin along with

feelings about not wanting to be African not only suggest that these African American students were trying to escape blackness, but indicate that Flower Academy needs to incorporate information about the varying hues of African Americans into its African-centered pedagogy, particularly at the adolescent stage of human development. It is also an indication of the heterogeneity of the African American community and the ways in which skin color impacts members' experiences.

The students in this study were in an environment where the tasks of having to debunk racial stereotypes might have been less necessary. They were unique in their positive feelings about being African American because many structures and practices in society either make African Americans desire to look different and be different, or to feel less than worthy as an African American. I think that these students were less vulnerable to the stereotypes about themselves than most African American youth. All eight student participants self-identified as African Americans. This is important because "schools are important sites through which labeling and social interactions most acutely occur (Conchas, 2006). All eight expressed feelings of happiness, pride, and general good feelings about being African American through the survey, collage, self-portrait, and/or interviews. For them, racial status seemed to be a source of beauty and strength.

The cultural and racial practices of Flower Academy in conjunction with parent socialization were positively related to these African American adolescent students' perceptions of themselves as African Americans. Ultimately, the school's racial and cultural practices presented opportunities for students to construct healthy racial/ethnic identities. To be an African American in this school means to be a

valued member of a racial group with specific cultural practices. An examination of what happens at the intersection of being African American and a math learner will help to complete the story of what it means to construct an identity as an African American and a mathematics learner. The final analysis will explore the construction of math learner and African American identities and Flower Academy as a unique space.

Chapter 6: African American mathematics learner identities and preparation for academic futures

Building on the ways in which Chapter 4 explored the role of Flower Academy in supporting student construction of identities as learners of mathematics and Chapter 5 explored the role of the school in student identity formation as African Americans, this chapter explores ways in which the school supported students in management of these two aspects of their identity and the creation of identities as African American mathematics learners. This exploration aids in answering the following research sub-question: What is the nature of students' dual construction of identities as African American math learners and what school practices assist students in positive identity construction? It is the final analysis in a set of three thematic analyses of the data collected in this study. This analysis will examine the ways in which practices support intersecting domains of math learner and African American identity and establish Flower Academy as a unique space for African American adolescents.

The chapter is sectioned into four parts that, taken together, tells a story about what it means to be an African American math learner in this particular African-centered school. To explore what dual construction looks like in the life of a student and to begin to see patterns in how this construction of multiple identities develops, the first part of the chapter offers case studies of two students for whom managing their identities as African Americans and mathematics learners pose different challenges. In the crafting of these cases, the PVEST model, with its examples of

supports, challenges, reactive coping strategies, responses, and outcomes, was useful. The model serves as a foundation for a discussion of the two cases.

The second part of the chapter explores the construction of multiple student identities as African Americans and mathematics learners in terms of how the students depict themselves in their collage creations. I examine collages of all eight students. In the third part of the chapter, drawing upon observations and interviews, I examine school practices that potentially support the construction of math learner and racial identities for these students. In the fourth part, I examine the non-traditional beliefs that these African American adolescents hold about the usefulness of mathematics and focus on issues of power and privilege in thinking about these students' preparation and futures. In this section, I draw upon interview data. In concluding this chapter, I utilize the four parts of the chapter to make an argument about the school's practices in relation to the students' identities as African American mathematics learners. Based on my interpretation of the data, I introduce a framework for thinking about relationships between African American adolescents' construction of an identity as an African American mathematics learner and African-centered schooling contexts.

Illustrating the construction of math learner and racial identities in two cases

Adolescents face challenges of physical appearance and the desire to be socially acceptable. They struggle to define and express themselves. They seek to find ways in which to put themselves on paths toward a life worth living. As adolescents participate in a variety of social groups and social settings, they must struggle with

how to manage the different ways in which they act in different settings and to integrate these into a meaningful identity. The following cases illustrate the challenges of adolescent identity construction focusing in particular on identity development as an African American and as a mathematics learner.

The thugette: A “classy young lady” tries to manage gender, race, and being a mathematics learner

Hypermasculinity, a behavior typically attributed to males, is adopted by Ashley who consequently has been labeled as “a thug-ette”. The reasons why she adopts this behavior are explored in subsequent sections. Her identity construction illustrates the complexities involved for African American female adolescents in the navigation of gender, race, and math learner identity. This construction is explored in the themes that follow.

Theme 1: Vulnerability, self appraisal, risk contributors

I begin with some descriptions of Ashley that attempt to place her within the African American community and interpret the messages that her choices of clothing and hair style send. Ashley is a 13-year old girl born and raised in an African American community on the east coast. Ashley stated that at home she learned how to be a woman and how to protect herself and her siblings. In her view to be a woman meant “to know [her] boundaries” and “know where [she] st[ood].” Ashley has been socialized to have a particular position or place in relation to others, a place that as we see later on, may cause some internal conflict.

From my observations, I note that Ashley's skin is brown. On one occasion, she wore her hair cornrowed back to the center of her head and meeting in the middle, the ends of the braids held by a yellow and orange hair holder, commonly known as a scrunchie. Cornrows (obtained by dividing hair into small sections, and braiding close to the scalp) are akin to smaller sized French braids and are perceived as a very "Black" hairstyle that have been popularized by rap artists like Ludacris and Snoop Dogg.

Ashley also wore what looked like a do-rag that was wrapped around the top of her head, covering a little of her forehead the way a headband does. Do-rags are black hair coverings that are typically worn by African American males but are also worn by motorcyclists and some gang members. Her decision to wear the do-rag could be interpreted in several ways: Ashley might want to affirm her racial identity and perhaps the do-rag assists her in being perceived as more masculine or she may wear it in order to be perceived as tough.

Two two-inch gold hoop earrings, with her name written in cursive across the length of each earring, dangled from the first holes of her ears. Earrings of this type were popularized in the 1980s, and were commonly worn by African-Americans and Latinas in lower income communities. These were also popularized by female rappers like Salt-N-Pepa and Mc Lyte. In her two second holes dangled midsized pearl ball earrings.

Ashley is approximately 5 feet 1 inch tall and is of average build. She seemed short in comparison to the other students in her grade but was a bit more physically developed. This can create some stress during adolescence. Other girls may tease girls

who are perceived as over or under-developed, while boys may make inappropriate comments about physically mature bodies.

Ashley's self-appraisal is depicted in her self-portrait below.

Figure 20: Ashley's self portrait



Her hair is black and parsed out into thin strands indicating that she is a person of African descent. This is important, because when given the option, some people with kinkier textured hair and/or darker features may choose to represent themselves as having a less “ethnic” style (i.e. straighten their hair and lighten their skin) because of the societal pressures to look more Eurocentric. During adolescence, the pressure to be accepted and do the more socially acceptable thing is greater; thus, her choice of hairstyle could be viewed in several ways: (1) it can be viewed as conveying self-

acceptance' (2) it could be viewed as an enactment of resistance against the dominant culture; and (3) it could be an illustration of her racial pride.

She colored her skin brown in the self-portrait. This is important, because when given the option, some people of darker hues (from various cultures) may desire lighter hues and/or choose to represent themselves as being lighter than they really are, due to the societal stigma attached to darker hues. During adolescence, skin color can be a very sensitive issue where brown and darker skin hues can lead to teasing or discomfort around girls who have lighter skin and may be treated more favorably. Her choice to represent her skin tone as brown and not caramel or tan can be viewed as another conveyance of self-acceptance. According to Ashley, her parents told her that “black and white [were nothing more than] color[s].”

Ashley’s self portrait shares some similarities with a picture of a woman featured on a Congo stamp.

Figure 21: Comparison with Congolese woman



The hairstyle she gave herself is very similar to the hairstyle of the woman on the Congo stamp. Her perception of self, then, seems subconsciously rooted in African

culture. This implies that her views of herself can be constructed across time and space.

Ashley had a stepfather but maintained a relationship with her father. The nature of the relationship between Ashley and her stepfather, however, was not communicated. Ashley was the oldest of the children from the relationship between her mother and stepfather and the middle child from the relationship between her mother and father. She had three sisters, Rita, Tiara, and Secret, and one brother, Derrick. Ashley maintained that she loved her family. She described being raised in a “regular” and “non-religious” way. Ashley described her parents as the people who influenced her the most. In her view, her parents helped her to understand who she was by asking her questions about who she wanted to be in the future and who she thought that she was in the present moment. In the next section, I describe one of the challenges in and supports to Ashley’s identity construction.

Theme 2: Stress engagement, challenges and supports

In her view, being a teenager was hard. Ashley reflects on this stage in the excerpt below:

A lot of boys, they don’t wan[t] [to] talk to you, they don’t know what to say ... Some girls, they [behave] nast[il]y ... They don’t know how to carry the[m]selves. (Interview transcript, June 25, 2008, p.7)

Here Ashley is communicating the difficulty involved in adolescent male-female interactions. She seems to be making a judgment as well about the other girls in the school. It is unclear what supports were in place for helping her with this challenge of

adolescence. Ashley expressed love for some of her friends. She explained that one of her friends tended to act fake. She felt that a best friend was someone that would be like a brother or sister to her. Ashley perceived her “true” friends as people who were supportive of her goals of working hard and being a good student.

Ashley’s mother described the choices of elementary schools in their low income neighborhood as being limited. When Ashley was in third grade, one of her teachers told her mother that Ashley had too much potential to be in that particular elementary school and would be better served in another school. Someone told her mother about Flower Academy and she explored the school as an option. She began attending Flower Academy in the fourth grade. Her mother described Ashley’s transition to Flower Academy.

Well since Ashley’s been there, I think that they [] just get deep into the math. It’s [the teachers] see [that students do not] really car[e] about math [] they call [] and they [] let [] the parents know. [They’ll say,] well this is the problem ... she’s not focusing on this and she’s having a hard time (Phone interview, October 27, 2008, p.9)

Ashley had been at Flower Academy for four years and was now in the seventh grade. Ashley loved most of her teachers at Flower Academy because she felt that they supported her, but had a dislike for the music teacher because she felt that he did not listen to the students. She described the teachers at Flower Academy as people who sat and talked to the students and gave them more attention than the teachers in other schools. Ashley described not being able to handle the challenging nature of mathematics, but felt that, currently, she was better able to handle it due to Mama

Roshanda's extra support after school. Ashley felt that Mama Roshanda made mathematics easier by providing students with mnemonic devices for particular mathematical procedures. Her parents also provided mathematical support by checking for her understanding after she completed her homework.

Ashley stated that the teachers at Flower Academy motivated students to do work with phrases like "they got beat up for [you]" so that you could have a "free education." This is what Martin (2007) refers to as "invok[ing] contingency clauses that implicat[e] [the student's] status and identities as African Americans" (p. 20). The use of the word "they" implicates racial identity status where in this context "they" refers to Ashley's African ancestors who were enslaved in America. Ashley described Flower Academy as a place she loved because she could "learn new [things]."

She recalled that her parents sent her to Flower Academy because she needed to learn about her ancestors and because she "should know more about slavery." She described slavery for me:

Our people were slaves [and] the White people were our masters. We worked for free; we got beaten ... Our women []were raped and forced to have sex with the White man ... I feel that it isn't fair and our people, our people, should have had a chance. (Interview transcript, May 22, 2008)

The phrases "our women" and "our people" are contingency clauses. "Our women" and "our people" in this context refer to African Americans.

The school was as a social support that offset the stresses of mathematics for Ashley, offset the risk of poor quality schools in low SES neighborhoods, and

enhanced her historical understanding of African Americans. In the next section, I describe how Ashley reacted to perceived social supports. This section highlights the challenges that Ashley faced in negotiating her gender.

Theme 3: Reactive coping methods, maladaptive and adaptive solutions

Ashley described herself below in her self-portrait description

I'm a classy young lady who carries herself well and shows respect. I like to sing and dress really crazy ... I'm mainly casual and laid back. I'm generally very simple but neat ... I'm loving and compassionate ... I'm a happy person and love to laugh and have fun ... How I picture myself is trustworthy and responsible. (Self-portrait description, November 28, 2008, p. 1)

Other students were teased for not having a lot of shoes or clothes, but according to Ashley, she never incurred such teasing. Ashley declared that she felt great about the way that she looked; in particular, stating that she loved her body, the way she spoke, and the way that she stood. She did, however, want to get braces for her front teeth which protruded slightly. Consistent with the literature on African Americans, Ashley seems to have very high self-esteem (van Laar, 2000; Myers & Diener, 1996). She was well liked by staff and teachers but had some behavioral issues.

Ashley was referred to by the educational facilitator for mathematics as “my veterinarian” and “thugette” because she hit students frequently. A thug-ette would be the feminine counterpart to a thug. In urban contexts, a thug typically refers to a criminal whose primary mode of interaction is violence and roughness. On one occasion, I saw Ashley grab a boy by the shirt and place her hand on his pants pocket yelling “where [is the] gum []?” Within 2 minutes, she was across the room holding

another young male student's hand tightly as she slapped his hand and wrestled with his pencil. Then she sat down. As I glanced over at her maybe ten minutes or so after that, she was slapping another boy across the chest and laughing. I asked her about a fight that she had with a boy some weeks prior and she attested that she fought him because he hit her in the head.

This hostile behavior could be interpreted as a coping response for dealing with fear and victimization (Spencer, Fegley, Harpalani, & Seaton, 2004; Kuykendall, 1989). Caspi, Lynam, Moffitt, & Silva (1991) suggest that delinquent behavior is a response to early physical maturing the accompanying feelings of awkwardness or alienation. It could also be related to family issues, and physical or emotional abuse (Welsh, 2001; Kuykendall, 1989). One underlying message that this behavior communicates is a need to protect oneself. In our first interview, she indicated that her parents have taught her how to protect herself.

Baba John describes Ashley's behavior and attitude below:

I used to always say to her, [do] you know why you fight? [Are] you okay if [] somebody [] knock[s] your teeth out. You're a young lady, you don't wan[t] [to act this way]. She said, 'I don't care, I don't care.' I [asked], '[If you get all your teeth [knocked] out you [wouldn't] care? ... Come on, come on.' ... She gets into this thing where she's fighting and wanting to hit people and [things] like that. I wish I had a chance to [] really spend more time [with her]. I [] understand what the family situation is [be]cause I think that's a big part of what's going on with a lot of these kids ... I tease her about being a little thug-ette ... She'll be hittin[g] people and just walking away, hitting

them. [I asked her] ‘What are you doing and her response was ‘he looked at me.’ Smacking people in the head and I’m like – and then – I’m serious. I don’t know if she was frontin[g], or just trying to [communicate to people the sentiment] ‘I’m so hard.’ I tend to think that she’s just trying to put up this front like she’s so tough... But behind that there’s some more issues there.

(Interview transcript, March 18, 2009, p. 20)

Fronting and hard are two colloquial terms used in the African American community. Fronting refers to the practice of trying to appear overly tough, while hard is a descriptive used to describe someone who exhibits gangster behavior, is from the streets, hustles, and will not let anyone violate them in any way (Marshall, 1997). African American female adolescents in Steven’s (1997) study referred to the actions of hitting as “thumping”, a term meaning that you have to take care of yourself even if it means that you have fight.

It is possible that Ashley is modeling the behavior in her community (Marshall, 1997). Another possibility is that she acts this way in order to gain respect, assert her sense of self, and retain power and control while on the margins (Marshall, 1997; Anderson, 1994). She may perceive herself as being marginalized along both racial and gendered lines and her combative behavior may be a response to societal devaluation (Stevens, 1997). Perhaps she is also marginalized along mathematical lines when working within student groups.

There is disconnect between Ashley’s view of herself as a classy young lady and the hypermasculinity and posturing expressed as a display of bravado. She seems to be experiencing some difficulty in finding meaning in her gender socialization

experiences. Her parents have told her that she has to know her boundaries, but perhaps she finds these boundaries limiting. Her parents have communicated to her that as a Black girl, she should work on the way she acts, but she does not. Ashley faces some challenges in trying to reconcile her parents' expectations of her to act appropriately in school and in various settings with her penchant for thug-like behavior. Positive beliefs about school have been named as protective factors for school-related delinquency, but in Ashley's case, they do not seem to have much of an effect (Smith & Kerpelman; 2004; Degelsmith, 2001). Her behavior suggests that she is in need of even more positive female role models. In the next section, I describe Ashley's stable coping responses in reaction to her challenges and available supports, i.e. stress level.

Theme 4: Emergent identities/ Stable coping responses

Ashley self-identified in a self-portrait description as "a Black person who's been around a long time." One interpretation of this is that she sees herself as Black and as an old soul. In her survey, she assigns a 4 to the statement "If I were to describe myself to someone, one of the first things that I would say is that I'm Black." She contradicts her racial identification, however, during a focus group interview stating "I don't consider myself anything." One interpretation of this is that she already knows she is Black, but wants to be thought of simply as an individual at times.

The way in which Ashley responds to stresses in her life is explored through the MIBI-teen and focuses on the factors of racial centrality, public regard, private regard, and assimilationism.

(MIBI-Teen: Range 1-5)

Centrality	3.67
Private Regard	5.00
Public Regard	3.00
Assimilationist	1.00

The results show that Ashley had an above average centrality score, high private regard, average public regard, and low assimilationist score. One way to interpret these results is that Ashley has strong racial pride. Ashley neither agreed nor disagreed that other people thought of Black people as being just as smart and as good, or that other people thought that Blacks had made important contributions. Ashley felt that Asian students were perceived as being smarter than Black students in mathematics, not because of their race, but because of their cultural practice of going to school year round. This has implications for how she will see herself as a mathematics learner. Her low assimilationist score points to a belief that Black people do not need to abandon their cultural ways in favor of dominant traditions. Ashley strongly disagreed that it was important for Blacks to go to White schools so that they could learn how to act around Whites, to not act Black around White people, and to act more like Whites to be successful. She seems to embrace her racial identity.

At the time of the interview, Ashley was a student in Mama Roshanda's algebra course. She described herself as a "hardworking top student and smart young lady". According to Ashley, her positive feelings for animals (and becoming a veterinarian) helped her to stay on track as a student. Ashley made A's and B's in other classes, but got a C in mathematics the semester prior to the one in which I was interviewing her. Mathematics and social studies were Ashley's favorite subjects. She believed that she was good in mathematics.

Ashley did give up from time to time because sometimes she struggled to understand the material, stating "when it's just too much, I just say I quit." According to Ashley's mother, Ashley struggled with mathematics the year prior but received extra help at school and was doing better now. Ashley wanted to take more math classes in college. She created a collage to convey how she viewed herself in her math classroom. Below is a snippet of the collage.

Figure 22: Snippet of Ashley's collage



Ashley described her chosen graphics below:

In my math class ... I'm a person who approaches my goals. I'm a superstar in math. I feel beautiful in math. I glow in math. I'm an almighty person in my math class, and I [] write numbers in math class. (Description of collage, June 11, 2008, p. 1)

One interpretation of this is that now that Ashley is getting the kind of mathematical support that she needs, she feels that she can do well in mathematics. Ashley felt that mathematics was important because she would "need it later in life." Her mother believed that it was important for Ashley to learn mathematics, because she would need it in order to handle money and pay bills. For Ashley, mathematics had to do with money, paying bills, counting the streets, counting blocks, and counting calories.

Ashley described being a math learner as loving math, learning different kinds of math, and measuring and counting. She asserted that she was learning algebra but felt that even though she knew how to do it, could not describe it. In Ashley's view mathematics was "for everybody", and not any particular racial group.

Ashley described doing well in mathematics:

Get a passing grade, know[ing] what you [are] doing. Don't just try to get [the answer] [without understanding] what you [are] doing ... As soon as you get [stuck on the problem], ask for help... Look over it and explain to your teacher what you need help with ... If you know a little bit of math then you should know some of it, and at [the] least you [should] try your hardest to [do the problem]. (Interview transcript, June 25, 2008, p.4)

Mama Roshanda describes Ashley as a math learner in the following excerpt:

Ashley[’s] [] strength was always mathematics. [She is] an excellent student and an excellent mathematician ... Ashley [] is an excellent critical thinker, she is so sharp and her work is nice and neat. She doesn’t like missing steps so she does [each and every step] ... I always like for them to find their own mistakes ... and she does that. ...She’s also a helper; she likes to help. She does exactly what I ask of her. She’s a leader in her work, [and] she’s able to think creatively. She’s able to come to the board and get [the] answers and she’s confident in her work. Once Ashley knows something, she’s very confident about that and she flies with it. She loves it. (Interview transcript, June 24, 2009, pp. 4-5)

From this description, one gets the sense that Ashley considers herself a math person and aligns herself with the expectations of her mathematics teacher. Baba James describes a slightly different perception of Ashley below:

She’s smart. When she applies herself she’s getting A’s ... but sometimes, I don’t know if she gets bored ... I don’t know if she is thinking [] ‘what’s the point’ ... and lets herself get distracted ... [She has a] lot of potential [] if she applies herself. (Interview transcript, March 18, 2009, p. 20)

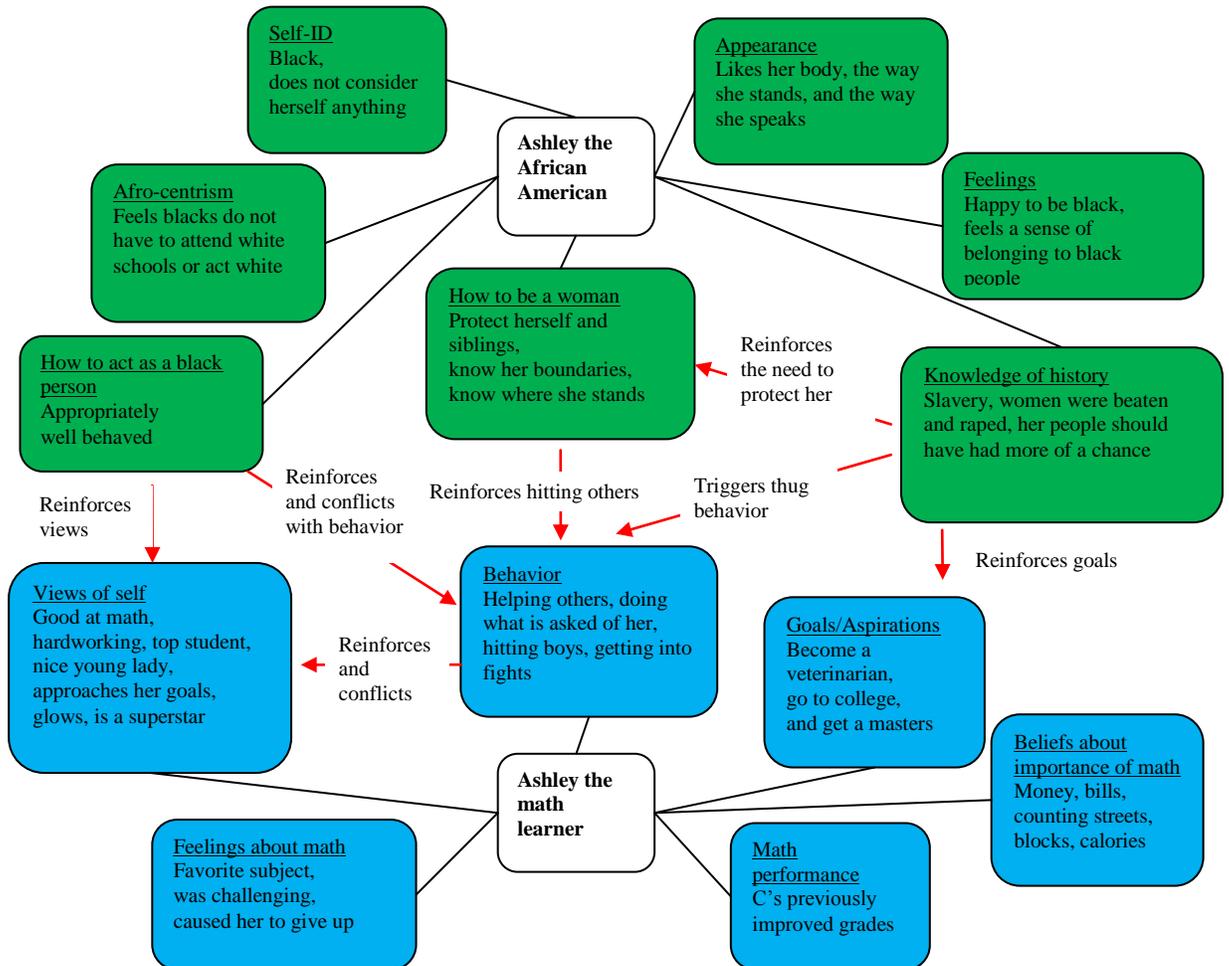
From this account, it seems that although Ashley is mathematically competent, she may be trying to reconcile this competence with feelings of boredom. In the next section, I show the relationships between Ashley’s constructed identities.

Multiple identities at work

Ashley’s emergent racial and mathematics learner identities are represented visually in Figure 23. In this illustration we can see several things: how different

aspects of one identity influence aspects of the other identity, the conflict that is involved in bridging some aspects of these identities, and the salience of racial identity aspects.

Figure 23: Ashley’s multiple identities



Based on the data, I identified seven elements that were key to Ashley’s racial identity (emergent identity) and six elements that were salient to her mathematics learner identity (emergent identity). Her racial socialization may reinforce her view of herself as a classy young lady. It also seems to reinforce and conflict with her thug behavior. Her gender role socialization may reinforce her protective actions

manifested through hitting. Her knowledge of her history and rape of African slaves potentially reinforces her need to protect herself as a female. This knowledge of the rape of her female ancestors may also create a subconscious anger which manifests in inappropriate behavior that is usually directed towards male students. Her knowledge about slavery may reinforce her desire to achieve what “her people” did not have the opportunity to achieve, i.e. going to college, becoming a veterinarian.

Her action of helping others and doing what is asked in the math classroom reinforces on the one hand her view of self as a classy young lady. Her actions of hitting others in her math class conflict with her view of self as a classy young lady. The directional influence of these identity aspects are primarily from racial to mathematical. This has implications for how Ashley sees herself as an African American mathematics learner. In the final theme, I describe the implications of Ashley’s stable coping responses or emergent identities on potential life stage outcomes or coping products.

Theme 5: Ashley’s trajectory toward life stage outcomes

The picture that emerges from Ashley’s case is not a clear one. Different parts of the case portend pushes and pulls in different directions. For example, Ashley’s mother described her as a strong-minded teenager “that gets thrown off track at times” and who “can be a leader but sometimes she just goes in the wrong direction.” Ashley’s mother wanted Ashley to educate herself despite not having more than a G.E.D herself. In line with these aspirations, Ashley had aspirations of graduating from college with a masters and becoming a veterinarian (which in actuality requires a medical degree, not a masters). Ashley expressed that she wanted to change local

factory practices of killing animals for clothes and food, but ironically enjoyed eating steak and Buffalo wings.

The Dean of students described such potential in Ashley.

Ashley is going to go far because she can talk her way out of things. Ashley is very savvy. She's a really sweet kid... She is going to get far because she's [has a] beautiful appearance. [She is a] wise person and a beautiful person on the inside. She has the gift of gab, so she can talk her way in and out of a lot of things ... In 5 years, 12th grade, she's go[ing] [to] be the most popular girl. People are not go[ing] [to] like her because she's a beautiful girl ... She probably would do well ... I could see her going to college, not somewhere far. I can see her going to college and just being your average college student, not like valedictorian or [any]thing like that ...[Or] even cosmetology, [] not that that's a bad thing, but I mean just being a typical student (Interview transcript, May 25, 2008, p.9)

But, the educational facilitator had concerns for Ashley's future that are captured in the excerpt below. He is worried that there are different identities at play and that it is not clear how Ashley's trajectory will play out.

I try to talk to [her] about [the] future and she's told me she wants to be a veterinarian. And one of the other things that she does is--she has this thing where she likes to hit people and pushing ... I always tease her ,[I] say, 'Oh Miss Thug-ette,' nobody's going to let you operate on their pets if your hands are messed up .. [If] you fight, you[ll] mess your hands up' ... She could be a veterinarian or she could be locked up... Hopefully we can get to her before

she gets herself into some situation that has some serious consequences

(Interview transcript, March 18, 2009, p. 20)

I conclude with a discussion of the five themes as they pertain to Ashley.

Summary

For Ashley, the most salient early risk factors were socioeconomic status and the limited availability of quality schools that resulted from her SES. Parental choice played a critical role here. Ashley's mother secured a place for Ashley at Flower Academy, a school which served as a protective factor for her. In response to the challenge of negotiating gender and race, Ashley seemed to develop a maladaptive coping solution of hypermasculinity manifested through the activity of hitting other students.

Another challenge for Ashley was the transition to algebra. Mama Roshanda served as a source of support for this challenge. Ashley's perception of this support resulted in self-confidence. It is not clear what supports were available to Ashley that influenced herself acceptance and high racial pride.

What does it mean for Ashley to be an African American mathematics learner? It seems that for Ashley this identity as an African American mathematics learner is defined by high racial pride, mathematical confidence, and thug behavior. Her construction of identities as an African American and a mathematics learner are being adversely influenced by the need to be respected and to be in control, perhaps because of her dually marginalized status as an African American girl.

If we take her thug identity to be racialized, then in this sense, there are tensions between her racial and school identities. It is not clear, however, if Ashley views being a thug as one version of an African American identity in the way students in Nasir, McLaughlin, & Jone's (2009) study may have viewed it. In Nasir et.al's study, the students who identified as thugs, did not see being African American as being connected to school. A thug as represented in their study would not be interested in intellectual activities, but rather with gambling, smoking weed, and other illegal activities. For Ashley, this is not the case.

Although her hypermasculine behavior does not contribute to a rejection of membership as a math learner or as an African American, it is cause for concern because these behaviors may place Ashley on a path where her opportunities to learn mathematics will be limited or non-existent. Ashley does not see how her current delinquent behavior may impede her future aspiration of being a veterinarian. Ashley's life stage outcomes could go in one of two directions, either they will be productive or they will be adverse. I predict that if she does not perceive there to be available supports for her navigation of race and gender, and male-female interactions, she will eventually have adverse life stage outcomes. I move now to discuss Robert.

Future leader: A mathematically brilliant brotha with historical consciousness

Robert stands out among the eight students as an exemplar of leadership and high mathematical competence. His story is important because it frames the African American male in terms of success rather than well documented failure. Second, we

see the benefits to identity construction when protective factors are in place and are perceived as available supports. In his story, we can explore the elements that help him construct an identity as an African American and a mathematics learner. This construction is explored in the themes that follow.

Theme 1: Vulnerability, self appraisal, risk contributors

I begin with some descriptions of Robert that attempt to place him within the African American community and interpret the messages that his choices of clothing and hair style send. Robert was a 12 year old male born and raised in an African American community on the east coast. Robert came from a two parent home. This is important because assumptions are made that African American males come from single parent homes where the father is absent. He was not raised in any particular religion but believed that he was raised to “do the right thing.” He described his parents as people who were very clear about what their expectations were for him.

He states:

If I’m going outside or going to school in the morning, they explain to me ... what they expect of me, and they say to me, ‘I already know [that] you [are] go[ing] [to] do [the right thing] anyway, [but] I just wanted to remind you.

(Interview transcript, September 17, 2008, p. 3)

His mother has been working on and off in a daycare center. This presents a challenge to supporting the family.

Robert likes to listen to hip hop music and enjoys eating fried chicken and vegetables. These foods are sometimes described as soul food, food that has its roots

in slavery and the tradition of giving African slaves the poorest cuts of meat cooked in unhealthiest ways. These foods are also seen as stereotypically favored by African Americans.

From my observations, I note that Robert's complexion is similar to that of film-maker Spike Lee. In his left ear, hangs a one- inch long, silver and cubic zirconium earring in the shape of Michael Jordan doing a layup. On his feet are Nike sneakers with a red Nike logo and a black and white lining. The back reads Nike Air. Nike sneakers are popular within the adolescent African American male community because they affirm a "cool" status. Low income African American families have been criticized for wasting money on such sneakers. It is important to acknowledge that Robert's musical preference, and urban clothing styles were not negatively related to his orientation toward school as we see later.

Robert is of average height and has a slender build. His hair is cut low to his head. I noticed that his front teeth are misaligned and his ears extend out like actor Will Smith's. Robert's own appraisal of self is depicted in the self-portrait below.

Figure 24: Robert's self portrait



Robert's portrait is similar to the portraits created by African American artists during the Harlem Renaissance. To show this similarity, I have placed Robert's self portrait side by side with a portrait created by African American painter William H. Johnson.

Figure 25: Comparison with William H. Johnson's painting



In both portraits, the lips are drawn with fullness and the nose is drawn broad and wide; these features are typically found on people of African descent. Robert's portrayal is important because full lips and wide noses are usually perceived negatively by society because of their connections to Africans. Robert's choice to

portray himself with these features could be viewed as an indication of his racial pride. The face is long and the ears are small in both depictions.

Robert is wearing a tie and jacket similar to the one in the artist's painting. His shoes even have the same pointed quality as the man in the painting. The man in the painting has thick black hair that is covered by a hat, while Robert chooses to show the hair. His hair appears to be in the shape of an afro. This is indicative of his racial status as a person of African descent. This choice of hairstyle is important because it is connected to the black power movement and the affirmation of black beauty. Robert's identity seems to be rooted in the African American culture of art and expression.

In a contradiction of sorts, in describing his self-portrait, he writes that he is a black boy, but in two separate interviews said that he was a "young man" and a "real man." In Robert's self-portrait, he is dressed very much like an adult, in a suit and tie, a handkerchief in the upper right pocket of his suit, and wearing glasses. One interpretation of this contradiction is that he sees himself as mature and perhaps has to be because of his life circumstances. His mother notes:

He asks a lot of questions and I tr[y] to answer them to the best of my ability... He's more mature than 13 and he [] hit[s] me with some questions [where even] I have to stop and think about [the answer] ... I [] remember how I was raised and try to give him the best answers I can. (Interview transcript, December 17, 2008, p. 8)

His self appraisal is also illustrated in part of his poem. Below is an excerpt.

1. I am Robert R. I am very intelligent. I also am a Black boy.

2. Sometimes I feel like everyone is against me. And what I say. Even my teachers.
3. Now I feel like everyone is with me.
4. And what I say. Even my teachers.
5. I am Robert R. a very intelligent boy.
6. I'm black African American. (Self-portrait description, June 25, 2008, p.1)

Before or after every instance in which he conveys his intelligence, Robert also makes a reference to his status as an African American or black person. From a PVEST perspective, this may be a coping response to stereotypes and bias about African Americans' intelligence. His sentiment about feeling like everyone is against him, and then eventually feeling that he has support reflects a shift in perceptions of his experiences with others, one aspect of his identity development. In the next section I describe the challenges to Robert's identity development and illustrate how these risks were offset by actualized protective factors or supports i.e. reduction of vulnerability level.

Theme 2: Stress engagement, challenges and supports

The neighborhood that Robert grew up in was riddled with violence. Robert provides a description of what it was like to grow up there:

So most people tell me I'm mature for my age. I think I get that from watching the boys around my hood ... They smoke and they drink; then they wind up getting shot and they are in[to] the gang [lifestyle] ... I choose not to

live that life ... I choose to be positive... I [] wouldn't change ... [anything] about where I'm headed...My surroundings, I would change that because there's a danger of me ... dying [or] getting injured [to the point] where I could not [achieve my goals]. (Interview Transcript, June 27, 2008, p.1)

Robert is essentially saying that he has made a choice not to fulfill societal expectations of self-destruction of the black male. Robert could very easily have gotten caught up the gangster lifestyle of many African American adolescents, but he has made a conscious choice not to play to society's stereotypes of the self-destructive African American male.

He describes being raised to be "[well] mannered" Robert states, "I had a lot of examples, [it was up to me to decide] which ones should I choose to follow, and which ones do I choose to be the opposite of." Robert's mother emphasized showing Robert that "knowledge has no color." This can be interpreted to mean that she wanted Robert to know that black or white, he could acquire knowledge. She felt that it was important for her to help Robert see his self-worth. Robert described his family and friends as being supportive of him in his endeavors. Robert states,

My family and friends, I feel they're there to support me in what[ever] I need to be supported in. They fill in the blanks of what I don't know and take me through what I need to get through. (Interview transcript, March 17, 2009, p. 6)

Reflecting on his early schooling, Robert recalled his elementary school experience as being inadequate because of the large number of students and the

frequent absence of his teachers. He did however make a lot of friends and was encouraged by his third grade teacher to be focused on his work rather than on frivolous things. After attending his predominantly black local elementary school Robert continued his education at Flower Academy. Robert's mother described Robert as being more motivated about going to school once he began attending Flower Academy (even though his grades were exceptional in the former school). She felt that the teachers seemed genuinely interested in helping the students.

He has attended Flower Academy for two years and is now in the seventh grade. Robert described his teachers at Flower Academy as being committed despite occasional disrespect and poor behavior. He states, "I feel like they're trying their best to teach and make sure we know what we have to do." Below are his perceptions of Mama Roshanda:

Mama Roshanda, my math teacher... encouraged me to be the person I am today, a real man, and focused on my work rather than getting a girlfriend,[and] having money to buy all the new clothes. (Interview transcript, March 17, 2009, pp. 2-3)

Robert described having a close relationship with his teachers but expressed feeling as they weren't so close because this closeness caused him to be held to impeccable standards. Robert felt that he was human and would still do disruptive teenager-like things every now and then.

His mother felt that it was good for Robert to learn about his culture. Robert described Flower Academy as a positive place where he could learn about his history and ancestor's experiences. He notes, "I had never been taught African culture in

schools.” Robert believed that it was important for him to know this information so that he would not “take anything for granted.” He stated, “stuff I have now, my ancestors couldn’t get and they didn’t know how to read and write.” This school then seemed to serve as an available social support for a perceived challenge of not having been educated about his African culture. In the next section I describe how Robert reacted to perceived available supports.

Theme 3: Reactive coping methods, maladaptive and adaptive solutions

According to Spencer, Dupree & Hartmann (1997), “it is not merely the experience but one’s perception of experiences in different cultural contexts that influences how one perceives oneself. In this section we see how the school may have influenced Robert’s self-perceptions. When I asked Robert how he felt about himself he stated, “I feel as though I shouldn’t worry about the way I look. It’s what I know. That’s what’s gonna take me places, now how I look.” Socially, Robert was well liked by his peers and by the teachers and staff.

Robert described himself as an intelligent, respectful, and great person during one of our interviews. In one part the collage he places the following image:

Figure 24: Snippet of Robert’s collage



The teachers (in his former school) wanted Robert to be in advanced classes “because of how smart [he] was.” Robert’s is aware of what others think about him as a learner.

He viewed himself as a focused student that completed his work and was respectful to his teachers. Robert’s source of motivation was a teacher telling him that he could not do something. Robert’s perceptions of self are also illustrated in a portion of his collage below.

Figure 25: Snippet of Robert’s collage



He explains,

I’m loyal, and always doing my duty. I’m respectful ... I serve myself. I will serve somebody, [but] I don’t need anybody to serve me. [I selected]

honor, because I'm an honor student. Integrity... I'm not sure [why I selected that] ... and personal courage ... [I selected that because] I'm always encouraging people to do stuff. (Collage description, September 24, 2008)

With respect to education, Robert stated that he was extreme because he was "willing to do a lot of things for [his] education and for [his] family's education. In the next section, I describe Robert's stable coping responses in reaction to his challenges and available supports i.e. stress level.

Theme 4: Emergent identities/ Stable coping responses, negative and positive

Robert self-identified in a poem as black and as black African-American. His mother self-identified as black. His mode of conveying his racial identity status is reflected in the dialect he uses in the poem below, reminiscent of some black rappers and hip hop artists:

I get A's and B's because I'm me

I like Tea and I'm me so who's You

I make my own money cause

That's me now that is it

I do care even though I'm not a cash money millionaire (Self-portrait poem, June 25, 2008)

The phrase cash money comes millionaire comes from the title of a song by an African American rapper named Little Wayne. A cash money millionaire refers to someone who is rich and has access to many women.

I explore the ways in which Robert responds to stresses in his life through the MIBI-teen and focuses on the factors of racial centrality, public regard, private regard, and assimilationism.

(MIBI-Teen: Range 1-5)

Centrality	5.0
Private Regard	4.67
Public Regard	3.00
Assimilationist	1.33

The results show that Robert has an above average centrality and private regard score, average public regard, and low assimilationist. One way to interpret these results is that Robert has strong racial pride (indicated by 5's on statements about being happy, proud, and feeling good to be black). Although Robert strongly believed that people from other races thought blacks had made important contributions, he disagreed that they thought blacks were as smart or as good as people of other races. His low assimilationist score points to a belief that black people do not need to abandon their cultural ways of being in favor of dominant ways. In particular, Robert strongly disagreed that it was important for blacks to go to white schools so that they could learn how to act around whites.

At the time of the interview, Robert was a student in Mama Roshanda's Algebra course. Mathematics was one of Robert's favorite subjects. He was a straight A student. Robert believed that he was a good student, and a top student that never gave up. For Robert, doing well in mathematics meant getting good grades, thinking about the future, fun, and taking tests seriously. Robert saw his results on

the state test in mathematics for example as something that could hurt or help his future to be a bright one.

He recalled practicing mathematics for years and conveyed a sense that it came easily for him. Robert described himself as a quick learner. Robert reflected on his childhood experiences with mathematics and described how his parents helped him when he encountered challenging mathematics by encouraging him, helping wherever they could and getting someone to help him when they could not. Robert felt that mathematics could serve him in any profession and gave specific examples:

If I [learn math] to be[come] a doctor, I have to know how many people I have waiting in line, or if I'm a construction worker, I have to know how much cement to put in ... If I'm an NFL football player, I have to know the yards that I gained (Interview transcript, June 25, 2008, pp.2-3).

His mother believed that it was important for Robert to learn mathematics because mathematics “[wa]s in everything” and that the understanding of why mathematics was needed would come to students in time. For Robert, mathematics had to do with money, expenses, and surviving. He states, “without education, if you give me money, I wouldn't know how to spend it right.”

Robert felt that he would enjoy pre-calculus, calculus, and less money-oriented mathematical topics. Robert felt that geometry had some difficult concepts like similarity and congruence but was still enjoyable because of the variety of shapes and figures involved. In Robert's view mathematics was universal and “meant for anyone who would take the opportunity to learn it.”

Robert's mathematics teacher describes Robert as a math learner in the following excerpt:

Excellent excellent excellent excellent student. [Robert is] one of those children who will go on looking. A lot of time, Robert' mistakes are [that] he wants to be perfect. Sometimes Robert doesn't take his time he wants to be done first. A lot of Robert's mistakes are never a [case of] 'I don't know how to do this type [of] thing.' All the way [down] to computation error[s], if he were to just take his time ...instead of getting a 90 he would have got[ten] a 100. Robert [] doesn't like to get anything below an A but he's very very outgoing. I saw Robert as a leader because he'll quickly tell students 'now you know Mama Roshanda is not going to accept this. It has to be nice and neat, you have to show your work.'... He gives you exactly what you want. His critical thinking skills are phenomenal. He is definitely proficient in applied concepts ... He might be somewhere out of the classroom, and come back and apply [] what he learned from the classroom and share that [application] with his peers. One thing that I really admire about Robert is he truly takes his education seriously and that's [] definitely one of the things I admire about Robert. (Interview transcript, June 24, 2009, p. 3)

The educational facilitator offers a slightly different perspective of Robert as a mathematics learner below.

Robert is the type of brother that [] could actually be brilliant ... I see leadership in him. He's the type of brother that could be a leader ... A lot of times when he [is] in class, if something is going on [] he'll try to help out ...

He'll try to [say], 'no we did this'— you could just tell [] he has those kind of qualities in him. The one thing he needs to do is [] humble himself sometimes. What I mean by that is a lot of times Robert thinks he knows more than what he actually knows. So when you[re] going over a concept he'll [say], 'Oh I already know that.' [Then I say] 'all right Robert, do this,' and he gets it wrong. [For him] it's always [an excuse of] 'somebody' [did this or] 'oh it was this, oh that was [because of ...]'

[I say] 'no Robert. What you need to do Robert is take your time ... just don't be afraid to ask questions and if you don't know that's good, that keeps you open to learning.' [] You wan[t] [to] stay open to learning. And so I'm trying to get with him and work with him on that because sometimes he's just stubborn and gets the arrogance. [He'll say] 'no, I know this already' [but really I think], 'no you don't know it.' I say 'you need to just take a step back] ... (Interview transcript, March 18, 2009, pp.4-5)

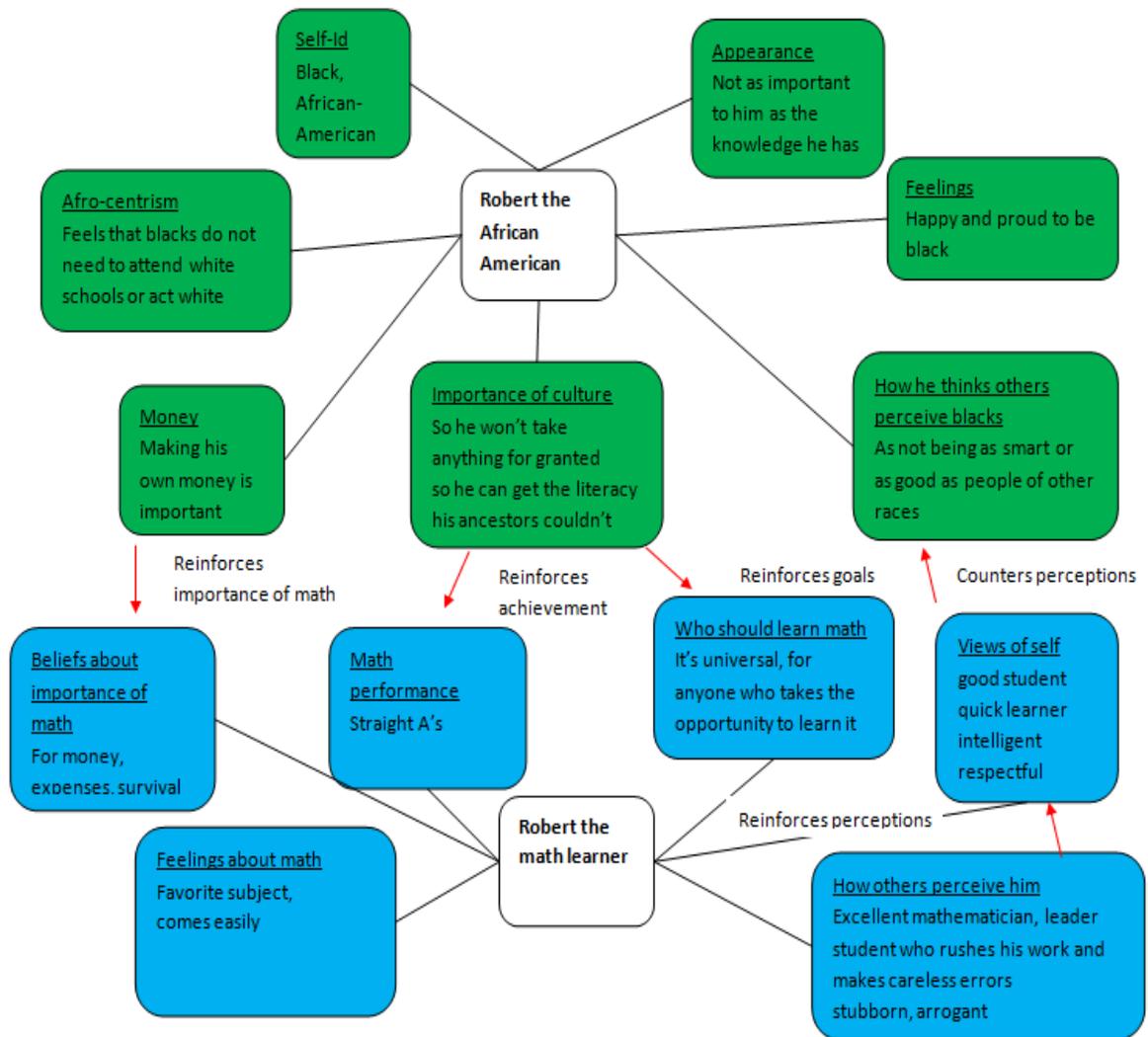
The consistent beliefs here are that Robert has a lot of potential, is leader, and would benefit from taking his time while doing mathematical work. In the next section, I show potential connections between Robert's emergent identities.

Multiple identities at work

Robert's emergent racial and mathematics learner identities are represented visually in Figure 26. In this illustration we can see the reinforcement of beliefs about money, culture and others' perceptions about African Americans on beliefs about the importance of math, math performance, and beliefs about who should learn

math. This is similar to Ashley’s construction in terms of the salience of racial identity aspects.

Figure 26: Robert’s multiple identities



Based on the data, I identified six elements as key to Robert’s racial identity (emergent identity) and six elements that are salient to his mathematics learner identity (emergent identity). Making his own money as an African American male may reinforce his beliefs about the importance of mathematics for counting money, paying expenses, and surviving. The importance of learning about his culture and

ancestor's struggle for education potentially reinforces his achievement level and his beliefs about who should learn mathematics. His perceptions of self as a mathematics learner seem to counter beliefs that African Americans are not as smart as people of other races. Finally how others perceive him as a math learner potentially influence how he views himself.

This construction seems to support findings that Afrocentric attitudes are protective and supportive of school success (Spencer, Noll, Stolfus, & Harpalani, 2001). Like Ashley, the directional influence of these identity aspects are primarily from racial to mathematical. The difference is that Robert seemed to encounter less conflict and did not have to navigate gender and race. This has implications for how Robert sees himself as an African American mathematics learner. In the final theme, I describe the implications of Robert's stable coping responses or emergent identities on potential life stage outcomes or coping products.

Theme 5: Robert's trajectory toward life stage outcomes? Life stage outcomes/coping products, unproductive, productive

The picture that emerges from Robert's case is a very different one from the one that emerges from Ashley's case. Robert seems to be managing the construction of his multiple identities smoothly and as a result, seems to be on a trajectory toward productive outcomes. For example, in the interviews, Robert's mother described him as an "intelligent young man who is motivated to do pretty much whatever he put his mind [to]."

Robert was future oriented. He had aspirations to go to college, become a doctor, football player, or a part of the construction industry if the first two careers

did not work for him. He even mentioned possibly joining the U.S. army. He described education as the “most important thing.”

Mama Roshanda describes below where she sees Robert in the next five to seven years.

I see Robert as like a- I'm so impressed by Robert, because his leadership is, his leadership ability is just so powerful, so I see Robert as he's going to be the head of something. I always say he's going to be the president, but I mean he is just awesome, you know he was the president of his class at here, you know, at Flower Academy, the president of student council and he-his, he's just phenomenal, so whether it's like the owner of his own company, his business, I see Robert somewhere in a very high high leadership position.

(Interview transcript, June 24, 2009, p.7)

The educational facilitator of mathematics stated:

So potentially, I mean he's the type of brother [that] in a few years really, [he'll have] whatever he wants. I haven't talked to him about what he wants to be but I could see him being [] a leader or something. (Interview transcript, March 18, 2009, pp.4-5)

Again, there is a consistent sentiment that this young man is going places in life. I conclude with a discussion of the five themes as they pertain to Robert.

Summary

For Robert, the most salient early risk factors were his dangerous neighborhood and his status as a black male which made him a prime target for gang

recruitment. These societal risks of race, SES, and gender had the potential to be damaging to Robert's "self." His family and friends, however, seemed to serve as protective factors against these risks. Although not phrased in terms of structural racism, Robert's access to education in his predominantly black elementary school was not described favorably.

During his time at Flower Academy, he experienced the visibility of his culture. This seemed to serve as a support for his motivation for going to school. The kind of encouragement he received in school seemed to have helped Robert to stay engaged in school rather than shut off from the educational experience as a response to his dangerous living conditions. Mama Roshanda is perceived by Robert as an available support. In a sense though, his other teachers served as a source of stress because of their high expectations. This is consistent with the findings of Spencer, Dupree, & Hartmann (1997) that for African American male teens, positive teacher expectations are stressful.

Robert's perception of his available supports seemed to result in the adoption of a positive attitude about himself or an adaptive solution for the problem of neighborhood dangers and other perceived stresses. Robert achieved leadership status, was in some cases overconfident, and was a high performing student in mathematics who had high racial pride.

It seems that Robert's self-perceptions and perhaps how he thought his teachers viewed him, allowed him to excel rather than to downplay his mathematical abilities. Robert's African American identity seems to fit with Nasir, McLaughlin, & Jone's (2009) description of the school-oriented socially conscious African American

identity. He is connected to school, his cultural and historical legacy, and is viewed as a change agent and positive force while still wearing popular clothing styles.

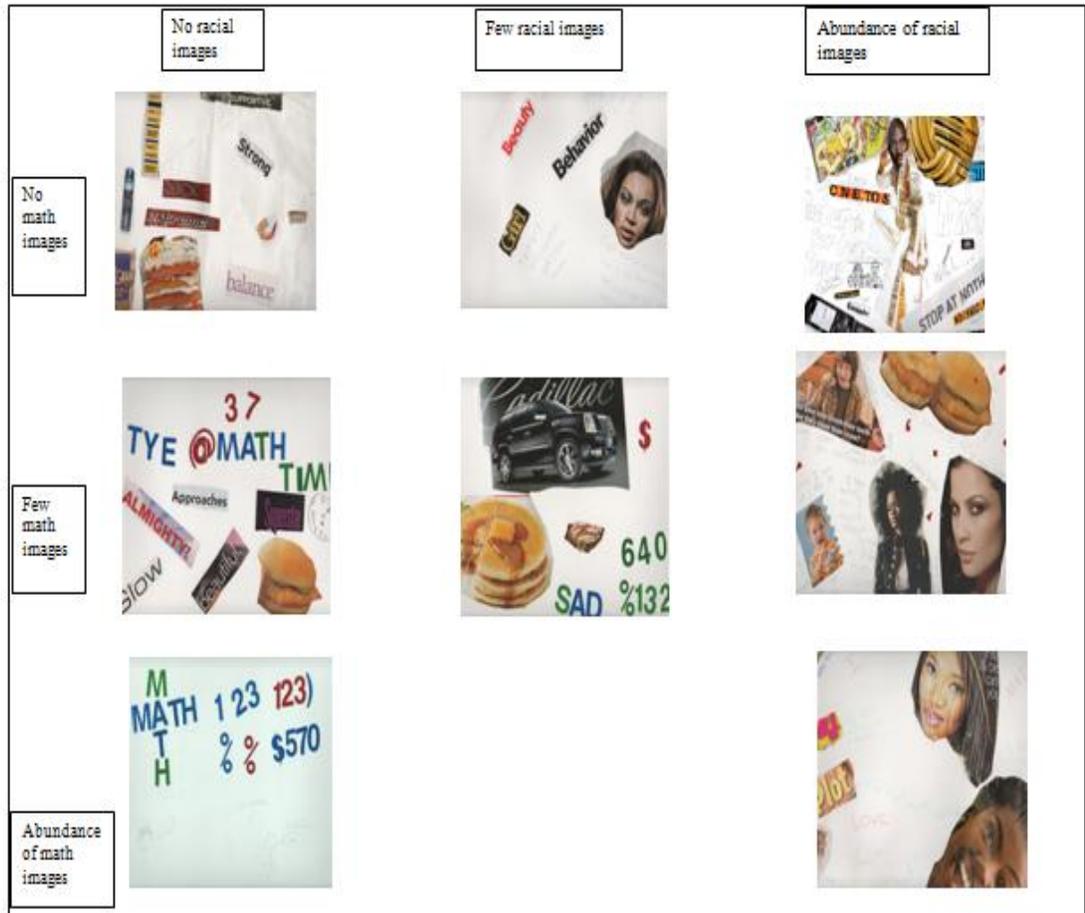
Robert embraces both his identity as an African American and as a math learner; these identities are being favorably influenced by his hunger for education, Afro-centric attitudes, parental support, and school support. What does it mean for Robert to be an African American mathematics learner? It seems that for Robert this identity as an African American mathematics learner is defined by high racial pride, mathematical competence, overconfidence, and actions of leadership. Robert appears to have successfully constructed an identity as an African American and as a mathematics learner. At this point, it seems likely that Robert's life stage outcomes will be productive, i.e. Robert will probably graduate from high school, go to college, and aid his community. In the next section of the chapter, I examine constructions of identities as an African American mathematics learner across the eight students through the medium of collage.

Construction of multiple identities through the medium of collage

As part of data collection for the dissertation, I asked students to create a collage that would respond to the question: who am I in my math classroom. These collages provide data about how students manage and coordinate their identities as African American learners of mathematics. They also provide information on how the process of construction of the identities proceeds. Below, I present a categorization

chart of the collages according to the presence of both racial and mathematical images.

Figure 27: Matrix of collages



Looking at this matrix, it is clear that the students differed in the degree to which mathematical and racial themes appeared in their collages. For Robert, Maxwell, and Shanika, actual representations of mathematics were not present alongside other markers of identity.

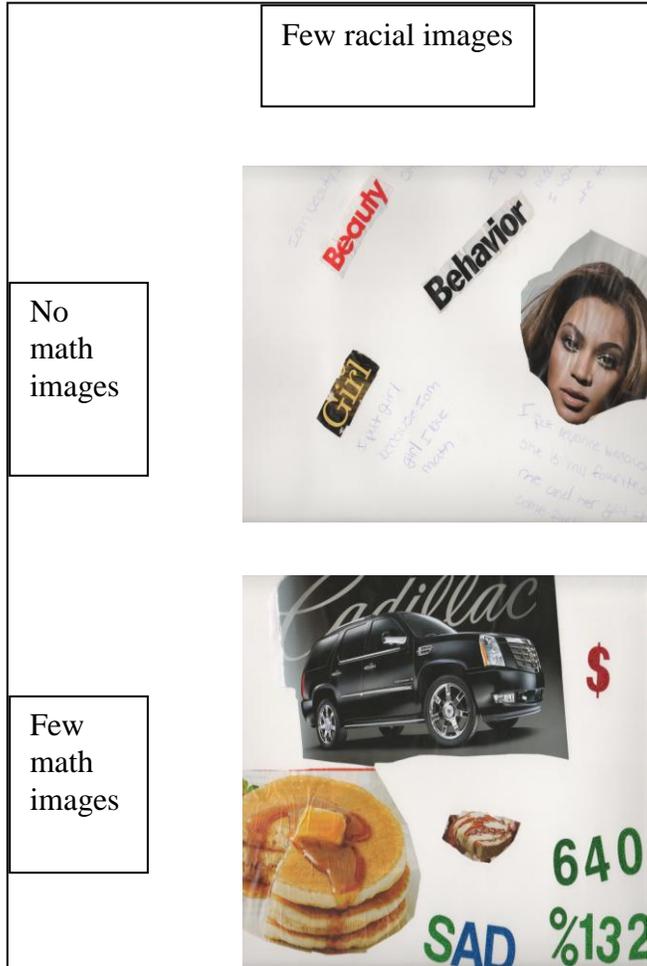
Figure 28: First row of categorization chart



I interpret this to mean that who they were as an African American mathematics learner had more to do with the other identities that they brought to the classroom. For Robert, his identity in the math classroom was defined by his character traits. For Shanika, it was defined by her gender and behavior. For Maxwell, it was defined by his racial and gendered identity. This is evidenced by his placement of African American male athlete, Kevin Garnett, in the center of the collage. What is interesting is that both Robert and Maxwell, whose collages are absent of mathematics images, were perhaps described the most favorably of all the eight students, by both Mama Roshanda and Baba John. This suggests that more successful African American mathematics learners do not necessarily give salience to their mathematics identities when asked to represent who they are in a math class.

Shanika and Maxwell had few images or symbols of race in their collages.

Figure 29: Second column of categorization chart

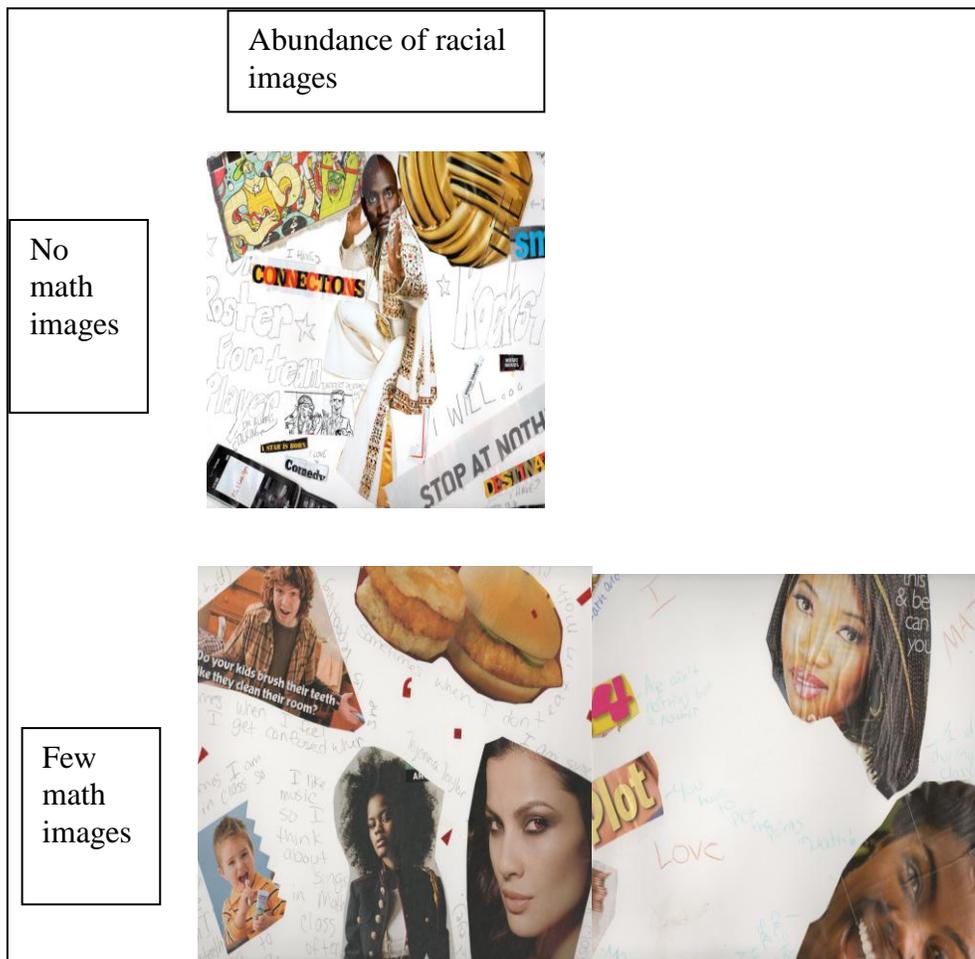


For Shanika and Malcolm, few images and symbols of racial identity were present. Shanika’s representation of racial identity is reflected by her image of African American singer, Beyonce Knowles. Malcolm’s symbol of racial identity could be reflected by the Cadillac escalade that dominates the top of his collage. The escalade, as it is commonly referred to in African American communities, is a symbol of status for many young African American men. Shanika had no math images on her collage. Malcolm had some symbols, namely numerals, a percent sign, and a dollar sign, most of which were placed in the bottom right hand corner of his collage. I interpret the

few images of race, and absence of math images in Shanika’s collage and Malcolm’s placement of math symbols in a corner, to mean that for these two students both racial and mathematics identity sit on the periphery of their identities as African American math learners. What is interesting here is that both of these students were described as having issues of confidence and self esteem. This suggests that less confident African American mathematics learners give little salience to their racial identities and little to no salience to their mathematics identities.

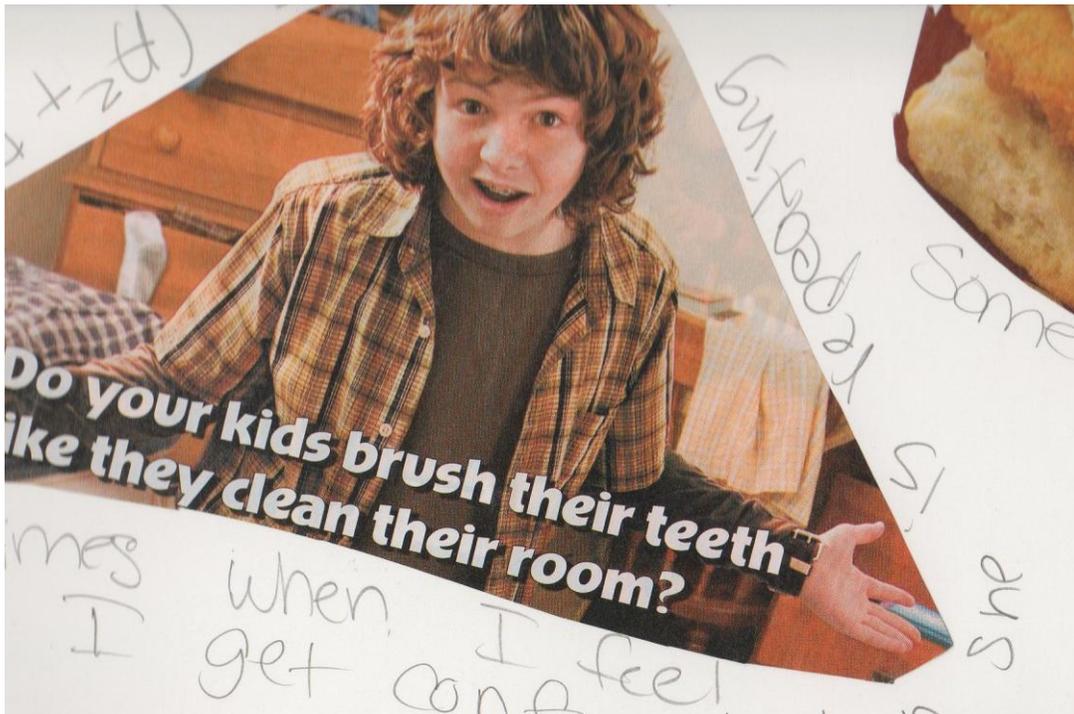
Maxwell, Elizabeth and Chantel all had an abundance of racial images.

Figure 30: Column 3 of the categorization chart



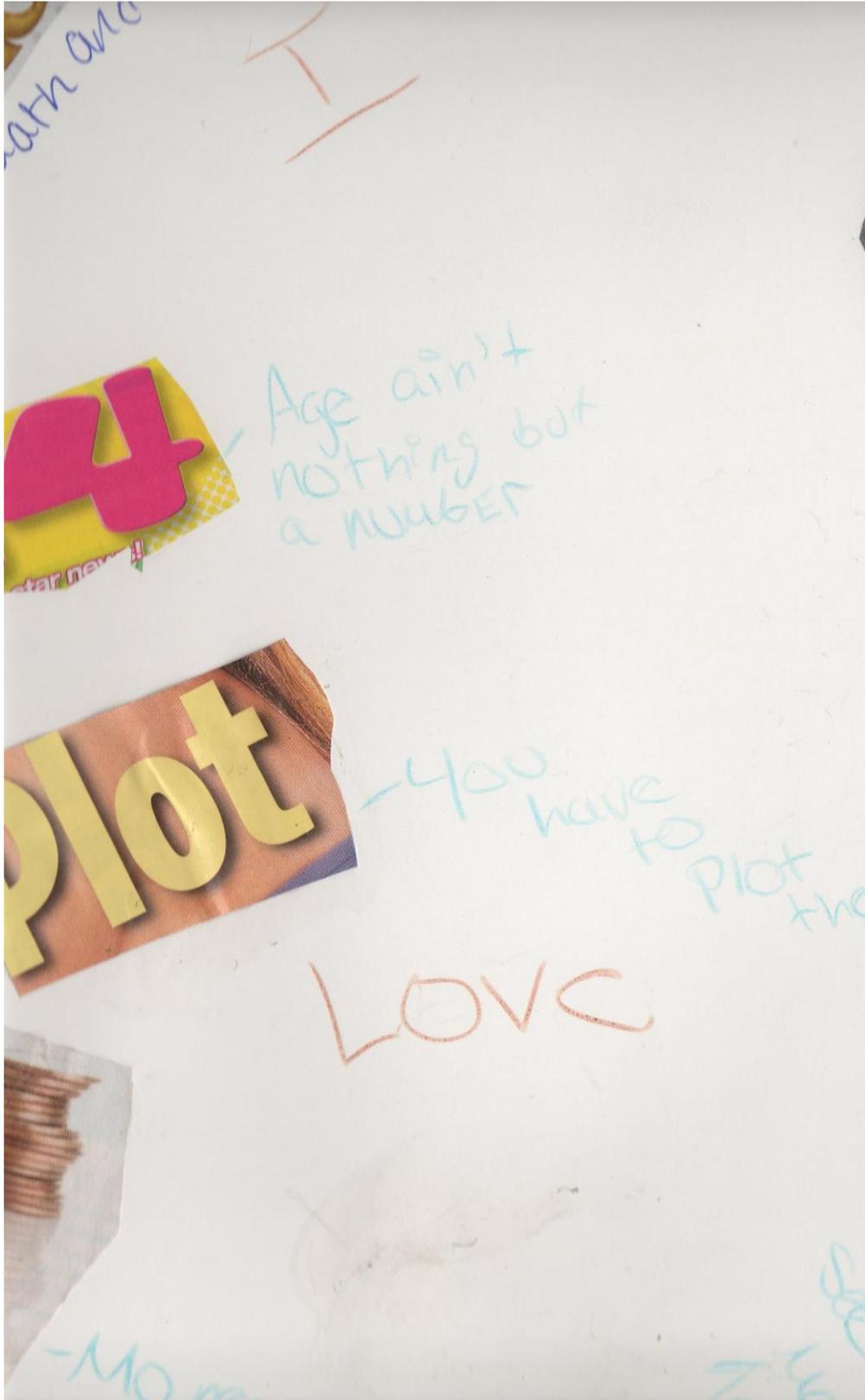
In contrast to Maxwell and Chantel, Elizabeth's collage was a mixture of images of Black and White racial identity. Elizabeth's racial images make up the bulk of her collage, while Chantel's make up the right side of her collage, and Maxwell's image is in the center. Chantel and Elizabeth had a few images of mathematics. Elizabeth placed the Pythagorean Theorem around the image of the boy on the top left.

Figure 31: Math representation from Elizabeth's collage



Around the image of the boy she wrote "sometimes when I feel sleepy I get confused when she is repeating the formula $a^2 + b^2 = c^2$." Chantel placed representations of mathematics on the right side of her collage. It is almost as though the representations of mathematics are facing inward to the images of racial identity and, vice versa, as though they were interconnected.

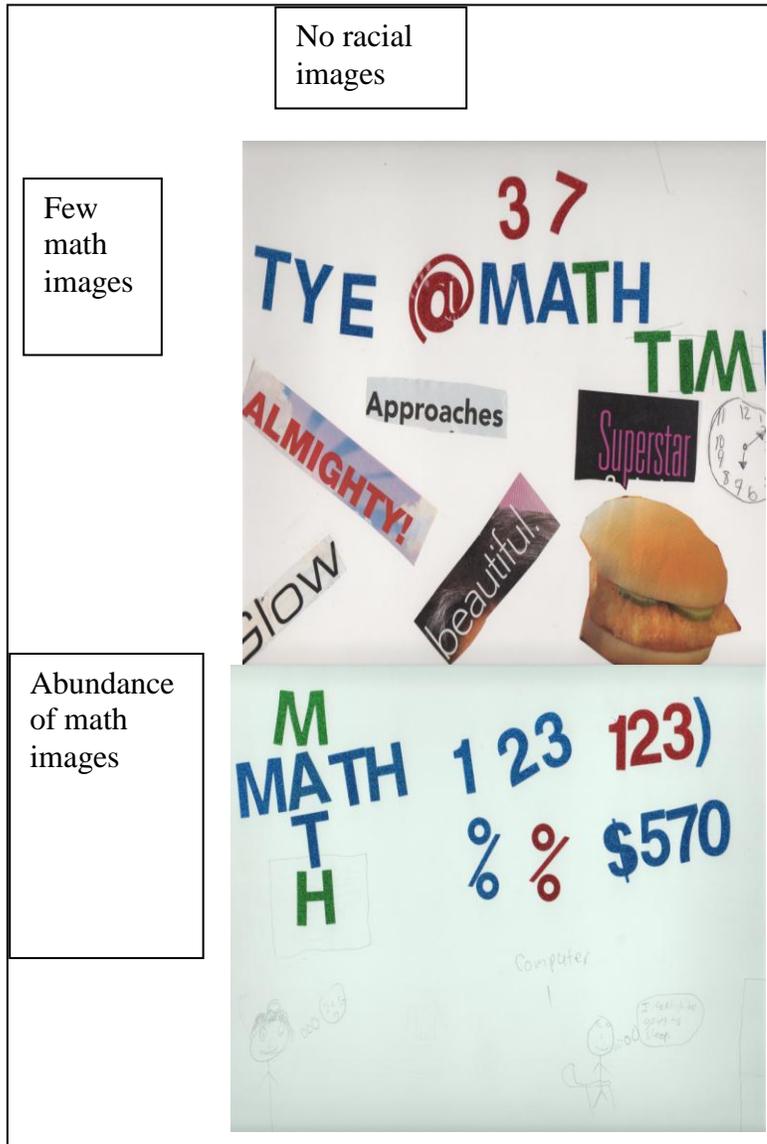
Figure 32: Math representations from Chantel's collage



At the top, she places the image m & e and writes math and education. She cuts out the number 14. Next to the word plot she writes “you have to plot the points in math.” Underneath is an image of a stack of pennies and their reflection. Next to this she writes “money and reflection.” I interpret this abundance of racial images to mean that who they are in the math classroom is heavily tied to their racial identities. What is interesting here is that all three students made references to either church or religion. For Chantel and Elizabeth, mathematics is somewhat part of their identities as African American math learners.

Ashley and Terrell, though not having any racial images in their collage, had representations of mathematics.

Figure 33: Rows 2 and 3 of Column 1 of the categorization chart



Images of mathematics seem almost to title the collage, while the remaining images seem to tell a story. In Ashley's collage, the story seems to be one in which Ashley is a self-efficacious math learner. In Terrell's collage, the story seems to be one in which Terrell is not very interested in mathematics learning. What's interesting is that both of these students, neither of which race seems to be salient in

who they are in the math classroom, have been described as having competing identities, for Ashley, a thug identity, and for Terrell, an athlete/ladies man identity. I interpret their images of mathematics to mean that, although they have competing identities, their math identity is to some extent a part of who they are in the math classroom.

The absence of collages in various rows and columns of the categorization chart also offers insight about who these students are *not* in their math classrooms. None of the collages seemed to fit into the categories of few racial images and abundance of math images or abundance of racial images and abundance of math images. I interpret this to mean that for these African American math learners, the mathematics learner identity does not dominate the racial identity, but is either on par with the racial identity or is less prominent. In some ways, this is not surprising because the students are in an environment where race is central, and not mathematics. This is in contrast, for example, with the way in which mathematics would be central in a magnet school for science and mathematics. In other ways, it is surprising because these students reported enjoyment for mathematics and it being their favorite subject; these sentiments do not seem to be captured by a majority of the collages. In addition, given that the environment is all Black, race could have been less salient, thus allowing students to express their mathematics identities more.

This section presented data on students' representations of their dual identities. These representations illustrated the ways that racial and mathematics identities were interrelated. In the representations, for most of the students, mathematics was given little to no attention. In the next section, I discuss the

practices that offered students the opportunities to construct identities as African American math learners.

Potential supports for construction of intersecting aspects of math learner and racial identity

Below, I present a graphical representation of the school practices that potentially support intersections of specific aspects of math learner and racial identity.

Table 15: Matrix of intersectionality

Practices				
	Math Learner Identity			
Racial identity		Self-understandings	Disposition towards learning math	Beliefs about the usefulness of math
	Embracing blackness	African American role models, king and queen game		
	Confronting stereotypes as African Americans			Helping students inspire to have intellectual pursuits

Intersection of self-understandings and embracing blackness

African American role models related to mathematics

One way that Flower Academy may support how these students understand themselves as math learners and understand that they are children of African descent is to expose them to African American speakers. There are no networks for acquiring them; the acquisition was done by word of mouth. Baba John explained,

So one of the things I try to do is expose them and let them know that African American and people of color [] are into this stuff, too; and show them there's a Black female astronaut ... They don't hear about that kind of stuff ... The[re's] [a] brother right there who's [] an integral part of creating the Internet ... He's a Black guy and [] he has an office in [the state] ... I was actually go[ing] [to] try to get him to come here and speak to the students ... but we just couldn't afford the fee. I talked to his people and I said, 'I want him to come in here so they can see this brother that has all this knowledge.' ... I think a big part of it is [that] a lot of the students just don't have the role models and that [connects] to me trying to get these people... A lot of them don't have the role models in their home, unfortunately. A lot of them have probably never met people who've gone to college or who've, you know, done some of these things that we're talking about.... They can't visualize them[selves] doing these sorts of things... So it's completely foreign to a lot of them... I invited a speaker a couple of years ago, or a year and a half, something like that, and the topic – this was the topic [*he gave me a copy of the presentation, African Origins of Science and Mathematics...*, shown on the

page]... You know, I'll get questions about some of this stuff that's up here [referring to the posters on the wall]... They see some of the African stuff and they're [say]ing, "What's this, Baba? What's that?" And I try to explain it to them. I just try to relate [it] to [them]. It's not foreign to us as a people... Going back to your question about do they think this is a White thing. Some of them do and I try to say, 'we originated a lot of it.' We did create a lot of this stuff. (Interview transcript, March 17, 2009, pp. 9-12)

Below is a copy of the presentation made by the speaker Baba John references above.

The United Black Community Presents
Community Forums 2007

**African Origins of Science & Mathematics:
A New Paradigm for Scientific Thinking**

Presentation Description

African scientific and mathematical contributions have been a grossly overlooked phenomenon by the western world, particularly among colleges and universities throughout the USA and Europe. Despite overwhelming data that supports prolific scientific and mathematical activity by Africans, from antiquity to the present, these omissions continue into the 21st century. These fallacies and distortions not only contradict the historical record, but also contribute to the mis-education and self-denial of our people, particularly our youth.

This presentation will demystify scientific and mathematical concepts and layout a new paradigm for understanding science and scientific thinking. Mr. Sadiki will also discuss the value and application of science in our everyday lives. Come and learn about:

- The origins of hydrology, hydraulics, geometry, trigonometry, urban planning, medicine, engineering, and other related topics
- The origins of the mathematical functions phi and pi
- Scientific and mathematical achievements of African people
- Nile Valley civilization being a classical African civilization
- African-centered scientific thinking
- African American achievements in science and technology

Mr. Sadiki's presentation will demonstrate that the very first cognitive scientific and mathematical formulations developed in the minds of early Africans, and that these initial formulations led to the evolution of the world's first civilization. An African-centered scientific paradigm that substantiates the idea that the universe is infinite and inter-connected will be discussed -- a universe-wide-web of life!

Each participant will receive an annotated bibliography that lists the major reference source for the information presented.

Where: Umoja House Gallery, 2015 Bunker Hill Road, NE

When: February 23, 2007/81 AM

7:00 - 9:30 PM

Mr. Sadiki has lectured throughout the United States and in Canada on the question of the African origins of science and mathematics and has written numerous articles on the subject, among which are, "The Theorem of Pythagoras or the Theorem of Ancient Kemet: Which is It?", "Inhotep, Pyramids, Temples and Obelisks: Kemet's Achievements in Science and High Technology", "From Celestial Flow to Terrestrial Flow: Ancient Hydraulics in the Nile Valley". Mr. Sadiki has traveled to the Nile Valley on two occasions under the tutelage of noted Egyptologist Dr. Yusef ben-Jochanaan. He is the founder of the Sirius Study Group in Portland, Oregon, a part of the Association for the Study of Classical African Civilizations (ASCAC). Mr. Sadiki is presently studying the road for an African-centered model for scientific thinking based on a synthesis of empirical and spiritual paradigms.

Sirius Study Group, Western Region
ASCAC

Admission is Free

Kandou @ fmrpl.nsl.usace.army.mil

PO Box 3741
Portland, OR 97208

503 761 4889

The practice of having people of African descent speak about the African origins of mathematics and their involvement in the field of mathematics is a way to develop and internalize beliefs about who is mathematically literate (Martin, 2009). By bringing in African American role models to speak to the students about Africa's contributions to science and mathematics, the students may begin to understand that their ancestors participated in mathematical contexts and use this knowledge to aid them in developing beliefs that they too can participate in mathematical contexts *and* can define themselves within the context of Africans. "Educators believe that Black role models will help Black students to understand that careers in science and technology are possible and desirable" (Stiff & Harvey, 1988, p. 194).

Another method of exposing the students to African American role models is to display them on posters in the school. Mama Cheryl stated,

There is consistent mention of Blacks in math and Blacks in sciences... But you know just putting those types of people in front of the children, letting them know that going all the way back to Benjamin Banneker and even prior to that, to the Egyptians, [] is something that I think is really important for them to understand, because they have to... (Interview transcript, June 11, 2008, pp. 7-8)

Although this is not unique to African-centered schools, the use of posters and pictures may feel more authentic in this setting, because it is segregated and Black identity is valued. I note her use of the language "because they have to." I sense a passion and an urgency about communicating to these students that African Americans have been a part of the mathematical process and have made important

contributions. By displaying these posters, the students may begin to develop beliefs that they too can participate and perform effectively in mathematical contexts; use math to change the condition of people's lives; *and* can define themselves within the context of African Americans and see the world as a place where they carve a place out for themselves with mathematics.

Because Mama Roshanda is a mathematics teacher who is African American and has a Bachelor of Science degrees in Mathematics and Chemistry from a Historically Black institution; she is a role model for the students. Mama Roshanda was spoken very highly of by the former principal. She stated,

I think for the middle [grades] students, they've been very fortunate this year in that they have a really, really great math teacher in Mama Roshanda. And she is a very, very bright woman who has a firm grasp on mathematical concepts and is able to communicate that to the students and get them to understand. (Interview transcript, June 11, 2008, p. 6)

Here she highlighted Mama Roshanda's content and pedagogical content knowledge. Below Mama Roshanda describes her own ability and how this ability shapes her practice.

I would say definitely comfortable, comfortable and confident... I would describe my ability to do mathematics as interesting, creative. I try to be very out of the box when I'm teaching mathematics, and try to make it as creative as possible to keep the interest of the children, and also innovating, always trying to teach them new things to keep their interest, to spark their interest ,to make them want to learn mathematics. Definitely building the understanding

and the importance of why, you know, math is useful in the real world.

(Interview transcript, June 24, 2009, p. 1)

She describes her ability not in terms of levels like high or low, but rather with words like interesting and creative. Her comfort with mathematics seems to translate into being able to do innovative and “out of the box” activities with her students. By having an African American math teacher who also majored in mathematics and science, the students have a tangible image of an African American person who has done well in mathematics and has made a career out of her mathematical skills. The students may then begin to develop beliefs that they too can participate in mathematical contexts *and* can define themselves within the context of African Americans.

Stiff & Harvey (1988) stated “Black mathematics teachers become some of the earliest examples of black scientists and are important role models for the students they teach” (p. 194). They also suggest that “an important and necessary feature of field-dependent mathematics instruction is the expression of faith in the abilities” (p. 199). Field-dependent mathematics instruction refers to instruction that values African American identity, provides security for students, and validates their achievements. Mama Roshanda seems to provide this security by believing in the abilities of her students which will free them from fear, anxiety, and self-doubt (Stiff & Harvey, 1988). Stiff & Harvey (1988) also assert that “teachers who practice the field dependent teaching style validate the actions and performances of students” and that “chances that black students will receive validation in mathematics classrooms

are maximized when black mathematics teachers are hired (p. 200). This is evidenced by Mama Roshanda's praising of her students.

In essence, exposing students to African Americans in mathematics and science is one practice that the school utilizes to help the students see themselves as math learners and as African Americans. Ashley informed me that math was for everybody and not restricted to any one racial group. Shanika and Chantel echoed similar sentiments. Maxwell, Malcolm, and Robert all stated that math was universal and did not belong to any one race. In particular, Robert stated, "it's meant for anyone who would take the opportunity to learn it." Elizabeth stated that mathematics was global. These statements suggest that this practice of exposing students to African American role models has been beneficial.

King and queen game

Beyond the presence of role models, the school also involved students in practices that have the potential to support the construction of identities as African Americans and mathematics learners. For example, Flower Academy may support how these students understand themselves as math learners and feel good about being African American by having students play the math king and queen game. In this game, Mama Roshanda asked students various mathematics questions. Students had 10 seconds to respond. If they got the question right, they kept "playing" and if they got the question wrong, they were eliminated. In the end, one boy and one girl were left "standing" because they had answered their particular questions correctly. The

game lasted for approximately 10 minutes or so. The students were not allowed to write the question down either; they had to perform all calculations mentally. The winners of the game were deemed the math king and queen. Below is an illustration of the king and queen game.

Mama Roshanda: What is -15 plus 4 ?

Female student: -11

Mama Roshanda: What shape has 8 sides?

Male Student: Pentagon

Mama Roshanda: That is incorrect. You are out. Sit down.

Mama Roshanda: What is $-120 + 4$?

Female Student: -116

Mama Roshanda: What is $-3 - 6$?

Male Student: -9

Mama Roshanda: Solve for x , where $x + 12 = 4$

Female Student: -16

Mama Roshanda: That is incorrect. You are out. Sit down.

Male Student: 7

Mama Roshanda: What is $14(y + 4)$

Femal Student: $14y + 64$

Mama Roshanda: Find the area of the triangle base = 3 cm height = 10 cm

Student: I can't remember the formula ...

Jackson (2007) describes a similar game in her dissertation in which “math royalty” serves to single people out. According to Mama Roshanda, her purposes for utilizing this activity were not to single people out, but rather for students to appreciate math, desire to be better at it, and enjoy it. I note that the game is very gender-oriented.

In many mathematics classrooms, teachers and students participate in a range of practices where they develop, contest, and internalize beliefs about what counts as math literacy and who is mathematically literate, contributing to the construction of these classrooms as highly racialized spaces (e.g., Boaler,

2002; Martin, 2000; Nasir, Heimlich, Atukpawu & O'Conner, 2007; Thompson & Lewis, 2005) (Martin, 2009, p. 315).

I interpret the practice of playing the math king and queen game as one way of helping students develop and internalize beliefs about who is mathematically literate.

The terms king and queen, interestingly, are used within certain sects of the African American community, particularly those who have dubbed themselves as “conscious” and those who favor the neo-soul genre of music. King and queen are terms used by these individuals as terms of endearment to refer to black men and women. Lyrics by African American singer Jill read “I was blind, now I can see what a king's supposed to be baby I feel free, come on and go with me.” These terms stem from beliefs that African Americans originate from long lines of African kings and queens from Nubia and Egypt in particular. These kings and queens include King Amenhotep, King Tutankhamen, Queen Hatshepsut, and Queen Nzinga.

By playing the math king and queen game, the students can develop positive beliefs about their performance in mathematics contexts *and* can define themselves within the context of African nobility and royalty. The students may begin to see themselves as intellectually superior African American individuals rather than as intellectually inferior, and thereby are positioned and may position themselves on a higher level academically than the African American adolescent in a traditional setting. This is important because, in traditional school settings, African Americans are sometimes positioned as inferior, both as African Americans and as math learners via tracking practices and covert and overt racist practices within mathematics classrooms.

Intersection of confronting stereotypes about African Americans and beliefs about the usefulness of mathematics

Helping students inspire to have intellectual pursuits

The teachers may support these students' beliefs about the usefulness of mathematics and their understandings of themselves as "African Americans" by attempting to get the students to see that mathematics can be useful for their futures.

Mama Cheryl stated,

...pictures of people who have done well in math and gone on to make a career out of their mathematical skills. And so just putting that information in front of children and letting them know that you can do just as well in life based upon your ability to do math. Well, you know, just as much as you can in athletics or you know in some other area... there are people that are just like them, really like math, you know, and have done well in their careers with that. (Interview transcript, June 11, 2008, pp. 7-8)

She expresses a desire for students who are good at math to think about it as a career option.

Baba John stated,

So, just trying to get them to embrace who they are and not hate it and think that it's negative, and think that we're no good and think that we can't be scientists. And think we can't do mathematics and the only thing we can do is rap... And, you know, you ask them, 'What do you want to do?' 'I want to play basketball.' I say, 'Well, **everybody can't ball their way out**

of the ghetto.’ You know? ‘I’m gonna rap.’ ‘Everybody can’t rap their way out of the ghetto.’...I mean, if you can do it, great, but, you know? ... So I said, ‘You better get something on your mind.’... ‘You better learn something.’ And I said, ‘You know, take advantage,’ Not everybody’s gonna be a scientists or a mathematician but a lot of times the students will say, ‘Well, why we gotta learn this math?’ And I say, ‘Well, it helps you think. It helps you problem solve. So this is a skill you can use no matter where you go, no matter what you do.’... ‘So that’s why you want to learn this.’

(Interview transcript, March 17, 2009, p. 19)

Baba John communicates an effort to get the students to see that African Americans can participate in areas other than entertainment by seeing the value of mathematics for problem solving and logical reasoning. The message here is not “black males may excel in sports, but not in areas that require intelligence such as mathematics (Noguera, 2001 as cited in Conchas, 2006, p. 45).

The practice of helping these students see the usefulness of mathematics as part of thinking about what they want to do with their lives may aid these students in seeing themselves as participants in math contexts, *and* help these students to extend their view of African Americans beyond rapping and basketball. When I asked the students about their future goals, with the exception of Terrell and Robert, none of the other student participants mentioned wanting to be rappers or athletes. The limited number of role models outside of entertainment may shed light on Terrell’s competing athletic identity from Chapter 4. Malcolm mentioned learning mathematics in order to teach it. Their career aspirations suggest that the practice of

helping students see the practical nature of mathematics for their futures had its benefits. The teachers wanted students to consider academic futures as an avenue to self fulfillment considering the paltry and unrealistic alternatives that are so often offered to them. This is supported by their practice of bringing in African American speakers in fields of mathematics.

The three practices, exposing students to African American role models, playing the king and queen game, and helping students consider mathematics as an alternative to playing sports or being a rapper, seem geared towards resisting the social devaluing of African Americans. In contrast to Martin's (2006) findings, Flower Academy did not practice exclusion from mathematics along racial lines, but rather inclusion along racial lines. I have arbitrarily split the practices up by chapter to emphasize differences between the practices. Although there are not a lot of specific practices in this chapter, I think the participants felt that they could harmoniously author identities as math learners and identify racially as African Americans. I thought that I would see more implementation within the school of discussions between teachers and students about what it means explicitly to be an African American math learner. Despite this, I never got the sense that these students viewed excellence in mathematics as being in opposition to being African American.

Mama Roshanda's rejection of deficit thinking about African American students' mathematical abilities first appears in Chapter 4 but I suspect that it may have aided these students in understanding themselves as capable participants in mathematics contexts *and* help these students feel good about being African American. An excerpt from the focus group interview suggests that this practice of

rejecting deficit thinking about African American students helps these students to counter wide spread notions of African intellectual inferiority.

FN: Do you guys think that your race has anything to do with your ability to do math?

Ashley: No

Chantel: Yeah they say Chinese people smarter than us because they-

Ashley: Not all of them; some of them; most of them.

FN: So do you think your race has anything to do with your ability to do math?

Ashley: No it's our cultures, its' our cultures.

FN: What do you mean?

Ashley: [Be]cause they have to go to school, how many days, 7 days right?

They [have to] go every day. (Interview transcript, May 20, 2008, p. 12)

Although it is not completely clear whether these students think that Chinese people are smarter than they are, what seems evident is that they do not attribute their race with their mathematics ability, but hold cultural practices responsible for perceptions by others that Chinese have more mathematics ability. All of the eight students either referred to themselves as smart, bright, or intelligent. Although society has placed African Americans at the bottom of the racial hierarchy of mathematical intelligence, these students managed to position themselves differently.

Flower Academy may also support these students' dispositions towards math learning and their understanding of themselves as "African Americans" by emphasizing the importance of educational achievement for African Americans. In chapter 5, the principles and philosophy of Flower Academy were described in detail. In particular were phrases about excelling without exception and achieving academic excellence in math and science. The practice of emphasizing the importance of getting an education as an African American individual may aid these students in establishing a positive disposition for learning mathematics *and* help these students to

understand themselves within the context of the African American struggle for literacy.

During an interview Robert stated,

I need to know my history and what my ancestors went through so I won't take anything for granted. Stuff that I have now, my ancestors couldn't get, and they didn't know how to read and write. (Interview transcript, September 17, 2008, p. 4)

Robert's motivation to learn mathematics thus, may become stronger because of the knowledge that he had of the African American struggle for education. Students described being racially motivated to do well academically in Chapter 5. As mathematics is a perceived marker for intelligence, this practice could be a way to get the students to excel in mathematics. Using race as a motivation for academic excellence may aid these students in establishing a positive disposition for learning mathematics *and* help these students to define themselves within the context of the African American struggle for literacy.

Below are student responses about Mama Roshanda specifically.

Maxwell: Like if I miss a day and I don't understand something she would either let somebody else help me and the whole class gotta stop talking or she would help me herself.

Shanika: She just come over to my desk and tell me how to work it out.

Ashley: She told us when we don't understand come back to class during our voyager time.

Elizabeth: She come over there, even when she in the middle of helping somebody else, she gon' come...and help you and then go back to helping them and then she gon' tell you to come back to her class and she be stopping people from coming in here while she trying to help.

Chantel: And when... longer and you don't know it and if she, that's how she help

Malcolm: She tell us to come back all the time in lunch and she talk to us all the time.

Terrell: Like sometimes when a student in my class don't understand or I don't understand, she'll just do it on the board, she'll... how much we understood

Ashley: She makes the formulas easy...[Be]cause she make up little sayings like when the signs are different ... when the signs are the same add the numbers and keep.

Voyager time, which is no longer a part of Flower Academy's school day, was described by Mama Roshanda as time at the end of the school day where students could learn extra-curricular topics in a more laid back way. In Mama Roshanda's mathematics classroom I did not get the sense that "black students must accept the values of the culturally biased mathematics classroom" (Stiff & Harvey, 1988, p. 198).

From the student statements, there was a sense that Mama Roshanda was very invested in these students. She conveyed this investment and commitment by giving

the students one on one attention, devoting extra time to explaining difficult concepts/procedures, by checking for understanding, and by providing heuristics and mnemonics for simplifying the mathematics. This is important because from informal conversations with Baba John, the teacher they hired after Mama Roshanda left was not doing any of those things, and the students are frequently lost. Fortunately, this teacher is no longer working there.

Their sentiments about their mathematics teacher run in stark contrast to the way the student participants in other studies describe their math teachers. Below is an excerpt from Davidson's (1996) study on identities where a student named Marabella describes her math teacher.

I don't understand the teacher. He explains very fast; but also it seems like he doesn't know how to explain. One day he does something one way and the next day he does it in a different way. That's what makes it difficult for us.
(p. 78)

The student's comments about their teachers suggest that the school is a unique space for being an African American and a mathematics learner.

In this section I provided descriptions of practices that potentially supported intersections of students' self-understandings as math learners and embracing of blackness and students' beliefs about the usefulness of mathematics and confronting of stereotypes about African Americans. I discuss how Mama Roshanda's rejection of deficit thinking, the school's emphasis on educational achievement, and teachers' use of racial motivation potentially support the construction of math learner and

African American identities. In the next section I describe a mathematics issue with connections to race that emerged as salient for some of the student participants.

How students constructed math learner and racial identities: Not getting cheated, power, privilege, and futures

Not getting cheated

Following up on the practices of the school, below is a graphical representation of the findings about the students’ beliefs about the usefulness of mathematics, of the sense students made of what the school offered, as well as other themes that may have been present in their families and communities.

Table 16: Students’ beliefs about the usefulness of mathematics

	Beliefs about the usefulness of mathematics
Chantel	<i>Money</i> , so you won’t get gipped
Shanika	N/A
Ashley	For paying bills, <i>money</i> , <i>counting</i> streets, counting calories
Elizabeth	For not getting cheated and so you won’t look stupid at the store
Robert	For <i>counting</i> , <u>measuring</u> , and <i>money</i>
Maxwell	For <i>counting</i> and <u>measuring</u>
Terrell	For <i>counting</i> <i>money</i> , Preparation for life
Malcolm	For <u>measuring</u> and <i>counting</i> , for being a math teacher

Across the eight students, an issue of needing to be able to count money and measurements was salient. In my research on African Americans post slavery, I discovered the following:

In the early 1900's, particularly in rural areas dominated by sharecropping, knowledge was a function of agricultural production. Basic math was helpful when you took your crops to market to avoid being cheated by the unscrupulous merchants and salesmen...Geometry came in handy when measuring [] the size of a field for ploughing and cultivation (Marable, 1996, p. 132)

African Americans who were no longer slaves worked as sharecroppers or tenants and were supervised by White plantation and mill owners (Jong, 2000). These workers relied on measuring and counting abilities.

It was interesting to me that students who were currently learning algebraic concepts somehow managed to include in their journal assignment, relating to the description of mathematics, money and/or counting and measuring.. Money was a term that did not correspond with the rest of their descriptions.

Table 17: Comparison of descriptions of mathematics

Malcolm's description of mathematics	Maxwell's description of mathematics	Elizabeth's description of mathematics	The state's description of mathematics	Bob Mose's description of mathematics	(COSEPUP) Rising against the gathering storm's description of mathematics
Add Subtract Money Multiply Divide Fractions Objects Words Facts Shapes Order of operations	Addition Subtraction Multiplication Division Graphs Slope Integers Fractions Positive Negative Integer rules Area Perimeter Reducing Probability Counting Life Money Formulas Shapes	Equations Fractions Measurements PEMDAS Rule Order of operations	Integers Fractions Decimals Percents Rationals Irrationals Multiplication Addition Subtraction Multiplication Division Ratios Proportions Exponents Order of ops Graphs Patterns Pythagorean theorem Mean, median, mode Measurement	Liberation, math literacy, Civil right, Control over political, economic, and educational lives, Displacement, East, west, north, and south, trips, Constant, Benchmark, Coordinate system, Equation, Symbolic representation	Analytical skills, Problem-solving skills, Interpret information, Communicate, Conceptual understanding, Critical thinking

When I compare these students' lists with the state's and the Committee on Science, Engineering, and Public Policy's (COSEPUP) (2007) descriptions, neither counting nor money appeared. In comparison to Bob Moses' list, the student's lists are more about operations and less about activism.

In some cases, some of the students referenced money in response to the journal item "when I hear the word math I." Terrell concluded the item with "think about money and numbers." Shanika concluded the item with "would get down with business." In a journal item asking the students to describe how they saw themselves

using math in or out of school, Shanika stated, “Well when I’m at the store to buy something, I use my money to see how much...I need to buy this product.” Terrell stated, “When I use math out of school it’s when I need to see what time it is or to count money.” Malcolm commented, “It will feel good because you can use money.” In an interview I recall Maxwell stating, “If you didn’t know how to count to one billion how would you know if you were a billionaire!” Robert echoed a similar sentiment stating, “without education if you give me money I wouldn’t know how to spend it right.”

The students’ lists, in comparison to lists made by students in Murrell’s (1994) study on sixth and seventh grade African American males did not coningle mathematics conceptions and ideas with compliance, procedures and conduct. Below were findings from Murrell’s study.

Figure 34: Murrell’s findings (p.565)

TABLE IV		
<i>Comparison of Student Responses and Intended Curricular Goals</i>		
INTENDED CURRICULAR GOALS		
COMMUNICATION OF REASONING	DEVELOPMENT OF IDEAS	
ORGANIZATION OF REASONING AND IDEAS	ACCURATE COMPUTATION	
COMMUNICATION OF APPROPRIATE CONCEPTS (CONTENT)	PROBLEM COMPREHENSION	
Question I: “What Do You Think About When I Say ‘Mathematics?’”		
STUDENT RESPONSES		
pattern blocks	building	talking
worksheets	checking	not talking
fractions	thinking	discussing
subtraction	learning	cooperating
multiply	numerator	understanding
decimals	denominator	overhead projector
borrowing	whole numbers	the sheets of work
adding	bringing necessary supplies	not being late
carrying	listening	no talking
blocks	solving problems	bringing homework on time
	hard work	not being late

The students at Flower academy did not include words like talking, tardiness, listening, homework, or overhead. I interpret this to mean that for African American students at Flower Academy mathematics was less about aspects of school performance and more about the actual mathematics. What is also promising is that these students did not describe liking mathematics because there was one correct answer, or because mathematics was structured or certain, and thus were thinking more like actual mathematicians (Boaler & Greeno, 2000).

There does, however, seem to be a disconnect between how the district is thinking about mathematics and how the students are thinking about mathematics. One explanation could be that math teachers sometimes use money as a context for teaching lessons on percent increase and decrease and other mathematical topics. Another explanation could be that somehow the need to learn to count money, post slavery, had been communicated and passed down generationally amongst African American families.

Mama Roshanda offered her views about why the need to count money was probably salient for the students.

I think they've been trained since they were in Head Start that math is just money and because th[ey] haven't been really taught to [do] [] a lot of applications. A lot of students just think [that] if they could pass this test, [they]'re fine...that's why I think folks dislike math...They're not really seeing how it's useful; so you hear a lot of students say, "well how am I gonna use this". We're doing slope -- how do I use it; and when you can't really relate and make that connection, it doesn't interest them, so they'll say it's

counting, counting money for go shopping. That's like the surface of what they're taught from kindergarten. I understand you have to teach them how to count money, but it's so much deeper; you could start teaching algebra in kindergarten....so, a lot of teachers aren't trained that way. So when they're going from kindergarten and they get up here, it's like, you're trying to rebuild a connection that was lost for all those many years. (Interview transcript, May 13, 2009, pp. 2-3)

In accordance with their website, Head Start is “a national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families.” Head Start focus on three domains of mathematics: numbers and operations; geometry and spatial sense; and patterns and measurement. There is a lesson on the website entitled “Mathematics at the Grocery Store: Activities” (<http://www.acf.hhs.gov/programs/ohs/>). However, it seems that Head Start's goals are more expansive than having children just learn to count money and measure. According to Chisman (2002), “Economic interest...was a major factor bounding education of blacks under slavery.” (p. 2). Perhaps economic interest is still a major factor that bounds these African Americans math learning in contemporary times, and thus for them mathematics is primarily useful for counting money, particularly, if they come from low income homes where money is of critical important in their lives.

In several cases, issues of needing to be able to count money were extended to include issues of not being cheated. For two African American students, Chantel and

Elizabeth, their conception of usefulness in the real world were tied to not being cheated. To highlight the uniqueness of these students' responses about the necessity of mathematics, I contrast them with statements made by African American students in a study by Martin (2000).

Table 18: Comparisons of the usefulness of mathematics

<p>“I think you’ll need math. Of course. No math, no job. No good job. Work at McDonald’s. You still need math for that.”(Martin, 2000, p. 132)</p>	<p>To learn how to calculate my money when I get older to just to know how to do it so that nobody try to trick you or try to cheat you. (Chantel)</p>
<p>“If I want to be a doctor or engineer. It’d be good to already have that under your belt...I kind of know that.” (Martin, 2000, p.144)</p>	<p>Because you have to – if you want to get construction work you gotta build houses and go to the store and count your money. (Elizabeth)</p>
<p>“Yeah, I see a reason. It gets you into college. If you don’t know it, you aren’t going to be able to get a good job like computers or something. So, I feel I have to take it.” (Martin, 2000, p. 155).</p>	<p>No it’s important, cause, math is important because if you go to the store, they gon’ try to cheat you or something and you don’t wanna make it seem like you stupid; you go to numbers, and they be like you owe me 5 dollars and you give them a 10 dollar bill and they gon’ just try run away with your money. (Elizabeth)</p>
<p>“You cannot go anywhere or do anything in the world without using math...It’s obvious..I want to be a corporate lawyer...I don’t think, I know I need math for that. (Martin, 2000, p.160)</p>	<p>So when you go to the store you gotta count your money, cause, so nobody might take advantage of you...If you learn your math, and they be trying to gip you-. Cause my nephew was at the store and that’s when they thought he was stupid {heavy emphasis on stupid} and that’s when he said ‘uh uh, where my change’ and that’s when they gave it to him. (Elizabeth)</p>

I had also heard similar statements, about being cheated, by African American students at a community college level. In contrast to Elizabeth and Chantel, the African American students in Martin’s study saw mathematics as a necessity for

employment and for college. Elizabeth and Chantel, however, saw mathematics as a tool for avoiding financial immorality and as a marker for intelligence. I interpret the usefulness of mathematics for these two students as being directly related to the experiences of African Americans as slaves in the United States. Jong (2000) found that White planters frequently cheated African American plantation workers (post-slavery) out of their money by limiting their wages. This created a need for them to learn how to count their money.

Farmers wanted to learn arithmetic so that white plantation and mill owners would not cheat them at counting time...there was also a belief that the English language and the laws of math held, in some ways, clues to the secret of white dominance (Talty, 2003, p. 90).

According to Sommerville (2003), “few slaves could read, write, or do math ...Some freed slaves were able to buy small farms ...they too, were cheated in local markets (p. 11).What’s interesting is that young Elizabeth and Chantel in modern day time sound like two freed slaves trying to avoid being cheated by plantation and mill owners.

I recognized that both Elizabeth and Chantel who emphasized mathematics for the purposes of not being cheated (beliefs which were influenced by their parents), were both members of the Black church community as reflected by their self portraits and their self portrait descriptions.

Figure 35: Side by side comparison of self portraits



Was this a coincidence or a revelation of something deeper? There may be a connection between their views about the usefulness of math for not getting cheated and the Black church. Hale (2001) stated, “It was in the Sunday school, often in secret, that African people learned to read the Bible, to do mathematics, and eventually to write” (p.193). Chisman (2002) found that during the first literacy movement of African Americans, some schools did not have their own buildings but instead were housed within a church. Education was designed “to give blacks an economic opportunity beyond that of field labor, to protect them from being cheated. “Adults learned mathematics involving applications, weights, measuring, and surveying” (Chisman, 2002, p. 4). Mathematics literacy was tied to the Black church and their desire to keep African Americans from being cheated. Counting and measuring skills would have been beneficial for them.

I wondered whether students in other racial groups shared these beliefs, or whether this was a belief that was specific to African Americans. Perhaps it is a sentiment shared by groups that have been oppressed, conquered historically, or

economically disadvantaged. What is interesting about these students in terms of what Wenger (1998), Anderson (2007), and Nasir (2007) refer to as imagination, or how mathematics fits into the broader experiences of these students lives, is that the ways that these students see mathematics do not relate to their future education or careers, and yet they have *not* constructed identities that are devoid of advancing their mathematical knowledge, as described in Chapter 4.

These African American parents, it seemed, offered mathematics as a resource for not being cheated in order to help their children construct an identity as an African American math learner. Elizabeth's mother, a reverend in a church, had the following to say about the importance of mathematics. "You've gotta be able to count, you've gotta be able to measure...I think it's important cause first of all you gotta know how to count your money or they'll take it from ya." Again, there is a reference to being able to count and measure, skills that were important for Black farmers. The phrase "they'll take it from ya" given the era in which Elizabeth's mother grew up, is an indirect reference to Whites. To understand her mother's lens for viewing mathematics, one has to understand the plight of African American farmers after they were freed from slavery.

Planters often charged usurious interest rates on credit extended to their laborers, arguing that these were necessary because of the high risks involved. Landlords had sole responsibility for keeping accounts and selling the crops, so that employees had to take the plantation owner's word for how much they had earned and how much they owed. At the end of the year, it was common for sharecroppers and tenants to be told that they had come out in debt. Most

had no choice but to stay and work for another year for the same planter even if they suspected they had been cheated. The system provided plantation owners with an effective way to maintain the stable supply of cheap labor that they depended on. (Jong, 2000, p. 106)

Planters were able to take African Americans' earnings from them and because they did not have the necessary math skills and thus had no control over their earnings.

Chantel referenced her mother's views about being cheated stating,

Like she'll say, if I'm messing up bad or something like that, she'll say you gon' have to learn to do your math because one day you gon' have to count your money and somebody gon' gip you for your money if you can't add up your stuff at the store when you get to the cash register... (Interview transcript, May 20, 2008, p. 9)

Similarly, Shanika's mother stated,

I['m] [not] go[ing] [to] be with her all the time. When she go[es] to the store she [will] know when somebody's cheatin[g] her or somebody's not cheatin[g] her in her money... When she get[s] her own place or when she's working, she'll know she [is] getting paid, paid for what she['s] workin[g] for or when she's buyin[g] a house or a car or whatever. (Interview transcript, December 3, 2008, pp. 8-9)

These statements are similar to findings in a recent study by Remillard and Jackson (2006). According to Schultz (2005),

Many sharecroppers found an alarming correlation between the amount they had produced that year and the debt that the planters claimed they owed at the

settle...The political, legal, and economic power of the planters allowed them to cheat flagrantly at the settle (p. 35).

It sounds like these parents are preparing their children to be ready for the “settle.” Perhaps algebra was a civil right for them in that it would allow them to maintain financial control. Bob Moses stated, “The sharecroppers today are the young people”(Moses, 2001, p.vii). The data suggests that these students sought control over their economic lives in the same way that sharecroppers desired control. The data suggests that in thinking about the mathematics identities of African American math learners, we cannot ignore the historical legacy of African Americans and how they were cheated out of their money. These students seem to be constructing identities as math learners and African Americans by tapping into their historical legacy and the uses for mathematics that their ancestors had.

Unintended consequences

The students’ views of the usefulness of mathematics are not quite what Mama Roshanda had intended. She tried to enhance imagination, by fitting the mathematics into their contemporary life experiences. This is illustrated in the lesson on cell phone plans (referenced in Chapter 4) and having students determine which plan had the best rate. Below is an excerpt from the lesson.

Mama Roshanda: So, if I talk 25 minutes I’m still paying \$30, Darnell, because this table that we’re talking about, they’re giving you 100 free minutes; and so if I talk 25 minutes then did I reach 100 yet? Darnell, no. So

I'm still paying \$30; that's how you got 30 right? If I talk 50 minutes, **how much am I paying?**

Student: \$30.

Mama Roshanda: Why India?

India: Huh?

Mama Roshanda: Hakim, **why am I still paying \$30 if I talk 50 minutes**

Malik: I don't know.

Mama Roshanda: You do know.

Student: Cause you didn't go over 100.

Mama Roshanda: Excellent... No **in terms of cost. What pattern did you see?**

Student: All of the same.

Mama Roshanda: The same? Explain why. Student: [asks something]

Mama Roshanda: Yes, always be very detailed in your responses. [Students are given time to write their responses at their tables] ...As you go down the cost column it is increasing by 8.25; is this pattern a different outbreak pattern from the pattern we observed on the first table? [What] we observed on the first table was the cost increasing.

Student: Oh yeah; no no.

Mama Roshanda: No; the cost we paid [was] 30 all the way down, but when you go to this table, it cost you 75 cents. Can someone explain why? Venice.

Venice: Cause on your first chart, that was your free minutes; **you had 100 free minutes, and you wasn't going over 100; but on the other chart you went over 100.**

Mama Roshanda: Excellent, **they started charging you by what?**

Student: Hold on, they started charging...

Mama Roshanda: What did they start charging you?

Student: 8 dollars and 25 cents.

Mama Roshanda: That's the pattern; but what did they start charging by?

Student: 35.

Mama Roshanda: **Look at your equation.** In our plan, what did they start charging you?

Students: 35 cents. (Observation transcript, August 22, 2009, pp. 1-6)

Mama Roshanda was very aware that many of her students had cell phones, and although their parents were paying the bill, they would still gain an understanding about a "good deal", while also learning about patterns and functions. One could argue that the lesson is still indirectly about not getting cheated out of your money by phone companies. Mama Roshanda wanted students to be able to understand math, outside of just calculating and I do not think that avoiding cheating was the application of math that she had in mind for her students post graduation. Helping students to see mathematics' usefulness for careers in mathematics was in tension with home support and using mathematics to avoid being cheated.

In some ways, what the parents suggest to the students about needing to know mathematics support a constructed African American math learner identity characterized by independence and protection, but in other ways it may limit the students in that they are not able to talk about mathematics for solving equations, understanding proofs, or for its applications to fields like astronomy and medicine. Mama Roshanda attempted to offer a counter-narrative to not being cheated, but could actually have been contributing to the narrative. This tension between home and school is connected to issues of power and privilege. I will discuss these issues in the subsequent sections.

Power

The parents were very aware of their positioning in society because of their race. In response to whether different messages were being sent to African American students about math participation, Robert's mom stated, "Well you know how society is about color and a minority, they be specific on other areas; I'm sure math is one of them, but I don't know why." I interpret this to mean that when you are an African American, society will treat you differently in many arenas, and there is no reason to think that mathematics education is any different, but she could not articulate the reasons why this was so. Terrell's mother shared her views on whether different messages were being sent to African American students about math participation stating,

You know they – a lot of people don't think Blacks are intelligent. But there [are] a lot of Black people that [are] very intelligent and like kids, their

parents [put them] down. People [put them] down and when you [put them] down it makes them feel like they're what you call them. If you call [th]em dumb you make [th]em feel like they're dumb. (Interview transcript, December 17, 2008, p. 9)

I interpret this to mean that African Americans are not perceived as intelligent and Blacks do contribute to making other Blacks feel that they are not intelligent and the internalizing of these negative perceptions persist.

Privilege

Malcolm's father stated,

Within, I would say sectors and regions of the United States, certain kids get certain books. You know, certain kids get up to date books. Some kids just don't get any books at all except for something that's old. And I mean, how do you expect for them to learn? (Interview transcript, October 29, 2008, p. 44)

I interpret certain kids to mean students of color and students who are poor. These statements are supported by the research of Oakes (1990), Darling-Hammond, (1997), and Kozol (1991). The statements about being African American, intelligence, and lack of access to quality education are likely connected to these parents' decisions to send their children to Flower Academy.

Because of these parents' economic disadvantage, (none of them described having middle –upper class incomes), their decisions to send their children to an African-centered school might have been more about finding a school that valued

their children's racial identities and whose teachers were committed to their children and less about finding a school that was private and touted 15-acres of campus grounds. If the parents were more financially empowered, I'm not so sure, however, that all of them would have sent their children to Flower Academy. As an alternative they might have opted to make culture very visible within the home as a supplement to the invisibility of culture in more exclusive schools. Their economic disadvantage may also have shaped their views of mathematics as a tool to avoid economic disempowerment.

With the exception of Chantel's mother, who earned a bachelor of science in accounting, none of the other parents had degrees beyond a high school diploma. Their educational experiences did not involve mathematics beyond calculus, except for Maxwell and Robert's mothers. Most of the parents described themselves as being average students in school. Thus, their lenses on where their children would receive the best education are shaped by their own experiences, where for them what was valued was not the social status and exclusivity of the school but the teachers, and in some cases, the African-centered worldview.

Futures

The students at Flower Academy typically apply to a technical or magnet school of some sort within the city. The reason why they do not attend the public high schools is because these schools were known for being of poor quality. Chantel was accepted to a technical high school (I do not know where the other students would be attending high school). This school offers algebra 1, geometry,

trigonometry, precalculus, AP and AB calculus, probability and statistics, and AP statistics. Chantel would have access to courses for pathways in gaming and STEM fields (Science, technology, engineering, and mathematics).

Chantel informed me that she wanted to get her Ph.D and be “not a medical doctor, but a pediatrician.” Chantel did not seem to understand that pediatricians did not get Ph.D’s but rather MD’s and were medical doctors. Although she had this designated identity, she did not seem to know all the details of what it encompassed. Mama Kenya seemed to suggest that Chantel’s goal was not realistic. She stated:

Where do I see her, I don’t know, 5 years, she’s in 7th grade now, so that’ll be 12 -- she wants to do hair... and she is good at that; I think that may be good for her, because it’s something that she likes to do; also she doesn’t challenge herself, she’s more of a follower; and so I can see her doing that and being in somebody’s shop and not owning her shop... (Interview transcript, May 20, 2008, p. 9)

The Dean made this comment the year before Chantel’s acceptance to a technical school in the school district. However, I do not know that her response would have been much different after finding out. She seemed very confident about her perceptions of Chantel.

Terrell, who had a competing athlete identity mentioned that he wanted to be a basketball player or a lawyer. Similarly to Chantel, Mama Kenya, suggested that this goal was probably not realistic for Terrell.

Terrell wants to play ball, and that is it; is he good, yeah, but there are people who are better than him; and so right now he’s playing too much. He’s into

the girls too much. I can see him, I am not speaking this into existence, but I could so see him caught up in having a child before he's ready. (Interview transcript, May 20, 2008, p. 11)

Ashley, who was competing with a thug identity was an aspiring veterinarian. Mama Kenya did not see Ashley as being more than just an average college student getting by on good looks and sweet talking, as described in the case at the beginning of the chapter.

I do not want to give a false sense of security about the school and its role in the mathematical preparation of these students. Views of mathematics for counting, measuring, and not being cheated may not necessarily lead to college enrollment or the pursuit of mathematical study at the post-secondary level. Chantel's mother did not even think Chantel really needed to take math beyond algebra. She didn't view mathematics as being as high paying a profession as law and medicine and stated that the Black community was either middle or under class and thus would want careers that were high paying. For her, algebra would not empower Chantel the way law and medicine could.

Mama Roshanda discussed where she saw the student participants in the next five years.

I would definitely see all of them in college. I could see Chantel and Elizabeth in math and science careers. I definitely see all of them pursuing a higher education...Chantel, you know, I see some doctor [or] some lawyer. I definitely kind of see them all in something kind of math and science related, because they definitely enjoy the math and science aspect...I see all of them

in very high positions,... All of them I just see great things. I don't know particularly what each and every child's aspirations are at the high school [level], but I do see them all going to college and accomplishing great things. I see a lot of engineers, scientists, mathematicians, lawyers, you know, just from hearing things throughout the years. It's weird, because I've never heard the boys say 'when I grow up I wanna play basketball.' (Interview transcript, June 24, 2009, p. 7)

Her outlook for these students' futures included mathematical and scientific pursuits. In my interviews, however, none of the students' goals included being mathematicians or scientists.

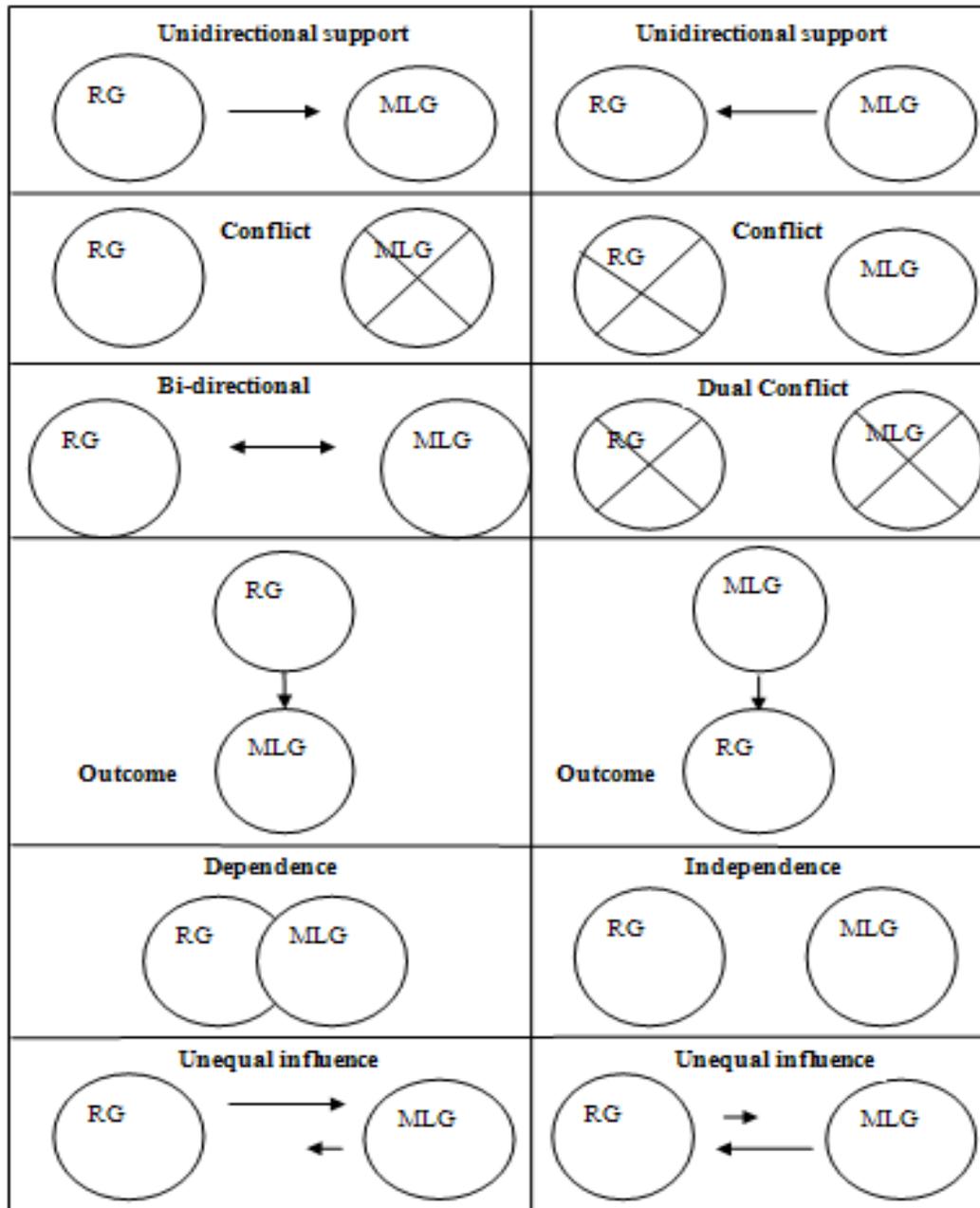
Questions that one might ask include: are these student's goals for their futures realistic? Will they be prepared to successfully navigate career paths when they have been in an environment of racial exclusion? Will they be able to compete academically with other students? If an A at Flower Academy is not the same as an A in schools in affluent communities, then these students may not be as prepared as they believed. The emphasis that is placed on social skills and test preparation and having seventh grade students do eighth grade mathematics may aid in preparation, however.

Summary

There are several ways that racial group and math learner group memberships can interact. Math learner group membership could support racial group

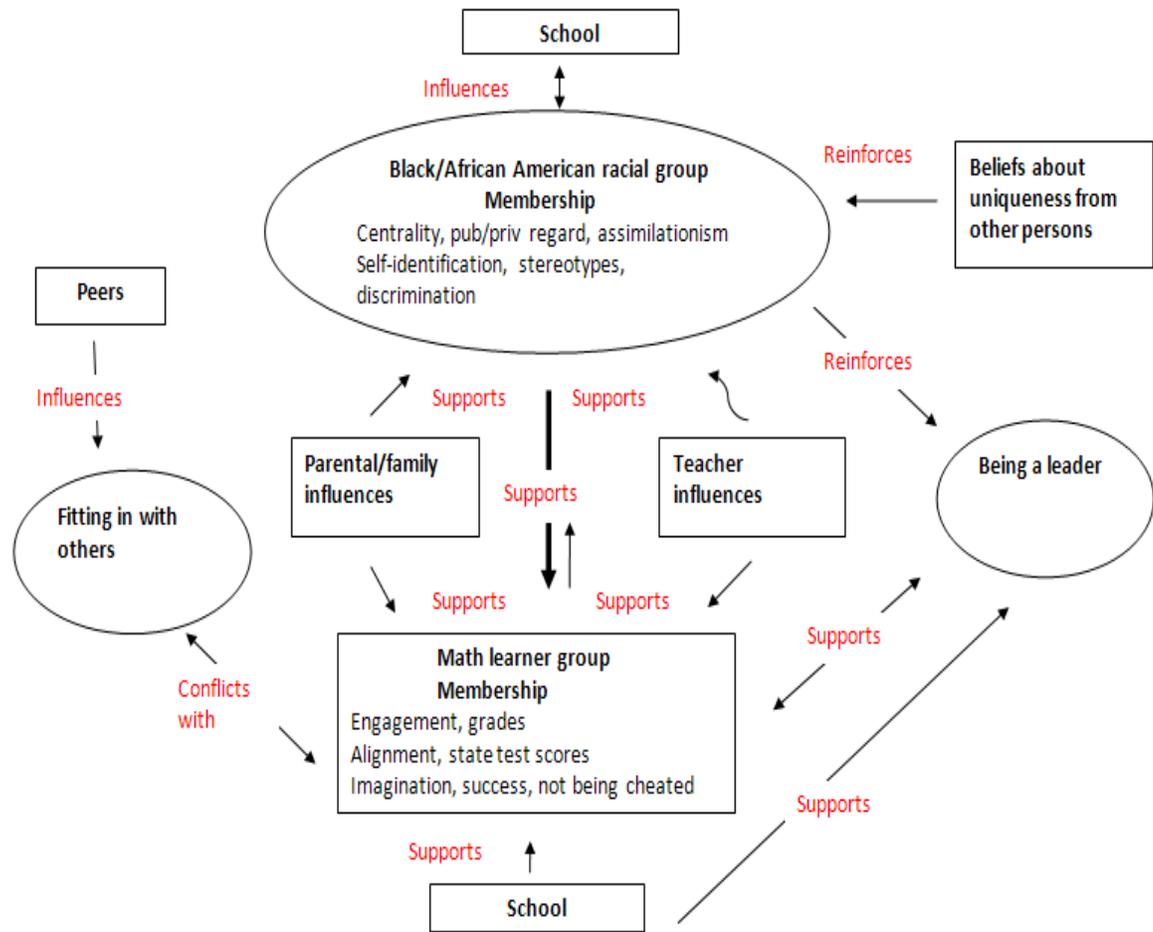
membership. Racial group membership could support or conflict with math learner group membership and vice versa. Both group memberships could support and conflict with each other. Racial group membership may be the outcome of math learner group membership and vice versa. Both group memberships could be dependent on each other, exist independently of each other, or one membership may have an unequal influence on the other. These interactions are depicted in following diagrams.

Figure 36: Potential interaction of identities



What actually happened is introduced in my visual representation of construction process of an identity as an African American mathematics learner in this environment.

Figure 37: Construction of racial and math learner identities in eight African American adolescents at Flower Academy



Overall, the data suggests that the individual Black racial identities and math learner identities of these eight students are constructed in the context of African/African American culture and from parental/family and teacher influences. The African-centered school appeared to influence Black racial group membership through their promotion and valuing of African and African American culture and identity, and positive messages about family and community. Conversely, membership in the Black racial group directly influenced the cultural context via parental choice, contributing to an all Black environment and maintaining cultural congruence.

A belief that African Americans were different from other people also seemed to influence students' membership in the Black racial group. Chantel and Elizabeth, in particular, felt that African Americans could not be any race other than Black. Parents appeared to have an influence on students' membership in the Black racial group through conversations with their children about being proud of their racial and cultural identity, honoring, and valuing it (which may have had some bearing on their high private racial regard). Teachers potentially had an influence on students' membership in the Black racial group because of their own membership and representations of Afro-centricity, but further research is needed to understand other ways they influence this group membership.

The African-centered school appeared also to influence students' membership as math learners by using posters, having conversations, and inviting speakers of African descent that participated in mathematics or made contributions to the field of mathematics. This school also seemed to support student leadership through their

mission, philosophy, principles, and values. Being a member of the math learner group and being a leader seemed to be supports for the other. Students that had healthy math learner identities tended to exhibit the characteristics of leadership. Conversely, students who were considered to be leaders exhibited healthy math learner identities (Robert, Maxwell). Fitting in with the popular students was influenced by peers and seemed to conflict with being a member of the math learner group.

Those students who wanted to fit in with others (based on teacher perceptions) and/or did not want to be seen as top students tended to have issues with math proficiency (as measured by grades) and/or wanting to give up when faced with challenging mathematics (Terrell, Ashley, Shanika, Malcolm). Being a member of the math learner group seemed to conflict with fitting in with the popular groups of students. Student membership as a math learner also appeared to be influenced by parents' commitments to their children and their conveying of the importance of learning mathematics and getting an education, to their children. The mathematics teacher and educational facilitator for mathematics also appeared to influence student membership as math learners through their commitment to the students, knowledge of the subject, exposure of students to role models, conversations with students about pursuing mathematics as a career, and equipping the students with tools for success.

In this process of constructing identities, these eight students seemed to rely more heavily, not on their perceptions of who they were as mathematics learners, but rather on their perceptions of who they were racially. In other words, their membership in the Black/African-American racial group seemed to influence their

membership as mathematics learners in terms of the necessity of math to avoid being cheated and for counting and measuring (all which are rooted in the history of enslavement of Africans). In artistic response to the question “who am I in my math classroom?”, more often than not, students used images that reflected membership in racial and other groups rather membership as a math learner.

Their membership as math learners did not seem to heavily influence their racial group membership as Black/African-Americans, but perhaps played a minor role in some students wanting to counter stereotypes that other racial groups had about African Americans characteristics (extrapolating from the survey data). Identities did not appear in any way to be constructed in opposition to each other. From the data, the interaction that I expected to see between racial identity and math learner identity did not really occur. What did occur was that the students constructed both identities mostly independently of each other. Identity as an African American seemed to have a heavier influence on whether the students chose to identify as a math learner, whereas identity as a math learner seemed to have little to no influence on whether the students chose to identify as African Americans. The school seemed to potentially help students to bridge these identities via its school mission, racial motivation for academic excellence, and providing role models for the students.

Discussion and Conclusion

The conceptualization of construction sheds light on why Robert and Ashley had success and difficulty, respectively, with constructing identities as African

American math learners. In the case of Robert, parental support seemed very strong but it is not so clear that Ashley had similarly strong parental support. Ashley also seemed to waiver between identification as a Black person, and identification as “nothing.” Robert, on the other hand, had a stable identification as a member of the Black racial group. With Robert, there was a sense that his teachers influenced his sense of self and his priorities but this support was not as evident with Ashley.

Constructed identities of students at Flower Academy seemed to be hierarchical where race was given salience and then mathematics. This was not surprising given the African-centered context but, in other ways, was surprising given students expressions of enjoyment and ease with mathematics in Chapter 4. This finding seems to support other findings within the literature that assert that for African Americans, possession of a strong racial identity may be more important than possession of other identities (for some because of the negative stereotypes that students may seek to counter) (Ellington, 2006; Steck, Heckert, & Heckert, 2003; Miller, 1999, Bakari 1997; Cooley, Cornell, & Lee, 1991).

These students were exposed to practices that allowed them to see themselves as both mathematics learners and as African Americans. These practices involved exposure to African American role models in mathematics, engagement in activities that subtly connected their heritage as African kings and queens to mathematics, and conversations about considering mathematics as a tool for their future. In addition, Mama Roshanda conveyed to the students that their racial status was not a statement about their mathematics ability and did not engage in deficit thinking or hold lower expectations for these students. She was perceived as a committed and invested

teacher. Flower Academy conveyed to the students that their racial status should be a motivator for academic achievement and embedded mathematical achievement.

Despite having a qualified mathematics teacher and tools for mathematical success as described in Chapter 4, students descriptions of mathematics and statements about the usefulness of mathematics when juxtaposed with stakeholder's and activist's descriptions of mathematics, were quite different. Their views for mathematics as tool for not being cheated are similar to views of mathematics that were held by ancestors who were post-slavery farmers. This view of mathematics is useful when thinking about why African Americans may not pursue higher level mathematics, for example. If mathematics is a tool for not being cheated, then taking linear algebra or number theory might not seem very important.

Legitimate concerns arise regarding whether this conception of mathematics will limit these students in the future and whether the African-centered environment contributes unknowingly to it, while schools in more affluent communities may broaden mathematical conceptions in the process of developing math learners. Thus, there are issues of access and power and whether these students are being disadvantaged. The students did not seem to articulate conceptions of mathematics as related to their roles in their communities and empowerment as African Americans.

Within the context of the PVEST model, the overall findings in this chapter suggest that role models, games, and conversations served as mathematical supports that aided adolescent African American students in developing emergent identities as African American mathematics learners. There was then a positive relationship between the practices of the school and the ways that these African American

adolescents saw themselves as math learners. Ultimately, the school's mathematics practices presented opportunities for these students to construct healthy identities as African American mathematics learners. To be an African American mathematics learner in this context meant giving primacy to being African American before being a mathematics learner while valuing both, engaging in a universal subject, and drawing on the experiences of African American ancestors. I propose that schools with African American students population are to set goals to help them appreciate who they are racially. In doing so, these schools could see positive attitudes towards mathematics and mathematics success, and potentially higher mathematics achievement. In the next chapter I integrate findings across Chapters 4-6 and utilize the PVEST model to attend to the research questions.

Chapter 7: Discussion of the research questions

For each sub-question, I invoke the PVEST model to discuss the challenges students faced, social supports that served to reduce the stress of these challenges, students' reactions to these supports, and emergent identities. In some cases, I discuss factors that would typically be risks in other school settings, but were protective factors at Flower Academy. The PVEST can help to explain how these students came to be unique, focusing on how they were able to respond to algebra in ways that were absent of anxiety and boredom, and how they were able to respond to society's devaluing of African Americans in ways that were absent of racial identity confusion.

Key findings about Flower Academy's supports for identity construction

What is the nature of students' identities as math learners and what school practices assist students in positive identity construction?

Challenges and supports

Some challenges that an adolescent mathematics learner may face are social perception of their abilities and mastery of content (Spencer, 1995). The challenge of social perception was not any different for students at Flower Academy. Elizabeth, in particular, referenced not wanting to seem dumb if she did not know mathematics. Shanika and Malcolm expressed not wanting to be top students for fear of being labeled "nerds" or "know-it-alls."

One social support for reducing the stress associated with this challenge was Mama Roshanda's self-reported conversations with the students about the importance of working hard and not worrying about fitting in with others. Another social support was that students were grouped heterogeneously so that no one student would be upheld as gifted, while another was singled out as regular or "special." In some instances students reacted to these supports in a maladaptive way, namely by not participating and/or engaging in disruptive behaviors while in other instances students excelled and consequently were perceived as leaders.

Unlike the typical adolescent mathematics learner (as I would predict), algebraic content did not seem to be a challenge for this student sample. The structure of Mama Roshanda's classroom (specifically integrated test preparation), the CATAMA Lab, and Mama Roshanda's culturally responsive teaching style, served as social supports. The CATAMA Lab was an additional resource for some students for mathematics instruction.

Mama Roshanda enacted praise with her students and devoted time for additional mathematics support during instructional and non-instructional time. Students reacted to these supports in adaptive ways by scoring high on tests, doing well on report cards, and not being afraid of mathematics. The mathematics activity was both engaging and culturally responsive (Math madness). Students reacted to this support by expressing joy about mathematics class and mathematics as a subject. Unlike many adolescent mathematics learner (as I would predict), bad teachers were not a challenge for these students. Mama Roshanda had a degree in mathematics and had the pedagogical content knowledge, thus serving as a social support by being well

qualified. The students in this study reacted to this social support by expressing how wonderful she was in contrast to the mathematics teachers in their former schools and, in some cases, by making gains in mathematics achievement.

Emergent identities

The student participants in this study were unique as African American middle school mathematics students in several ways. These ways seem to suggest that the situation at Flower Academy supports positive identity construction. These eight African American middle grades mathematics students at Flower Academy did not exhibit characteristics of students with mathematics test anxiety, the most common and widespread emotional reaction to mathematics. This characteristic is positive because it suggests that these students are in an environment where they can experience mathematics in ways that remove fear about mathematics, allow for experiences of success, encourage preparation for mathematics exams, cultivate self-efficacy and positive self-talk, and promote future engagement with mathematics.

The students were generally resilient and self-efficacious. They had very positive notions of self and their math abilities. Even those students that might not have been “A” students, described themselves as smart and respectful, and determined to go to college. For all of the students, mathematics was one of their favorite subjects and they enjoyed mathematics class. This characteristic is positive, because it suggests that these students are in an environment that cultivates mathematics as an enriching and fun subject and not the stereotypical boring difficult subject. They did not talk about math as being a subject for students who wore

glasses and carried lots of books and pencils. Although these students might not have viewed themselves as mathematicians, they did perceive themselves as capable doers of mathematics. The students seemed to possess healthy identities as mathematics learners.

Resistance to mathematics learning did not appear to be a stable coping response. These students may have let a status (characterized by victimization) as an “oppressed” people lead them to take an oppositional stance against mathematics in the form of trying to be cool and trying to be a thug. There were some other similarities between these students and the students in Ogbu’s studies.

Like the Oakland students Ogbu studied, Shanika coped with the social sanctions against peer pressure by doing the other students’ work. Terrell tried to shift the focus from himself as a mathematics learner to his identity as an athlete. Malcolm was an interesting case in that unlike the others, he gave up very easily and needed to be pushed. The products of the students coping were not clear in all cases. For Chantel, there was a productive outcome. She got accepted to a technical high school.

I interpret the mathematics socialization practices that supported these students’ emergent mathematics learner identities as attempts to counter the devaluing of the students’ mathematics abilities and to integrate culturally responsive pedagogy. These students’ reflections of their mathematics experiences will not be reflections of boredom and feelings of inferiority. In the next section, I focus on the challenges and supports to students’ construction of identities as African Americans.

What is the nature of students' identities as African Americans and what school practices assist students in positive identity construction?

Challenges and supports

Challenges that African American adolescents may face within the context of schooling include maintaining their racial and cultural identity, while simultaneously fitting in with everyone else, and dealing with racism and discrimination (Spencer, 1995; Akoto, 1992; Lomotey, 1990). These two challenges did not seem to be challenges, however, for students at Flower Academy. With regard to racial and cultural identity, the cultural knowledge that these students were receiving at this school served as a support, a support that was missing from their former schools that seemed to help students maintain their cultural identity. Parents were a perceived support for the students, contributing to the pride they felt in being African American. African language and cultural practices also served as social supports.

The students perceived the relationships with their teachers as supports for their racial identity. They expressed the bonds they had with their teachers and how much they loved them. This seemed to have a positive effect on how students perceived the teachers and on their desire to learn. The students seemed to respond to the "village." In contrast to the school in Anyon's study, the cultural practices at Flower Academy seemed to shape a different kind of environment and different kinds of relationships.

They wouldn't listen to us if we didn't yell and put on a mean face. They know it's only our school voice.' An older black teacher explained, 'you can't treat these kids nice. They don't deserve it.' (Anyon, 1997, pp. 28-29)

At Flower Academy teachers did not yell, instead they called “Ago” until students quieted down and responded with the word “Ame.” This practice created a peaceful school environment. The children at Flower Academy were not treated as “these kids” but as the teachers’ children. The practice of calling teachers Mama and Baba changed the nature of the relationship between teachers and students from teacher-student to parent-student. One word that was used consistently in interview with students was respect. Respect was deeply engrained in Flower Academy’s mission and philosophy. The teacher-student dynamic of Mama and student and Baba and student helped to cultivate relationships of mutual respect. The students described themselves as very respectful and did not seem representative of stereotypical depictions of urban students who curse at their teachers and engage in unruly classroom behavior.

The practices of Kwanzaa, African drum nights, and Black love day helped students to connect culturally and were practices that they could relate to. Students had a sense that community and family were important. The Afro-centric themes of movement and verve that were characteristic of mathematical activity seemed connected to the students love and interest for mathematics.

For the typical African American adolescent, race would likely be a risk factor, but at Flower Academy, race (excluding skin color characteristics) was perceived by the students as a protective factor. The segregated racial environment seemed to offer comfort, a feeling of community, and a family environment. The students implied that racial discrimination did not exist at Flower Academy because there were no “White kids.” African American students did not experience the fear of

looking stupid by white peers, or being afraid that if they answered something wrong they would be seen as reflecting the alleged inferiority of their race. It did not seem that students felt they had to prove themselves to others because of their race or socioeconomic status.

Students did not describe any experiences of racism within the school by students or teachers. Same race teachers also served as a social support. They equipped students with cultural capital with regard to speech. The students perceived racial motivation by their teachers as a support to do well academically and reacted by working hard to do well in their courses.

There was an absence of stereotypes about African Americans and about who could participate in mathematical activity. There were no racial slurs of “nigger” written on the lockers of the mathematically literate. There was no racially based mathematical snubbing in the classroom. There were no traces of student sentiments about teachers questioning student work and grades because the student was African American or student sentiments about white students questioning the intellectual abilities of African American students (obviously because there were no white students). At Flower Academy the student’s that were perceived to be mathematically literate and illiterate were not perceived this way based on race, but based on mathematical performance.

Two factors that I identified as challenges were skin color and African ancestry. These are likely challenges in other schools, but I would not have expected them to be challenges in an African-centered school. Students with darker skin experienced challenging situations where they were teased by peers for having darker

skin. Some students experienced the challenge of accepting that they are connected to people of direct African descent and seemed stressed by the thought of being similar to Africans. These challenges were socially supported by conversations with the students that were initiated by Mama Roshanda and Baba John, but I am not sure that these challenges were necessarily offset.

Emergent Identities

These students all described themselves as either African American or Black. They all represented themselves visually as being a person of African descent and none of the students expressed a desire for European features. The students did not seem to struggle with their racial identity in contrast to African American students who attend predominantly white institutions (Omari & Cole, 2003). This attribute is positive, because it can be difficult to maintain one's racial identity in a society that devalues Black racial identities and in some cases advocates for an "everyone is the same" mentality.

The students expressed feeling happy, proud, and good to be a person of African descent, expressed positive feelings about African Americans as a racial group, and did not express sentiments about needing to assimilate. They expressed sentiments that African Americans were intelligent and were certainly not less intelligent than White people. To highlight the significance of the students' positive feelings about African Americans, I will share an excerpt from Martin (2007) by a man named Raheem.

I'll be honest, I thought that Black people were inferior and White people were superior because of what I saw in the world around me. And then also as a child growing up, **I can count on just about one hand the Black teachers that I had.** I look back and reflect on the way I thought, in the way I perceived things. That had an impact on the way I felt about my own people. I saw people that were not Black as my teachers. So that made me self-consciously come on with the thought that Black people are just not that smart. **White people are smarter than us.** That's why most of my teachers are White.

In general these students seemed to have healthy racial identities as African Americans. I interpret the racial socialization within Flower Academy as an attempt to resist the devaluing of African American racial and collective cultural identity in society. The middle school students at Flower Academy will not look back on their experiences at Flower Academy and pine for communalism and collectivism and more teachers and students that looked like them, or who they could identify with. In the next section, I focus on the challenges and supports to students' construction of identities as African American math learners.

What is the nature of students' construction of identities as African American math learners and what school practices assist students in positive identity construction?

Challenges and Supports

A typical adolescent African American mathematics learner might be vulnerable to risk factors of race and socioeconomic status. These students were at risk in terms of skin color but were not at risk in terms of racism within the school.

They did not believe that because they were African American that they would be bad at math. One perceived challenge to being an African American mathematics learner was economic, as expressed by Chantel's mother, who believed that Chantel would be more financially empowered by being a lawyer or doctor. In her case, socioeconomic status was a factor that challenged Chantel's well being and a career in mathematics was not the solution. Mama Roshanda and Baba John served as supports and attempted to help students consider mathematics as a field. Some of the other parents served as social supports by encouraging the students to learn mathematics.

Posters of African American mathematicians on the walls and African Americans who participated in mathematical and scientific fields, exposure to same race role models in mathematics via speakers, and math royalty games, were social supports for these students. In reaction to these supports, students did not try to dress or speak in ways that downplayed their racial identities (not that they had much choice since they were required to wear uniforms) nor did they reject mathematics learning as an activity for White people. They expressed a general sentiment that their race did not have to do with their mathematics ability, that it was a universal subject and everyone should take the opportunity to learn it.

One challenge, which felt different from what is typically documented about African American mathematics learners was one of being able to go to the store and count their money so that they wouldn't be cheated--an experience that I think might have produced stress for Chantel and Victoria. I did not know if there were any

supports at Flower Academy for offsetting the stress of needing to be able to count money to avoid being cheated.

Emergent identities

Students viewed themselves as both African American and mathematics learners. Their racial identities as African Americans, however, seemed to be more salient than their identities as mathematics learners. Even the ways that they conceived mathematics were tied historically to their identities as African Americans (farmers, share croppers and not being cheated) and not to the national standards, state curriculum, or the teachers' conceptions. I do not think it would be fair to characterize these conceptions as positive or negative, but rather to note that they are a result of the students' historical legacy of slavery that has been downplayed by society and is emerging in places that we might not have thought possible. Unlike the students of the Algebra Project, they did not seem to have a sense of how mathematics connects to larger issues of power. In some senses, they seemed to have healthy African American mathematics learner identities; and in other senses, their particular construction may have limitations for their academic futures. This suggests that the situation at Flower Academy could still be improved in helping students develop a positive identity as an African American math learner.

There are not many public images of male and female African American practitioners of mathematics who grew up poor, for example, and yet the students did not strike me as believing that they could not consider careers that required

mathematics. In contrast, I share the perceived challenges of a man named Keith from Martin's (2009) study.

K : Growing up in Chicago, I was always taught that Whites were better .

D : By whom?

K : By the school system itself . 'Whites are better. You shouldn't be where Whites are at. You shouldn't be in this part of town. Whites are smarter.

'...when I was in third grade, I was actually the brightest kid in school and that's where my knack for math came from. I actually exceeded all the math that they had there. They had nothing else for me. The children around me didn't exceed in math or do well, so I goofed off ... Then when I made it to fifth grade, my mother put me in a Catholic school...I didn't have all the distractions. And this was 1968 or 1969. **The nun told me at that time that blacks should not consider professional occupations.** It was my goal to become a physician. So, I gave up...I just did enough to get through school. That [became] my goal.

The next excerpt further highlights Keith's lack of support.

D: How confident were you in your math ability?

K: That was never an issue. I just never had the push. I did not apply myself because I did not have anyone behind me encouraging me.

D: Who do you think should have been doing the pushing?

K: Parents, community, the school.

D: Why weren't those people pushing you?

K: I'd say because the **expectations were low** ... Because most African American males don't come through there wanting or having the desire to pursue mathematics. . . . **I didn't have anyone around me saying '[If] you do math, you're going here [in life]**. You can be a doctor if you just hang in there. Take a science class. . . . You have potential Keith. If you work, do you realize you won't be able to get your algebra homework done?' ... No one took the time to say 'Why don't you join the math club? You know, they got a special program for African American students at Illinois Institute of Technology.' ... Could you imagine? My whole world would be different. I wouldn't even be sitting here with you having this conversation.

These students received that kind of support that Keith wished he had. I interpret the practices that support the intersection of domains of math learner and racial identity as an explicit attempt to resist the “widely accepted and largely unchallenged racial hierarchy of mathematical ability” that places African American, Latino, and Native American students at the bottom and Whites and (collective) Asian students at the top, reposition and liberate African American students from the existing hierarchy of mathematics intelligence (Martin, 2009, p.12).

Limitations in the data collection

There are a number of ways in which the data I collected for this study limits the nature of the conclusions I may draw, though I have made attempts to address some of these limitations. First, my study represented only a 1.5 year picture of the

construction of student identities (identities which may change over time). Second, the principal and mathematics teacher are no longer at Flower Academy. Their absence does not allow me to predict that racial/cultural and mathematics socialization within future seventh grade mathematics classrooms will remain the same. Third, I did not have a comparable sample of middle school students for comparison. To remedy this limitation, I contrasted these students with samples of students from the literature. This included contrasts among students with mathematics anxiety and students with negative views about African Americans. Fourth, I cannot definitively say that identities that were constructed were a direct result of the mathematics and racial socialization. In other words, there was no way to measure the extent to which students' math learner and racial identities were influenced by the school, and not by other contextual forces. Finally, the contexts of poverty and gender were not within the scope of this study.

Limitations in generalizability

I do not possess knowledge about all aspects of mathematics socialization and identity among African Americans. My findings cannot be extrapolated easily, particularly in terms of larger issues of schooling, such as how African Americans should be educated. I did not have data on other schools serving predominantly African American students and thus cannot make claims that the mathematics education that these African Americans received is somehow superior to the mathematics education that African Americans in other environments are receiving,

or, that these students' mathematics achievement surpasses that of African American students in other schools.

Some characteristics that define Flower Academy are that it is a single race environment, adheres to an African-centered philosophy and model of education, and implements African cultural practices to support a healthy racial and academic identity. Students come from lower income homes. 99% of the teachers are of African descent and all are highly qualified. Parents are encouraged by Flower Academy to become involved in the education of their children. I cannot speak authoritatively about all African-centered schools on the basis of this one school, particularly when responses about Flower Academy as an "African-centered" school were conflicting, and when variation exists within and between African-centered schools. Given these limitations, more work is needed to determine if African-centered schooling is truly unique or if African American students can negotiate and construct similar racial identities and mathematics learner identities in a traditional public school.

Similarly to Martin's 2000 study, the data I've collected can help, however, in answering larger questions about why some African American students are successful in mathematics and others are not, and, how these successes are affected by school context. The data contributes to these larger issues by focusing on the relationships between school forces and intrapersonal forces (students' negotiated identities). In this way my findings can be extrapolated to the larger issues of mathematics success and failure. The data contributes to the knowledge base of mathematical beliefs among African-Americans in terms of the ways in which they define the value of

mathematics knowledge. I can use the data to speculate about larger issues of schooling for African Americans. In the next chapter, I discuss the implications of the findings and directions for future research.

Chapter 8: Implications and directions for future research

Researchers have been quick to categorize the mathematical performance of African American learners as problematic. They offer solutions without understanding what it means to be an African American in a society fraught with racial problems and an educational system which devalues African Americans. Researchers have theories and conjectures about their failure, but in reality lack a deeper understanding of the challenges involved in development as an African American mathematics learner.

This study suggests that explanations of ability, minority status, and cultural values limit our views on how African Americans come to experience mathematics success and failure. Several difficult questions lie at the center of this empirical inquiry. Based on eight accounts of experiences within one African-centered school, I offer responses to these questions. These will be addressed in the section on future research. Expanding our views of how African American learners come to experience mathematical success and failure has implications for where and how African American learners might be educated.

I have organized this discussion to address math educators and schools. I consider what analyses of eight African American adolescents' constructions of identities as math learners, African Americans, and African American math learners suggest for aiding other African American learners in attaining mathematical success. I first discuss the need for academic environments that reduce the stress of racism and

the need for constructing math programs that help students to simultaneously construct identities as African American math learners. Next, I discuss the need for academic environments that assist students in valuing their race, the importance of making African and African American culture visible in academic environments, and the integration of African and African American cultural practices within schools. Finally, I offer questions that can guide future research on the mathematics success and failure of African American learners.

Implications for math educators

Reducing the stress of racism for African American math learners

In this study, I found that racism was insignificant in the mathematics classroom. These findings suggest that African-centered schools are environments where students do not have to experience racism and thus can focus solely on academics. For mathematics, this implies that students can focus on doing well without worrying about racism, tracking practices that unfairly place them in lower level mathematics classes, and being the only Black student in a sea of White students.

Sometimes, racism is ignored in school environments, creating more vulnerability for African American students.

I don't see a lot of racism in the class, I mean occasionally a remark is made...but frequently what I find with the remarks is that they aren't as clearly defined as racist as they are...kid put-downs. And that they kind of-

sometimes just can get lumped into everybody else's put down kinds of things. So I haven't seen much here. (Lewis, 2001, p.790)

Common remarks by teachers about classrooms include "I don't see color," "people are people," and "I just think of myself as me" (Lewis, 2001). These responses are reflective of color-blind rhetoric.

Racism does indeed exist within classrooms and schools and impacts African American students in mathematical contexts. The following account of a student named Calvin illuminates this challenge.

The principal at the middle school evaluated Calvin's situation and argued that pre-algebra is a rigorous course for sixth grade students and only disciplined students are capable of passing this course. Even though Calvin had performed well in mathematics throughout his schooling, school personnel focused their attention on behavior rather than achievement when evaluating his academic potential. When the sixth grade school year began, the pre-algebra class had no African American students. (Berry 2003 as cited in Berry, 2005, p. 3)

Foster (2005) found that Black students' mathematical abilities were often questioned and underestimated by their advisors and they were advised to take remedial math even though they had already taken honors and advanced placement mathematics. Mathematics teachers (of all races and ethnicities) need to acknowledge the prevalence of racism and challenge it. This may create opportunities for these students to focus on mathematics achievement without the stress of racism and stereotypes. Whether they take the opportunity, of course, is another issue. Schools

that offer supports for racism will likely be perceived by African American students as a space that offers protection and may positively influence their academic trajectory.

Modifying mathematics programs: Assisting students in co-constructing identities as African American math learners

A key part of the findings was that although students embraced their racial and mathematics identities, these identities were not constructed together. These learners did not mention being African American when they talked about their being mathematics learners. Even though aspects of both racial and mathematics identities seemed to influence each other, in their construction process of an identity as African American math learners, the aspects of racial identity more often influenced aspects of mathematics identity, and not the other way around.

This suggests that we might want to explore programs that allow aspects of mathematics identity to positively influence aspects of Black racial identity so that if one is African American and a mathematics learner, then their math learner identity can also assist them in the construction of a strong racial identity. This could help African American students to maximize their potential in mathematics. Interventions can also be developed to help young African Americans, and students in general, understand how mathematics can be used in a wide range of careers. This will necessitate exposure to more African American role models in mathematics. Based on the overall findings of the study, I suggest areas for future research.

Implications for schools

A need for spaces that assist African American students in valuing their racial selves

The results of my research suggest that African American students who have high racial pride take a positive stance towards mathematics success. In light of mainstream devaluing of Black racial identity, African American students in spaces that help them to value their race can experience mathematical success.

One example of such a space is a historically Black college or university (HBCU). HBCUs have been harshly criticized for having under-prepared students, limited financial resources, dysfunctional presidents, poor student retention, declining enrollment, and accreditation challenges, and yet, they have played an integral role in helping African American students maintain and value their racial and cultural identities (Abelman & Dalessandro, 2007). As a result, more than 40% of Black students HBCU graduates hold degrees in STEM fields (science, technology, engineering, and mathematics) and pursue graduate and post doctoral studies in these fields (Abelman & Dalessandro, 2007). Even though the teachers are not all of African descent, what these schools seem to have that some PWI's (predominantly white institutions) lack are less racist and discriminatory practices towards African Americans.

Moving from invisibility to visibility: African and African American history and culture in the school

The results of this empirical inquiry suggest that African American students do not learn about their culture and history in traditional public schools but desire to

learn about them and feel that they are beneficial for their identity development and motivation for educational attainment. I propose that schools with African American learners begin to make African and African American history and culture more prominent (not limited to one month out of the year) and to have serious conversations about African ancestry, slavery, and skin color. This is also linked to assisting students with the construction of strong racial and mathematical identities.

Integrating collective African and African American cultural practices

This African-centered school integrated African practices such as referring to elders as Mama and Baba, call and response, and mathematical activity that incorporates movement and verve, which seemed to positively influence African American students' social interactions and mathematical identity. This has implications for other schools and may suggest implementation of culturally relevant and responsive practices which attend to students' lived experiences, interests, cultural characteristics, and preferred modes of learning (Gay, 2000).

Questions to guide future research

Is the intentional racial separation that characterizes African-centered schools beneficial for African American math learners?

I don't really know why. I don't even know why I don't come to school, when I know I should come. It's just that we Black students don't have that much support. We don't get-I know we know we should do things, but it's –

you know, you know something pushing you. And when you don't have that, sometimes you feel like nobody cares, so why should you care? (Fordham, 1996, p.313)

On the basis of my work in one school it seems that this space may be more effective for the identity construction of African American learners. The students did not believe that they needed to attend schools with White students nor did they seem disturbed by the absence of White students in the school. It would not be farfetched to suggest that they were happy to be at Flower Academy. The racial separation afforded these students caring, same race teachers who were culturally responsive, and an environment where racism and discrimination were insignificant and where racial identity was easier to value and maintain.

Hale (1982) stated,

Black people are clearly most at risk to be oppressed because of differences in appearance...those Americans of African descent whose physical appearance is more African suffer more oppression and receive less support generally than their Anglo-appearing peers (p. 193).

In this segregated environment, race was a protective factor and not a risk factor as it is typically characterized in the PVEST model. The reason why race was not a risk factor in this segregated school context is related to racialization. Miles (1988) defined *racialization* as “any process or situation wherein the idea of ‘race’ is introduced to define and give meaning to some particular population, its characteristics and actions” (p. 246). Racialization at Flower Academy can be described as the process of providing education from an African-centered point of

view, thereby seeking to give meaning to the African American population and serving to uplift them from a society that typically devalues them, their characteristics, their features, and their behaviors. Racialization is most visible via the school's purposive segregation.

To say that racial separation is beneficial for African Americans raises issues of essentialising African Americans. Perhaps, however, African Americans should be essentialized as strategy for motivating educators to work on assisting African American learners in our school systems (Spivak, 1993). The practice of separation can be viewed as the action of a marginalized group “put[ting] aside local differences in order to forge a sense of collective identity through which they band together” (Dourish, 2008, as cited in Spivak, 1987). Intentional separation could be a way for African Americans who have been socially and financially disempowered to command public attention in order to negotiate issues of identity and mathematics achievement with the dominant group (Furniss, 1998).

Walker (1996) and Walker & Archung (2003, 2000) found that post-slavery, segregated schools for African Americans (who were disempowered) provided education that countered the education that Whites had intended for them to receive (in which they would be subordinate to Whites). This education sought to teach these students how to succeed in a society that was racist and segregated through interpersonal and institutional caring. In these segregated schools, African Americans had opportunities to engage in clubs, athletics, and other enriching extracurricular activities. This has implications for African-centered schools as one kind of place where African Americans can be successful. In Sowell's (1974) study of Dunbar

High School, a school with an all Black teaching staff and African American students, student performance on standardized tests was high despite the dilapidated condition of the school and socioeconomic status of the students.

The benefits of being in a closed cultural community were that African Americans could resist the inferior goals that Whites desired for them, and their African American teachers could teach the students the “hidden curriculum” of succeeding in life as an African American in a society that did not value African Americans. What these segregated schools offered were high expectations for African American students in an era where expectations for these students were minimal to nonexistent, offered guidance about life, provided highly trained African American teachers, and were committed to the elevation of the African American (Walker, 2001; Walker, 1996; Dunbar, 1974). Segregated schools offered a safe space where being African American was valued. Their roots lie in African American history.

Bell hooks (1994) indicated in her early school experience in a segregated school that “Black children were deemed exceptional, gifted, were given special care” (p. 2). The fact that the school was segregated indicated a racialized aspect to the school space. However, instead of a concentration on the lack of material resources or other negative aspects of segregated schools, hooks described this racialized space as a space “committed to nurturing intellects so that we could become scholars, thinkers, and cultural workers...a fundamental way to resist every strategy of White racist colonization” (p. 2). If we were to interpret the racialized nature of this school space, power and

relationships were directed by color-conscious rather than color-blind thinking (Barajas & Ronnkvist, 2007, p. 1536).

This quote seems to capture the attributes of Flower Academy and establish Flower Academy as unique racialized space. A *racialized space* is defined as a space where “racial ideas are embedded in and define the space” and serves “as a mechanism to maintain power and privilege by the dominant group” (Barajas & Ronnkvist, 2007, p.1521). Black racial ideas were embedded and the power and privilege being maintained was not that of the dominant group, but that of African Americans.

This segregated environment was absent of a Black-White power dynamic (Barajas & Ronnkvist, 2007). The investment in this space did not lie in whiteness and did not sustain racist ideologies and attitudes created to maintain white privilege and power (Barajas & Ronnkvist, 2007). The racial ideas that were embedded and that defined this space were framed by African-centered pedagogy and ideology.

When I began this study, I did not understand that Flower Academy was a racialized space. In my mind, a racialized space was an environment flooded with racism and negative mathematical experiences. Over time, I came to see that this environment could be perceived as a segregated racialized space, but one which was unique to the negatively characterized spaces that were being described within the literature.

Racial separation, some might argue, does not confront society’s inequalities and overprotects African American students, thus placing them at a disadvantage for entering larger society. This separation is seen as a barrier to networking, exposure to different kinds of people, and the development of effective interpersonal skills necessary for functioning in society (Schmuck, 2005). White students have been

enjoying the benefits of segregated schools for years based on geographic locations and economics.

It is possible, though, that racial separation might have benefits similar to that of gender separation. Research shows that one of the benefits of gender separation for girls is that it helps to counter gender stereotypes in mathematics. Another benefit is that it helps them develop their unique identities as females (Spielhofer, O'Donnel, Benton, Schagen, & Schagen, 2002; Gilligan, 1982). Goodman (2000) showed that 13% more girls in single sex schools intended to major in mathematics and science. Mallam's (1993) study provides data that show that girls in single-sex educational environments favored math more than girls that were in coeducational environments.

Racial separation might prepare these African American students for engaging in the larger society by allowing them to enter with a higher racial self-concept than is promoted in society and with strong beliefs about themselves as math learners and not racial stereotypes about African American math learners. This can only be done, however, if the students are given the social and cultural capital that is necessary for participation in a larger capital. Do I think that African Americans can be successful in traditional schools? Of course, I do. I do think, however, that at the delicate stages of identity formation (particularly early childhood and early adolescence), that these students may benefit from being surrounded by people that share their cultural identity.

The segregated African-centered environment of Flower Academy and the way its social supports seemed to reduce the stress levels of these African American

students raise some interesting questions for parents, mathematics educators, schools and policy makers in terms of how to best support the mathematics learning of African Americans. Do African Americans need separate schools, or is it simply a matter of providing the right social supports within traditional public schools? It is not clear how students who attended African-centered schools fare in terms of degree attainment and healthy life outcomes, thus more research in this area is necessary.

Who should teach African American students?

How are you going to teach somebody you hate? I don't think Europeans should teach our children. Because our skins are a different color, they have a tendency to hurry up and get our kids out of their face. It's not about that. It's about making sure our children are really prepared (Excerpt from Martin, 2009, p.327).

This study leaves me to wonder if it was just a coincidence that the staff and teachers who seemed to truly care, were quite committed, and had high expectations for their students, also happened to be of African descent. These teachers of African descent formed bonds with the students and talked to them about making the right choices. They also seemed to know who these students were. According to Dubois (1903),

The proper education of any people includes sympathetic touch between teacher and pupil; knowledge on the part of the teacher, not simply of the

individual taught, but of his surroundings and background, and the history of his class and group. (p. 328)

If it was not a coincidence that these staff and teachers were of African descent, then the question arises, who should teach African American students. The findings suggest that perhaps teachers of African descent should teach African American students, but further research is necessary. Kati Haycock, director of Washington-based Education Trust, a nonprofit advocacy group that focuses on raising student achievement stated,

Anybody who believes the answer for kids of color is teachers who look like them is just nuts. A teacher who is terrific almost loses racial identity with kids. What you need are teachers with very high expectations and with a very good education themselves because you can't get kids to levels you haven't reached (Courant Paper, 2005).

Haycock does raise a good point because there are teachers of African descent who are not effective with African American students. This is illustrated below:

Most black teachers with whom I interacted during my work in the school, also however, expressed deep frustration in dealing with their students. Perhaps fueled by this frustration, many of these black teachers were-to varying degrees-abusive of their students... 'You're disgusting; you remind me of children I would see in a jail or something.' 'Shut up and push those

pencils.’ ...As one black teacher explained to me, ‘It’s what they’re used to (Anyon, 1997, pp. 28-29).

On the other hand, there were some occurrences within Flower Academy that suggest that having teacher who shares your race and culture is not “nuts”. It was not just mathematics that occurred in the math classroom at Flower Academy; there were open discussions about the rejection of darker skinned students and of people who were directly descended from Africa. It is important to note that this was occurring in a school that was African-centered, the optimal word being African. These African American teachers were able to have conversations with students about embracing African descended students of all shades and of embracing people who are directly descended from Africa and understanding the connection with them.

How does a White or Latino teacher have authentic conversations with a student about what it means to be a black male or a Black female in our society? Their position and identity do not afford them the ability to have these conversations in a manner that allows African American students to identify. How would a White teacher help a student like Terrell, for example, sort through his feelings after being called a nigger by members of a White basket ball team? Teachers of African descent understand the history of their people and the plight. This shared identity and understanding is what enabled African Americans who had inferior resources in schools during the segregation era to be prepared for life.

Sleeter (1993) contends that teachers bring to the profession their own views and perspectives about race that are shaped by their experiences and interests. These

views and perspectives are not always views that we would want teachers to bring to the profession. This is evidenced by Paley (1979) and her documentation of being a White teacher trying to teach Black children. Paley begins her book with a description of her experiences. Some of them included having high expectations for the White children in her class and feeling guilty about almost everything she did or not do when it concerned her Black students. She takes her readers on a journey of how she grappled with issues and the difficulty of being a teacher who was racially, culturally, and economically different from the students that she was teaching.

Having a teacher who shares their racial and cultural identity may allow qualitatively different kinds of relationships to form between African American learners and their teachers. Students at Flower Academy would hug their African American teachers, talk about how much they loved them, and addressed them as parents (Mama and Baba). So many negative beliefs have been formed about Black intelligence, particularly around mathematics and science, that having a relationship with someone who has positive beliefs about Black intelligence could positively shape a math identity.

I remember that having a Black female chemistry teacher in the tenth grade motivated me to do well. Having a Black male Calculus I teacher as a college freshman had a similar effect, in that I excelled further that semester despite my love of mathematics. Dee (2004) found that for African American students, having teachers of the same race lead to achievement gains. In math specifically, Dee found increases in scores from 2 to 4 percentile points. Further research is necessary to determine if African American teachers should teach African American learners.

Findings could show that having a teacher that is of African descent is not critical to their mathematical success or could reveal that it is a key element.

Other questions for consideration

What is the value of integrated practice testing for high stakes math exams?

One of the most powerful findings in this study was that students seemed to be devoid of the mathematics test anxiety that is typical of so many math learners. More research is needed about integrated test preparation as part of the mathematical classroom environment and how it may positively affect scores on standardized mathematical assessments.

Do African American students in African-centered schools perform better in mathematics than African American students in traditional public schools? Research is needed on the mathematical outcomes of students who attend African-centered schools as compared to African American students who attend traditional schools. African American students in more affluent schools could also be fruitful for comparison.

What does identity construction for adolescent African American learners look like in other African-centered schools? Research that explores mathematics identity construction and racial identity construction within educational systems that are designed around the interests of African Americans could also be rich. Future research could also be conducted to understand mathematics identity construction in a number of historically Black institutions.

I would urge researchers to explore how the remnants of slavery, as evidenced by the issues of skin color (within Flower Academy) and not wanting to being cheated out of their money, may be affecting African American mathematics learners in non-African-centered contexts. This research could spark a larger shift in how

researchers document mathematics success and failure among African Americans.

Future research has the potential to critically attend to the historical legacy of African

American students and contribute to a discourse of liberation.

Appendix A

Selected Staff sample interview questions

1. How long have you been a [position] here?
2. Tell me about your background and philosophy of teaching.
3. How do you define African centered and/or Afrocentric?
4. Why do you consider this school to be African-centered or Afrocentric?
5. Can you describe African-centered philosophy and education?
6. Do you consider yourself to be African-centered?
7. What kind of relationship do you have with students, parents, and staff?
8. What is the school's mission?
9. What things does this kind of school promote?
10. What is your perspective on identity development of students in this school?
11. How are these students different or the same from students in other schools?
12. How do these students perform in mathematics and other subjects in comparison to others schools?
13. Where do you see the students in this study in the next 5 years?

Appendix B

Sample Math teacher interview questions

1. First, let's start with some background in terms of yourself. Where were you born, where did you grow up, and where did you go to school?
2. Let's say up until college, what was going to school like for you or what kind of memories do you have of when you were going to school?
3. What's been your philosophy of teaching?
4. What do you think are the biggest strengths and biggest weaknesses for most of the students in terms of their math backgrounds?
5. How long have you been teaching here?
6. How do you define African centered?
7. Why do you consider this school to be African-centered or Afrocentric?
8. Do you use African-centered or Afrocentric to describe this school and do these have the same meaning for you?
9. Do you consider yourself to be African-centered?
10. Why did you decide to teach in this type of school?
11. What kind of relationship do you have with students, parents, and staff?
12. What math is taught in the middle grades?
13. Who do you want your students to be in terms of math and in life?
14. How do you promote mathematical thinking?
15. What is your perspective on identity development of students in your classrooms?
16. What is your perspective on identity development of students in this school?
17. How do you feel you promote or do not promote math identities?
18. How do you or the school promote strong racial identities?
19. How are these students different or the same from students in other schools?
20. How do these students perform in mathematics compared to students in other schools?
21. Do your students seem to feel that they are highly capable of doing mathematics?
22. What do you see as your role in the school and classroom?

Appendix C

Sample student interview questions

1. How would you describe yourself as a person?
2. How would you describe yourself as a student?
3. How far do you want to go in school?
4. What makes you stay on track?
5. Do you consider yourself to be a top student?
6. What have your GPA's been?
7. What are your favorite classes?
8. Do you usually feel challenged in your math class?
9. Do you ever give up?
10. Are you good at math?
11. Do you want to take more math classes?
12. Do you think you'll need math to do [a profession they indicate they'd like to be in]?
13. Is math important to you or is it just like another subject?
14. Why are there some kids that don't like math?
15. Tell me about about your school, parents, other schools, and about your math teacher.
16. How are your parents involved in your math?
17. How have your parents you helped you understand who you are?
18. How has this math teacher helped you understand who you are?
19. How does your math teacher help you learn mathematics?
20. I saw in your survey that you circled [#] Please tell me more about this.
21. What do you think when you hear the word identity?
22. What do you know about race and racism?
23. Is this your first year in an African-centered school?
24. Why did your parents choose to send you to this school? How do you feel about that?
25. How do you feel about mathematics? Did you always feel this way?
26. How do you feel about your ability to do mathematics?
27. Do you think of yourself as Black, African American, African, combination of these, or something entirely different?
28. Do you think your race, and how you see yourself has anything to do with your ability to do math?
29. In what ways do you think this school and the students are different or the same from students in other schools?
30. Are you getting something here that you would not get in another school? In math or in general?
31. What do you know about Africa and African mathematicians and mathematics?
32. How does Flower Academy helps you do better or the same in mathematics than in a regular public school?

Appendix D

Multidimensional inventory of black identity (NICHD, 2002)

DIRECTIONS: I want you to tell me whether you agree with the sentences on this questionnaire. Some of the questions are about how you feel about being African American. Some ask your feelings about what others may think about African Americans.

If you **REALLY** agree with the sentence, circle number 1. If you kind of agree, circle number 2. If you don't know whether you agree or disagree, circle number 3. If you kind of disagree, circle number 4. If you **REALLY** disagree with the sentence, circle number 5. Please respond to all of the statements (do not omit any). If you do not understand the question, please ask me for help, and I will be more than happy to assist you.

	Really Agree	Kind of Agree	Don't Know	Kind of Disagree	Really Disagree
1. I feel really close to other Black people.	1	2	3	4	5
2. Being Black has a lot to do with who I choose to play with at school.	1	2	3	4	5
3. Being Black does not have a lot to do with who I am.	1	2	3	4	5
4. People of other races respect Black people.	1	2	3	4	5
5. Sometimes I am ashamed that I am	1	2	3	4	5

Black.					
6. I think that Black people can be very successful (can reach their goals)					
7. Black people are liked very much by people of other races.	1	2	3	4	5
8. Sometimes I wish that I were not Black.	1	2	3	4	5
9. Being Black is important to me.	1	2	3	4	5
10. Black people are thought to be good by others.	1	2	3	4	5
11. I think that other people do not like Black people.	1	2	3	4	5
12. I am happy that I am Black.	1	2	3	4	5
13. Being Black has very little to do with how I feel about myself.	1	2	3	4	5
14. Most people think that Blacks are able to do a good job.	1	2	3	4	5

15. Most people think that Black people are not as smart as people of other races.	1	2	3	4	5
16. Learning about the history of Black people is very important to me.	1	2	3	4	5
17. I try to hide that I am Black.	1	2	3	4	5
18. I feel good about Black people.	1	2	3	4	5
19. It means a lot to me that I am Black.	1	2	3	4	5
20. I feel that Black people are important in America.	1	2	3	4	5

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