A Study of Race and Equity in U.S. Mathematics Education Policy

by

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Abstract

This dissertation aims to disentangle how the idea of, what I am calling, achievement as accountability has come into being and works within existing deficit narratives around who is seen to be capable in mathematics education. In particular, I interrogate U.S. federal education legislation and national level mathematics education policies in an effort to determine how race, racism, and racialization impact conceptions of equity in mathematics education. To accomplish this goal I rely on a theoretical framework of Critical Race Theory combined with governmentality, which simultaneously centres race while working to end the subordination of all peoples by acknowledging how policy impacts discourse and practice. As a way to frame my analysis I used historical ontology as my methodology which relies on history, temporal context, as well as historical conceptions of an idea to determine how terminology has been used to limit how people are perceived in the present. Through the use of Critical Discourse Analysis and Political Discourse Analysis I examine the historical record of legislation and policies that impact how mathematics is conceived of in K-12 schooling. My findings suggest the continued existence of racism within policy as well as the delinking of mathematics with racial terminology in the legislation allowing for mathematics education policies to completely erase the importance of how racism and racialization impact societal ideas of who is seen to be mathematically able.

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List of Acronyms

ANR	A Nation at Risk
CCSS	Common Core State Standards
CCSSI	Common Core State Standards Initiative
CRT	Critical Race Theory
ESEA	Elementary and Secondary Education Act of 1965
IASA	Improving America's Schools Act of 1994
NAACP	National Association for the Advancement of Colored People
NAEP	National Assessment of Educational Progress
NCLB	No Child Left Behind Act of 2002
NCTM	National Council of Teachers of Mathematics
PDA	Political Discourse Analysis

List of Relevant Documents

Year released	Title	Writer/Publisher
1983	A Nation at Risk	National Commission on Excellence in Education (NCEE)
1989	Curriculum and Evaluation Standards for School Mathematics	NCTM
1991	America 2000	President Bush, Sr.
1994	Goals 2000	President Clinton
2000	Principles and Standards for School Mathematics	NCTM
2010	Common Core State Standards	National Governors Association (NGO) and the Council of Chief State School Officers (CCSSO)
Yearly	The Nation's Report Card	National Center for Education Statistics (NCES)
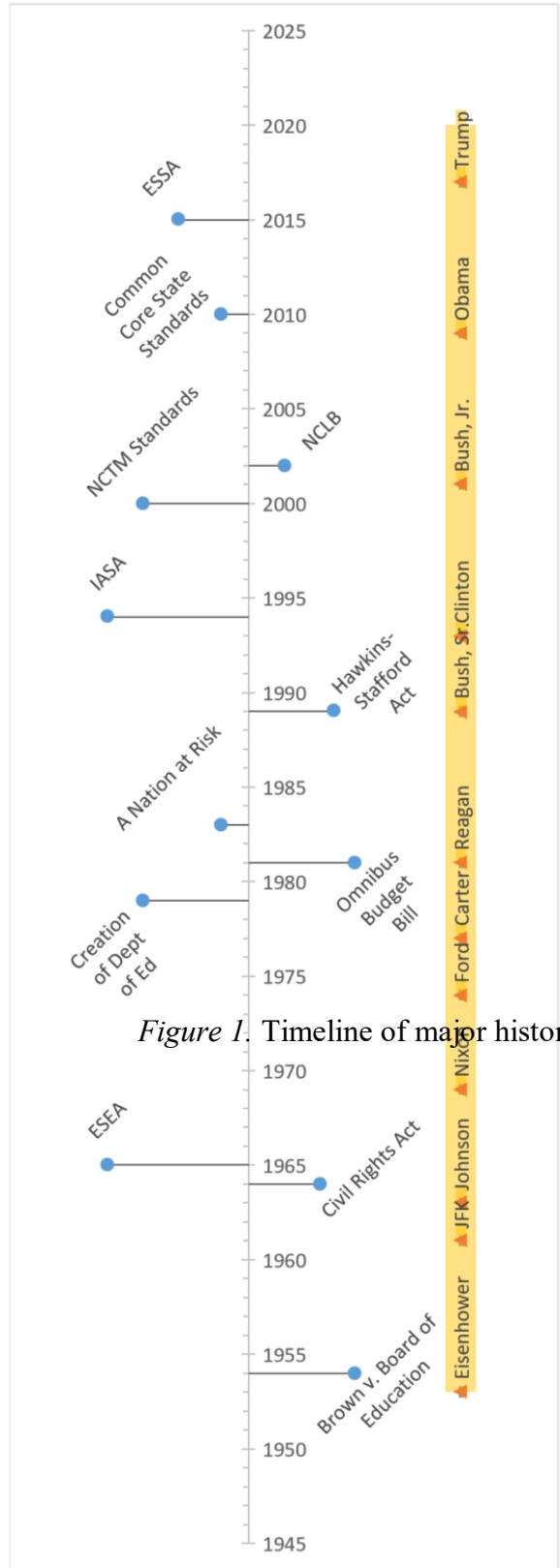
Figure 1. Timeline of major historical events, including presidents

Chapter One: Introduction

I'm the biggest hypocrite of 2015
Once I finish this, witnesses will convey just what I mean
Been feeling this way since I was 16, came to my senses
You never liked us anyway, fuck your friendship, I meant it
I'm African-American, I'm African
I'm black as the moon, heritage of a small village
Pardon my residence
Came from the bottom of mankind
My hair is nappy, my dick is big, my nose is round and wide
You hate me don't you?
You hate my people, your plan is to terminate my culture
You're fuckin' evil I want you to recognize that I'm a proud monkey
You vandalize my perception but can't take style from me
And this is more than confession
I mean I might press the button just so you know my discretion
I'm guardin' my feelings, I know that you feel it
You sabotage my community, makin' a killin'
You made me a killer, emancipation of a real nigga
…

I'm the biggest hypocrite of 2015
When I finish this if you listenin' then sure you will agree
This plot is bigger than me, it's generational hatred
It's genocism, it's grimy, little justification
I'm African-American, I'm African
I'm black as the heart of a fuckin' Aryan
I'm black as the name of Tyrone and Darius
Excuse my French but fuck you — no, fuck y'all
That's as blunt as it gets, I know you hate me, don't you?
You hate my people, I can tell cause it's threats when I see you
I can tell cause your ways deceitful
Know I can tell because you're in love with that Desert Eagle
Thinkin' maliciously, he get a chain then you gone bleed him
It's funny how Zulu and Xhosa might go to war
Two tribal armies that want to build and destroy
Remind me of these Compton Crip gangs that live next door
Beefin' with Pirus, only death settle the score
So don't matter how much I say I like to preach with the Panthers
Or tell Georgia State "Marcus Garvey got all the answers"
Or try to celebrate February like it's my B-Day
Or eat watermelon, chicken, and Kool-Aid on weekdays
Or jump high enough to get Michael Jordan endorsements
Or watch BET cause urban support is important
So why did I weep when Trayvon Martin was in the street?
When gang banging make me kill a nigga blacker than me?
Hypocrite!

~Kendrick Lamar, *The Blacker the Berry*, 2015

The lyrics of *The Blacker the Berry* performed by Kendrick Lamar (Campbell et al., 2014) underline the continued importance of race, and in particular of being racialized as either African American or Black[1], presently in the United States (U.S.). Like the great storyteller Derrick Bell, one of the founders of Critical Race Theory (CRT), Lamar introspectively engages with dialogues of what it means to be Black in America in 2015 through a fictional tale that identifies a number of common stereotypes about Black people in the U.S. and ends with a statement identifying the hypocrisy that can exist within Black-on-Black violence. In particular, he engages with assumptions held both within and outside of the African American community as a way of interrogating how racism continues to function in various ways through violence, politics, stereotypes, physical attributes, celebrities, holidays, religion, and location (James, 2016). The themes present in this song foreground my discussion on race in mathematics education to not only highlight that racial issues are still of vital importance in current policy discussions, but also to provide a link to the experiences of African Americans in the U.S. through the use of music[2]. In this way I am also following the stylistic choices of *The Souls of Black Folk* by W. E. B. Du Bois (1903) who used Sorrow Songs at the beginning of each chapter

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[1] I use both of the terms "African American" and "Black" interchangeably as a way to acknowledge and respect the varied ways in which people self-identify or are identified by others. This is not a way to subsume all groups of people under one category, but an attempt to acknowledge the sociopolitical power that comes with each. I also use the phrase "racialized students" to refer to students not racialized as White as opposed to "people of colour" or "minority" because it takes into account the politicized process of how the idea of "race" is taken up.

[2] Music, especially race music, such as jazz, the blues, and hip-hop, holds an important place in both the public and private culture of Black Americans (Ramsey, 2003). However, to avoid essentializing the Black experience, the songs I use should not be read as a ubiquitous voice, but each song is a representation of an issue in a particular historical context. Therefore, I encourage all readers to listen to the songs as you reach them in an effort to hear the sentiments straight from the artist and more fully understand the historical time period and emotion encapsulated within the lyrics.

because he knew "that these songs are the articulate message of the slave to the world" (p. 253). While many dismiss Du Bois' use of both lyrics and musical notes in each chapter as irrelevant to his overall argument held within *The Souls of Black Folk*, Sundquist (1993) suggests that operationalized within the songs Du Bois "appropriated their core expression of African American culture, their *soul*, in order to create a foundation for modern African American culture as an extension of slave culture" (p. 458, emphasis in original). Thus, the explicit connections I make between music and academic research at the beginning of each chapter speaks both to my use of CRT as a theoretical framework, but also provides a link to the historical importance of music to the African American community. More to the point, each song that I chose to include has a connection to the ways in which race has been presented through the musical medium to express a particular message to U.S. society at large. In this way the songs represent a collective memory of the history of how the understanding of race in relation to being Black has changed over time (Ramsey, 2003). Specifically, many of the songs chosen throughout my dissertation are considered protest songs, mostly written, but all performed by African American artists in the U.S., as a way to acknowledge how music has played a role in the public conversation about race, racism, and racialization. The importance of the use of protest songs in particular is that the purpose of the music was never to create Black music or to make money, but to help raise consciousness and instill hope during difficult times (Kernodle, 2008). Further, the history of the protest song itself has links to the Sorrow Songs and slavery because "deprived of the right to protest with impunity, the American black man [and woman] sublimated [their] anger in song and story" (Edet, 1976), a tradition that has maintained itself through African American spirituals, freedom songs, protest songs, and so-

called gangsta rap. I elaborate further on the use of each song at the beginning of each chapter as well as in my outline of CRT in Chapter Two.

As a way of introducing my research and providing some necessary context, I begin by elaborating how mathematic education[3] works in the U.S. Starting as early as third grade, students are sorted into three basic groups of mathematics learners: above average, average, and below average. This separation of students into distinct groups continues throughout K-12 schooling until the student reaches the course entitled Algebra. Upon reaching Algebra, mathematics courses are arranged in a hierarchical sequence where each class progressively increases in content knowledge and difficulty from one year to the next (Riegle-Crumb, 2006). A typical sequence of study is as follows: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus I, Calculus II, Differential Equations, and Multi-variate Calculus. By the nature of this hierarchical and progressive sequence of courses, the earlier a student starts Algebra the farther they are able to get in the sequence by the time they graduate from high school. In contrast, the later a student starts Algebra the harder it is for them to reach Calculus, for example, by the time they graduate from high school. To help clarify the way in which this hierarchical and progressive sequence functions in practice, Table 1 below shows the mathematical journey of seven hypothetical students, showing the sequence of courses they take, and which grade they take them in. Dependent on school course structure, sometimes students

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[3] My use of the term mathematics education is common to the field. Instead of constantly referring to the field as mathematics education teaching and research, or mathematics education scholarship, in the field of research it is merely referred to as mathematics education. Thus mathematics education is an all-encompassing term that references all of the work done around teaching, learning, assessment, pedagogy, content, philosophy, and teacher education as it relates to K-12 mathematics.

will be able to take multiple mathematics courses in one year, whereas others are limited to one course.

Table 1 *A Hypothetical Representation of Seven Potential Students' Course Sequence*

Course Title	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7
Multivariate Calculus	13						
Differential Equations	12						
Calculus II	11	12					
Calculus I	11	11	12	12			
Pre-Calculus	10	10	11	11	12		
Trigonometry			10		11	12	
Algebra II	9	9	9	10	10	11	
Geometry	8	8	8	9	9	10	10 / 10
Algebra	7	7	7	8	8	9	9 / 9

As a student within this system, I was always placed in the above average mathematics group. This meant that by seventh grade I was in Algebra, and by the time that I graduated from high school I had completed Calculus II and could have taken Differential Equations my final year if I was so inclined. My wonderings actually derive from my seventh and eighth grade years while I, a White girl, was attending a school with more students racialized as Black or

Latin@[4] than White. Being in a school with so many students of colour[5], I began to wonder why

there were only two students of colour out of fifteen in the above average mathematics group.

To add to this, neither of the two students identified as African American, despite living in a

district with a higher African American population than any other identified racial group

(Howard County Public School System, 2014, 2017).

 Later in life I trained as a mathematics teacher, and through my practicums, observations,

time spent volunteering, and early teaching experiences I began to see more clearly how

racialization functions within mathematics education. As a spectator during most of my pre-

service teaching interactions I was provided an entirely new angle to see how racialization works

in practice within a system. The first time I became aware of acknowledging the difference of

treatment between two groups of students was while observing a teacher as they taught an

"average" level mathematics class followed immediately by a "below average" level class. For

the particular lesson that I was observing it helped that both classes were learning the same topic

so I was able to see immediate distinctions between the two experiences. In the end I realized

that this teacher spoke at varying rates of speed, used different vocabulary when presenting to

each group, and was inclined to let one class of students ask more questions than the other. This

experience urged me to carefully observe teachers as I continued throughout my program. In

observations with other teachers, I began to notice interesting patterns. As a "helper" in the class

I was able to work with whomever I chose when the students started their worksheets or book

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[4] I use the @ sign in the same way that Gutierrez (2013) and Omi & Winant (2015) to indicate an
"a" and an "o" intertwined, as opposed to Latino/Latina.
[5] Although I focus on the experiences and research around those racialized as either African
American or Black throughout my work, I recognize that there are many overlaps and
similarities between Black, Latin@, Native American, and Asian American in relation to
discrimination and struggles for educational equity that I am unable to engage with in such a
limited amount of space.

work during class time. So with each new classroom, I would ask the teacher which student or students needed the most help because I figured that was where I could do the most benefit. In almost every class the student pointed to was racialized African American, and these encounters were even more significant than my earlier mathematics experiences since I was working in districts that were at most 5% African American. Thus, although my teaching career was quite short, it taught me about the power an educator can have when they believe, or do not believe, in their students. I understand the skepticism that might exist if I were to base my entire project solely on the anecdotal recollections of my personal experience in mathematics classes. Therefore, in the next paragraph I provide further context as it relates to national trends in mathematics education across the U.S.

Since 1969, the U.S. has administered a national testing scheme called the National Assessment of Educational Progress (NAEP). This test takes a representative sample of students from across the country, based on demographic characteristics such as school location, gender, race/ethnicity, and parent's education level, to gauge average student performance on core subjects such as mathematics and language arts (U.S. Department of Education, 2015). In recent years, the U.S. Department of Education, who oversees NAEP, has released the results of NAEP in a document called *The Nation's Report Card*. As part of this report, there are graphs showing the average score gap that exists between students who identify as White and students who identify as Black. According to the graphs provided, there has been a statistically significant difference between the higher scores of White students and the lower scores of Black students since at least 1990. This consistent and persistent gap that exists between the results of White and Black students has led me on a journey to consider how these test results relate back to the composition of my middle school mathematics class. From there, I question how is it that this

idea of what I am calling *achievement as accountability* has seeped into existence in such a way that it defines how mathematics education is conceived of in research, practiced in teaching, and subsequently impacts racialized students.

The implication of phrasing my idea as achievement *as* accountability suggests that achievement is operationalized in such a way that is contrary to its initial intention, and is actually serving the function of accountability purposes, which is not historically the goal of achievement in K-12 schooling. To elaborate further, achievement as an element of educating students, is synonymous with testing, grading, marking, performance, attempting to ascertain either what a student knows or is capable of learning (Spencer, 2009) and its original intention is to encourage teachers to reflect on their own practice (Kuchpaski, 2001). However, with the introduction of accountability rhetoric to the federal education legislation, achievement has become a way to "prove" that certain school districts are "better" than others (Kuchpaski, 1998) in an effort to reframe policy discussions towards educational outcomes rather than educational inputs (Guthrie & Springer, 2004; Kuchapski, 2001). In many ways I see the original focus of achievement to be on the student and teacher as the grammatical subjects, achievement is meant to gauge how well a student knows something at a given time and can simultaneously be used as a tool for the teacher to reflect on how well they were able to assist all of their students in learning a particular topic. On the other hand, accountability rhetoric that has emerged within recent federal education legislation places the test and its results as the grammatical subject, it is no longer about self-reflexivity or what students know, but more about what can teachers get students to reproduce on a given day to ensure that their funding is maintained. Thus, as Spencer (2009) suggests in her preference for using the term success as opposed to achievement, the mere use of achievement ignores the complexity of schooling which includes

school performance, along with the attributes that support school performance, such as

academic persistence, resistance to negative forces that often undermine young African

American students, academic and mathematics identification, positive racial identity, and

the skills and ability to find and maintain academic supports. (p. 205)

I take her critique of achievement one step further by insinuating that not only does achievement

limit how we think of student knowledge, but it loses even more complexity since it has become

synonymous with a way of measuring school quality.

The remainder of this chapter outlines the specifics of the problem that I have outlined

briefly above by providing additional conceptual, theoretical and background into several related

areas of research. First, I identify a conceptual framework for terms around race that provide a

grounding for how I engage with particular terminology and understand the fraught landscape

that exists around the idea of "race". Next, I articulate in more detail the problems that I see in

the educational, policy, and social landscape as well as how they relate to each other.

Additionally, I provide some contextual and background information in relation to the policy

landscape of mathematics education in the U.S., a brief overview of how the U.S. federal

government functions in relation to the passing and interpretation of legislation as a way to link

past actions with the present context of mathematics education in the U.S.

Conceptual Framework

Working within a CRT framework in an attempt to answer questions about how

achievement and accountability function in relation to the process of racialization, it is vital that I

clarify my position on concepts such as race, racism, and racialization. The purpose of defining

these terms now is to highlight their importance as part of my theoretical framework, the

questions I am asking, the methodological choices that I make, as well as how I have chosen to

analyze the information I have gathered in later sections. Additionally, defining each term allows for a way to acknowledge the ways in which Lamar (2015) describes race and racialization in the song at the beginning of the chapter. It should be noted, however, that while I am providing a static definition here, I understand the complexity of each of these terms, as well as the myriad definitions that exist. Where applicable I will present critiques of particular aspects of the definitions, with the understanding that dealing with the full controversial nature of each term is beyond the scope of this dissertation. Instead, the purpose is to present terms, the controversy surrounding an explicit definition, and ultimately to explain how I intend to use each term going forward.

Racism, the Idea of "Race", and Racialization

Racism is often connected with explicit acts of racial violence or legal segregation, such as lynchings, hate crimes, or Jim Crow laws, especially in the U.S. Simplistic definitions suggest that racism can be considered "a philosophy of racial antipathy" (Cox, 2009, p. 75), "the opposite of color-blindness" (Crenshaw, Gotanda, Peller, & Thomas, 1995, p. xvii in Tate, 1997, p. 203), or a system of institutionalized power where people racialized as White are considered superior to all other racial and ethnic groups (Solórzano, 1997; Yosso, Parker, Solórzano, & Lynn, 2004). Racism can function in a number of different ways, including cultural racism, which assumes that "White" culture in the form of music, art, and theater is superior to other "primitive" cultures; democratic racism, which combines conflicting values of justice and fairness with racialist ideologies that enshrine White's rule over others; or systemic/institutional racism, which are based on the effects of government or organizational acts of discrimination against particular minority groups (Vickers & Isaac, 2012).

In essence, racism is based on an ideology, or set of beliefs, where lives and identities are organized by a contradictory set of practices and structures that treat people differently based on the idea of "race" (Omi & Winant, 2015). As a way of defining acts that are considered racist, I rely on Eduardo Bonilla-Silva's (2014) new racism, which he says is "a *structure*, that is, as a network of social relations at social, political, economic, and ideological levels that shapes the life chances of the various races" (p. 26, emphasis in original). As part of this definition, Bonilla-Silva (2014) presents five elements of the new racial structure of the U.S. which include a) covertness in racial discourse, b) avoiding racial terminology, c) eliminating direct racial references from political matters that are racial in nature, d) mechanisms that produce racial inequality as invisible, and e) reemergence of Jim Crow era race relations and practices (p. 26). One of the most notable, yet underhanded, ways in which racism functions within schools is through the idea of intelligence. Here, hereditarian assumptions about intelligence combined with eugenic vernacular about maintaining racial purity, have come together to protect White privilege at various times throughout U.S. history. Examples include the 1920s and how the country dealt with the influx of immigrants to the country, in the 1960s during the civil rights movement, and in the early 1990s during an economic slump (Tatum, 2007). Other structural ways in which racism has functioned in the U.S. are through public housing decisions, mortgage lending policies, and realtor practices that have led to significantly segregated areas, especially within and around large U.S. cities (Orfield, Eaton, & the Harvard Project on School Desegregation, 1996). Undergirding all of these definitions of racism is a fear of those who are perceived as different, where the fundamental difference is based on this idea of "race" (Barling, 2015), and racism is meant as a way to enhance the differences between two or more groups, to the benefit of the people in power as a way to justify privileges (Memmi, 2000).

Linking racism to the idea of "race", Dubow (1995) suggests that scientific racism, intellectual racism, and/or biological racism played a role in the ways in which "races" were first conceptualized, theorized, and then put into use through eugenics, mental intelligence testing, and apartheid. The idea of "race" has a tumultuous and complex history both bio-genetically and socio-politically, especially given the history of slavery that continues to impact race relations in the U.S. to this day. As such, the contextual use of the term "race" marries together scientific, social science, and laypeople understandings of one term, to the point where several researchers suggest that the term "race" merely reifies the concept itself, and therefore should not be used in research (Barling, 2015; Miles & Torres, 2018; Montagu, 2018). However, as suggested by Beverly Tatum (2007), because "the language of race" (p. xiv) is still commonly used to describe the experiences of students in education in the U.S., there is a need to define and acknowledge the complex history of the idea of "race". To be clear, this does not discount the impacts of the idea of "race", but suggests that the term "race" is better understood through the ideology and processes of racism and racialization beyond the conflation of terms that have come to coagulate within the idea of "race". In spite of this critique of the terminology around "race", and because my theoretical framework is Critical Race Theory, I find it nonetheless important to provide some background to the origin of the term "race" as well as a brief explanation around the sociopolitical construction of the idea of "race".

Initially, it seems that the term "race" began as a way to understand the lineage of individuals. However, through the translation of the term into other languages coupled with the introduction of the scientific classification system used for plants and animals, it is suggested that "race" morphed into a classification scheme for humans (Banton, 2018). Notwithstanding the seemingly benign interpretation presented by Banton (2018), the idea of "race" quickly, or

perhaps simultaneously, developed into a system with the explicit purpose of rationalizing imperial, colonial, and capitalist conquests that took advantage of Indigenous and racialized groups around the world. Of particular importance to my study is the transatlantic slave trade that brought millions of Black Indigenous Africans to the U.S. to provide free labour for White, often British, "landowners". During the times of slavery in particular, African slaves were counted as three fifths of a person for the purposes of their White "owners" to be able to "vote" for them. This system, Leonard (2009) argues, denied the slaves their wholeness and was enshrined in the Constitution, thus normalizing the denial of the slave's humanity into the very foundation of the country. What this process of servitude and discounting of people provided was a basis for later atrocities to deny people rights based on assumptions about intelligence, worth, and value.

Continuing in this vein, the idea of "race" was built upon by theories of polygeny, craniology, and apishness which led to hereditarian theories that intelligence was determined at birth and racial in nature (Gould, 1996). At various times throughout U.S. history there have been noted "races" such as the Nordic, Alpine, and Mediterranean "white races" (Gould, 1996; Lemann, 2000, p. 30), the Jews (Gilman, 2009), and the Caucasian, American (Indigenous), Mongolian, Ethiopian (African), and Malay (Banton, 2018). However, in the simplest terms, the modern day idea of "race" is equated with the "color-line" (Solórzano, 1998, p. 124). It is understood to represent a socially constructed idea that differentiates people based on various ascribed characteristics, such as skin colour, hair texture, and facial features, in order to define one group as dominant or superior to another group (Du Bois, 2009; Vickers & Isaac, 2012; Yosso et al, 2004, p. 7). Although it is helpful to have such a simple definition, the idea of "race" is much more complex and many researchers problematize the simplistic definitions

provided above (Arat-Koç, 2010; Ladson-Billings & Tate, 1995; Martin, 2009a, 2009b; Nasir et al., 2009; Omi & Winant, 2015). Accordingly, I take "race" to be a sociopolitical construction (Martin, 2009a) that is constantly shifting in meaning, has been conflated with ideas of ethnicity, class, and nation building (Omi & Winant, 2015), but is often reduced to the visible classifications based on ascribed characteristics of humans. As such, "race" is a term that is enmeshed with socio-political understandings related to brain size, intelligence, and cultural inferiority that have become operationalized in what I have defined above as new racism (Spencer, 2009). All of these practices, and more, have led to the systemic disenfranchisement of a large group of people based almost, if not completely, on skin colour, which relies on the process of racialization in order to determine who belongs where within the racial hierarchy.

One way to define racialization is as a process "constructed and encoded through the language of race … [such that] racialization [is] the extension of racial meaning to a previously racially unclassified relationship, social practice, or group" (Omi & Winant, 2015, p. 13). To add to this definition, Miles (1989) considers racialization to be "those instances where social relations between people have been structured by the signification of human biological characteristics in such a way as to define and construct differentiated social collectives" (p. 75, as cited in Murji & Solomos, 2005, p. 11). The broadening of this second definition of racialization allows for the consideration of a temporal aspect as well as an understanding that characteristics for differentiation may be visible, but could also be hidden, allowing racism to be considered beyond the Black/White dichotomy to include the treatment of the Jews at various times in history as racialized through the practices of policy and discourse. Thus racialization "refers both to ideological practices through which race is given significance, and cultural or political processes or situations where race is invoked as an explanation or a means of

understanding" (Murji & Solomos, 2005, p. 11). Intrinsic to the process of racialization is the ever present belief that there is a racial hierarchy, and that particular racial groups are superior to "other" racial groups (Vickers & Isaac, 2012). The process of racialization tends to categorize all peoples based on the particular racialized categories available in a specified time and place, and is often referring back to ideas of "race" and intelligence developed and debunked at earlier times in history.

The importance of defining racialization as a separate process and entity from racism and the idea of "race" is that "racialized bodies are not only seen as naturally inferior, they *cannot* be seen otherwise" (Al-Saji, 2010, p. 885, emphasis added). So when discussing how the K-12 school system has an impact on students racialized in particular ways there needs to be an understanding of how the racialization process plays a role. This includes recognizing that merely disaggregating data based on racial categories severely limits how research can take up the racial achievement gap in student assessment scores and merely perpetuates deterministic deficit thinking regarding youth of colour (Gutiérrez, 2007, 2008; Martin, 2009a). Martin (2006) develops this idea further by suggesting that in mathematics classes African American students are having racialized experiences, where "the socially constructed meaning for race comes to be a deciding factor in who gets to do mathematics and who does not" (p. 223).

Recognizing that the three terms "race", racism, and racialization are three somewhat distinct entities, they are also interrelated. For example, all of the terms are built on the socio-political and bio-genetic assumptions underlying some of the early understandings or uses of "race", especially in relation to ideas of intelligence and superiority. The distinction is that the ideology of racism operationalizes inherent but dormant aspects of the definition of the term "race" into a structural element, while racialization is a process by which the idea of "race"

extends to areas of life that were not initially racial in nature. How these three ideas play out within mathematics education are explored in the next section which outlines the educational, policy, and social problems I have identified.

Situating and Explaining the Research Problem

In *Beyond Policy Analysis*, Leslie Pal (2010) spends an entire chapter discussing the importance of the policy problem when conducting a policy analysis. Pal (2010) notes that it is not enough to ensure that the definition of a policy problem is sufficient to act upon or analyze. In addition to having something to act upon, there needs to be a link between the policy problem and the social problem the policy ultimately aims to rectify (Pal, 2010). By ensuring that policy and social problems align, policy makers can avoid the pitfall of attempting to solve the wrong social problem (Pal, 2010). With this in mind, the following section outlines how the problems I have identified in the educational, policy, and social spheres of mathematics education are interrelated and inseparable. I end this section with a diagram of how I visualize the interrelationship between the educational, policy, and social problems.

Defining Policy

In order to use political discourse analysis (PDA; Fairclough & Fairclough, 2012) to examine particular policies, I draw on Stephen Ball (1993) who suggests first to define what is meant by policy. One definition of policy, or public policy, is "a course of action or inaction chosen by public authorities to address a given problem or interrelated set of problems" (Pal, 2010, p. 2). Another definition considers policy, public policy, or social policy broadly "as all of the actions (and inactions) of the state addressed to governance, regulation, and organization for the public good" (Bickenbach, 2012, pp. 2-3). These definitions encompass Ball's (1993) idea of "policy as text" (p. 11). The definitions include physical documents that outline "the creation

and implementation of laws, regulations, entitlements and prohibitions, income generation programs, taxation strategies and spending priorities" (Bickenbach, 2012, p. 3) among other elements of state action to consider. My use of the term policy will include the physical policy documents in the form of legislation such as No Child Left Behind (NCLB), organizational documents such as the National Council of Teachers of Mathematics (NCTM; 2000) *Standards*, and other textual objects related to what I am calling achievement as accountability. In addition to physical policy documents, Ball (1993) also suggests the importance of "policy as discourse" (p. 14). To consider policy as a discourse and not just as a physical object, Ball (1993) suggests that "discourses are about what can be said, and thought, but also about who can speak, when, where and with what authority" (p. 14). Therefore, in addition to the policy documents, it is important to consider the actors in the policy arena, such as legislators or special interest groups, and their influence on how policies are created and implemented. Using policy as both text and discourse aligns with my use of PDA as a method for determining how racialized students are positioned within accountability policies.

The Interrelationship of the Educational, Policy, and Social Problems

In the simplest terms, I view the educational problem is the master-narrative, the policy problem is racial inequality, and the social problem is racism. However, it is not enough to merely name the problem. In the following sections I describe the educational, policy, and social problems in-depth. As part of my explanation, I also elaborate on how each problem intertwines with, and is inseparable from, the other problems that I have identified. To conclude my explanation of the educational, policy, and social problems, there is a final section that depicts a visual representation of how all three of the problems are interrelated.

Educational problem.

My initial concern about the problem of achievement as accountability is derived from what Nasir, Atukpawu, O'Conner, Davis, Wischnia, and Tsang (2009) call the master-narrative in mathematics education. A master-narrative is "a widely held and socially shared way of thinking and talking about a phenomenon, a framing that does not challenge socially accepted ideas and hierarchies" (Nasir et al., 2009, p. 232). In mathematics education, one of these master-narratives is that racialized students, especially African American students, are not able to achieve in mathematics (Martin, 2009a; Nasir et al., 2009). This particular master-narrative also coincides with other stereotypes of African Americans as unintelligent (Nasir et al., 2009), and is represented in Kendrick Lamar's (2015) lyrics when he references coming "from the bottom of mankind" (st. 1). The problem with this master-narrative is that it provides a scapegoat for teachers and administrators to overlook racialized youth in their mathematics classes when they are underperforming. Essentially, it provides teachers with an excuse not to "waste time" on students who they believe will not succeed. This narrative is extremely problematic because, as I described in the introduction, the year that a student takes Algebra significantly impacts how far along the hierarchical sequence of courses a student can reach by high school graduation. This situation is further complicated by the fact that many four-year universities require students to pass Calculus in order to gain entrance. Therefore, if a student is unable to take Algebra by eighth grade, the odds of them completing the mathematics sequence to Calculus decreases exponentially. In sum, the educational problem is the existence of a master-narrative suggesting that racialized students cannot do mathematics. The problem is that the master-narrative leads to racialized students receiving less assistance in mathematics classes, fewer promotions than White students through the hierarchical sequence, and often graduate without the requirements to attend

a four-year university. This series of events, which impacts the later life choices of racialized students, leads directly into the policy problems described in the next section.

Policy problem.

Currently, U.S. educational legislation and policies in mathematics education are attempting to solve the problem of racial inequality by focusing exclusively on the achievement gap that exists between White and Black student test scores. However, with such a finite focus, the existing policies have not been able to obtain the goal of racial equality in K-12 schooling to date. For example, previous education legislation, like NCLB, explicitly aimed to either close the achievement gap between identified racial groups or, at the very least, help to provide an equal opportunity for racialized students to graduate from high school. However, after 14 years with unchanged federal education legislation, which held closing the achievement gap as an explicit aim, the gap still exists, and the percentage of racialized students graduating has decreased over the same time period (Darling-Hammond, 2004; Hewitt, 2011; Lipson, 2011). Therefore, by focusing exclusively on the achievement gap as the representation of the policy problem, policy makers, mathematics educators, and teachers overlook the interconnections between the policy problem and the educational and social problems.

As mentioned before, the policy problem of racial inequality is intertwined with the educational problem of the master-narrative. The intertwining is most evident through the connection between test scores and the achievement gap. With the NCLB mandate to target the achievement gap and decrease the difference between Black and White student test scores, there was a targeted gaze placed on Black students. This gaze fits well within the deficit model of thinking by assuming that Black students need to increase something in order to be seen as knowledge holders in mathematics (Gutiérrez, 2007; Jackson, 2009). The importance of

acknowledging this gaze links back to the implementation of the NCLB mandate that used test score data to determine if the achievement gap was decreasing. As student test score data was collected under NCLB, Black students were still scoring below White students (U.S. Department of Education, 2004, 2007, 2011). The continued comparison between Black and White student test scores, together with the reaffirmation that Black students are still unable to score at the same levels as White students, becomes part of the master-narrative. This process reifies previous conceptions that Black students cannot do mathematics. Therefore, because Black students continue to perform at a statistically significant level below White students (U.S. Department of Education, 2015), the master-narrative is taken as fact and no longer questioned. The policy problem needs to deal with the existence of the master-narrative in any proposed solutions, otherwise I believe that any potential policies, suggested or implemented, would only be attempting to solve part of the problem.

Social problem.

The social problem, which is enmeshed within both the educational and policy problems, is racism. As an ideology, racism suggests that a racial hierarchy exists and is operationalized through structures such as education and policy. In education, the ideological understanding of a racial hierarchy in relation to the idea of intelligence manifests itself through the further assumption that mathematics is a proxy for intelligence. Therefore, racism feeds into the ideas of who is seen as intelligent, or mathematically capable, in mathematics education which then becomes the master-narrative described earlier. Similarly, racial inequality in policy would not exist without previous explicitly racist policies around schooling and housing. The racial inequality in policy is maintained because current policy solutions disregard the ways in which racism has played a role in the construction of the problem.

Essentially, the social problem of racism is distinct since attempting to deal with either the master-narrative or racial inequality on their own would not necessarily provide a lasting or meaningful solution. This is, unless racism, including how it is understood and manifests itself, is also an element of how the problem is defined and the solution that is presented. Thus I am suggesting that racism, while intricately connected to both the educational and policy problems identified, also requires explicit recognition within the problem statement. Acknowledging racism in this way is in keeping with my use of CRT as a theoretical framework as well as picking up on themes from *The Blacker the Berry* (Lamar, 2015) that reference the termination of Black culture and the sabotaging of the Black community.

To further elaborate on the connections between new racism as the social problem and the educational and policy problems is to start with the definition. First, the existence of the master-narrative as the educational problem impacts the life chances of racialized students and therefore aligns with Bonilla-Silva's (2014) definition of new racism. Thus, the connection between the educational and social problem becomes apparent, as new racism can be seen to feed into the master-narrative. In addition, racism as a structure is linked to policy mandates that only acknowledge race as a category for statistical comparison while ignoring the ideological and political factors that prohibit centring race in policy. By using race as a statistical category, the current policies bolster the new racism definition by perpetuating a deficit model that feeds into the structural network at various levels. Finally, the policy aim on the achievement gap as the way to solve racial inequality puts the political focus on racialized youth as being unequal without acknowledging how racism is connected to that inequality. Consequently, there is no way to discuss the educational, policy, or social problem as a singular entity. Each of the three problems are intertwined in such a way that the explanation of one problem ultimately leads to

an explanation of another. To that end, the next section provides a figure to aid in organizing the connections between the educational, policy, and social problems.

Visualizing the Research Problem

As a way to assist in organizing the interrelationship between the educational, policy, and social problems, this section presents a visualization of the connections I explained above. The diagram visually represents how the three problems I have identified are interrelated by using arrows to suggest momentum. For example, the arrow connecting the social problem to the educational problem shows how structural racism feeds into the master-narrative in education. In this way, the diagram is useful to see the difficulty in attempting to disentangle the educational, policy, and social problems from each other.
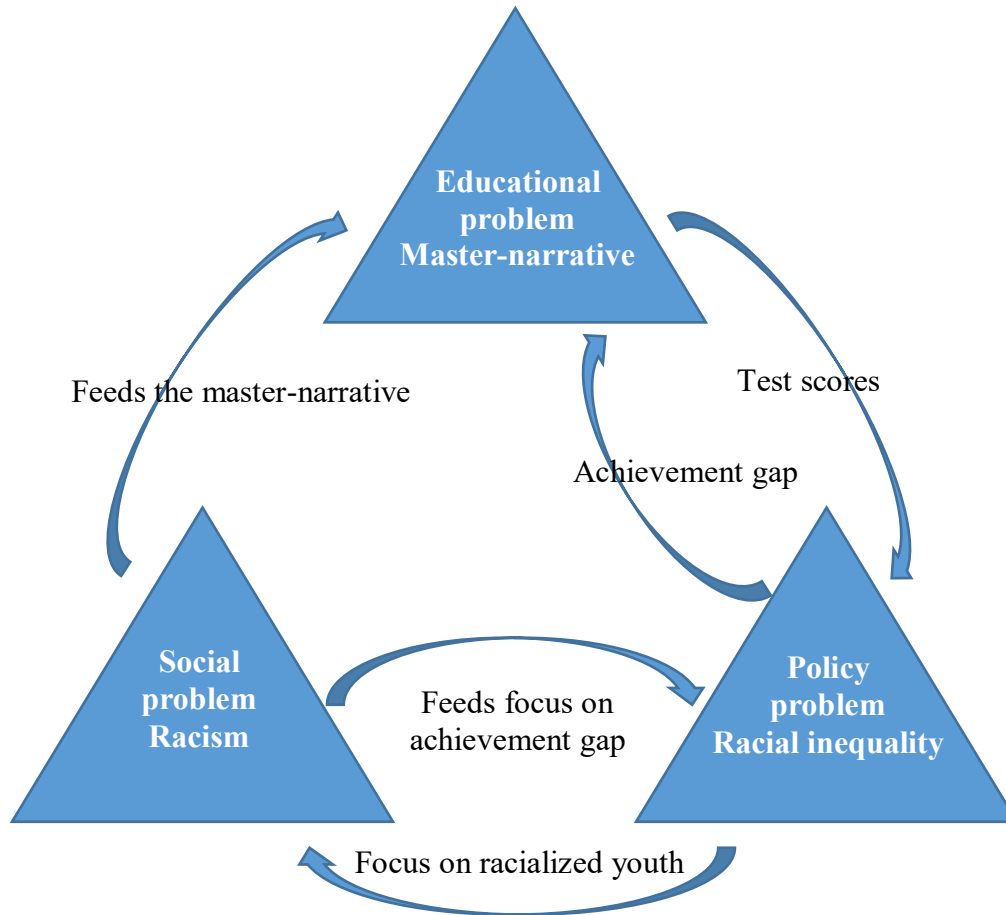
Figure 2. The interrelationship between the education, policy, and social problems

Context of the Study

The following two sections provide relevant context for readers who may not be as knowledgeable about either the mathematics education community or the way in which the U.S. political system functions. In particular, I provide an outline of the major players within mathematics education, followed by a brief history of the standards-based reform and the standards documents that are essential to understanding some of the current debates within mathematics education. Following that, I provide some background into how each of the three political branches of the U.S. federal government function and their role in relation to education.

Mathematics Education Context

The mathematics education world is made up of several groups of people including K-12 mathematics teachers, university level mathematics educators, and mathematicians. The most prominent association to which most mathematics teachers and educators belong, especially in the U.S., is the National Council of Teachers of Mathematics (NCTM). While mathematicians are also members who play a vital role in the policy making agenda of the organization, there exists several associations for mathematicians separately, whose focus is the advancement of mathematics, rather than the pedagogical aspects that NCTM and its members tend to focus on. The NCTM was founded on February 24, 1920 (Donoghue, 2003; McLeod, 2003). The organization was created as a way to support teachers of mathematics as well as provide solidarity against educational reformers that often shut mathematics teachers out of conversations while also making moves to restrict mathematics in the K-12 curriculum (Donoghue, 2003; McLeod, 2003). The membership of the organization is made up of all three of the prominent groups with interest in teaching mathematics. According to the *Statement of Beliefs*, the NCTM (2018) "provides broad national leadership in matters related to mathematics education" in the U.S. (Statement of Beliefs, para. 1). As such, since the late 1970s, the organization has advocated for particular agendas at the federal level, including the creation and dissemination of documents outlining curricular standards and assessment standards among many others.

Due to the agenda of NCTM President Shirley Hill in the late 1970s (McLeod, 2003) coupled with the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) which called for a greater emphasis on problem-solving, the NCTM decided to

create a set of standards to guide K-12 mathematics teachers (Crosswhite, Dossey, & Frye, 1989; Ferrini-Mundy & Graham, 2003; McLeod, 2003).

Through the latter half of the 1980s, the NCTM created committees and proposals to support the creation of a standards document that the federal government had no interest in funding (Ferrini-Mundy & Graham, 2003; Gates, 2003; McLeod, 2003). This process culminated in the creation and dissemination of the 1989 *Curriculum and Evaluation Standards for School Mathematics* (The 1989 *Standards*; NCTM). The 1989 *Standards* were written as a way to indicate the topics in mathematics that all K-12 students should comprehend by the time they graduate from high school (Ferrini-Mundy & Graham, 2003; Jennings, 2015b; Reys, Reys, Lapan, Holliday, & Wasman, 2003). "Immediately following the release of the Standards in March 1989, several national and state entities adapted or incorporated NCTM's vision, ideas, and recommendations in their judgments and decisions pertaining to children's mathematics learning" (Carl, 2003, p. 1146). By 1996, forty-six states had developed standards based on the NCTM (1989) *Standards* document, and each state's standards provided the basis for the creation of state assessments and teacher professional development programs (Ferrini-Mundy & Graham, 2003). Thus, each state individually created their own set of standards for the students in their state, but a connecting thread amongst the 50 versions was a reliance on the existence of the NCTM (1989) *Standards* document. Following some heated debate around the purpose of the 1989 *Standards,* in what some have termed the "math wars", necessitated a revision of the 1989 *Standards* in 2000 called the *Principles and Standards for School Mathematics* (The *Standards*; NCTM; Ferrini-Mundy & Graham, 2003).

The creation and dissemination of the 1989 *Standards* was significant in many ways. First, they were the first set of subject specific standards to be written and disseminated on a

national level. Second, their development within the professional association of mathematics teachers makes them unique. After President George H. W. Bush integrated calls for high standards into his presidential agenda in the 1990s, the federal government chose which groups created standards for other core subjects (Jennings, 2015b). Finally, the existence and revision of the 1989 *Standards* together with political pushes towards accountability allowed for the *Standards* to become the foundation for standards-based reform under NCLB.

Built on the earlier history of the NCTM (1989, 2000) *Standards* publications, the National Governors Association and the Council of Chief State School Officers released their own version of standards for mathematics in 2010 entitled the *Common Core State Standards* (*CCSS*). This was a state-led initiative that started in 2009 to develop clear, concise, and consistent goals for K-12 mathematics that "ideally" would be adopted by every state to ensure that all students across the country were receiving the same education. One of the main stipulations of *Common Core*, which is distinct from the NCTM *Standards*, is that *CCSS* requires that a state claiming to adopt the *CCSS* standards must adopt the full document as written with no modifications (Skinner & Feder, 2012). Whereas the NCTM *Standards* are, and always have been, considered to be a guideline for teachers to use and adapt as they saw necessary in their classrooms. An interesting thing to note is that neither the *CCSS* (2010), nor the NCTM *Standards* (2000) were funded, or influenced, by the federal government; each document was created with money directly from the organizations that ultimately created and disseminated the documents.

The most important things to note about the mathematics education community in this regard is that standards of one sort or another have been discussed within the community since the 1980s. This discussion has led to the creation of three national documents which outline

standards for K-12 mathematics students to meet. None of the standards documents were created or funded by the federal government, and yet the federal government relies on the existence of the standards in order to define the goals of K-12 mathematics education. To help bridge the gap between the mathematics education context and the federal role in education, the next section outlines how the three branches of government in the U.S. function and how their decisions have impacted either education or mathematics education specifically.

Political Context

The political context that is relevant to this study involves a basic explanation of how the U.S. government functions to create, pass, and uphold laws, as well as more specific details about how this process impacts discussions of mathematics education in the country. For those unfamiliar with the U.S. government structure, this information will provide some insight into how power exists and functions in relation to K-12 education generally. Additionally, the highlighted elements lay the groundwork for the research questions I ask along with the framing of the research material acquired in later chapters. To begin, there are three branches of the U.S. government that have roles in creating and executing legislation: the executive, legislative, and judicial branches. In the following three sections I provide a brief summary of how each branch works, followed by specific information about how each branch has influenced its power to impact K-12 education in various ways.

Executive Branch.

The executive branch of the federal government is the president of the United States. The president has several roles in relation to education legislation, including agenda setting, writing legislation, signing and vetoing legislation, as well as calling special commissions and creating grant programs. Agenda setting for presidents occurs in two ways, first in their initial campaigns

for office, and then in their yearly State of the Union address, where presidents are able to present their vision for the coming term or year, respectively. One example of agenda setting was during the presidency of Lyndon B. Johnson when he declared a War on Poverty and attempted to use his position to eliminate poverty in the U.S. To do this, he passed several pieces of legislation that authorized the creation of programs including Head Start, Medicare, Medicaid, and food stamps in an effort to solve problems faced by poor families. While Johnson ran on a campaign to eliminate poverty, President Reagan ran a campaign in the early 1980s set on eliminating the Department of Education. Following Reagan, Presidents George H. W. Bush, William (Bill) Clinton, and George W. Bush ran campaigns based on improving education; each made education policy and legislation a key issue they undertook while in office.

Another way that presidents have influenced federal education legislation has been to write the legislation themselves. While this is not required, and is atypical, President Johnson wrote the original version of ESEA to be presented to Congress (McAndrews, 2006). Whereas other presidents have found a sponsoring Congress member and requested that they write the legislation that includes particular themes or requirements. The final power that the president holds is to sign or veto legislation. By signing the legislation it becomes law, and by vetoing legislation it must go back to Congress for another round of votes in order to become law. President Richard Nixon often used his veto power to show his displeasure for increasing fiscal budgets for federal education legislation, even though Congress always overrode his veto (McAndrews, 2006).

In addition to the typical functioning roles that the president has control over, they also have the power to call for commissions to study particular issues and provide reports to the White House. One such commission related to mathematics is the National Commission on

Excellence in Education (NCEE; 1983) which released a report entitled *A Nation at Risk* (ANR). This report "posited as its principal thesis that downwardly spiraling pupil performance had rendered the U.S. education system dysfunctional, thereby threatening the nation's technological, military, and economic pre-eminence" (Guthrie & Springer, 2004, p. 8). Many scholars cite the ANR report as a turning point in K-12 education and as the impetus for both reform and accountability in policy later seen in reauthorizations such as IASA and NCLB (Anderson, 2007; Hayes, 2004; McGuinn, 2006). Additionally, ANR is the foundational document that substantiates calls of continued improvement in education for the economies sake. While ANR derailed President Reagan's attempts to eliminate the Department of Education, because Reagan did not view education policy and legislation as part of his agenda, no major shifts occurred to federal education legislation while Reagan was in office. However, this situation changed in 1989 when President George H. W. Bush was elected.

As a consequence of ANRs publication, several shifts began occurring in federal education policy discussions in 1989. First, President George H. W. Bush took office as the first self-proclaimed *education president* since Johnson. Second, he called together the nation's governors for a summit on education. Finally, the NCTM released the first version of the Standards entitled *Curriculum and Evaluation Standards for School Mathematics* (1989). Together, these three events altered the trajectory of mathematics education policy for the remainder of the century. By proclaiming himself an education president, Bush set the agenda for the entire Republican Party to begin shifting their political dialogue as an organization away from states' rights to accountability. When he called the summit of governors, one of whom was Arkansas Democratic Governor Bill Clinton, he influenced the remainder of Clinton's governorship as well as the direction for Clinton's presidency. With the independent release of

the 1989 *Standards* (NCTM) by a group of mathematics educators with no funding or guidance from any level of government, a foundation was laid for presidents and governors to use the document to frame their educational goals for mathematics going forward. One example is President Bush's (1991) *America 2000: An Education Strategy* that focused the education discussion federally on achievement and mathematics among other goals, even though it was never passed into law. Building on the presentation of *America 2000* as well as his experience at the governors' summit in 1989, President Clinton (1994) proposed *Goals 2000: Educate America* which was passed as federal legislation and was subsequently used to guide the country towards particular goals in education (Kessinger, 2011).

Finally, in relation to the power that the executive branch has to influence education, it is important to note President Barack Obama's *Race to the Top* (U.S. Department of Education, 2009) initiative. While *Race to the Top* is a federal education policy, it is neither mandatory for states to participate nor is it a major source of funding. Instead, it is a competitive grant program set up by President Obama to encourage districts to reform education through "enhancing standards and assessments, improving the collection and use of data, increasing teacher effectiveness and achieving equity in teacher distribution, and turning around struggling schools" (U.S. Department of Education, 2010, p. 3). Since *Race to the Top* has a competitive funding model, and was never meant to fund all states, it will not be a main focus for this study. However, since some research links this initiative to the adoption of the *Common Core State Standards* (2010) by many states, it is important to note as an element of presidential power in relation to K-12 education.

Judicial Branch.

The judicial branch of the government is the court system, and their main purpose is to determine if laws passed by the executive and legislative branches of government are constitutional. While the judicial branch does not have the same direct influence as either the executive or legislative branches to outline and determine policy agendas and the important elements of educational policy that states must follow, the decisions made by the court system do have important ramifications to how particular aspects of schooling can function. The two most important court cases that were decided by the Supreme Court in relation to race and education are *Plessy v. Ferguson* (1896) and *Brown v. Board of Education of Topeka, KS* (1954). The *Plessy* case is foundational to understanding race relations in the U.S., as it indoctrinated the idea of "separate but equal". The separate but equal doctrine was the majority decision in the *Plessy* case, where seven of the eight justices who heard the case determined it was acceptable that Homer Plessy was relegated to a train car just for Black passengers so long as the separate accommodations were seen to be equal to those provided to White passengers. As a result of this decision, Jim Crow laws, requiring the separation of public spaces based on race, became a common practice in the South. In relation to education, this meant that separate but equal schools were set up throughout the Southern states including Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Tennessee, Texas, Oklahoma, Kansas, and Arkansas. Part of the written decision indicated that the Court saw a fallacy in Plessy's argument that by separating people based on race this somehow indicated that the "colored race" was inferior (Lawrence, 1980, p. 65). The themes held within this majority decision relate well to the master-narrative that I indicated in my explanation of the educational problem, it also became a sticking point when the National Association for the Advancement of

Colored People (NAACP) lawyers began working out their strategy to unravel Jim Crow laws which came to a head in the *Brown* decision (Ravitch, 1980).

As mentioned above, the *Brown v. Board of Education* case was the culmination of years of work by the NAACP combined in an effort to dismantle segregation in the form of Jim Crow laws as well as the idea of separate but equal that was upheld by the *Plessy* decision. The *Brown* decision, supported by a unanimous Supreme Court and written by Chief Justice Warren, stated that segregated schools were "inherently unequal" (1954, p. 496). Although the original legal argument relied heavily on social scientists speaking to the negative impacts of segregation on children's achievement, some believe that a heavier reliance on educators and more focus on how education functions would have brought about a different set of changes (Carter, 1980). One of the reasons suggested as to why *Brown* has never had the groundbreaking impact on educational segregation hoped for is that within the argument the lawyers were in essence fighting for both a colour-blind remedy, referencing Judge Harlan's dissenting opinion from the *Plessy* case, and a colour-conscious remedy, in the form of integration of the school districts (Ravitch, 1980). The outcome of the *Brown* decision has had mixed results in relation to desegregating the nation's schools, and continues to be a salient element of conversations about race and schooling in the U.S.

Legislative Branch.

The legislative branch is most often referred to collectively as Congress. Congress is made up of the House of Representatives and the Senate, where the Senate has two members from each state, and the House has members based on population. Legislation must first be authorized by a committee within the House, voted on, and if approved, the appropriations committee determines funding; it goes through a similar process in the Senate (Jennings, 2015b,

p. 41). However, the proposal of legislation is not the only power that the legislative branch holds; Congress can also override a veto from the president, determine how much funding legislation is actually given, and amend the Constitution. While the process to amend the Constitution is beyond the scope of this brief introduction to legislative powers, a short discussion of the 10th amendment is in order when discussing education in the U.S. This amendment is interpreted to mean that any government issue not exclusively delineated within the Constitution as a federal concern, is a state concern. Because of this interpretation, education in the U.S. is not considered federal jurisdiction since it is not covered in the U.S. Constitution, therefore, education falls exclusively within the powers of the state. The importance of noting this amendment is that during federal education legislation debates, like those that occurred prior to the passing of ESEA, many in Congress felt that the act of passing federal education legislation was limiting the state's role in education and tantamount to federal control of education (Anderson, 2007; McGuinn, 2006).

A piece of federal legislation that is important when discussing race in relation to education is the *Civil Rights Act* of 1964. As part of the *Civil Rights Act*, *Title VI* dictates that no federal funding can go to any program that is explicitly segregated (McAndrews, 2006). By passing the *Civil Rights Act*, which dealt with racial inequalities, ESEA was able to forego dealing with racial inequalities that still existed in education despite the *Brown* decision in 1954. This effectively eliminated one of the barriers that was prohibiting federal education policy from being passed through Congress.

The most important piece of legislation to discuss in relation to education is ESEA that was signed into law by President Lyndon B. Johnson. It was "enacted at the height of the civil rights movement and as part of America's War on Poverty, the ESEA is a federal civil rights

statute at its core, designed to level the playing field and expand educational opportunity for poor children and children of color" (Hewitt, 2011, p. 169). ESEA was the first piece of legislation to give the U.S. government substantial fiscal and political control over education in the country, and was the first federal aid aimed at a particular category of students and not just considered a lump payment to school systems (Davis, 1999; Jennings, 2015b; Kessinger, 2011; Lappan & Wanko, 2003; McAndrews, 2006). Prior to its passing, the American government considered education as the exclusive purview of the states. Since ESEA is not a constitutional amendment, like any other law in the U.S., it must be periodically reevaluated and reauthorized by Congress. As such, ESEA has had 13 reauthorizations since 1965. Many of the early reauthorizations were to tweak requirements after the initial passing; later reauthorizations, such as *Improving America's Schools Act* (IASA) and NCLB, made more substantial changes to the purpose and funding models within the legislation.

When ESEA was originally passed it had five Titles. Each of the Titles described the way in which the federal government would fund various aspects of the education system. For example, *Title I*, which has always been the largest portion of the funding, had the objective to help finance school districts with large concentrations of low socio-economic status (SES) families (Jennings, 2015b; McAndrews, 2006). When it was originally passed, *Title I* was allocated $1.06 billion whereas the remaining four Titles were allocated $100 million each (McAndrews, 2006). The remaining Titles were to set aside funding for libraries, supplemental education services, research and surveys, and to strengthen the departments of education at the state level (Lappan & Wanko, 2003). Since ESEA was passed in 1965, *Title I* funding has increased with each successive presidency (McAndrews, 2006). The importance of *Title I* is that it has become a reliable funding source for state school budgets, and so the federal government

has been able to leverage *Title I* funding to ensure state compliance with federal mandates. The two most well-known instances of this have been with desegregation and accountability. In 1965, despite the *Brown* decision in 1954, and the *Civil Rights Act* in 1964, the majority of schools in the South were still segregated. Because of this, when ESEA passed, the Office of Education required segregated states to submit desegregation plans in order to receive their funding. NCLB used a similar model for their accountability requirements in 2002. In order to continue receiving *Title I* funding, NCLB stipulated that plans for high standards, reaching 100% proficiency in reading and mathematics by 2014, along with testing requirements, needed to be in place for each state. Thus *Title I* became the bargaining chip for the federal government to gain compliance over states that did not share the same goals as the federal government with regard to education.

Finally, as one of the most controversial reauthorizations of ESEA, it is important to discuss NCLB, the reauthorization of ESEA that was signed into law in 2002 by President George W. Bush. This legislation required that schools implement high standards for all students with the goal of having all students reach 100% proficiency in reading and mathematics by the year 2014 (Darling-Hammond, 2004; Dorn, 2007; McDonnell, 2004). In order to keep public education as a largely state controlled entity, NCLB outlined that proficiency levels for reading and mathematics were to be determined by each individual state. Then, to ensure that states and districts had implemented high standards, NCLB laid out an accountability system that would test students at regular intervals to ensure that states were moving towards the goal of 100% proficiency. If schools did not make adequate yearly progress (AYP) towards meeting the goal of 100% proficiency, some consequences that were laid out included setting up mandatory state

funded tutoring, allowing students to switch schools, replacing staff, and closing continuously failing schools down (Bourque, 2004; Rothstein, Jacobsen, & Wilder, 2008).

To conclude, the context of my study falls within both mathematics education and the political context. In mathematics education, there is currently an overwhelming focus on how standards function in research and teaching, including both of the NCTM (1989, 2000) *Standards* documents and the *Common Core State Standards* (2010). For the political process, I outlined how legislation is passed and kept in check by the three branches of the federal government, as well as reviewing important pieces of legislation that have a direct influence on the context in mathematics education policy. Each piece of legislation, Supreme Court decision, presidential agenda, and report described above altered how the federal government saw the purpose and funding of schooling to be structured. With ESEA, the government determined that states were not providing enough support for low income students and decided to shift the focus of educators onto these students. ANR brought another shift with regards to economic concerns for the entire country resting on the shoulders of educators. And with NCLB the government decided there needed to be systems in place to ensure that federal investment in students was providing that benefit with quantifiable proof. Each element has played a role in the perception of race in relation to schooling and lays the groundwork for the research presented throughout the remainder of this thesis.

Research Questions

The underlying question framing my proposed research is: how did the idea of what I am calling achievement as accountability in mathematics education come into being? This question is based in an ontological concern, where ontology refers to what exists and how it is related to other things that exist (Hofweber, 2014). My concern is regarding how the accountability

system, which requires schools to "prove" that students are learning, shapes a societal understanding of achievement in mathematics in the U.S. More specifically, my research proposal aims to explore how achievement and accountability narratives prompt particular deficit narratives around the mathematical ability of racialized students, which adds to the master-narrative that racialized students cannot succeed in mathematics. Further, this question is derived from the fact that mathematics education research is proposing to change what occurs in K-12 mathematics classrooms, research, and policy. Many researchers suggest change to mathematics education based on consideration for the U.S. to achieve economic excellence (Boyd, 1999; Boyer, 1988; Dittmann, 2005; Firestone, Fuhrman, & Kirst, 1991), equitable distribution of educational opportunity (Capraro & Joffrion, 2006; Damarin, 2000; Gutstein, 2012; Johnson & Kritsonis, 2006; Ladson-Billings, 1997; Ortiz-Franco & Flores, 2001; Solórzano & Ornelas, 2002), and a desire for democratic outcomes in mathematics (Alemán, 2001; Anderson & Tate, 2008; Atweh, 2012; Darling-Hammond, 2010; Skovmose, 1990; Skovmose & Valero, 2001). The problem is that the foundation for these calls to change are not explicitly linked with the system of achievement as accountability that has been implemented. There is a disconnect between the questions of why we should change mathematics education and how that change should occur that limits any possible efforts to reform mathematics education. In particular, attempts to equalize educational outcomes for racialized students using achievement as accountability has not produced either equitable distribution or democratic outcomes (Darling-Hammond, 2010; Haney, 2004; Martin, 2009a). Therefore, I believe that a philosophical consideration using historical ontology (Hacking, 2002) to determine how achievement as accountability has emerged will assist in altering mathematics education teaching, research, and policy in the future.

In order to help explore my larger philosophical question about how assessment as accountability came into being, I will rely on several other questions to gather information, and thus, focus the research on particular aspects of the greater problem associated with achievement as accountability in mathematics education. The questions guiding my research are:

1. In what ways does achievement as accountability alter conceptions of equity in mathematics education?

   a. How are racialized students positioned within accountability policies? How has this changed over time?

2. What are the political and historical underpinnings of achievement as accountability in mathematics education?

   a. How are political calls for reform, especially *A Nation at Risk,* and the call for high academic standards linked with mathematics education calls for reform, and the creation and dissemination of the NCTM *Principles and Standards for Schools Mathematics* (2000)?

Chapter Two: Theoretical Framework

Say it loud! I'm black and I'm proud
Say it louder! I'm black and I'm proud
Look a-here!
Some people say we got a lot of malice, some say it's a lotta nerve
But I say we won't quit movin' until we get what we deserve
We've been buked and we've been scourned
We've been treated bad, talked about as sure as you're born
But just as sure as it take two eyes to make a pair, huh!
Brother we can't quit until we get our share
Say it loud, I'm black and I'm proud
Say it loud, I'm black and I'm proud

~James Brown, *Say it Loud (I'm Black and I'm Proud)*, 1968

James Brown and Alfred Ellis (1968) wrote *Say it Loud (I'm Black and I'm Proud)* at a time of great racial struggle. One article links Brown's lyrics as a less intellectual version of the message that Stokely Carmichael was spreading at the same time, messages around Black Power and the natural beauty of Black bodies (Fouché, 2006). In particular, this song was meant as a rallying cry for youth in the late 1960s as a way to promote self-pride (Edet, 1976). The lyrics of this song represent the mood of Black America after the assassination of Dr. Martin Luther King, Jr.; they are suggestive of both being mistreated, but also demanding Black independence (Sykes, 2015). I chose this song to foreground this specific chapter because it represents the sentiment of CRT through music. Some of the parallels come from the original history of CRT, where legal scholars felt that legal theories being used at the time were not providing the lens that was required to view racial issues in a meaningful way. Like the song suggests, you need to acknowledge history, and continue to fight for what is deserved, all while acknowledging the importance of what is said.

Currently, there is limited research within the scope of mathematics education that deals explicitly with how race, racism, and racialization impact students and their experiences as conceptualized in mathematics classes (Lubienski & Bowen, 2000). More common is research that deals with race in direct relation to the disaggregation of data. The disaggregation process refers to data that has been partitioned based on predetermined demographic characteristics such as race, gender, dis/ability, and class (Dorn, 2007; Fuller & Johnson, 2004; Rothstein, et al., 2008; Skrla & Scheurich, 2004; Skrla, Scheurich, Johnson, & Koschoreck, 2004). However, this process of disaggregating data limits the ways in which race and racialization can be considered in the analysis of data since it ignores structural impediments and sociopolitical context. These barriers and the sociopolitical environment are disregarded when the experiences of all Black students are summed into a single number, in essence, the average score. Some notable exceptions to the trend of relying solely on disaggregated data to explain racialized experiences in mathematics are Gutstein (2003, 2007a, 2007b, 2012), Gutiérrez (2000, 2008), Berry (2004, 2008), Martin (2003, 2008, 2009a), Stinson (2006, 2013) and Ladson-Billings (1997). These authors often work within an equity lens as a way of framing their research surrounding race in mathematics education. I draw on CRT (Ladson-Billings & Tate, 1995; Solórzano, 1997, 1998; Tate, 1997) and governmentality (Foucault, 1991a, 1991b) to help in defining the direction of my research and analysis. This will allow me to contribute to the extant literature and to provide a way for me to add nuance to the discussion around race, racism, and racialization within federal education policy in the U.S. and mathematics education specifically.

The purpose of a theoretical framework is to guide the researcher and the research as it progresses (Henstrand, 2006). The theoretical framework provides a rationale for the types of

questions I ask, my choice of methodology, methods, documents for analysis, and how I have chosen to set up my analysis. To build off of this idea, the intention for this section is to understand and clarify the relationship between each of the aforementioned parts of my research. I am also using this section to illustrate how my reading of CRT and governmentality alter current research findings on racialized populations in mathematics education in the U.S.

Critical Race Theory

The origins of CRT are derived from critical legal studies (Bell, 1995; Taylor, Gillborn, & Ladson-Billings, 2016). CRT was initially used as a way to centralize people of colour, their narratives, and the ways in which legal statutes and structures ignored how race played a role in decision making throughout the legal system (Tate, 1997). The goal of CRT is to eliminate racial oppression as part of the larger project of eradicating all subordination in society (Berry, 2008; Gutiérrez, 2013; Solórzano, 1997, 1998; Tate, 1997). CRT is used in education research to recognize and illustrate how race, racism, and the process of racialization have played a substantial role in education research, teaching, policy, and legislation (Ladson-Billings & Tate, 1995; Tate, 1997; Taylor, Gillborn, & Ladson-Billings, 2016). The application of CRT in mathematics education specifically involves acknowledging "how tracking practices, teacher expectations, intelligence testing, and other curricular practices have subordinated people of color" (Berry, 2008).

Typical CRT research is based on five elements, a) the centrality of race, b) a challenge to dominant ideology, c) the goal of empowering subordinated groups, d) the experiences of people of colour, and e) its interdisciplinary acknowledgment (Ladson-Billings & Tate, 1995; Tate, 1997; Yosso, et al., 2004). While some literature suggests that all five of the elements are necessary in order to complete research using CRT, I rely on Solórzano (1998) who noted that

"critical race theory is anything but uniform and static" (p. 123). Therefore, it is more important, to attempt to maintain the foundation of CRT as a challenge to mainstream and traditional paradigms in mathematics education research. In doing so, I focus on the idea of "race" as a main element shaping the experiences of students and teachers within the K-12 school system. Additionally, I use CRT as a way to look beyond current policies to provide ways to alter the oppressive state of education research and literature. In the following paragraphs, I present an outline of the five elements of CRT research and how they are typically understood within the literature, concluding with an explanation of how each element has been used and adapted throughout my research project.

Centring Race and Racism, While Paying Heed to Intersectionality

The first element in CRT is to understand that race and racism are endemic and central elements within modern society (Alemán, 2006; Bell, 1995; Berry, 2008; Jackson, 2008; Monaghan, 1993; Solórzano, 1997, 1998; Tate, 1997; Yosso et al., 2004). This element places race as a fundamental factor that helps to explain any given event or process. However, it does not ignore the additional ways in which other processes of subordination based on class, gender, culture/ethnicity, language, dis/ability, or sexual orientation, for example, can also have an impact on how circumstances are evaluated (Solórzano, 1997, 1998; Yosso et al., 2004). For, example, in her discussion of violence against women of colour, Kimerlé Crenshaw (2016) illuminates how both raced and gendered narratives come together in various ways to have a combined impact on women of colour and their experiences with violence. Her intersectional analysis shows how, when looking through either the gendered or racial lens of particular issues, those places of intersection between the two groups can be lost amongst the narratives of either race or gender alone. Additionally, Brah and Phoenix (2016) suggest that the "different

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dimensions of social life cannot be separated out into discrete and pure strands" (p. 252). Intersectionality, then, becomes a way to engage with areas where students interact with multiple and simultaneous levels of discrimination (Young, 2016). Thus, intersectionality does not detract from the centring of race and racism, but suggests that, in addition to the ways that race impacts students, there may be additional oppressions that should be dealt with simultaneously. While there are many areas within mathematics education that would benefit from an intersectional analysis, for this research in particular I will be looking at the ways in which race and class interact. What this means for my research is that although I am using race to centre my project within each chapter and in my questions in particular, the ways in which race and class overlap or are subverted by each other needs to be acknowledged and dealt with in order to fully understand how the idea of "race" functions within political discussions of mathematics education. The acknowledgment of this intersection is particularly important given the history of how ESEA came into existence and the continued rhetoric of poverty that envelops U.S. federal education policy.

I use this element of CRT in order to centre race and racism at every stage within my research. First, in the introductory chapter, I outlined my positionality and how I am racialized as White. Second, I have defined my understanding of what race, racism, and racialization mean. I have defined these terms in order to centre race as the key concept that frames my entire project. In doing so, race has become a focus within my literature review, and has assisted in defining the subject of my research questions about the use of race in legislation. Further to this, my analysis is based on an exploration of how race and racism function within the legislation, in both overt and covert ways. I have used intersectionality as a way to both engage in analysis, and as a way to delimit which sections of the legislation I have decided not to analyse. My

decision to eliminate particular sections, such as those that mention women of colour, bilingual education, and indigenous education, is due to the importance of being able to deal with multiple intersections in meaningful ways that there was not space to delve into with this project. However, later research will hopefully be able to provide insight into the intersections of race, class, gender, language, and indigeneity. On the other hand, my use of intersectionality in particular has played a part in the literature review as well as the analysis, to point to ways in which race and class are conflated and occasionally used as proxies for each other within policy discourse.

Challenging Dominant Ideology

This element is meant to challenge many of the claims made in the mainstream. In legal studies, these claims include ideas such as meritocracy, colour-blindness, objectivity, equal opportunity, and racial neutrality (Aléman, 2006; Berry, 2008; Ladson-Billings & Tate, 1995; Solórzano, 1997, 1998; Yosso, et al., 2004). Since the importance of this element of CRT is showing how traditional claims within a domain can hide, or are actually hiding, "the self-interest, power, and privilege of dominant groups in U.S. society" (Solórzano, 1997), I elaborate on ways in which these themes are present within education. For my project, the dominant ideologies that are most important to challenge are deficit narratives, in particular, the various assumptions inherent to the "math is a white male subject" myth as perpetuated by the achievement gap rhetoric (Gutiérrez, 2008; Stinson, 2013), and the presumed racial neutrality of policy discussions related to topics that are racial in nature, such as mathematics for all (Bonilla-Silva, 2014; Martin, 2003).

I am adding to these voices by suggesting that these narratives, or dominant ideologies, are further enmeshed at the policy level, perpetuating the same narratives. One of the things

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about dominant ideologies is that they are often hidden in plain sight. As Ahmed (2012) suggests, changing vocabulary can alter the presentation of race, and thus the importance of the idea of "race" within the policy. As a way to engage with this element, of challenging the dominant ideology, I have focused on the use of vocabulary as a way of showing how an ideology can be perpetuated through a series of related documents, thus portraying a singular perception of a constantly shifting idea. In the end, my hope is that by being able to call out how racism is being manifested throughout policy, both presently and historically, it will allow for policies to avoid the same tendencies in the future.

Empowering Subordinated Groups

At the core of this element of CRT is an agenda which ensures that subordinated groups are empowered, and that racism, sexism, and other -isms in society are eliminated (Alemán, 2006; Berry, 2008; Solórzano, 1997, 1998; Yosso et al., 2004). What this means for mathematics education is finding ways to show how subordinated groups are not being empowered by the present system in order to find ways to move forward. To guide my understanding of this element, I rely on Rochelle Gutiérrez's (2007) definition of equity. In her words, equity is "being *unable* to predict student patterns (e.g., achievement, participation, ability to critically analyze data/society) based solely upon characteristics such as race, class, ethnicity, gender, beliefs, and proficiency in the dominant language" (Gutiérrez, 2007, p. 41, emphasis added). This means that when evaluating a group of students' exams, teachers and administrators should not be able to assume race, gender, class, sexual orientation, or dis/ability based on a single score. According to Gutiérrez, by defining the goals of equity in this way, research can address issues of power. Further, since Gutiérrez's definition of equity highlights how power operates within education, it fits within the CRT goal of empowering subordinated

groups. This element interacts in many ways with the definition of governmentality that I will be relying on, and explaining, in the next section.

Centring Experiential Knowledge

This element relies on the history and stories of people of colour (Alemán, 2006; Berry, 2008; Monaghan, 1993; Solórzano, 1997, 1998; Yosso et al., 2004). Further, it suggests that the histories and stories of people of colour are "legitimate, appropriate, and critical" (Solórzano, 1997, p. 7) to untangling how racial subordination functions in law and education through various practices. Often, for CRT research, this means using a methodology related to counter-storytelling or the presentation of counter narratives through the voices and experiences of people of colour (Solórzano & Yosso, 2016). This practice can involve the use of biographies, family histories, personal stories, narrative, parables, and storytelling. The use of experiential knowledge is best exemplified in the mathematics education literature by Danny Martin (2009a), David Stinson (2013), and Robert Q. Berry (2004) who talk to African American male students in schools and present the students' perceptions of mathematics in their research through the students' own voices. The goal of this type of research is to place the voices of those impacted by racism at the centre of the story, and to acknowledge the validity of those stories — not as momentary glimpses but as representations of how racism works on a larger scale, as represented within a single story.

This is by far the most difficult element of CRT to uphold given that I am racialized as a White person, and therefore cannot know the experience of being Black in the U.S. As a result I cannot speak for students of colour, because to do so would involve taking away their agency and go against the tenets of CRT. However, I rely on Solórzano (1998) and his interpretation that CRT is able to shift to suit the needs of particular research. In order to ensure that African

American voices are centred in my research, despite the fact that I am racialized as White and do not interview any people of colour, I foreground African American musicians at the beginning of each chapter. The use of music and the lyrics of musicians is a fairly common way to engage with CRT research. For example, both Leonard (2009) and Matthews (2009) rely on the power and cultural significance of Negro spirituals to frame their presentation of themes related to mathematics teaching. Further to this point, Edet (1976) outlines the importance of gospel music to the ability for slaves to be able to communicate unfettered by the presence of their masters. Thus, the inclusion of *Lift Ev'ry Voice and Sing*, also known as the *Black National Anthem* (Johnson & Johnson, 1900) harkens back to the significance of Negro spirituals, but also has modern connotations of hope as told through Maya Angelou's story in Theresa Perry's (2003) chapter. Protest songs are another acknowledged way in which African American musical traditions reaffirm or problematize the ways in which African Americans have been treated in the U.S. (Hobson, 2008). Most of the songs I have chosen are considered protest songs, each chosen because it made a political statement at its time in history, where *Strange Fruit* (Holiday, 1939), *Mississippi Goddam* (Simone, 1964), and *Living for the City* (Wonder, 1973) were descriptive of the maltreatment of Black people in the U.S., and *Young, Gifted, and Black* (Simone, 1958), and *Say It Loud (I'm Black and I'm Proud),* (Brown, 1968) were meant as supportive and celebratory. The final genre of music I have included is hip-hop, which exemplifies a particular way in which racial identity, class, and popular culture collide to create a performative articulation of Black culture (Baldwin, 1999). In particular, each of the songs I have chosen from this genre, *The Blacker the Berry* (Lamar, 2015), *Fight the Power* (Public Enemy, 1990), and *Fuck tha Police* (1988), all use intricate rhyming structures to point out stereotypes as well as the mistreatment of African Americans (Caplan, 2012).

Apart from *Lift Ev'ry Voice and Sing* (Johnson & Johnson, 1900), all of the songs I have chosen have been acknowledged in research as having a significant influence on the ways in which racial matters and perspectives have been taken up in the secular music scene. In this way I am able to include voices from the Black community speaking to issues of race, racism, and racialization within my dissertation. I also provide a brief elaboration on how each song relates to the topic within the chapter, as a form of counternarrative. In doing this, my intention is to bring light to how the struggles of race, racism, and racialization have been incorporated into song, but as many are considered protest songs, they also provide a way to see issues of power from another perspective. Thus by centring race in my personal narrative and relying on a counter narrative about race relations in the U.S. through the use of song lyrics, I engage with this element as best I can as a White woman.

Recognizing Interdisciplinary/Transdisciplinary Perspectives

On a basic level, this element endeavors to incorporate research from alternative areas in order to enrich the research and provide context, especially as it relates to race (Berry, 2008; Solórzano, 1997, 1998; Tate, 1997; Yosso et al., 2004). However, when looking at a more complex understanding of transdisciplinarity, Max-Neef (2005) outlines research that simultaneously engages with multiple levels of reality so that the proposed solution to a problem will have the best chance of altering the status quo. In particular, this involves asking questions in relation to what exists, what is possible to complete, what we would like to see, and what should be done (Max-Neef, 2005). By combining all four of these levels within a project, Max-Neef suggests that research is better able to provide meaningful solutions that move beyond endless cycles of political rhetoric that fail to change anything.

In order to incorporate this element into my research, I borrow a methodology from the field of philosophy called historical ontology (Hacking, 2002). Historical ontology sheds light on some of the ways in which oppression has thrived historically in the vocabulary choices of federal education policy in the U.S. Analysing the use of racial language works to provide context for how federal discussions about racial issues have developed over time, in this way fighting against the tendency to present policies in an ahistorical manner, similar to the ways in which legal narratives have arisen (Solórzano, 1997).

Up to this point, I have outlined the ways in which CRT is typically theorized as well as how I intend to use each element to inform the choices I have made throughout my research. However, I find it just as important to conclude with a re-acknowledgement of my positionality in relation to how I have been racialized. As a White woman researching within a CRT framework that has been exclusively developed and used by people of colour, I am very cognizant of giving credit while relying on their work and doing my best not to appropriate the hard work of marginalized researchers. Therefore, provided that I stay within the guidelines set forth for CRT by the researchers who have founded this area, I believe that as a White woman with the same goals of reducing the –isms in society and empowering subordinate groups, I can conduct research respectfully within this framework.

Connecting Policy to Critical Race Theory

To enhance the power analysis of CRT as my main theoretical framework, I rely on Foucault′s governmentality as a way to meaningfully engage with the discourse of policy documents and how the discourses of race identified through CRT are presented in such a way that, in Foucault′s terminology, we are disciplined to think a particular way. In mathematics education, this is seen through rhetorics of intelligence as indicated in Chapter One, but also

through intellectual and bodily discipline that has come to be expected through the performance

of activities such as mad minutes in elementary schools across North America (Jardine, 2005).

These practices of providing mathematical facts within set time limits while all students are

sitting still and silently working on their own worksheet presents a perfect example of how

governmentality is embodied at the classroom level, and will provide a link to how

governmentality presents itself within the policies I have analysed.

The basis for governmentality came from a series of lectures that Foucault delivered

between 1968 and 1978 (Burchell, Gordon, & Miller, 1991; Foucault, 1991a, 1991b, 1991c). In

these lectures, Foucault (1991a) suggests that the constitution of power as it relates to the state is

the result of gradual processes and the formation of government apparatuses derived from

institutions and procedures that target the state's population. Thus, Foucault (1991a, 1991b)

relies on history to show how the governmentalization of the state occurred. From there he

indicates that the only way to contest state action is by problematizing the "techniques of

government" (Foucault, 1991a, p. 103). When contesting the state in this way, Foucault (1991b)

stresses the importance of acknowledging that the use of history to problematize government

would only create a partial and not a complete history of a technique, institution, or process.

Instead, he suggests that research can follow the path of ideas by choosing specific events as a

way to show how discourses are able to define ideas in particular ways (Foucault, 1991b;

Walters, 2012).

Using Foucault, Spencer and Taylor (2010) suggest that governmentality is an attempt to

uncover the "taken-for-granted practices, arrangements, and structures that serve as the

conduits—the techniques, apparatuses, and tactics—of power" (p. 48). In education, this is

evident through the use of assessments or the policies that mandate assessments, since

assessment is perceived as a technology of governmentality (Spencer, 2013). So research using governmentality as a theoretical framework is concerned with how seemingly mundane circumstances are actually constructing "regimes of truth" in who is authorized to speak and how particular phenomenon are able to be spoken about (Kollosche, 2016; Spencer, 2013). Essentially, "governmentality, in this sense, is about how to conduct government and how to govern conduct" (Spencer & Taylor, 2010, p. 49). Thus governmentality allows for the exploration of the ways in which education currently uses technologies to construct a regime of truth around achievement and assessment in mathematics education through policy. This idea of governmentality works in tandem with Gutiérrez's (2007) definition of equity described earlier because governmentality focuses exclusively on power and how power works within the practices and structures of government (Spencer & Taylor, 2010).

Further to that, governmentality in mathematics education research works by finding and acknowledging the ways in which power operates within the structures of teaching and learning through various policy mandates. More specifically, Kollosche (2016) states that

> Socio-critical studies in mathematics education help to understand, criticise or even change the social circumstances in which mathematics teaching and learning as well as research in mathematics education take place. Socio-critical comprehension is crucial if mathematics education does not want to work in ignorance of the situations in which it is embedded, but carefully aware of the pressures it experiences and the functions it carries. (p. 84)

In this way, governmentality in mathematics education also relates back to several elements of CRT. First, governmentality challenges the purpose of dominant ideology in mathematics education through the lens of policy by looking at how policy shapes race-neutral discourses

around the idea of achievement. Second, it works within an equity lens to illuminate how policy maintains hierarchical structures, thus clarifying one of the ways that power functions within mathematics education. Finally, governmentality provides part of the interdisciplinary process that CRT calls for by relying on Foucault and his research in sociological positioning. Governmentality is very useful for my study as it provides a clear impetus or path to navigating how policy structures particular discourses around race. In particular, it grounds my use of PDA and CDA and works well within the purposes of CRT. Further, governmentality links well with my use of historical ontology, also a Foucauldian idea, and further underlines the importance of understanding the history of policy and how it was derived and developed amongst particular narratives.

I use governmentality in several ways for my project. Primarily, governmentality provides a grounding for my second research question. I rely on Spencer and Taylor's (2010) interpretation which acknowledges the importance of how the technologies of government, such as assessment, are defined. This also requires an historical look at how calls for reform have materialized and have been operationalized in mathematics education. Additionally, my analysis of governmentality assists in identifying patterns in the vocabulary used within legislation and mathematics education policies to augment the impact of particular racialized discourses around mathematics as a way to "analyse the operation of government power, the techniques and practices by which it works, and the rationalities and strategies invested in it" (Dean, 1994, p. 179).

Together, CRT and governmentality work in collaboration with each other to inform my research. Taken together, they allow me to address the issue of how the idea of achievement as accountability has come into being. This process involves explicitly stating how race, racism,

and racialization are related to the goal of reaching equity in mathematics education research and teaching. In particular, CRT and governmentality allow for discussions of race and power to define the existence of a possible regime of truth in relation to policy and legislation is the U.S. Overall, the combining of CRT with governmentality provides a way to problematize how assessment functions in mathematics education research. In the next chapter, I use my theoretical framework as a guide to outline the literature in mathematics education directly relevant to my research questions.

Chapter Three: Literature Review

Right about now NWA court is in full effect.
Judge Dre presiding in the case of NWA versus the police department.
Prosecuting attourneys are MC Ren Ice Cube and Eazy muthafuckin E.
Order order order. Ice Cube take the muthafuckin stand.
Do you swear to tell the truth the whole truth
and nothin but the truth so help your black ass?
Why don't you tell everybody what the fuck you gotta say?
Fuck tha police
Comin straight from the underground
Young nigga got it bad 'cause I'm brown
And not the other color so police think
They have the authority to kill a minority
Fuck that shit, 'cause I ain't tha one
For a punk muthafucka with a badge and a gun
To be beatin on, and throwin in jail
We could go toe to toe in the middle of a cell

Fuckin with me 'cause I'm a teenager
With a little bit of gold and a pager
Searchin my car, lookin for the product
Thinkin every nigga is sellin narcotics
You'd rather see me in the pen
Then me and Lorenzo rollin in the Benzo
Beat tha police outta shape
And when I'm finished, bring the yellow tape
To tape off the scene of the slaughter
Still can't swallow bread and water
I don't know if they fags or what
Search a nigga down and grabbin his nuts
And on the other hand, without a gun they can't get none
But don't let it be a black and a white one
'cause they slam ya down to the street top
Black police showin out for the white cop

Ice Cube will swarm
On any muthafucka in a blue uniform
Just 'cause I'm from the CPT, punk police are afraid of me
A young nigga on a warpath
And when I'm finished, it's gonna be a bloodbath
Of cops, dyin in LA
Yo Dre, I got somethin to say
Fuck the police M. C. Ren, will you please give your testimony to the jury about this fucked up incident.
Fuck tha police and Ren said it with authority
because the niggaz on the street is a majority.
A gang, is with whoever I'm stepping
and the motherfuckin' weapon
is kept in a stash box, for the so-called law
wishin' Ren was a nigga that they never saw

Lights start flashin behind me
But they're scared of a nigga so they mace me to blind me
But that shit don't work, I just laugh
Because it gives em a hint not to step in my path
To the police I'm sayin fuck you punk
Readin my rights and shit, it's all junk
Pullin out a silly club, so you stand
With a fake assed badge and a gun in your hand
But take off the gun so you can see what's up
And we'll go at it punk, I'ma fuck you up
Make ya think I'm a kick your ass
But drop your gat, and Ren's gonna blast
I'm sneaky as fuck when it comes to crime
But I'm a smoke em now, and not next time
Smoke any muthafucka that sweats me
Or any assho that threatens me
I'm a sniper with a hell of a scope
Takin out a cop or two, they can't cope with me
The muthafuckin villain that's mad
With potential to get bad as fuck
So I'm a turn it around
Put in my clip, yo, and this is the sound
Ya, somethin like that, but it all depends on the size of the gat
Takin out a police would make my day
But a nigga like Ren don't give a fuck to say
Fuck the police I'm tired of the muthafuckin jackin
Sweatin my gang while I'm chillin in the shackin
Shining tha light in my face, and for what
Maybe it's because I kick so much butt
I kick ass, or maybe 'cause I blast
On a stupid assed nigga when I'm playin with the trigga
Of any Uzi or an AK
'cause the police always got somethin stupid to say
They put up my picture with silence
'cause my identity by itself causes violence
The E with the criminal behavior
Yeah, I'm a gansta, but still I got flavor
Without a gun and a badge, what do ya got?
A sucka in a uniform waitin to get shot,
By me, or another nigga.
and with a gat it don't matter if he's smarter or bigger
And as you all know, E's here to rule
Whenever I'm rollin, keep lookin in the mirror
And there's no cue, yo, so I can hear a
Dumb muthafucka with a gun
And if I'm rollin off the 8, he'll be tha one
That I take out, and then get away
And while I'm drivin off laughin
This is what I'll say
Fuck the police Fuck the police

~N.W.A., *Fuck tha Police*, 1988

N.W.A., also known as Niggaz Wit Attitude, released their track *Fuck tha Police* after an incident the group members had with the police. While much of the literature about *Fuck tha Police* is geared towards topics of criminality and police violence (Carter, 2018, McCann, 2012), for my purposes, I believe it is more important to highlight the areas of resistance within the track. Through the discourse of the court scene set up in the quote above, N.W.A. shines a light on the ways in which poverty and race both play a role in the treatment of Black people in a neoliberal society (Edgar, 2016). The messages of *Fuck tha Police* resonate with this chapter through the portrayal of power and race that are implicated in the presentation of minorities in relation to the legal system, and are mirrored in the themes of targeting minority students and judgement related to both teacher power and how intelligence is portrayed in mathematics. Essentially, this track represents being singled out due to skin colour, and then fighting back against those narratives, both ideas that are important to CRT and come out within the literature presented in some areas in the following chapter.

Review of Mathematics Education Literature

According to a study done by Sarah Lubienski and Andrew Bowen (2000) research in mathematics education has particular patterns. For example, in their research sample from 1982-1998, 52% of mathematics education research dealt with a specific mathematical content area such as algebra, solving equations, counting, multiplication, or derivatives. Additionally, they defined equity to mean research broadly about gender, disability, ethnicity, or class, and these topics were only covered in approximately 20.7% of articles taken all together, and each topic was covered 10.7%, 6.4%, 3.7%, and 1.7%, respectively. Acknowledging that this research was done about 20 years ago, patterns may have shifted, however, given the commentary by Martin, Gholson, and Leonard (2010), there have been concerted efforts by the NCTM to ensure that

mathematics education remains about content area research, while simultaneously suggesting that research beyond content is irrelevant to mathematics education. Further to the limiting of content, Skovmose and Greer (2012) also suggest that mainstream mathematics education is attempting to limit knowledge to that produced through the methodology of randomized experiments. This information suggests that literature on equity, race, and class within the realm of mathematics education research will not be prominent, nor extremely numerous; therefore, I provide more commentary on certain areas of research most relevant to my research questions. The remainder of this chapter is organized to provide an overview of equity, the research around it, such as that on gatekeeping, definitions of the term equity, as well as research related to race, class, and intersectionality within mathematics education. Following that I provide an overview of policy research within mathematics education, with a focus on how monitoring and reporting, and feasibility are taken up within the literature. I conclude with a short section on the standards movement to provide background on the issue and highlight research completed about the NCTM (2000) *Standards* specifically as a way to link mathematics education policy with larger movements within education and the policy landscape.

Equity

Mathematics education literature most often links the term equity with research related to topics such as gender, race, class, and dis/ability. Equity is a difficult term to define, and a lack of clear articulation of what equity entails allows for divergent groups to appear in the research (Gutiérrez, 2007). This means that although the National Council of Teachers of Mathematics (NCTM, 2000) has equity as one of the five principles that teachers of mathematics should attempt to achieve, there is no empirical way to determine if equity has been realized (Gutiérrez, 2007). Because of this ambiguity researchers can adopt various standards of equity such as

achievement, opportunity, resources, or course-taking (Christenson, Decker, Triezenberg, Ysseldyke, & Reschly, 2007; Scott, Webber, Lupart, Aitken, & Scott, 2014; Walen & Williams, 2002; Yeh, 2010). However, some researchers suggest that equating equity with ideas such as equal opportunity or equal resources, limits how teachers and researchers can operate an equity lens in their teaching and research (Boaler, 2007; Gutiérrez, 2007, 2008; Gutiérrez & Dixon-Román, 2011; Llewellyn & Mendick, 2011; Lubienski, 2007; Martin, 2003; Oakes, 1990, 2005; Pais, 2012). In light of this trend towards multiple conceptions of equity and concerns about how equity research has been taken up, some researchers have begun engaging with how the term should be defined within mathematics education.

In his attempt to critically engage with what equity means and how research around equity should be completed, Alexandre Pais (2012), notes that equity research within mathematics education tends to rely on the assumption that the political and economical problems can be solved by teaching and learning better within mathematics as a discipline. This theme is reinforced by Rochelle Gutiérrez (2013) who suggests that solutions to equity based problems must take a socio-political turn, and move beyond socio-cultural definitions in order to have an impact on the defined problems. Although relying on a socio-cultural understanding of equity, Nasir and Cobb (2002) state that equity research cannot merely be about providing a lens to see how race, gender, class, language, immigration status, or dis/ability has an impact on achievement or test taking. Martin (2003) also suggests that definitions of equity need to move beyond comparisons of outcomes, access, and opportunities to learn, and instead should focus on structural aspects of schooling and how outside pressures have an impact inside the school. Based on these ideas of the importance of equity, I have chosen to rely on Gutiérrez' (2002;

2007) understanding of equity within mathematics education which has broken the definition into three distinct areas:

1. Erasure to predict students mathematical ability based on characteristics such as race, gender, class, and perceived ability level;

2. Erasure to predict which students will be able to use mathematics to analyse, reason about, and critique the world based on characteristics such as race, gender, class, and perceived ability level; and

3. The ability for all groups to use mathematics actively in an effort to protect the environment, not oppress people, and create more wealth redistribution globally (Gutiérrez, 2002).

In essence, she suggests that students should be able to know the political game of mathematics, be able to change the game, and finally, be able to use the game in order to ensure that more people and areas are given the basics of life (Gutiérrez, 2002). Overall, equity research is meant as a way to engage with the rhetoric and practices of mathematics education that place K-12 school mathematics in the position of a gate-keeper (Apple, 2000; Bishop, 1988; Capraro & Joffrion, 2006; Jablonka & Gellert, 2012; Moses & Cobb, 2001). In addition to defining equity and ensuring that research is attempting to achieve the same goal, equity researchers also preach caution in the ways in which equity research is both conducted and disseminated in an attempt to inhibit reification of the very ideas that the research is meant to dispel (Boaler, 2002, 2007). One of the areas of research that needs to be particularly careful about the reification of particular narratives, is the focus on gatekeeping.

One of the ways in which mathematics education research engages with gatekeeping is through an exploration of teacher bias. Part of the hierarchy in mathematics education is

established through a teacher nomination process, wherein teachers are responsible for making recommendations regarding which students should be placed in particular courses (Hansson, 2012; Kissane, 1986). Researchers observing this phenomenon want to determine how teachers are directly or indirectly influencing student promotion and achievement through the mathematical hierarchy (Beilock, Gunderson, Ramirez, & Levine, 2010; Berry, 2004, 2008; Faulkner, Stiff, Marshall, Nietfield, & Crossland, 2014; Hansson, 2012; Hill, Rowan, & Ball, 2005; Kissane, 1986; Leder, 1987; Riegle-Crumb, 2006; Riegle-Crumb & Humphries, 2012). For example, researchers observe teachers direct involvement on students' progression through nomination processes or by spending more or less time with particular groups of students (Hansson, 2012; Kissane, 1986). Indirectly, these same researchers are attentive to how teachers can influence racialized students either by their perceptions of which students belong at a particular level of the mathematical hierarchy or by their own insecurities in teaching mathematics (Berry, 2004, 2008; Beilock, et al., 2010; Riegle-Crumb & Humphries, 2012). This indirect influence of teachers is important to acknowledge because if teachers work within the master-narrative that racialized students cannot achieve in mathematics the teachers will bring that implicit bias to student recommendations, further influencing the life chances of racialized students.

Another way that gatekeeping is considered in the literature is through the lens of representation on important mathematics committees. One committee in particular received two very different analyses when considering gatekeeping, representation, and race. In one chapter, Greer (2012) engaged with how the National Mathematics Advisory Panel, which was called by President George W. Bush to set national aims for mathematics education, chose to limit evidence provided to the Panel be limited to particular methodologies of evidence-based

research, certain ways of thinking about mathematics beyond the content areas, as well as limiting the scope of mathematical content to mostly algebra, rather than statistics or data. Martin's (2008, 2009a) analysis of the same Advisory Panel, on the other hand, suggests that while the limiting of information used by the committee was obviously biased towards particular methodologies and content, there was also a noticeable lack of diversity amongst the committee members themselves. He suggests that especially in relation to national committees that are developing policies and goals for the future in relation to mathematics education and research where recommendations are made explicitly about African American students, the fact that no African American scholars were on the panel, referenced in the report, or listed as an expert maintains a white institutional space which continues to privilege certain knowledge about racialized students (Martin, 2008, 2009a). This manner of gatekeeping suggests a continuing trend of how knowledge about African American and other minoritized students are viewed at the federal policy level, and will be explored in more detail in the section about mathematics education policy research.

More often, researchers looking at the gatekeeping perspective of mathematics, use an equity lens to focus on how topics such as race, racism, racialization, poverty, gender, language, dis/ability, and immigration status have an impact on student learning. Given that my research is focused on the impacts of racism in mathematics education especially on students of African American decent, I provide an overview of the research directly focused on race and racialized experiences within mathematics education. Additionally, noting the importance of intersectionality to the analysis of race at the federal policy level, I also engage with research which teases out the distinctions between how race and class have an impact on mathematics teaching, learning, and research. Although there are multiple other intersections also important

to research in relation to race and mathematics education, discussions of gender and language, for example, are beyond the scope of this project and so will not be covered.

One way that researchers using an equity lens focus on race is to highlight a particular teacher or mathematics department that is successfully working to help racialized students achieve in mathematics (Gutiérrez, 2000; Ladson-Billings, 1997). Additionally, there are researchers who look at how racialized students interact with mathematics (Berry, 2004, 2008; Berry, Ellis, & Hughes, 2014; Davis et al., 2007; Gutstein, 2003, 2007a, 2007b; Moses & Cobb, 2001). Several of the articles that identify the importance of acknowledging racialized students' successes within mathematics education, do so through the theoretical lens of CRT by centring the voices of African American males specifically (Berry, 2004, 2008; Stinson, 2013). In particular, Eric Gutstein (2003, 2007a, 2007b) who works with Latin@ students to make the mathematics in the classes he teaches relevant to questions that these students have about the world around them. By initiating this process, Gutstein (2003, 2007a, 2007b) legitimizes the knowledge that the students bring to the classroom, and through what he refers to as a social justice lens helps these same students have an impact on the world around them. A second way that researchers look at how students interact with mathematics is to look at the larger structure of schooling and how racialized students are placed within that structure. This research involves highlighting historical and cultural mechanisms that continue to impact the perception of racialized students within the school system. The goal of this research is to alter historical patterns of disenfranchisement and create spaces for racialized students to succeed in mathematics education, work that is exemplified by the Algebra Project (Davis, et al., 2007; Moses & Cobb, 2001; Oakes, 2005; Solórzano & Ornelas, 2002). Historical patterns are also viewed by looking at how teachers and researchers view students of African American or

minoritized descent through the lens of deficiency. Research in this vein takes time to not only acknowledge that deficit narratives exist, but unpacks the loaded terminology that is often used in reference to these groups of students (Shah, 2017; Stinson, 2006). In relation to my research these particular articles outline some of the many and varied ways in which the master-narrative functions within mathematics education.

Intersectionality is represented in mathematics education research through the recognition and combination of multiple areas of equity research that are often kept separate or distinct. Despite many researchers recognizing the importance of intersectionality, the intersectional analysis often seems added on to research, rather than the purpose of the research. One example is Gutstein's (2012) discussion of his work with minoritized students in Chicago, where he notes that through particular topics they engaged with in their mathematics class, many students were able to see the ways in which race, class, and gender were important in relation to topics of displacement and HIV/AIDS. Although the author does mention that some students were still prone to suggest that the outcome of the HIV/AIDS project was more a result of individual choices that led to contracting HIV/AIDS, rather than being able to acknowledge the raced, classed, and gendered patterns that existed (Gutstein, 2012). An important study to ground my research is an article by Sarah Lubienski (2002) that looks at race and class in relation to NAEP achievement scores. While she goes to great lengths to acknowledge that none of her work proves causality, she does suggest that based on the data she is using, that although class distinctions provide an explanation for most of the differences in test scores it does not explain all of the difference. In particular, areas in relation to student impression of what mathematics is, as either a place to memorize facts or to take multiple choice tests, suggests that White and Black self-identified students experience mathematics classes very differently.

The importance of understanding how race, racism, and racialization are used in studying mathematics education is a crucial and timely subject. It provides a lens to see what work needs to be completed. Acknowledging the themes in current research assists in highlighting many of the gaps that exist in mathematics education research around race. Additionally, it provides an impetus to understand how the educational, policy, and social problems, outlined in the introduction, are present within extant research in mathematics education.

Overall the equity investigations highlighted above seek to uncover the context behind legislation, policies, reports, and their implementation. Additionally, they problematize existing rhetoric, such as the use of the term "achievement gap", in order to scrutinize why particular policies are put into place (Apple, 2000, 2004; Carlson, 1993; Darling-Hammond, 1992; Fusarelli, 2002; Giroux, 2000; Hess & McGuinn, 2002; Opfer, 2006). The goal of this research is to substantially change policy, curriculum, and practice in mathematics education by altering the lens through which policy makers and educators view particular aspects of public schooling. Ultimately, to achieve such change, they "move the discussion of equity beyond treatments limited to achievement scores and course-taking patterns among racial groups, women, and language minorities by considering the social and cultural processes by which equity (or lack thereof) is defined, created and maintained" (Nasir & Cobb, 2007, p. 6). In sum, equity research as a whole is motivated to determine why legislative and policy mandates are put into place, but does not necessarily deal with policy mandates themselves, which is covered below.

Mathematics Education Policy

The following sections review more main stream mathematics education literature that does not highlight equity but focuses on the implementation of policy in mathematics education. Understanding and determining how teachers take up education legislation and policy represents

the majority of literature that engages with mathematics education policy. Policy analysts in mathematics education are particularly concerned with policy and the relevant mandates for mathematics education, such as the requirement that all students become 100% proficient in mathematics by the year 2014 as stipulated in NCLB (Meier & Woods, 2004). This research includes comparing student assessment scores to determine if students have reached a defined level of proficiency on particular assessments (Carroll, 1997; Riordan & Noyce, 2001), and exploring the framework used by policy makers to determine what attaining proficiency means (Apple, 2000, 2004; Darling-Hammond, 1992).

One area of research in policy is monitoring and reporting which strives to stimulate discussion of student test scores. With the passage of NCLB, monitoring and reporting research has gained prominence since the proficiency requirements provide a lot of data that needs to be organized. Typically this research centres on how well students are able to accomplish the achievement goals outlined in a policy. The standard method is to compile all student test scores, disaggregate the data to compare particular group scores, such as by gender, race, or socioeconomic status, and attempt to determine which group or groups of students perform better as a result of the policy's implementation. Most studies rely on test scores derived from the use of standardized national or state tests for their comparisons (Carroll, 1997; Fuson, Carroll, & Drueck, 2000; Harwell, Post, Maeda, Davis, Cutler, Andersen, & Kahan, 2007; Huntley, Rasmussen, Villarubi, Sangtong, & Fey, 2000; Post, Harwell, Davis, Maeda, Cutler, Anderson, Kahan, & Norman, 2008; Price, 2010; Reys, Reys, Lapan, Holliday, & Wasman, 2003; Riordan & Noyce, 2001; Stiefle, Schwartz, & Chellman, 2007; Wei, 2012).

There are also researchers who believe that accountability measures are limited and the monitoring and reporting of achievement needs to be carefully considered. For example, an

alternative characterization of increased achievement from one year to the next could be due to "increased rates of failure of students in Grade 9 and increased numbers of students leaving school before high-school graduation" (Haney, 2004, p. 84) giving the illusion that achievement has increased. If the accountability system only considers Grade 10 achievement scores and compares Grade 10 enrollment with high school graduation numbers, then any student who drops out in Grade 9 would never be counted towards a school's overall achievement scores. Thus, there is a distinct possibility that accountability measures do not provide the information sought after by policy makers. Overall, research in this vein is concerned that assessment comparisons do not provide a full picture of student achievement, and as such, should not be the only basis for which proficiency or accountability are determined (Haney, 2004; Hiebert, 1999; Klein, 2004; Lawson & Suurtamm, 2006; Newton & Kasten, 2013; Smith, & Star, 2007). In particular, in relation to the equity goals and research described earlier, while race is considered a category for the disaggregation of data, little else in relation to racial hierarchy or bias are considered in these studies, thus suggesting a way in which policy analysis within mathematics education is lacking in its ability to take race into consideration.

Feasibility research focuses on determining if suggested policy outcomes can be attained in practice. Following the passage of NCLB by the federal government, feasibility research has focused on whether or not schools, districts, or states are able or capable of meeting specific requirements in the legislation. Some research on this topic questions whether or not expectations set by state and federal governments for student proficiency in mathematics can be met given the short timeline outlined for all students to meet proficiency in mathematics and the limited funding provided by the legislation (Alexander, 2006; Borg, Plumlee, & Stranahan, 2007; Dorn, 2007; Koyama, 2012; Meier & Woods, 2004; Price, 2010; Stiefel, Schwartz, & Chellman,

2007). Other research starts with an investigation of the context in which proficiency is determined. The context is considered through many platforms including such ideas as excellence in education, ideas of returning back to basics, progressive education, business goals, or neoliberal market concerns, by looking at the use of political rhetoric. After defining the context in which the researcher views proficiency, there is consideration of why a particular policy was put into place. The goal of this research is to point to elements of the political process that prompt concerns for proficiency outside of the goals of educating students. For example, pointing to instances where business goals or competition, which rely on incentives to achieve a desired result, may be at odds with the purpose of education (Apple, 2000, 2004; Carlson, 1993; Darling-Hammond, 1992; Fusarelli, 2002, 2004; Giroux, 2000; Hess & McGuinn, 2002; Opfer, 2006). The main obstacle for feasibility research is that it is inherently based on the framing of students who are not proficient as being deficient in some way, thus perpetuating the master-narrative and working against many ideals and definitions of equity elaborated on earlier.

Standards.

Whereas research on monitoring and reporting and feasibility deal with the implementation of federal education policy as it relates to mathematics education, research on the standards movement deals almost exclusively within mathematics education research and practice itself. Research around standards looks at both the educational reform movement called the standards and the mathematics education specific *Standards* (NCTM, 1989, 2000) documents. Some of this research entails addressing how the *Standards* relate to teachers' experiences and the different ways in which assessment and testing are entangled with the *Standards*. While other research attempts to unravel the context of standards, including the impetus for standards-based reform and the original vision underlying the *Standards* documents.

The first area of research that I will cover pulls together several strands of research that centre around teachers meeting the *Standards*. This includes research on teaching to tests that are geared towards the *Standards* (Welsh, Eastwood, & D'Agnostino, 2014), how research supporting the *Standards* should be conducted (Carnine & Gersten, 2000; Hiebert, 1999; Smith & Star, 2007), and attempting to gauge how well teachers are able to meet the *Standards* in their teaching (Jacobs, Hiebert, Givvin, Hollingsworth, Garnier, & Wearne, 2006; McCaffrey, Hamilton, Stecher, Klein, Bugliari, & Robyn, 2001; Ross, McDougall, Hogaboam-Gray, & LeSage, 2003). Another focus of standards research is how the *Standards* have had an impact on students through the comparison of student test scores. These researchers are specifically comparing student test scores to determine if those students who studied with the standards-based curriculum outscore those students who were taught using a traditional curriculum. The purpose for this research is to show that the standards-based curriculum and pedagogy are superior to the traditional alternative (Fuson, Carroll, & Drueck, 2000; Harwell, Post, Maeda, Davis, Cutler, Andersen, & Kahan, 2007; Huntley, et al., 2000; Post, et al., 2008; Reys, et al., 2003; Riordan & Noyce, 2001; Wei, 2012). In addition to comparing student test scores, comparing assessments with the *Standards* documents to determine if the *Standards* are accurately reflected in the assessments is another focus. The ultimate goal of this research is to illuminate if assessments are capable of testing the topics that the *Standards* suggest are important for students to master, or if they only test the same material as traditional assessments (Alberts, 2001; NCTM Research Committee, 2013; Newton & Kasten, 2013). Overall, the first three areas of research around the standards that I have covered is meant to investigate the use of the NCTM *Standards* to determine if the *Standards* are well implemented and that testing is accurately reflecting standards-based reform.

Shifting focus to a more structural analysis of standards within mathematics education, some researchers focus generally on why standards have been put into place and what the overall impact of standards-based reform is on K-12 education. They review literature on standards in several subject areas and discuss how standards generally, and the assessments that come with them, have altered the teaching and learning landscape in schools (Hamilton, Stecher, & Yuan, 2008; Pearcy & Duplass, 2011; Winstead, 2011; Wixson, Dutro, & Athan, 2003). Another area of research is the development and creation of the NCTM *Standards* documents where researchers aim to provide the context surrounding the *Standards*. Most of the articles were written by members, executive members, or writers of the original *Standards* documents, either in 1989 or 2000. This literature tends to focus on what the authors thought the purpose of the *Standards* were as they were being written. Thus providing multiple perspectives behind the development of the *Standards,* as well as the process through which the NCTM, as an organization, took to ensure that consensus was reached across all levels of membership (Crosswhite, Dossey, & Frye, 1989; Gates, 2003; Lindquist, 2003; Romberg, 1992; Schoenfeld, 2002). Finally, some researchers question the larger purpose of the *Standards* within education and political spheres. This involves the presentation of the perceived purpose of the *Standards*, followed by the ways in which the *Standards* could favour additional ends if used in a particular way (Apple, 1992a, 1992b, 2000; Darling-Hammond, 2004; Koyama, 2012). Overall, researchers concerned about standards generally, and the *Standards* documents specifically, would like to ensure that the context of standards is well understood, including the implications of the *Standards* documents and their impact on educational reform.

One of the issues with the research completed in monitoring, reporting, and feasibility is the lack of recognition or acknowledgment about how the entire NCLB policy, for example,

positions mathematics education within all of the subjects required for K-12 education.

Additionally, there is no discussion about the problematic process of only dealing with race, racism, and racialization as they relate to the disaggregation of data. This is not to say that the research completed in monitoring, reporting, and feasibility is not important, it is to suggest that this research should not be the only, or even the majority, of research in mathematics education. Alternatively, since I am using CRT as a part of my theoretical framework, which involves bringing the humanity to the process of research, there must be an acknowledgment that the data acquired about racialized students and their performances on mathematics assessments has consequences at various levels throughout the K-12 school system. Additionally, because I am using governmentality, there is a need for research to distinguish the ways in which power works through technologies like assessments to perpetuate the master-narrative that racialized students are not able to achieve in mathematics.

Chapter Four: Methodology

1989 the number another summer, get down
Sound of the funky drummer
Music hittin' your heart, 'cause I know you got soul
Brothers and sisters
Listen if you're missin' y'all
Swingin' while I'm singin'
Givin' whatcha getting'
Knowin' what I know and
While the black bands sweatin'
And the rhythm rhymes rollin'
Got to give us what we want
Gotta give us what we need
Our freedom of speech is freedom or death
We've got to fight the powers that be
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
We've got to fight the powers that be
As the rhythm designed to bounce
What counts is that the rhymes designed to fill your mind
Now that you've realized the prides arrived
We got to pump the stuff to make us tough
From the heart, it's a start, a work of art
To revolutionize, make a change, nothin's strange
People, people, we are the same
No, we're not the same, 'cause we don't know the game
What we need is awareness, we can't get careless
You say what is this?
My beloved, let's get down to business
Mental self defensive fitness
Yo, bum rush the show
You gotta go for what you know
To make everybody see
In order to fight the powers that be
Lemme hear you say
Fight the power
Lemme hear you
Fight the power

Lemme hear you say
Fight the power
Lemme hear you
Fight the power
Lemme hear you say
Fight the power
Lemme hear you
Fight the power
Lemme hear you say
Fight the power
We've got to fight the powers that be
Lemme hear you say
Fight the power
Lemme hear you
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you say
Fight the power
Lemme hear you
Fight the power
Lemme hear you say
Fight the power
We've got to fight the powers that be
Elvis was a hero to most
But he never meant shit to me you see
Straight up racist that sucker was
Simple and plain
Mother fuck him and John Wayne
'Cause I'm black and I'm proud
I'm ready and hyped plus I'm amped
Most of my heroes don't appear on no stamps
Sample a look back you look and find
Nothing but rednecks for four hundred years if you check
Don't worry be happy was a number one jam
Damn, if I say it you can slap me right here
Let's get this party started right
Right on, c'mon, what we got to say
Power to the people, no delay
Make everybody see in order to fight the powers that be
Fight the power
Fight the power
Fight the power
Fight the power
We've got to fight the powers that be

~Public Enemy, *Fight the Power*, 1990

Fight the Power, written and performed by Public Enemy is the ideal track to foreground my discussion of methodology. First, the literal message from the title of the song which is subsequently repeated throughout is that we need to fight the power, especially when the power being considered limits people's rights. Furthermore, the message sent through the lines "we need awareness" and "make everybody see" is a call to understand and a desire to help others see racism and how it manifests through music, entertainment icons, and the problematic nature of statements such as, "don't worry, be happy" (Caplan, 2012). More to the methodological point, David Caplan's (2012) essay, entitled *The Art of Rhymed Insult*, points out how the use of particular rhyming structures in the verses together with the vocabulary choices made by the rappers and the assertiveness that they use to make their claim, insult and cause injury to Elvis Presley's legacy in such a way that it embodies the anger they feel, condemns him, and leaves no space to question the claim made by the rappers. In an even more subversive move, "the technique adds a persuasive rhetorical force that may escape the reader's conscious attention" (Caplan, 2012, p. 121). This act of hiding intention behind the presentation of vocabulary and within a sea of rhetorical forms illustrates the relationship between the song and chapter, as in the following pages I outline the ways in which I have decided to break down the rhetorical structures of legislation in order to demonstrate the subversive nature of how race and racism are encapsulated.

Historical analysis is largely missing from mathematics education research. Research tends to emphasize the current context of mathematics education while overlooking the historical decisions that brought about and have limited that context. Due to this gap in understanding, I am endeavoring to delve into the history of mathematics education decision-making, legislation, and policy to analyze the ways in which past decisions are influencing the current context of

mathematics education research and scholarship. In order to ensure this research is a historical analysis and not just a historical narrative, I will be relying on Ian Hacking's (2002) understanding of historical ontology as the foundation for my methodology. To that end, the remainder of this chapter outlines my understanding of historical ontology and why it works so well within my theoretical framework, followed by introductory comments on the methods I used to gather my data, ending with limitations and delimitations of the work.

What is Historical Ontology?

The purpose of using historical ontology in this study is to provide a reflexive and critical analysis of achievement as accountability in mathematics education. This will allow for an examination of the ways in which achievement is used in policy to impede societal possibilities for existence while acknowledging the power that words have to influence action (Has, 2015, p. 32). According to Waidzunas (2012), historical ontology

> denotes a kind of study that traces the simultaneous construction of kinds of people, the scientific facts that describe them, and the ways in which such concepts are materialized within institutions. … This kind of analysis offers the opportunity to denaturalize a concept, to realize its cultural and temporal specificity, and to raise questions about its universality. (p. 203)

I contend that historical ontology, as theorized by Waidzunas, is best framed within the concept of equity, as this amalgamation of historical ontology with equity will enable this research to determine the coming into being of the idea of achievement as accountability.

While historical ontology is derived from Foucault, it was an idea that Foucault presented at the end of his life and has not been heavily developed since his passing (Hacking, 2002).

Therefore, I will be relying on Hacking's interpretation and use of Foucault's original idea that he called "the historical ontology of ourselves" (Foucault, 1984, p. 46). To that end, Hacking presents the idea of historical ontology in two of the books that he has written. In *The Social Construction of What,* Hacking (1999) examines child abuse and delineates what he terms "kind-making" (p. 128) wherein the act of labelling something as child abuse alters the ways in which people can see themselves constructed in the world. He also explores how the looping effect, similar to the idea of a self-fulfilling prophecy, where once a person is labeled they are then influenced by that label and can begin to see themselves through the lens of the label. Once they see themselves defined by a label, they then begin to act on the world according to that label, and perhaps in a way that they otherwise would not have acted. This process of both kind-making and looping have been taken up by several authors to show how various labels have impacted groups of people in particular ways (Campbell & Stark, 2015; valentine, 2007; Waidzunas, 2012).

Building on the ideas of kind-making and looping, Hacking (2002) uses *Historical Ontology* to outline a much larger project. He suggests that

> [a]t its boldest, historical ontology would show how to understand, act out, and resolve present problems, even when in so doing it generated new ones. At its more modest it is conceptual analysis, analyzing *our* concepts, but not in the timeless way for which I was educated as an undergraduate, in the finest tradition of philosophical analysis. That is because the concepts have their being in historical sites. (Hacking, 2002, pp. 24-25, emphasis in original)

Essentially, he is calling for the use of history, its temporal context, and the historical conceptions of an idea to assist in understanding how terminology can be used to limit an

individual's or a group's possibilities for being in the present. Hacking (2002) further elaborates that the purpose of using historical ontology is not to fall into the trap of previous philosophers who thought that by understanding the origins of a problem they would be able to solve it. Instead, he argues that any issues that existed prior to the analysis will not actually dissipate once the problem is found, "but [through historical ontology] I can show *why* these matters are problematic, whereas before we knew only *that* they were problematic" (Hacking, 2002, p. 71, emphasis added). In other words, the larger project of historical ontology is to move beyond particular instances of one label, and look for patterns throughout history that have led to limited possibilities and options for people in the present.

Why Historical Ontology?

As a qualitative research project aimed at the dis-closure of what lies at the heart of the idea of achievement as accountability, my conception of historical ontology lies within interpretivism. Where interpretivism "looks for culturally derived and historically situated interpretations of the social life-world" (Crotty, 1998, p. 67), historical ontology does this by de-mystifying current conceptions of the idea of achievement, and uncovering ideological functions of these ideas. Through this process, there can be a complete dis-closure of what achievement is, leading to the possibilities of a new construction (Has, 2015). In Foucault's (2008) own words it is

> not a question of showing how these objects were for a long time hidden before finally
>
> being discovered, nor showing how all these objects are only wicked illusions or
>
> ideological products to be dispelled in the [light] of reason finally having reached its
>
> zenith. It [is] a matter of showing by what conjunctions a whole set of practices – from
>
> the moment they become coordinated with a regime of truth – [are] able to make what

does not exist (madness, disease, delinquency, sexuality, etcetera), nonetheless become

something, something however that continues not to exist. That is to say, what I would

like to show is not how an error – when I say that which does not exist becomes

something, this does not mean showing how it was possible for an error to be constructed

– or how an illusion could be born, but how a particular regime of truth, and therefore not

an error, makes something that does not exist able to become something. It is not an

illusion since it is precisely a set of practices, real practices, which established it and thus

imperiously marks it out in reality. (p. 19)

Therefore, historical ontology takes the ideas of power and knowledge that are so fundamental to

governmentality and links them to a methodology that allows for an historical interpretivism that

relates the historically situated elements to the present circumstances to assist in elucidating a

path forward. This further illustrates the sociopolitical turn described by Rochelle Gutiérrez

(2013) where research should be acknowledging that "knowledge, power, and identity [are]

interwoven and arising from (and constituted within) social discourses" (p. 40). The importance

of the sociopolitical turn to my proposed research is that it would be a way to uncover taken for

granted elements of legislation and policy that privilege some students while disadvantaging

others. Thus, the sociopolitical turn would assist in bringing to light the specificities of how

mathematics education research and teaching is inherently and always political. Additionally,

historical ontology is able to highlight many of the elements of CRT, including uncovering taken

for granted dominant ideologies, working towards the goal of empowering groups that have been

subordinated, and providing an additional level to the transdisciplinary perspective of how

discourses around race and achievement have been framed historically within legislation.

Methods: Researching Achievement as Accountability

This study relied on historical ontology as the methodology, and with this in mind, I analyzed publicly available documents that functioned at the national or federal level in relation to mathematics education. There are two relevant but distinct areas of policy that I rely on and elaborate on below. The first is the legislation, where I recount the history of the *Elementary and Secondary Education Act of 1965* (ESEA). The second area that I draw policy documents from is mathematics education, where I rely on *A Nation at Risk*, the NCTM (2000) *Standards*, and the *Common Core State Standards* (2010). Below I describe my process for choosing these documents, and how I initially began to focus my research on particular sections. However, the presentation below is merely an introduction, as the majority of my methods are described within my findings in Chapters Five and Seven.

The method used to collect the first set of data is Critical Discourse Analysis (CDA) which allows for a way to search for and analyze the underlying ideology inherent in education discourse (Fairclough, 2010). In this way, policy analysis is able to look beyond the explicit rhetoric within the policy, including determining if present policy is in keeping with previous trends (Atkins & Wallace, 2012). More specifically for this research, CDA works within CRT and governmentality to recognize and elaborate on the existence of race and racial terminology, as used in governing documents and which then influence action that occurs in K-12 classrooms. Below I outline exactly how I used CDA to choose documents to analyse, words to search for, and my research questions to help focus my later analyses.

The Legislation: Race

I began my data collection by reading through ESEA and searching through the most recent reauthorizations of ESEA, more commonly known as IASA, NCLB, and ESSA.

However, it soon became clear that only referencing these four documents left a huge gap in my knowledge of how racial terminology had changed throughout the various iterations of ESEA, especially since the 1965 legislation did not use any terminology around race whatsoever. Given this, I eventually acquired copies of all public laws, except one, and proceeded to search through all 13 of the available public laws, shown to be reauthorizations of ESEA. To begin my searches through the legislation I originally did a word search for the term race, then based on my reading of the subsections, I slowly developed a list of terminology, common to the legislation, which was related to ideas around race in the U.S. This included terms like black, Negro, African American, and color which are terms closely related to the racialized experiences of Blacks in the U.S.; terms such as minority and diversity which are often considered code words for talking about race; and finally terms such as segregation, desegregation, and integration because they are linked with discussions of undoing the impact of Jim Crow laws in the southern U.S. states which is important to the story of how students racialized as Black are framed within the legislation. The process of finding and searching for specific terminology and their various derivatives was an iterative process that often involved finding a term, reading the relevant subsection, locating a new term, and re-searching through the legislation. In the end my list of relevant terminology was as follows: race, racial, black, African American, Negro, color, minority, diversity, segregation, desegregation, and integration. The purpose of this initial stage of the research was to see how the use of particular terminology, used in particular ways, frames race in relation to the experience of racialized students in K-12 education. To help narrow my focus, I eliminated all mentions that were:

- Used in headings because they are not substantive;

- Used in relation to the three identified Indigenous populations, Indian, Alaska Native, and Hawaiian Native, as the history and ways in which race impacts Indigenous students has additional complexities that would need to be dealt with in addition to race itself;

- Used in relation to the intersection of language and race, especially in sections such as the Bilingual Education Act, since the intersection of race and English language learning also has additional complexities that go beyond race;

- Used to describe the intersection between race and gender, since again these sections deal with a complex intersection of identities that I believe deserve their own analysis;

- Used to discuss increasing parental involvement in K-12 schooling, since it is not directly about the student experience within K-12 schooling, but targeted towards assimilating parents into the system;

- Used in relation to the diversity requirements for the make-up of various committees, as this has little to do with the experience of racialized students in K-12 schooling; and

- Used in relation to adult learning, post-secondary learning, court proceedings, hiring outside of K-12, and other miscellaneous mentions that did not deal with the experience of schooling for racialized students.

By doing this, I would then be able to better understand how the framing of racialized students was positioned within the overall policy rhetoric of equity, achievement, and accountability, and do my best to eliminate other elements of identity that may be intersectional, which also leaves potential for future research possibilities. This is not to suggest that other

elements of identity such as gender, language and Indigeneity are unimportant, however, given that the initial passing of ESEA required the existence of the *Civil Rights Act*, suggests that race as it relates to the Black community is vital to understanding how racialized students are positioned overall. This choice of method does not allow for pulling apart my methods from my findings; therefore, instead of providing a separate section, I have elaborated within the findings presented in Chapter Five on the methods I have used to complete this process.

The Legislation: Mathematics

My search for mathematical terminology was completed in an effort to fill some of the holes I found after completing my data collection and discussion around racial terminology. To complete this analysis, I also relied on CDA, as described above. Further to this, I searched through the same pieces of legislation outlined above in the section on legislation. The main distinction being that instead of searching for racial terminology, I exclusively searched for the term math. This round of data collection would allow for an understanding of the similarities and differences between those sections about both race and mathematics and those sections only about race. A more thorough description about the process followed to complete this search is provided in Chapter Seven.

The Mathematics Education Community

During the completion of my CDA data gathering and analysis, I determined that further information with regard to the national policy documents that guide the mathematics education community would be beneficial. Therefore, in addition to CDA, I also used PDA (Fairclough & Fairclough, 2012) to examine *A Nation at Risk* (NCEE, 1983), the NCTM (2000) *Standards*, and the *Common Core State Standards* (2010). As a method of inquiry, PDA focuses on argumentation in policy networks (Fairclough & Fairclough, 2012). By focusing on

argumentation, PDA "is concerned with understanding the nature and function of political

discourse and with critiquing the role discourse plays in producing, maintaining, abusing, and

resisting power in contemporary society" (Dunmire, 2012, p. 736). Therefore, by pulling apart

the elements of an argument, PDA will allow me to deconstruct policy to determine the goal(s),

value(s), consequences, and claims for action represented therein (Fairclough & Fairclough,

2012). The process of deconstruction will also allow for the ability to ask questions of the

policies and the motives and values presented within the discourse and vocabulary used. As a

way to illustrate how I employed PDA to deconstruct each of the policy documents mentioned,

refer to Figure 3 below and the questions that I asked of each document in order to ascertain how

and if race has been positioned within the policies.
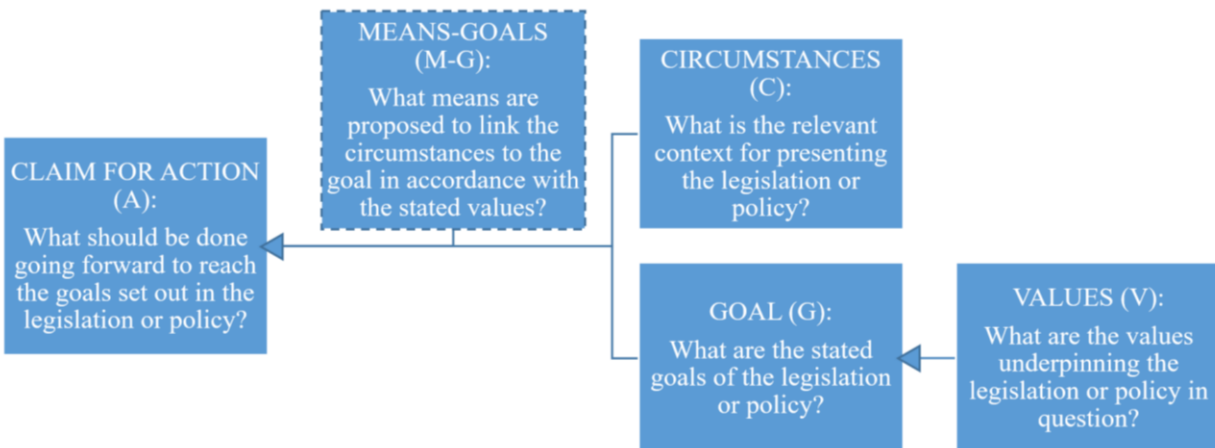
Figure 3. The structure of political reasoning adopted from Fairclough and Fairclough (2012, p. 48).

Interpretive qualitative analysis is a fluid and ongoing process. This process involves a

constant comparison and movement between the data being collected and the analysis of the data

that is occurring (Basit, 2010; Creswell, 2012; Merriam & Tisdall, 2015). Since interpretive

qualitative analysis is fundamentally interested in the construction of meaning, analysis focuses

on finding themes within the data gathered (Merriam & Associates, 2002). As I engaged with

particular documents, analysis began with the reading of the first sentence and continued throughout the data gathering period. In addition to the interpretive qualitative analysis process, I also relied on my theoretical framing of both CRT and governmentality to assist in defining areas of importance and further consideration as I carried out the data gathering and analysis portions of my research. Throughout the data gathering process, there were a number of processes that I used to help define meaning including, "counting the frequency of occurrences; noting patterns and themes; looking for plausibility; clustering, categorizing and classifying data; using metaphors to reduce the data; splitting the themes to elaborate on and differentiate between them; considering particularities and generalities; identifying relationships between themes; and explaining phenomena by moving from metaphors to constructs to theories" (Miles & Humerman, 1994 in Basit, 2010, p. 186).

Limitations and Delimitations

Since mathematics education is a large field and each state has their own policies for education, there was a need to set boundaries around the information I planned to analyse. To that end, this research is delimited to legislation and policies that have had a direct impact on teachers, curriculum, assessment, and students, as related to mathematics education in the U.S. More specifically, I engaged with all reauthorizations of the ESEA legislation as well as the report *A Nation at Risk* (NCEE, 1983), the NCTM (2000) *Standards*, and the *Common Core State Standards* (2010). The study is limited to areas of intersection with ideas of "race", as well as with poverty to some extent, although other areas of intersection such as gender, language, Indigenous status, and dis/ability are beyond the scope of this research project. This set of limitations in relation to intersectionality are of great importance to the discussion of "race" and mathematics; however, each topic brings an additional set of histories and knowledges that

would need to be taken into consideration and would, thus, weaken my ability to deal with them

in a careful and thoughtful manner as should be.

Chapter Five: Findings: The Legislation

Southern trees bear strange fruit
Blood on the leaves and blood at the root
Black bodies swinging in the southern breeze
Strange fruit hanging from the poplar trees.
Pastoral scene of the gallant south
The bulging eyes and the twisted mouth
Scent of magnolias, sweet and fresh
Then the sudden smell of burning flesh.
Here is a fruit for the crows to pluck
For the rain to gather, for the wind to suck
For the sun to rot, for the trees to drop
Here is a strange and bitter crop.

~Billie Holiday, *Strange Fruit*, 1939

Although *Strange Fruit* is a short song, the haunting way in which Billie Holiday sings this song together with the imagery that the lyrics portray, come together to make a very bold statement of race relations in the U.S. This song is a unique choice amongst those that I have selected because it was written by a White Jewish man named Abel Meeropol, however, I include it here for a multitude of reasons. First, because the imagery invoked within the lyrics is about the author's reaction to seeing a picture of a Black man who was lynched, that haunted him, thus the topic of the song's lyrics are important to the context of racism in the U.S. Second, this song is most frequently associated with Billie Holiday's rendition, and in a similar way, she is most often known by the performance of this song. So while she is not responsible for writing the lyrics as such, her association with the performance of this song is very strong. In fact, many do not realize that Holiday was not the writer of the song. However, part of the power behind this song comes from the context of Holiday's first performance in 1939, a time when Black performers were entertaining White audiences, but were not allowed to mingle with the White patrons after their performances. In fact, Black performers often had to enter the establishment

in which they were performing through alternate entrances or freight elevators, so as not to disturb the White guests. Additionally, although this song is not from the time period that I am engaging with in my research, it is a precursor, linked to the master-narrative as Holiday's personal protest against the racism and sexism that she experienced (Hobson, 2008). Hobson (2008) suggests that "once [the] silence has been broken, [Black women's] singing transcends as an act of resistance, altering the political landscape" (p. 448). This idea, together with the lyrics from the song itself, foreground changes that came with the Civil Rights movement, and in that way I find it appropriate to lead off my data gathering. The information that I uncover about how race is framed within federal education legislation, foregrounds the actions of those who interpret and implement the policy. Thus, in outlining how racial terminology is used throughout the history of the legislation, my hope is that the political landscape can be altered to engage with the importance of how race is framed.

In this chapter, I engage with how racial terminology has shifted within the legislation over the 50 years since the *Elementary and Secondary Education Act* (ESEA) become law. More specifically, this chapter outlines the findings derived from my use of CDA to search for racial terminology. I begin the chapter by providing a brief historical outline of the original passing of ESEA as well as some of the major shifts in the legislative history. The historical outline will be followed by the results of my many searches through the legislation, and the beginnings of my analysis. Further analysis with regard to the connections between my findings and Eduardo Bonilla-Silva's (2014) definition of new racism continues into the following chapter.

Overview of ESEA and its Reauthorizations

This section provides a brief overview of the policy history of ESEA and the 13 reauthorizations of the Act since 1965. The purpose of this overview is to provide background on some of the shifts that I found within the language used in the legislation. The overview also informs my analysis and discussion regarding the importance of these shifts in language use. As ESEA and some of its more common reauthorizations, such as NCLB, are well researched topics in their own right, this is not meant as a full review of that literature, but as a brief overview of information necessary to understand part of my analysis.

Research suggests that the passing of ESEA through Congress was the result of a perfect storm of events leading up to the presentation of the Act (McAndrews, 2006; McGuinn, 2006). There are documented attempts since at least 1946 to have more federal money assist the rising number of students entering school starting with the baby boomer generation after WWII (Jennings, 2015b). However, the attempts during John F. Kennedy's (1961-1963) presidency were halted due to the three R's, identified as race, religion, and Reds, where Reds was a reference to spreading communism but was used as a euphemism for federal control of education (McGuinn, 2006; Nelson, 2016). Religion was a bigger problem for President Kennedy, since the legislative issue was whether or not funding would go to parochial schools. Since Kennedy was Catholic, many politicians saw this issue as a conflict of interest. After Kennedy's assassination, President Johnson (1963-1969) was able to overcome that problem by including some, albeit limited, funding for religious schools (Jennings, 2015b). Race was dealt with through the passing of the *Civil Rights Act* in 1964, since the issue prior to 1964 was that Southern Democrats in highly segregated school districts would not vote for legislation if it forced desegregation. However, when Johnson reframed the issue as one related to poverty as

opposed to race, those same Southern Democrats in poor states, needed and could claim some of the money being offered, so they were willing to vote for ESEA. Finally, the issue of federal control over education was dealt with in two ways. First, to assuage the concerns that by passing federal education legislation the federal government was not taking over the states position, each reauthorization has made a statement that the federal government can only make suggestions, but the final use of funds is determined by the states. Additionally, in order to get ESEA passed, President Johnson stated that if there were to be changes in education across the nation, the federal government should provide leadership and strong goals to achieve, but this again would not dictate to the states how the goals should be achieved. Thus by garnering support from very disparate factions that had previously thwarted all attempts to pass general federal education legislation, Johnson was able to get ESEA through Congress.

While Johnson's administration saw the federal government as providing guidance with regard to K-12 education, many of the presidents who followed did not have the same opinion. Immediately after Johnson, President Richard Nixon (1969-1974) believed that the federal government had no place in education. However, Nixon seems to have operated on the basis of just ignoring the problem, rather than issuing a statement to that effect. Research suggests that all he did was veto the budget suggested for later reauthorizations, but they were all overturned when they went back to Congress (McAndrews, 2006). Following Nixon's resignation, President Gerald Ford (1974-1977), had little impact on ESEA beyond signing one reauthorization. President Jimmy Carter (1977-1981) did not drastically change the reauthorization in 1979, except to change the position of education within the federal government structure. This change, raising the Office of Education from being under the Department of Housing, Education, and Welfare, to its own cabinet level position as the

Department of Education has altered the power dynamic in relation to education in the federal government, and was one of the main elements of President Reagan's (1981-1989) run for president in 1980 (McGuinn, 2006). Reagan did not approve of the federal government's role in education at all, and ran on a platform to demote the Department of Education back to its previous position, a claim that he was never able to follow through on, partially due to the increased awareness of the nation to the perils of education that followed the publication of the report *A Nation at Risk* (National Committee on Excellence in Education, 1983).

Following Reagan, the next four presidents, conservative and liberal alike, pushed an agenda for the federal role in education that has altered the original conception considerably. This began with President George H. W. Bush (1989-1993) who did not sign a reauthorization of ESEA, but proposed both national standards and tests in the document *America 2000*. He also held a national governor's summit on education which included then Governor of Arkansas, William Clinton (Jennings, 2015b). These two events would become the basis for President Clinton's (1993-2001) own education agenda during his presidency, and would lead to the ratification of *Goals 2000*. The latter laid the groundwork for the national standards and assessments proposed by President George H. W. Bush and would become a fixture of federal education legislation with the 1994 reauthorization of ESEA more commonly known as the *Improving America's Schools Act of 1994* (IASA). Since the national standards and assessment proposition had been approved through IASA, this laid the groundwork for much of George W. Bush's (2001-2009) presidential education agenda which was put into motion by the reauthorization of ESEA more commonly referred to as the *No Child Left Behind Act of 2002* (NCLB) (Jennings, 2015b). Continuing in the direction laid out by the three previous presidents, President Barack Obama's (2009-2017) reauthorization of ESEA, the *Every Student Succeeds*

Act of 2015, maintained many of the initiatives begun with the initial proposal of national standards and assessments laid out by the first President Bush.

In order to provide a visual representation of this history, Table 2, below, outlines all of the reauthorizations, together with the year they were passed, commonly used abbreviations if any, the president at the time, and the length of each document.

Table 2 *Brief Overview of All Reauthorizations of the Elementary and Secondary Education Act of 1965*

TITLE	ABBREVIATED TITLE	YEAR PASSED	TOTAL PAGES	PUBLIC LAW #	PRESIDENT AT THE TIME
Elementary and Secondary Education Act	ESEA	1965	32	89-10	Johnson
Elementary and Secondary Education Amendments of 1966		1966	32	89-750	Johnson
Elementary and Secondary Education Amendments of 1967		1968	38	90-247	Johnson
Amendments to the Elementary and Secondary Education Act		1970	75	91-230	Nixon
Education Amendments of 1972		1972	147	92-318	Nixon
Education Amendments of 1974		1974	130	93-380	Ford
Education Amendments of 1976		1976	161	94-482	Ford
Education Amendments of 1978		1978	238	95-561	Carter
Omnibus Education Reconciliation Act		1981	20	97-35	Reagan
		1983		98-211	Reagan
Augustus F. Hawkins-Robert T. Stafford Elementary and Secondary School Improvement Amendments of 1988		1988	302	100-297	Reagan
Improving America's Schools Act	IASA	1994	545	103-382	Clinton
No Child Left Behind Act	NCLB	2001	670	107-110	Bush
Every Student Succeeds Act	ESSA	2015	449	114-95	Obama

One of the things often missing from the history and commentary on ESEA and its subsequent reauthorizations, is a discussion of how race and racial terminology within the legislation itself has altered throughout its 50 year history. This is especially important given that so many references make it seem as though the passing of the *Civil Rights Act* in 1964

eliminated all of the racial tension around education (McGuinn, 2006; Nelson, 2016). To that end, and keeping in mind the goal of historical ontology to understand how terminology used in the past can limit the possibilities in the present, the next section describes my findings of the overall trends with regard to how racial terminology has been used throughout all of the reauthorizations.

Shifting Language Over Time

The remainder of this chapter presents my findings from the legislation in relation to the use of racial terminology over time, where each set of findings is based on searches through all 13 reauthorizations. I begin with a basic presentation of the total number of times that each individual term I identified in Chapter Four is used, where each term counted is referred to as a mention. Next I provide a brief discussion of the temporal shifts that occurred in the total mention counts. This is followed by a consideration of commonalities and distinctions between the uses of overt and covert racialized language, which includes a closer look at how the definition of minority group has shifted over three reauthorizations. I conclude with a section analysis that thematically engages with how each mention of racial terminology is used within the legislation.

Total Mentions

My exploration of how racial language was used within the legislation began with a look at the total usage of language within each reauthorization depicted over time. The results from this analysis are displayed in Figure 4 below, where meaningful mentions references substantive uses of each term, essentially eliminating those mentions in headings or margins.
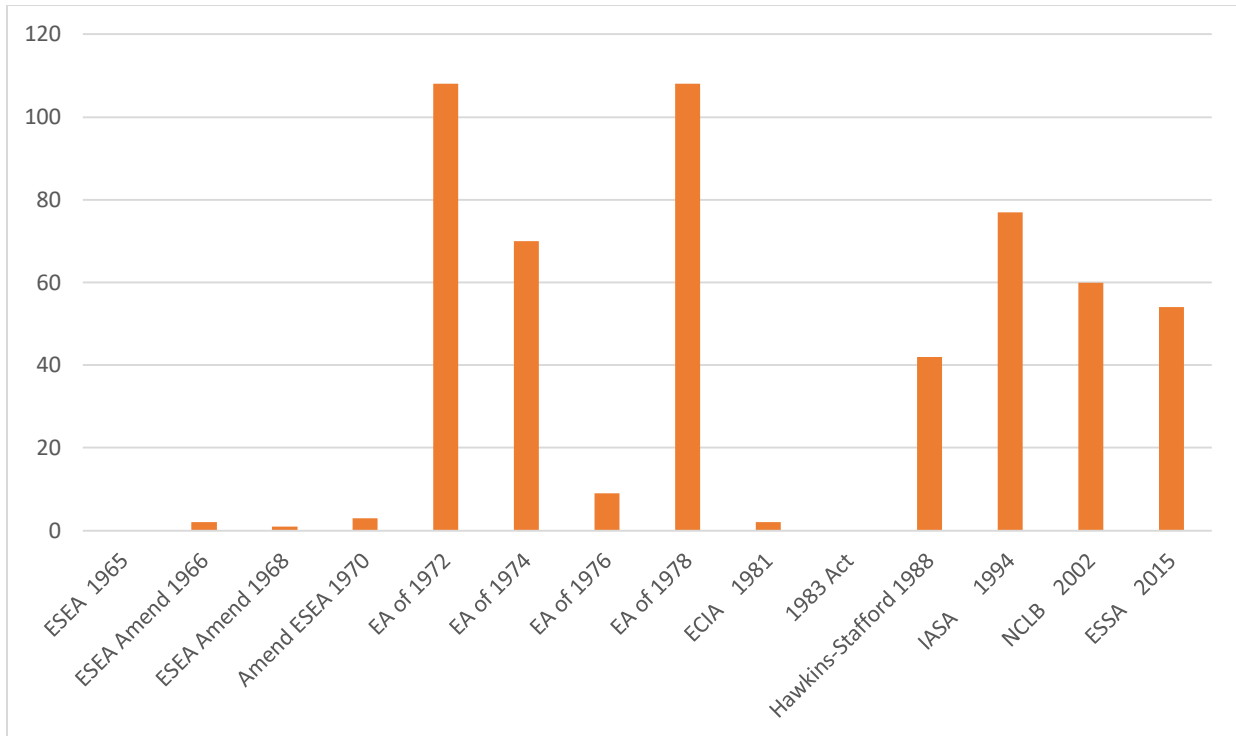
Figure 4. Total meaningful mentions of racial terminology

The most interesting thing about this presentation of the total mentions across reauthorizations is the way in which particular shifts become apparent. Figure 4 clearly shows that there is a drastic increase in the use of racial terminology from the 1970 to the 1972 reauthorization, when the number increases from three to 108. Then from 1978 to 1981 there is another drastic shift from 108 to two. These severe changes led me to delineate four temporal shifts in the way in which racial language is used and shifts across the 50 year history of the legislation, which is described in Table 3 below.

Table 3 *Summary of Temporal Shifts*

Time period	What defines the time period	How race was dealt with
1965-1970	The early years of the legislation	Little about race, 6 total mentions over 4 pieces of legislation
1972-1978	Introduction of the Emergency School Aid Act	Racial language focused on desegregation, segregation and integration
1981-1983	Reagan years	Not really dealt with
1988-present	Post *A Nation at Risk*	Varied, maintains the sections related to the Emergency School Aid Act, but starts to use racial terminology in relation to testing and teaching as well

Initially, the separation began with the two drastic shifts noted above, where the total amount of racial language used within the legislation went from three to 108, and 108 to two respectively. When I searched for an explanation of this phenomenon, I noticed that in 1972 the legislation introduced what it called the *Emergency School Aid Act of 1972* as a section within the reauthorization of ESEA that year. This *Act* had the explicit purpose of acknowledging and attempting to rectify issues around segregation by introducing magnet schools as a way to push money into majority Black urban schools as a counterweight to so-called 'white flight' (Orfield, Eaton, & the Harvard Project on School Desegregation, 1996). While the introduction of the *Emergency School Aid Act* explains the increase in racial language between 1970 and 1972, this does not explain the sudden decrease of racial terminology from 1978 to 1981. To understand

this shift, I had to take into account Reagan's stance on education described earlier. Since

Reagan felt that the federal government had no reason to be involved in education, he passed the

reauthorization of ESEA in 1981 through the *Omnibus Budget Reconciliation Act*, rather than

through a standalone Act which was previous practice. This also explains why the legislation

went from 238 pages to 20 pages. More specifically the legislation states that the goal of the

Omnibus Budget Reconciliation Act is to provide assistance to schools "in a manner which will

eliminate burdensome, unnecessary, and unproductive paperwork and free the schools of

unnecessary Federal supervision, direction, and control" (P.L. 97-35, 1981, p. 108).

Given Reagan's feelings about the federal position in education and the small amount of

data available for his first term in office, I decided that only the first two reauthorizations should

make up the third shift, identified in Table 3. In many ways, these two pieces of legislation

represent a veritable black hole with regard to education legislation since the 1981 legislation is

only 20 pages long and the 1983 legislation does not seem to be publicly available. This

distinction is not without its problems. It would be far easier to keep all three of the

reauthorizations during Reagan's tenure together. However, the 1988 piece of legislation, the

Hawkins-Stafford Act, has more in common with the reauthorizations from 1994, 2002, and 2015

than with the other two during Reagan's tenure. Therefore, it made more sense to include it with

the more recent group of reauthorizations. After making this distinction I was comfortable with

the framing of the shift of language into four time periods as presented in Table 3. They become

a way to situate and talk about some of the other ways that racial terminology shows up in the

legislation as I continue my discussion going forward.

Overt and Covert Language Use: Commonalities and Distinctions

After examining the ways in which the amount of racial terminology changed throughout the legislation, and given that Bonilla-Silva (2014) theorizes that one element of new racism is covertness in racial discourse, I began engaging with how covertness may be displayed in the legislation. To that end, I designated the terms race, racial, black, African American, Negro, and colour as overt terminology and minority, diversity, segregation, desegregation, and integration as covert. This organization denotes a slight shift in my thinking about the distinctions between overt and covert terminology; originally I included colour as a covert term. However, given that many of the simplistic definitions of race rely on comparisons to colour and every single mention of colour used in the legislation was within the same section, and often the same sentence, as a use of the term *race*, I felt that including the term colour within the covert language would skew the results and not be in keeping with how people tend to understand race in relation to colour. In addition to my own rationale, there is also a history of the U.S. Census enumerators relying on skin colour to classify people within a given set of racial categories prior to the 1960s when self-identification came into practice (Vickers & Isaac, 2012). Further to the practices of the U.S. Census, Rodriguez (2000) discusses the complexities of how skin colour also plays a role in how some people self-identify their racial category. I graphed both usages separately to see if they maintained the same basic structure as the overall usage did, and also to see if Bonilla-Silva's (2014) theory rang true. The graphs of the terminology separated by overt and covert usage are below in Figures Figure 5 and Figure 6, respectively.
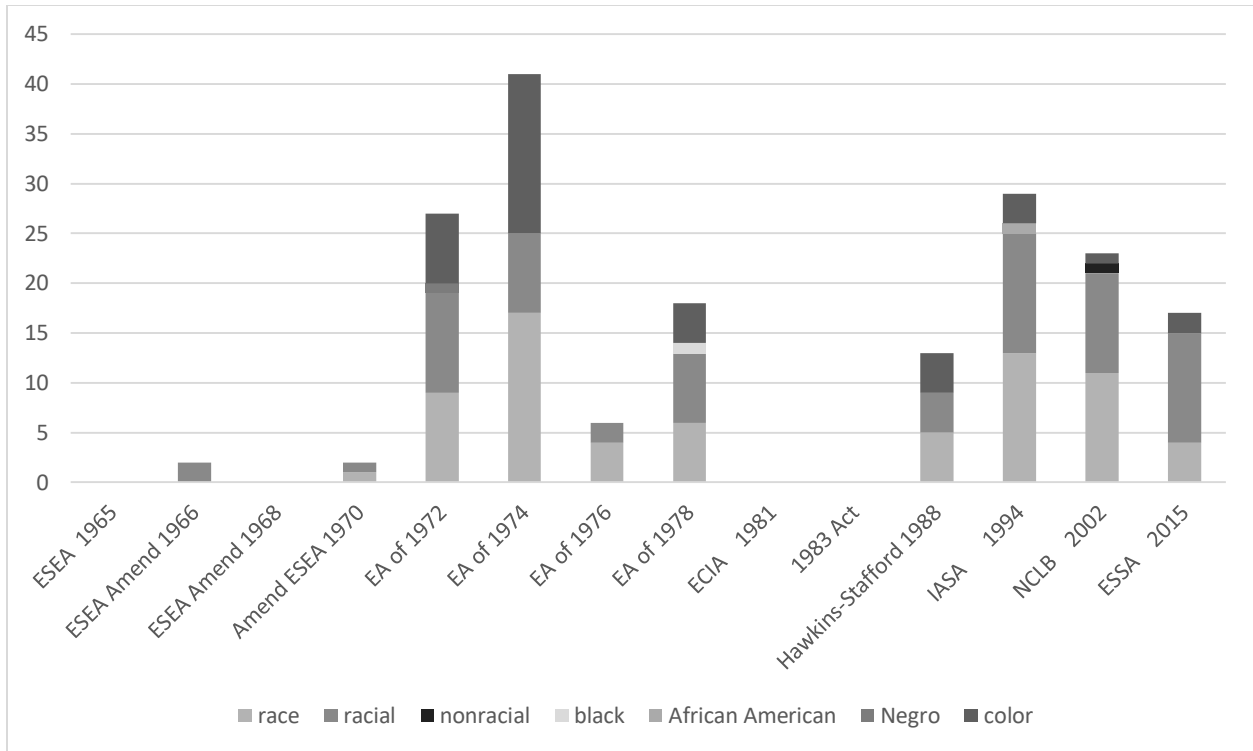
Figure 5. Total overt mentions of racial terminology
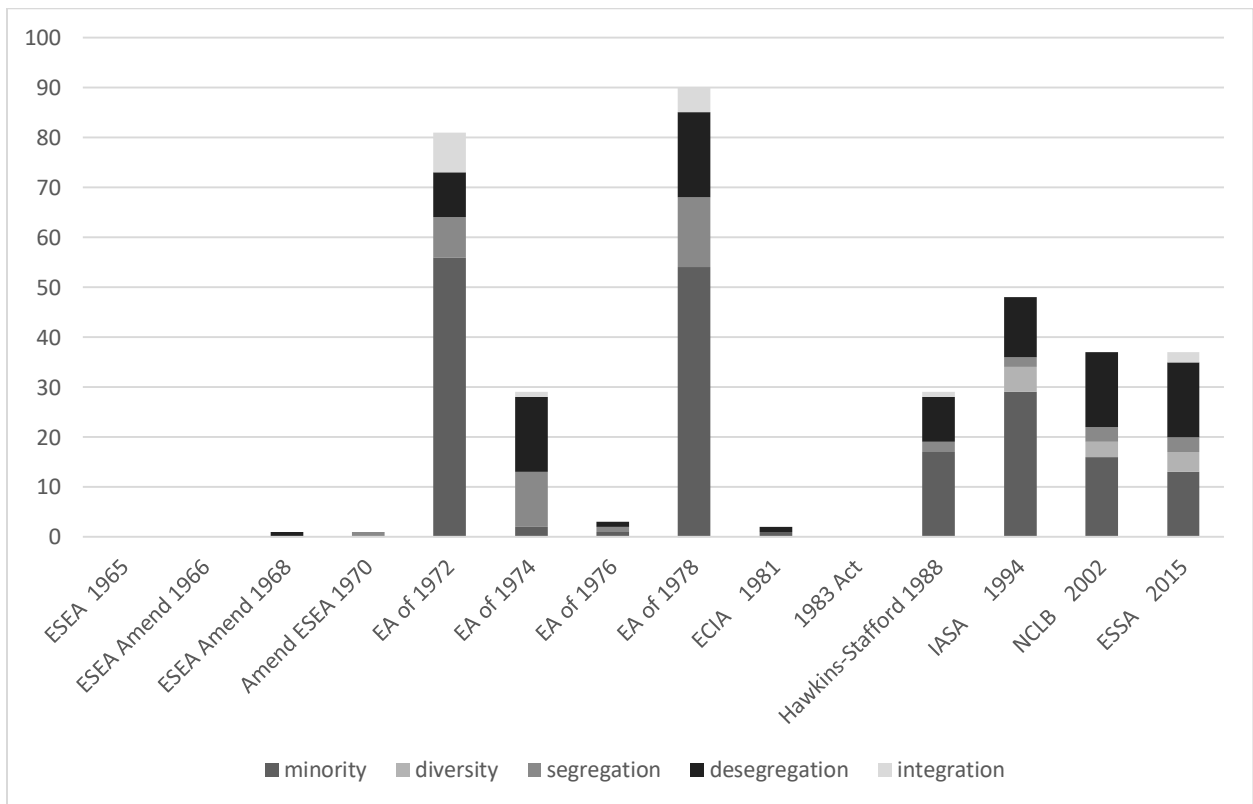
Figure 6. Total covert mentions of racial terminology

Generally, the graphs presented in Figures Figure 5 and Figure 6, seem to fall in line with the time period shifts I identified: there are little to no mentions prior to 1972, there is a spike in 1972 and 1978, and from 1994 to the present there is a general decline in racial terminology. However, from this representation alone it is difficult to suggest that there is an increase in the covertness of language.

As a way to continue to look at how covertness may be a factor in relation to the use of racial terminology, I decided to compare the percentages of overt and covert racial terminology used across all pieces of legislation. This led me to the information I am presenting in Figure 7 below comparing the percentages of overt and covert language used, where each bar represents 100 percent of the racial terminology included in the indicated reauthorization. The percentages of overt language, for example, was calculated by comparing the total use of overt mentions to the total use of racial language, providing the portion of overall language that was overtly racial in nature.
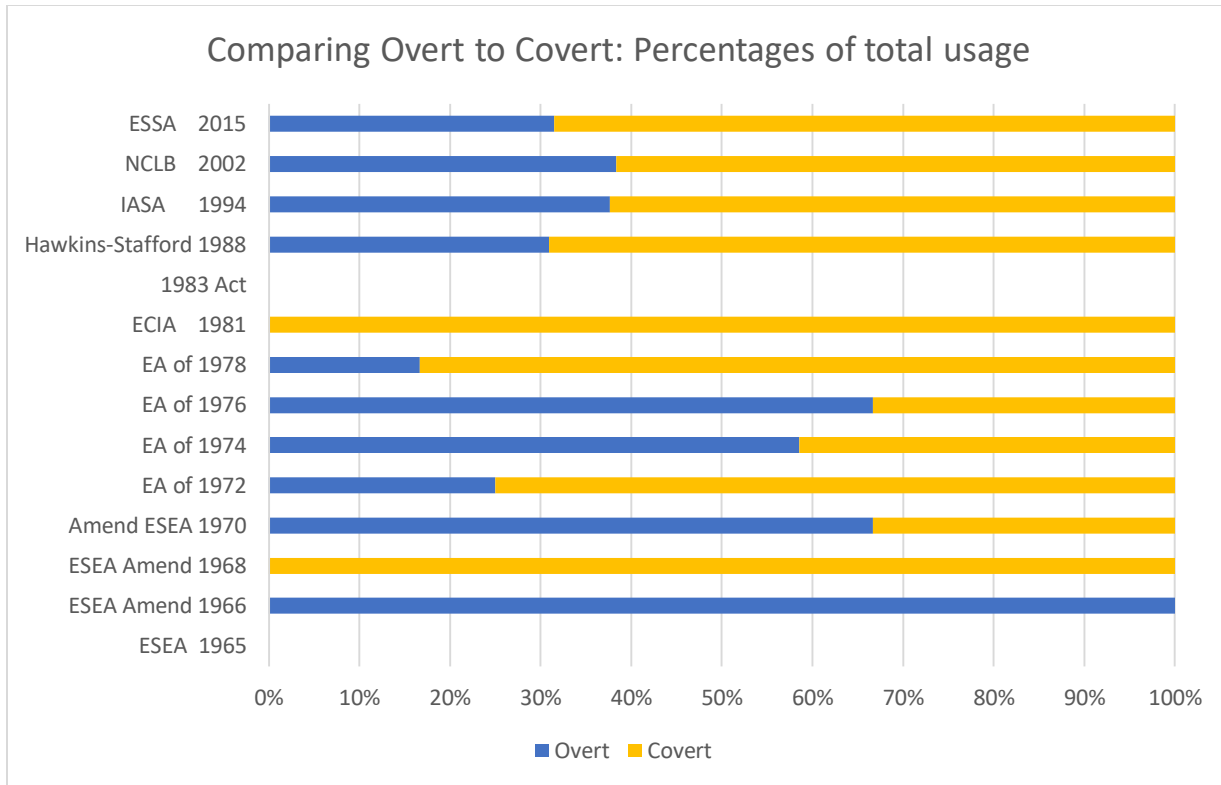
Figure 7. Comparison of overt and covert mentions: Percentages

What is clear from Figure 7 is that the overall percentage of covert language is not increasing year over year, which would be expected if there was a trend substantiating the covertness in racial discourse element of Bonilla-Silva's (2014) new racism. Since this was not the case, a closer reading of Figure 7 was necessary to determine the existence of any patterns. One pattern did emerge, between 1965 and 1976, 3 out of 7 reauthorizations show that more than 50% of the racial language used was overt, whereas after 1976 the overt racial language in 7 out of 7 reauthorizations was less than 50% of their total racial language. This pattern suggests an overall shift towards more usages of covert racial language. The substantiation of one element of new racism within the legislation, led to a full analysis of how new racism functions within and across all 13 reauthorizations of ESEA, a topic which is explored in Chapter Six.

Overall Trends in Language Use

This section looks at the overall trends in racial language use over all of the reauthorizations, to identify unique characteristics of the use of certain vocabulary choices such as minority, desegregation, Negro, black, and African American. To begin this exploration I totaled up all the instances of each word, displayed in Table 4, and arranged them in descending order to see which words were used most often throughout the entire history of the legislation.

Table 4 *Total Occurrences of Each Word throughout All Reauthorizations*

Term	Total Times Used Throughout All Reauthorizations
minority	189
desegregation	95
race	70
racial	67
segregation	45
colour	37
integration	17
diversity	12
nonracial	1
black	1
African American	1
Negro	1

As Table 4 shows, the word used most often to refer to racial issues throughout the legislation is the term minority. It was used a total of 189 times over 50 years, but was first used in 1972. What is most interesting about the use of minority in the legislation is when it is actually defined, which was a practice done in both the 1972 and 1978 reauthorizations. In 1972, the definition of minority group was:

> (A)(i) persons who are Negro, American Indian, Spanish-surnamed American, Portuguese, Oriental, Alaskan natives, and Hawaiian natives and (ii) (except for the purposes of section 705), as determined by the Assistant Secretary, persons who are from environments in which a dominant language is other than English and who, as a result of language barriers and cultural differences, do not have an equal educational opportunity, and (B) the term "Spanish-surnamed American" includes persons of Mexican, Puerto Rican, Cuban, or Spanish origin or ancestry. (P.L. 92-318, sec. 720 (9))

And in 1978 the definition changed to become:

> (A) persons who are American Indians and Alaskan Natives; Asians and Pacific Islanders; blacks, not of Hispanic origin; Hispanics; Franco-Americans; and Portuguese; and (B) (except for purposes of section 605), as determined by the Assistant Secretary, persons who are from environments in which the dominant language is other than English and who, as a result of language barriers and cultural differences, do not have an equal educational opportunity. (P.L. 95-561, sec. 617 (6))

These attempts to define what it means to be a minority in the U.S. indicates several things of note for this study. First, the changing reference to the same group of people over time, through the use of the terms Negro and black. I would also add African American to this ongoing transformation of the recognition of a particular group of racialized people in the U.S. who are

the descendants of slaves. This transformation of language reflects larger cultural shifts where the term Negro has definite Jim Crow connotations, and use of the term blacks shows the changing dynamics in race relations with the introduction of the Black Power movement (Gates, 2016; Joseph, 2006). The term African American, while showing this continued transformation of terminology, goes beyond the shift in referencing a particular group as one of the minority. It appears in IASA within the findings of the Urban Education Demonstration Grants, and states "Congress finds that - (7) urban schools enroll approximately one-third of the Nation's poor, 40 percent of the Nation's African American children, and 30 percent of the Nation's Hispanic youth" (P.L. 103-382, sec. 10961). This reference to African Americans is clearly distinct from the definition of minority groups that was seen in the 1972 and 1978 reauthorizations above. This mention positions students that consider themselves African American to be conflated with being poor. Therefore this use of the term African American does more than simply include this group of students as a "minority group" but also implies by association that these students are in need of something more, especially since the purpose of this section is to help ensure that urban schools and urban school districts help all of their students reach the National goals in education, improve achievement, close the achievement gap, and improve the educational well-being of the students in these schools.

The next most common word used is desegregation, which was used 95 times, and was first used in 1968. Two things are of interest to note here. First, the two racial terms used most often, minority and desegregation are both words that I consider to be covert expressions of racial terminology, which also suggests an overall trend within the legislation towards covert language, an idea which will be explored further in the next chapter. Second, given the prominence of the term desegregation, I felt that further exploration into how the terminology

was used within each section was necessary since I was not expecting to see so much language around desegregation used throughout the reauthorizations. Especially when you consider that if you add the total usages of desegregation, segregation and integration together, the total is almost as high as the use of the term minority by itself. Therefore, the next section outlines how I engaged with a thematic analysis of the terminology that I had identified as important to the conversation of how racialized students are framed within the legislation.

Overall Language Use: Sections

The previous analysis of individual uses of vocabulary led me to wonder how spread out the individual uses of racial terminology were over a single piece of legislation. In order to pursue this analysis I have created a distinction between what I refer to as a "mention" and a "section." A mention is the individual use of a single term such as racial, minority, or segregation. The term section, on the other hand, refers to the entire section of a piece of legislation. In the legislation I engaged with, each section is denoted by "sec." followed by any combination of numbers from 1-99,999 and includes all relevant subsections found within that follow the multi-level alpha-numeric outline format of lowercase letter, Arabic numeral, capital letter, lowercase Roman numeral, uppercase Roman numeral. For example, the subsection labeled "sec. 1111 (b)(3)(A)(ii)(I)", would be considered as an element of section 1111, as such, any single mention of racial terminology would be included in the overall counts and thematic analysis for sec. 1111, and not as a separate entity. Each section is considered its own idea, and more often than not, relates to one single subject and how funding should be considered in relation to the program or initiative described within the section. An example is sec. 1111 which outlines the requirements for state plans in order for the state to receive federal funding, and the various subsections outline stipulations for what states must have in place or provide to the

government in order to receive that funding. Part of the reason for maintaining each section as an individual entity was because some sections are only a paragraph long while others can take up dozens of pages, however, the sections are generally just outlining different areas to consider with regard to the overall section theme. In addition, when considering whether or not racial terminology is wide spread throughout the legislation or limited to a few areas, it seemed more worthwhile to consider sec. 1111 (b)(3)(A)(ii)(I) and sec. 1111 (b)(2)(C)(iii) as both elements of sec. 1111 as a whole, as opposed to two separate sections. My initial findings when looking at the sections are portrayed in Figure 8 below.
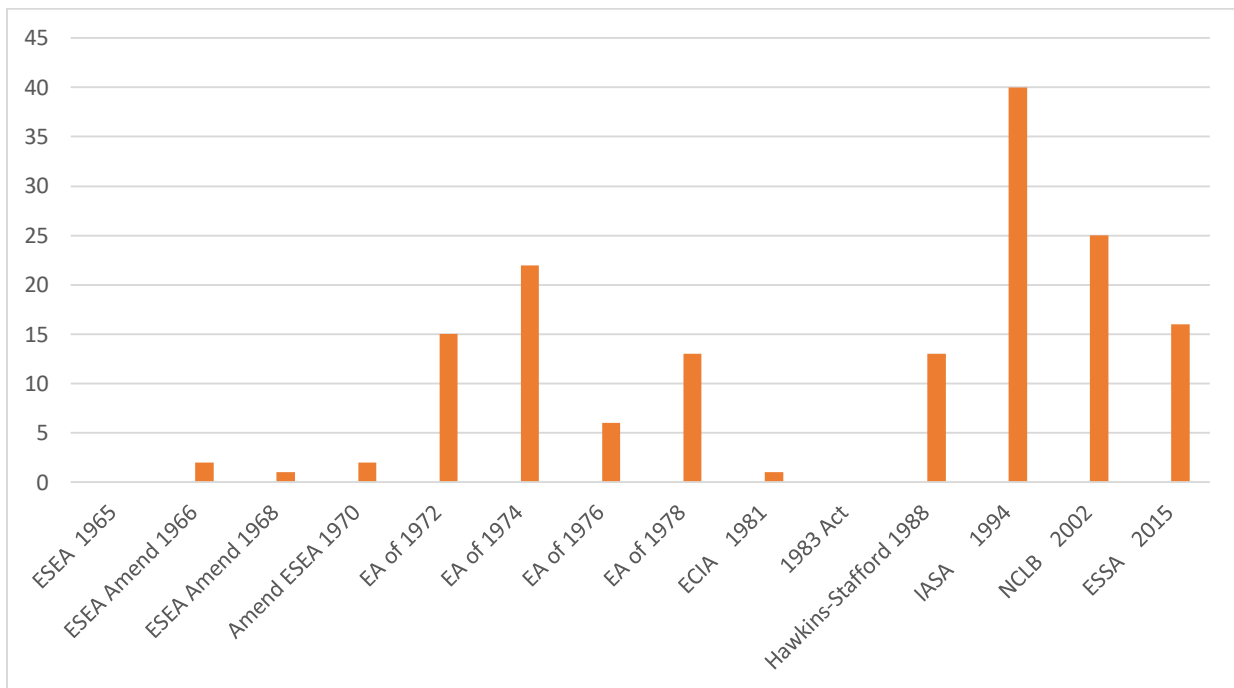
Figure 8. Total unique sections that reference racial terminology

The use of the term unique here is meant as a way to acknowledge that while there may be multiple terms present in a section, or even multiple occurrences of one word, the section was only counted once in order to create this particular representation of the data. However, because of this, it is easier to see how Figure 4 and Figure 8 compare to each other. To that end, Figure 9

below has a reproduction of Figures Figure 4 and Figure 8, side by side, to assist with

comparisons.
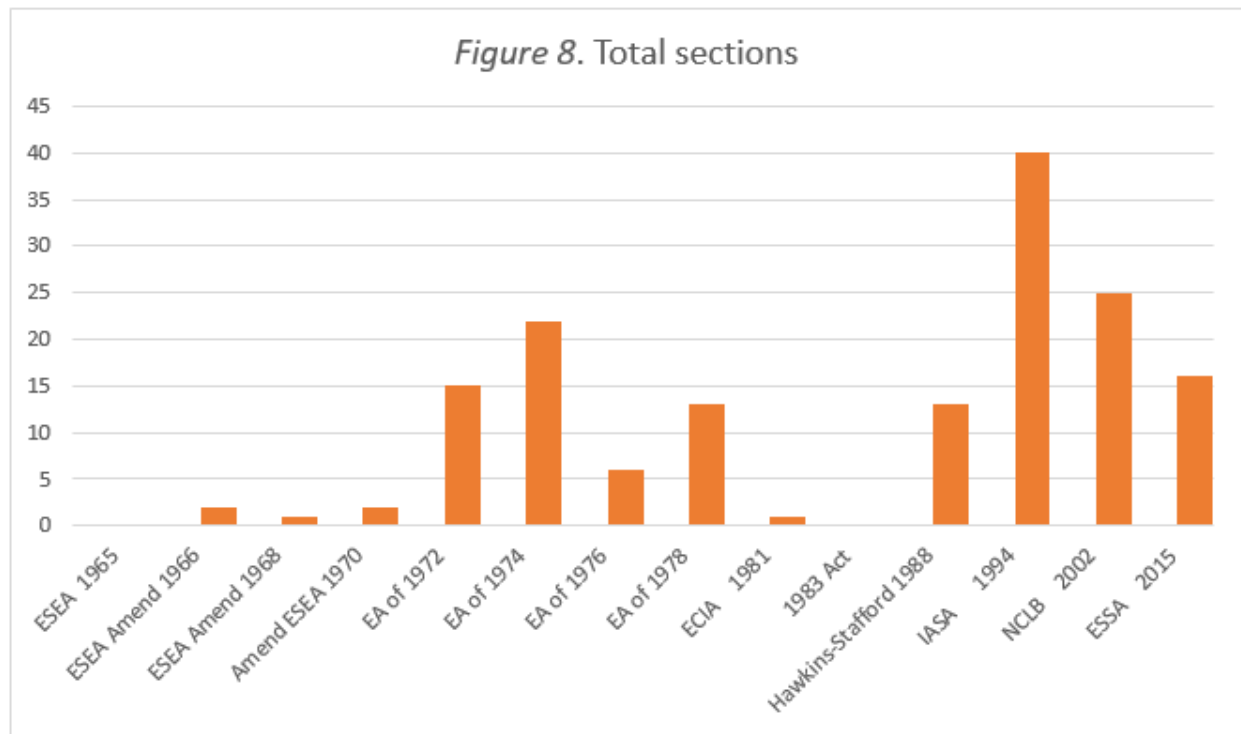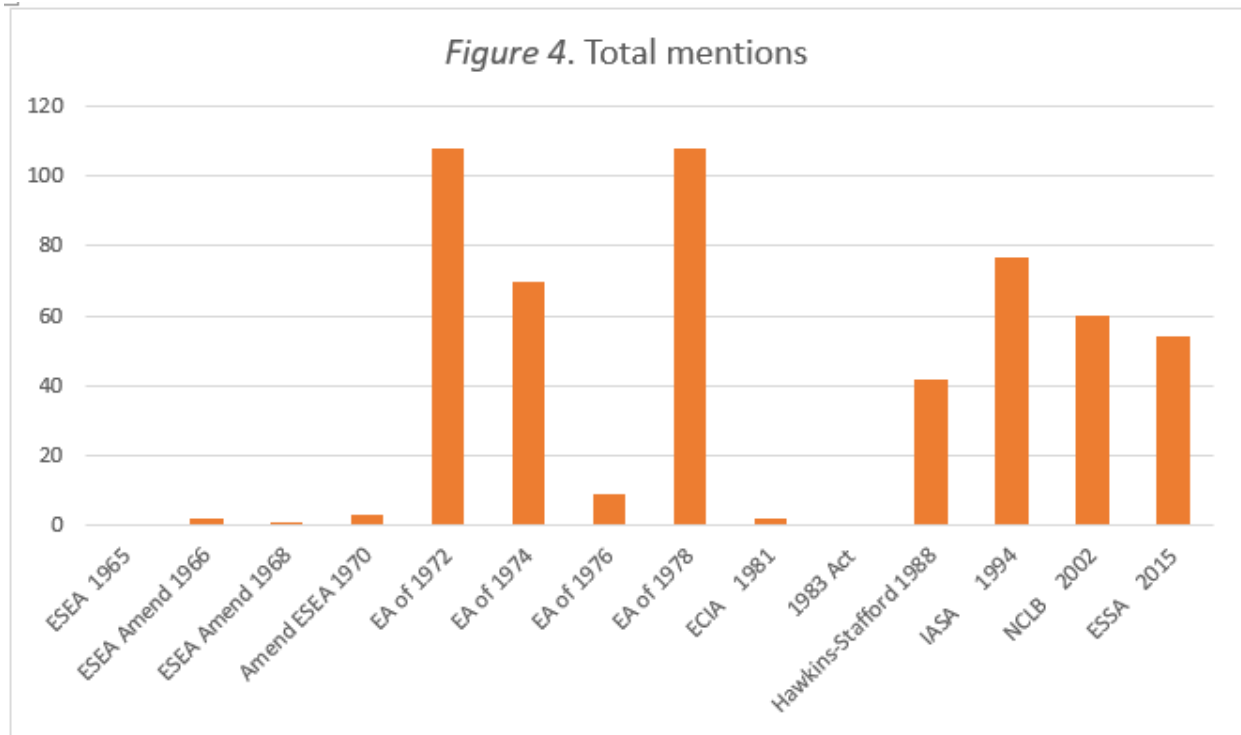
Figure 9. Comparison of *Figure 4.* Total mentions of racial terminology and *Figure 8.* Total number of sections that use racial terminology

At first glance, while Figure 8 maintains the general shape of the temporal shifts identified

earlier, in Figure 4, there are some differences. For example, in the 1972 and 1978

reauthorizations of ESEA there are over 100 individual uses of racial terminology, or mentions,

which are contained in approximately 14 sections, and in 1994 there are 70 mentions across 40

sections. If the terminology were evenly distributed amongst all of the sections included in that

one piece of legislation, we could assume that there would be an average of 7.7 mentions in each

section of the 1970s reauthorizations and an average of 1.75 mentions per section in the 1994

reauthorization. Therefore, this particular representation of the amount of vocabulary per section

suggests that in the 1970s, racial terminology was limited in its representation throughout the

legislation. This concentration of racial terminology suggested to me that I should next

determine the substance of how the racial terminology was used within each section in order to

gain a better insight into how the use of racial terminology changed over time.

Table 5 *Overview of Section Themes*

	TOTAL SECTIONS	OVERT	COVERT	BOTH	DESEGREGATION	REPORTING AND DATA	TEACHING	MATH	SPECIAL PROGRAMS	ACHIEVEMENT GAP	EQUAL ED. OPPORTUNITY	DISCRIMINATION	SCHOOL DISTRICTS	TESTING	EQUITY	TOTAL MENTIONS	TOTAL SECTIONS
1965	0	0	0	0												0	0
1966	2	2	0	0	2											2	2
1968	1	0	1	0	1											1	1
1970	2	1	0	1	2											3	2
1972	15	5	4	6	12		1				1		1			108	15
1974	22	7	6	9	16+1		1		1		3+1	+1				70	22
1976	6	3	1	2	1	1	3		1							9	6
1978	13	2	5	6	10	1							1	1		108	13
1981	1	0	1	0	1											2	1
1983																	
1988	13	3	7	3	5+3	1	1+1	2+1				+2		1		42	13
1994	40	17	17	6	10	10	6+3	3+2	2+1	2+1		3			1	77	40
2002	25	9	9	7	8	7+1	2+1		3	4+1						60	25
2015	16	4	7	5	8	3+1	2+1	2								51	16
TOTALS	156	53	58	45	76+4	23+2	16+6	7+3	7+1	6+2	4+1	3+3	2	2	1	533	156

Note. Full sections that include racial terminology relating to one theme are counted as "1" and sections that include racial terminology relating to more than one theme are counted as "+1" to indicate any partial sections referring to a particular theme.

In order to determine the theme of each section, I located each use of racial terminology and read through the relevant elements in order to determine the focus or subject of each identified section or subsection. In developing the themes I used a combination of topics present within previous findings, as well as ideas I thought would be present from either my reading of the literature or my particular interest in mathematics education. To that end my initial themes were desegregation, mathematics, reporting and data, testing, and achievement gap. The category for desegregation was based on my findings in previous sections that language around desegregation, segregation, and integration was so pronounced throughout the legislation so I

was interested to see at a section level how prevalent this language existed. Another category was mathematics, which was also a specific interest of mine, I wanted to see if or how much mathematics and racial terminology were connected within the legislation. Finally, the themes of reporting and data, testing, and achievement gap were based on my assumption from the literature that there would be numerous connections between racial terminology and ideas around testing and the reporting of data. After completing this initial engagement with themes developed from previous research and readings, it was about determining what the remaining sections were referencing. To that end, I read each remaining section carefully in an effort to determine either the subject of the section or the intended purpose to assist in defining the remaining categories. In order to provide more detail I have provided both a thematic breakdown of one section, as well as a list, including examples, of how each theme was presented within the legislation. Below Table 6 demonstrates a thematic breakdown of a section that includes references to multiple identified themes.

Table 6 *Breakdown of How I Determined Themes P.L. 103-382, sec. 10963*

Theme	**SEC. 10963. URBAN SCHOOL GRANTS.**	Why This Theme and Not Another
	(a) AUTHORITY.—The Secretary is authorized to make grants to eligible local educational agencies serving an urban area or State educational agencies in the case where the State educational agency is the local educational agency for activities designed to assist in local school improvement efforts and school reform, and to assist the schools of such agencies in meeting the National Education Goals.	
	(b) AUTHORIZED ACTIVITIES.— Funds under this section may be used to—	
	(1) increase the academic achievement of urban public school children to at least the national average, such as—	
Math	(C) activities designed to increase the participation of **minority** and female students in entry level and advanced courses in mathematics and science;	Because the use of the term minority is in relation to funding that is geared towards increasing participation in math
	(4) prepare urban public school students to enter higher education, pursue careers, and exercise their responsibilities as citizens, such as—	
Special Programs	(A) activities designed to increase the number and percentages of students, particularly **minority** students, enrolling in postsecondary educational institutions after graduation from public secondary schools;	The use of the term 'activities' here suggests that a special targeted program will be funded with the goal of increasing enrollment
	(5) recruit and retain qualified teachers, such as—	
Teaching	(D) efforts to recruit and retain teachers, particularly **minority** teachers, specializing in critical shortage areas, including early childhood teachers, mathematics and science teachers, and special education and bilingual teachers;	This use is related to teaching, in relation to both hiring teachers and acknowledging the subject matter that they teach
Teaching	(F) activities specifically designed to increase the number of **minority** teachers in urban schools;	This use is related to the hiring of teachers

In section 10963, there are three separate themes present, all in relation to funding urban school districts to support particular elements of programs. The presence of multiple themes within one section is actually quite unique across all of the legislation that I reviewed. In fact, of the 156 total sections that I investigated, only nine sections dealt with multiple themes within all of the relevant subsections. I decided that the best way to count the sections pertaining to each theme was to count full sections where all racial terminology related to one topic as "1", and to add a "+1" to indicate any partial sections referring to a particular theme. This way of counting allows for a quick glance in Table 5 to show that, for example, in the 1974 reauthorization there were 16 full sections and part of one other section that referred to desegregation. I chose this method of counting because it allows for the reader to understand that there is a partial section dedicated to any given theme, without requiring a proportional indicator of how much of the section pertains to a given theme. For example, the breakdown of section 10963 (P.L. 103-382) in Table 6 above would require a proportional split of 0.25 for the Math theme, 0.25 for the Special Programs theme, and 0.50 for the Teaching theme. The proportional representation of the themes would become overly complicated when attempting to calculate the three subsections that all refer to the Teaching theme within the 1994 reauthorization, and would obscure my purpose. Therefore, to maintain clarity, section 10963 (P.L. 103-382) contributes +1 to the Math theme, +1 to the Special Programs theme, and +1 to the Teaching theme, thus indicating that part of a section, rather than the entire section, refers to a particular theme. This allows me to not only maintain the overall section partitioning, but to also account for those sections that may deal with more than one topic.

In determining the themes I present in Table 5 I used my knowledge of each topic in relation to the sections use in the overall piece of legislation to guide my decision, in the end the themes reflect the following areas:

- *Desegregation* - which included mentions of busing and transportation; magnet programs; references to fixing racial imbalance, minority group isolation, bringing minority and nonminority students together; or use of the terms desegregation, segregation, or integration;

- *Reporting and Data* - was a category defined by mentions of reporting or collecting data, including references to the disaggregation of data based on race or other categories;

- *Teaching* - is a category that deals mostly with sections in relation to recruiting, training, or maintaining minority teachers into the field, but also contains elements of teaching content in relation to limiting racial bias and one section that outlines the importance of considering who is teaching minority students;

- *Math* - are any and all sections that use racial terminology and mathematics within the same section, more specifically, many deal with training minority mathematics teachers or encouraging the creation of mathematics and science programs in order to reach historically underrepresented groups including minorities;

- *Special Programs* - is a bit of a catch-all category that includes sections that reference the creation of or support for programs that fulfill specific attributes, such as programs developed with local parents, funding for vocational, character education, technology or at-risk programs that all include an element of reaching minority students in some way;

- *Achievement Gap* - is all sections that indicated that funded programs would be to focus on either increasing minority student achievement or closing the educational achievement gap;

- *Equal Educational Opportunity* - includes all sections that reference the federal governments responsibility to be a leader in federal education with regard to meeting equal educational opportunities for all, which includes definitions of what is or is not equal when it comes to educational opportunities;

- *Discrimination* - are sections that outline requests for statements that discrimination does not occur in the district that the program will be implemented in, although in 1988 the discrimination statements requested that applicants indicate that students were not discriminated against in relation to assigning students and extracurricular activities;

- *School Districts* - is a category created for two sections that essentially state that no action is needed if a school district is not racially discriminatory;

- *Testing* - is in relation to two sections that require that all assessments need to remove racial bias;

- *Equity* - was a section that indicated that the application for a grant needed to address specifically how the program intended to overcome barriers related to race.

Due to the uproar after the passing of NCLB in 2002, I assumed that testing requirements, reporting, data, and achievement gap sections would have a more pronounced relationship with racial terminology since a lot of research suggested that the disaggregation requirements, especially in relation to race, were going to cause a lot of problems (Meyer & Woods; 2004; Rothestein, 2004). The result that surprised me the most was the overwhelming prevalence of desegregation sections across the entire history of the legislation. This result in particular

requires additional analysis and led me to consider that if desegregation is still claimed as *the* way in which the U.S. will solve its racial issues in education, then what are the ways in which racism functions within the legislation? This is directly related to my research question which is concerned with how the positioning of racialized students has changed over time. So in the next chapter I will explore how a framing within new racism allows for me to discuss the implications of how federal education legislation has an impact on the treatment of racialized students in mathematics class.

Chapter Six: Analysis: The Reification of Race and Intersections with Class

Picket lines
School boy cots
They try to say it's a communist plot
All I want is equality
for my sister my brother my people and me
Yes you lied to me all these years
You told me to wash and clean my ears
And talk real fine just like a lady
And you'd stop calling me Sister Sadie
Oh but this whole country is full of lies
You're all gonna die and die like flies
I don't trust you any more
You keep on saying "Go slow!"
"Go slow!"
But that's just the trouble
"do it slow"
Desegregation
"do it slow"
Mass participation
"do it slow"
Reunification
"do it slow"
Do things gradually
"do it slow"
But bring more tragedy
"do it slow"
Why don't you see it
Why don't you feel it
I don't know
I don't know
You don't have to live next to me
Just give me my equality
Everybody knows about Mississippi
Everybody knows about Alabama
Everybody knows about Mississippi Goddam

~Nina Simone, *Mississippi Goddam*, 1964

Nina Simone wrote *Mississippi Goddamn* in direct response to the assassination of

Medgar Evers on June 12, 1963 in Jackson, Mississippi. Her reference to Alabama in this

version of the song is to the bombing of the 16th Street Baptist Church on September 15, 1963 in

Birmingham, Alabama. In other versions of this song she also references Tennessee, which

notes the assassination of Dr. Martin Luther King, Jr. on April 4, 1964 in Memphis, Tennessee.

All of these events, she states at the beginning of her song, make her so upset, to the point that by the chorus she states emphatically "Mississippi goddam"! I use this as the introduction to Chapter Six because she references both equality and desegregation, which are topics that are brought out in this analysis, but also because I think her sentiment of anger around the continuation of racism in the U.S. is a sentiment that I also feel in uncovering the ways in which racism continues to work under the surface presently.

This chapter explores how racism continues to function within federal education legislation and how it is intimately entwined with class. The impetus for this chapter came from my desire to understand the continued presence of desegregation sections which was highlighted in the previous chapter, and to explore the ways in which class became intrinsically linked to race within education legislation. By exploring how racism functions within the legislation I am maintaining my focus on racism as endemic outlined by CRT and simultaneously dealing with governmentality by considering how legislation as a policy perpetuates ideas subliminally. Further, by continuing to engage with how race and class are attached I am continuing to deal with the intersectional analysis that is an important element of CRT as well. Additionally, this analysis relies on historical ontology to understand the situatedness of the vocabulary being used, while also taking note of how framing race, racism, and racialization within the rhetoric of desegregation especially, limits how discussions of racism present within the legislation can change going forward. To help in framing my analysis, I use the categories defined in Eduardo Bonnilla-Silva's (2014) definition of new racism as a guide. I conclude the chapter with a discussion of race by itself, which links to Chapter 7, my analysis of race and mathematics education.

New Racism and Legislation

As defined in the introduction, new racism is a structure that relies on five elements which include a) covertness in racial discourse, b) avoiding racial terminology, c) eliminating direct racial references from political matters that are racial in nature, d) mechanisms that produce racial inequality as invisible, and e) reemergence of Jim Crow era race relations and practices (Bonilla-Silva, 2014, p. 26). And while I rely on this definition of new racism in my understanding of how race functions in U.S. society and policy, Bonilla-Silva looks mostly at how new racism functions in how people talk about race, what types of jokes they tell, and how color-blind racism works in many rhetorical ways. What I think is missing from his analysis is ways in which new racism functions within policies. So to add to his research I will take the five elements of new racism and show how they are functioning within federal education legislation. In order to accomplish this goal, as well as dealing with the intersections of racism and class, I have reorganized the elements suggested by Bonilla-Silva in order to highlight the intersections at the beginning of the analysis.

Making Racial Inequality Invisible

In some ways it is possible to consider that the creation of ESEA in 1965 was a way to make racial inequality invisible, while simultaneously conflating race and class. The struggle to legitimate racial matters and the conflation of race and class, may add to the complexity of showing how racism functions within the legislation. Given this possibility, I will first elaborate on the history of the legislation before I delve into the aspects of the legislation that highlight how this element functions. As discussed in the previous chapter, Johnson was able to get ESEA passed partially by using the *Civil Rights Act* to deal with issues of funding around separate racial schools in the South. At the same time, the Johnson administration had embarked on what

they called the War on Poverty as part of the Great Societies program. As part of this declared domestic war, Johnson made poverty a central tenant of his domestic policy, along with education. Essentially, instead of dealing with the racial and economic differences between various groups throughout the country, Johnson rolled them all into his poverty rhetoric as a scapegoat, because he assumed that as long as he could get money into separate Black schools, those schools would then be able to do better (McAndrews, 2006). The theory in the 1960s and 1970s seemed to be that if unequal inputs were eliminated, or in other words if educational inputs were equalized, then equal outputs or outcomes would be realized. However, one of the many things this theory fails to take into consideration is how even with substantial federal funding, schools with large proportions of low-SES students would never reach the same educational inputs as schools in wealthier districts due to how school funding works. Additionally, there were no realistic demands or requirements placed on schools to support racialized students. Therefore, the original 1965 legislation conflates race and poverty in its initial construction which set the stage for future reauthorizations to continue this practice, as I show below.

The most obvious way to see the conflation of race and poverty is in the heading of *Title I* in the 1965 legislation which states "Financial Assistance to Local Educational Agencies for the Education of Children of Low-Income Families" (P.L. 89-10, sec. 2). Since *Title I* has always been the largest element of the budget throughout the history of ESEA, the fact that the original title blatantly stated financial assistance for *low-income* families, suggests both the major purpose and intent for the legislation. However, if we consider that in 1965 most of the poorest schools in the country were also the Black separate schools, we can see how the conflation of race and poverty began.

Further, if we consider the fact that never at any point did *Title I* directly relate to race in any way, but has often been related to income, the legislation privileges income related differences over racial differences that exist in schools. This trend can be seen through the existence of racial terminology within *Title I*. Despite knowing that Black separate schools in the South were the poorest in the country in 1965, there is no use of any racial terminology in the first section of *Title I* until 1994. And this mention of race was to ensure that test data collected was disaggregated by "major racial and ethnic groups" (P.L. 103-382, sec. 1111 (b)(3)(I)). Therefore, as we see through the original language of *Title I* to create financial assistance for low-income families, combined with no mentions of racial terminology despite knowing that part of the purpose in passing ESEA was to get money into Black schools, makes race invisible.

Another way in which race is made invisible is through the use of particular language. For example, Hilliard (2003) suggests that *the* achievement gap is the one between Black and White students, referencing and the large gap between NAEP test scores in mathematics (U.S. Department of Education, 2015). However, when IASA refers to the achievement gap that exists between disadvantaged and other children, this language allows the reader to assume whatever gap they wish to see, and not necessarily the racial one. This again hides race amongst several potential groups that could be considered disadvantaged. Additionally, this leads to an interesting conversation about language used. In NCLB at one point there is a description of the achievement gap which includes the gap between racial and nonracial students (P.L. 107-110, sec. 1503(d)(3)). If we take a moment to fully consider what it actually means to say nonracial within legislation, this would also lead to the conclusion that race for all intents and purposes is not a legitimate matter, because some people are considered to not have a race.

Finally, I return back to my discussion of the use of the term African American from the previous chapter. Due to the distinct way in which African American was used in comparison to the terms Negro and black, there was also a suggestion within the legislation that being African American also assumed you were poor. This suggests that there is not just one way in which the legislation conflates race and poverty, as these elements work together to obfuscate race by highlighting class.

One of the things this analysis fails to recognize is that not all racialized families are poor. In the 1960s, due to many other factors, such as racist housing practices and policies, most all racialized families lived in concentrated areas. However, with some changes, upper and middle class black families were able to move to other, largely white school districts. So by Johnson suggesting that class could replace race, we forget, ignore, or are unable to deal with how the conflation of race and class *cannot* take into consideration richer Black families in the analysis. In some ways, it assumes the poverty of black families. In doing so, this further suggests a deficit narrative in relation to race. Also by ignoring the racial part, and only being able to deal with the class portion this through the legislation, we miss a lot of the history. Think back to the definition of race itself, and the myriad ways in which racism can be seen throughout the history of the U.S., by not being able to deal with race, and only focusing on class, we cannot deal with the explicit ways in which the U.S. federal government, and state governments, took actions to keep people separate by race, and actively worked to make life harder for those who were racialized as Black. So because the legislation is set up to only deal with class explicitly, it glosses over and mystifies that history.

Covertness in racial discourse

To explore the covert aspect of language used around race in the policies, I searched through all reauthorizations of ESEA for both overt and covert uses of racial language. While the percentages presented in Figure 10 below do not create a perfect pattern of either increasing or decreasing percentages, there are some areas where shifts occur that are worth a second look. For example, as noted in the previous chapter, between 1965 and 1976, 3 out of 7 reauthorizations have more than 50% of their racial language as overt, whereas after 1976 7 out 7 reauthorizations have less than 50% of their racial language as overt, suggesting that with the Carter administration there was a shift in how racial terminology was being used within federal legislation. This decrease in the use of overt racial terminology increases over the years of the neo-liberal presidents, Clinton, Bush, and Obama, where we see Obama use even less racial terminology than either Clinton or Bush. However, this trend may not in actuality be that surprising given both Tim Wise's (2010) and Bonilla-Silva's (2014) analysis on the increased use of colourblind language during the Obama administration. What does seem to be substantiated though, is the increased covertness in racial discourse suggested by new racism (Bonilla-Silva, 2014).
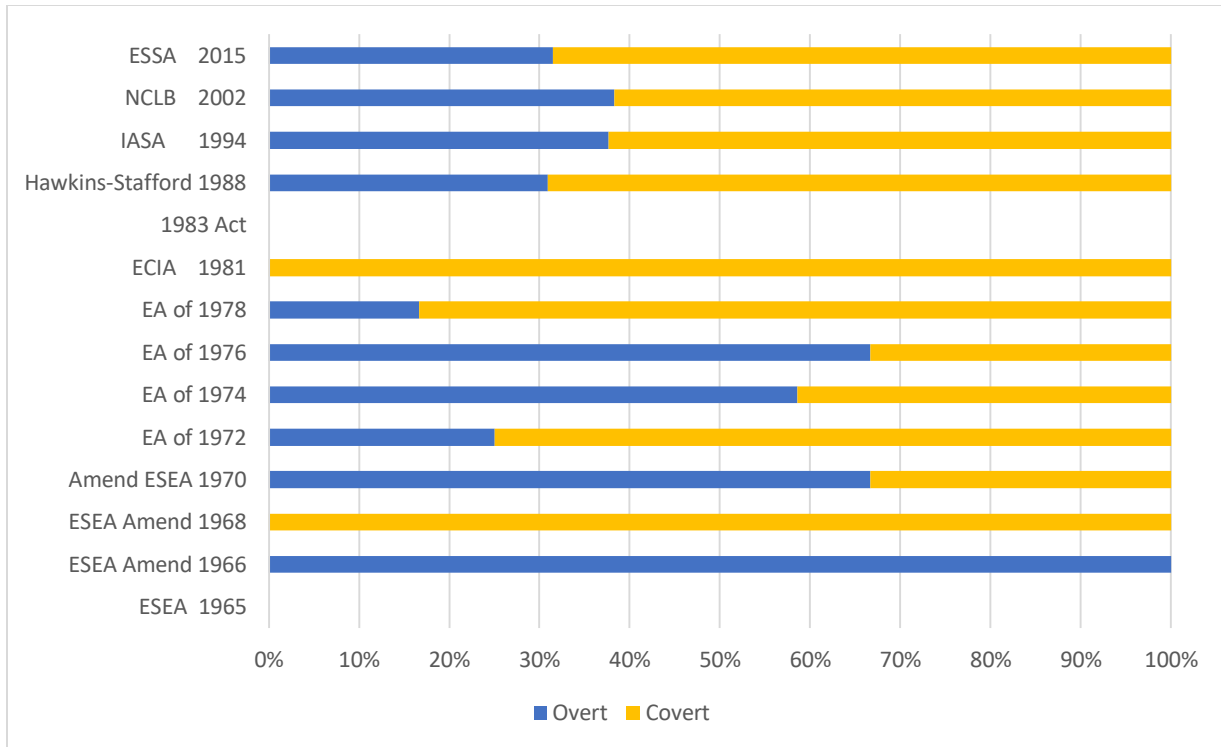
Figure 10. Comparison of overt and covert mentions: Percentages

Another potential explanation for the increased use of covert racial language could be a desire for policy writers to move away from older ways of talking about race to using "good" language, a trend that Sara Ahmed (2012) explores within higher education vernacular. This trend towards covertness, might not necessarily be a way to hide race, but a way of shifting the language to make it more palatable. Either way, whether it is a shift to decrease the use of overt language for its own sake or to shift the language to a more palatable discourse, there is a noted shift in how vocabulary is being used over time, suggesting possible links to new racism.

Additionally, the overall occurrences of racial language presented in Table 4 in the previous chapter, suggest that overall covert language use is preferred to overt language use as is indicated by the overall numbers, 358 and 178, respectively, but also by the fact that both minority and desegregation were used more often than terms like race and racial. The final indicator that supports my conclusion that the federal education legislation in the U.S.

perpetuates covertness in racial discourse is the overwhelming presence of sections related to desegregation, both over the history of the legislation as well as within each individual piece of legislation. In particular, taking into account the way in which magnet schools are continually framed as the core of U.S. desegregation efforts as is indicated in the most recent reauthorization, "desegregation efforts through magnet school programs are a significant part of our Nation's effort to achieve voluntary desegregation in schools and help to ensure equal educational opportunities for all students." (P. L. 114-95, sec. 4401 (a)(5)). This framing not only suggests that magnet schools will solve segregation issues, but also that magnet schools are the main way the U.S. will do this, despite 43 years of magnet schools holding this same position, and segregation becoming worse over that time period. All this to say that covertness has several ways in which it functions within federal education legislation including the increased use over time, overall usage and general use within legislation.

Avoidance of Racial Language

In order to look at how racialized students are framed in U.S. federal education legislation I thought it would be helpful to consider total usage of racial language over all the reauthorizations that I examined to see if there were any trends, shown below in Figure 11. Similar to the discussion above about the increased covertness in language used, the overall trend suggests that as legislation progresses through the years, there are fewer overall instances of racial terminology overall. For example, in both 1972 and 1978, there were a total of 108 uses of racial terminology, both overt and covert. However, by the time Clinton's IASA goes through Congress there are only 77 total mentions of racial language and the Obama legislation is down to 54, one of the lowest since racial terminology took its first jump in 1972.
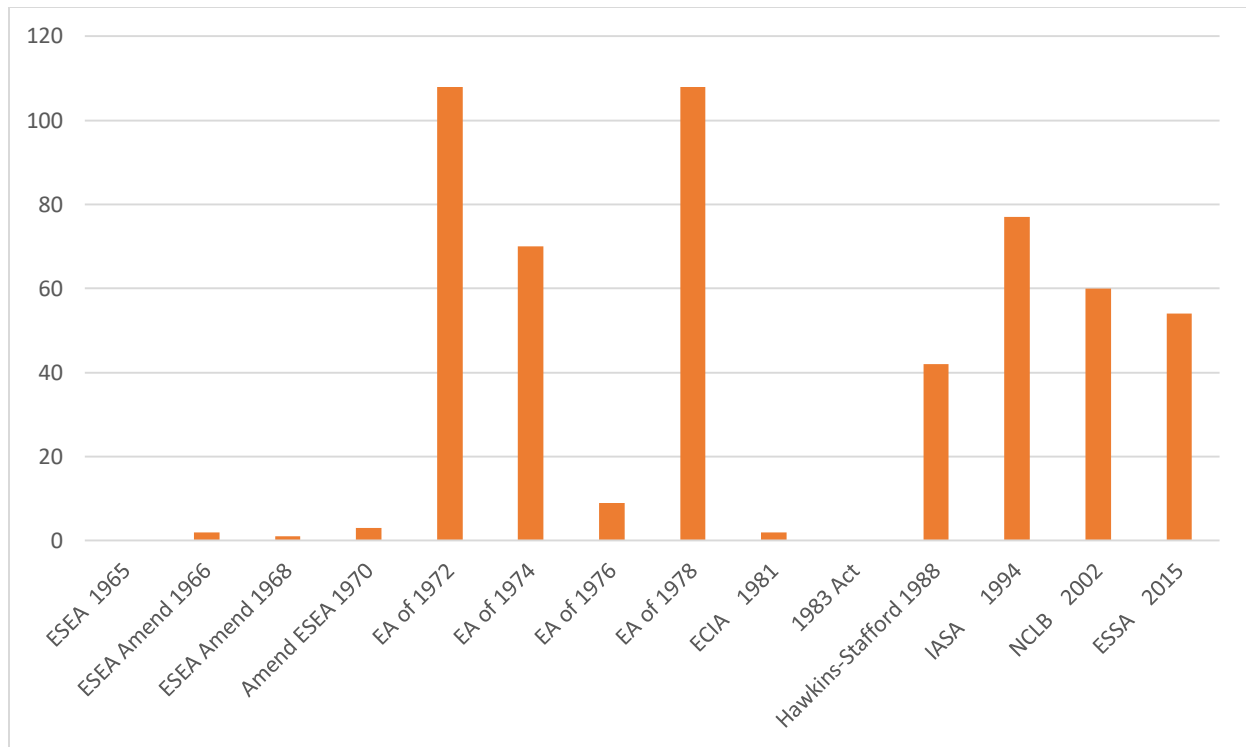
Figure 11. Total meaningful mentions of racial terminology

This trend of avoiding racial terminology becomes even more notable when you consider the length of the documents themselves. In the 1978 legislation there were a total of 108 uses of racial terminology over 238 pages, so if we assume the language is spread evenly across all of the pages that would work out to about one word every two pages. Whereas IASA in 1994 has 77 mentions over 545 pages which works out to about one word every seven pages. Again, not definitive in any way, but does create the suggestion of a decrease in the overall use of racial terminology over time.

Another way to examine this trend is by looking more closely at the three most recent reauthorizations to see how the terminology changes during this time period. The value of doing this is that all three presidents, Clinton, Bush and Obama, are considered moderate neo-liberals, so they all have similar political leanings which would suggest that there should not be large swings in terminology use, like there is during the Reagan years (1981-1989). They also all

found education to be an important domestic policy initiative and built on the ideas of each other. Whereas prior to Clinton, the Reagan administration was considered quite antagonistic towards the federal role in education, and therefore might explain some of the differences in how the policy looked during the 1980s. Clearly, from the chart in Figure 11, there is a decrease in overall racial terminology through the time period 1994 – 2015. In addition to overall language use, I also took a look at the number of sections that used racial terminology. So by looking at the number of sections that use racial terminology, in IASA there are 40 sections that use racial terminology, whereas there are 25 in NCLB and 16 in ESSA respectively. While none of these elements alone necessarily suggests an avoidance of racial terminology, taken together, the overall decrease in racial language as well as a comparison to how long the document is, and how many sections use racial terminology, suggests that over time there is an avoidance of racial terminology.

Elimination of Direct Racial References from Political Matters that are Racial in Nature

This aspect of new racism is likely the most difficult and complex one to analyze, mostly because ESEA was originally approved by Congress specifically because it did *not* deal with race. A brief review of this history is provided at the beginning of Chapter 5, but what needs to be noted here is that the process by which ESEA was originally passed in 1965 created a history for the legislation where it did not deal with race. Instead the legislation has relied on references to the *Civil Rights Act* to help keep federal money from going to schools and districts that were maintaining separate or dual school systems for Black and White students in the South in the 1960s. Thus the initial passing of ESEA was an elimination of direct racial references from a political and educational matter that was about race, and instead became about poverty.

Given this history where poverty became a stand in for race, there are other ways that the elimination of direct racial references has occurred throughout the later years of the legislation. The first thing I did was pull together the information presented above about the avoidance and covertness of racial terminology. Both of these sections suggest that an overall trend in the type of language used around race within the various reauthorizations of ESEA is decreasing over time. This together with the fact that the original legislation was never meant to address racial issues in education supports the elimination of racial issues since they became major elements of the legislation in 1972.

The second way to acknowledge the elimination of direct racial references is through an analysis of the mention of the achievement gap itself. As stated in the following quote by Asa Hilliard (2003):

> Note that when speaking of "the achievement gap" it is understood by virtually everyone that this does not refer to a gap between Africans and Asians or a gap between Africans and Latinos or a gap between Africans and anyone else other than Europeans. Therefore, right away, it seems that something more than achievement is being discussed when the gap language is used. (p. 137)

the achievement gap is something constructed to mean a distinction between the test scores of Black and White students. What makes this particularly important in relation to this element of new racism is to consider the purpose statements for NCLB and ESSA as shown in Table 7 below.

Table 7 *Stated Purpose of NCLB and ESSA*

Legislation	Year	Stated Purpose
NCLB	2002	To close *the achievement gap* with accountability, flexibility, and choice, so that no child is left behind
ESSA	2015	The purpose of this title is to provide all children significant opportunity to receive a fair, equitable, and high-quality education, and to close educational *achievement gaps*

Clearly it is possible to consider that the achievement gap mentioned in the purpose statement of NCLB is *the* achievement gap referred to by Hilliard (2003). This suggests that in 2002, whether consciously or not, the federal government set out their legislation to eliminate the gap between the test scores of Black and White children, especially in mathematics. However, this situation changes drastically when in 2015 ESSA says its aim is around eliminating achievement gaps, plural. This small change in vocabulary, I argue, alters the conception from the racial achievement gap between Black and White students to any achievement gap you can conceive of between various racial groups, socioeconomic status, ability level, or population density, to name a few possibilities. The purpose statement has now obfuscated the highlighting of race that occurred in 2002 to suggest any potential gap is the purpose of the legislation, thus eliminating a direct racial reference that was within the legislation previously. Further, the importance of this specific change is derived from its placement within the legislation as the purpose statement, thus this statement is meant to guide the interpretations and implementation of the entire legislation. If the change had been made elsewhere in the legislation, for instance in sec. 1111, perhaps it would not have the same impact as altering the purpose statement which is meant to guide the entire piece of legislation.

Another shift in language that is worthwhile to mention when discussing the elimination of direct racial references, is the shift in terminology that occurred around the topic of segregation. For this shift there are four noted time periods that need to be accounted for and their use of segregation as outlined in Table 8 below.

Table 8 *Use of the Term Segregation throughout ESEA Reauthorizations*

	1965-1968	1970-1978	1981-1983	1988 on
How the term segregation is used during the time period indicated	No use	Conditions of segregation by race whether by de jure or de facto (P.L. 92-318, sec. 703 (b))	No use	Segregation exists between minority and nonminority students as well as among students of different minority groups (P.L. 114-95, sec. 4401 (a)(4)(C))

While the lack of acknowledgment of segregation within the legislation is a problem in and of itself in relation to the framing of racialized students in policy, when referring to the elimination of racial references there is definitely more to discuss here. By eliminating the quoted elements of conditions of segregation and merely referring to segregation is working to eliminate a direct racial reference, albeit a somewhat covert one.

Again I think this is similar to the change mentioned earlier regarding the switch from the achievement gap to achievement gaps, the subtle alterations in vocabulary shift the frame of these sections. For example, when taking the statement "conditions of segregation by race whether by de jure or de facto" there are several things occurring here. First, the legislation

acknowledges the myriad of ways in which racial segregation may occur by including both *de jure* and *de facto* in the description of what segregation is. This legitimizes in a statute that Jim Crow type laws of segregation *and* systemic political actions that lead to segregation by race are things in which the U.S. government would like to eliminate. Second, the use of the terms "conditions of segregation" is more nuanced than simply "segregation" because it allows policy interpreters to understand that physical and legal separation by race may not be the only ways in which segregation can occur. Further to this point, in the 2015 reauthorization, the first use of the term segregation states that "segregation exists between minority and nonminority students as well as among students of different minority groups" (P.L. 114-95, sec. 4401 (a)(4)(C)) which essentially says that segregation between racial groups is not actually the purpose of the magnet school programs. So this shift of isolating segregation from "conditions of" works to further eliminate the connotations between segregation and race, thus eliminating another direct racial reference from the legislation. Finally, and perhaps most importantly, in the 1970s the legislation stated "segregation by race" explicitly, whereas the reauthorization in 2015 suggests that segregation is not actually just by race, and that some people may be in fact choosing to segregate themselves regardless of any policy attempts to do the opposite.

While not an elimination of a direct racial reference, as I discussed in Chapter 5, the way in which the term African American is used in IASA, suggests not only a particular positioning of those students that identify as African American, but also conflates race and being racialized with being poor. This conflation, may or may not be related to the history of ESEA from the 1960s where Johnson perpetuated this same conflation of race and poverty when he chose to envelop ESEA within the rhetoric of his War on Poverty as a cornerstone of his Great Society program. Therefore, although this element of new racism is more challenging to see given the

history of how ESEA was originally conceived in 1965, because there are so many varied examples, albeit some quite subtle, of how racial references have been systematically eliminated over time, it seems safe to conclude that this element of new racism is present.

Reemergence of Jim Crow

Bonilla-Silva (2014) suggests that the last element of new racism is the reemergence of Jim Crow era relations. This is not to say that explicit laws regarding racial separation are being once again enforced, but to suggest that similar situations of segregated facilities are beginning to exist again. For K-12 education, I think there is a limit to how much we can say a reemergence has occurred given that desegregation never actually happened, and there are several ways we can look at this theme through literature, court cases, and the legislation itself.

First, academic literature and documentaries report continued segregation by race, especially in inner city and urban areas, that are often more segregated than the school systems in the 1970s (Becker & Perl, 2003; Bonilla-Silva, 2014; Gates, 2016; Orfield, et al., 1996). These reports suggest that during the 1970s there was a push to integrate, or at least desegregate K-12 schooling. However, taking into account racially discriminatory housing practices (Orfield, et al. 1996), in the 1980s that trend began to reverse to the point where now the U.S. school system is extremely racially segregated again. The reason I say that this is not a reemergence of racial segregation is because there was never full desegregation or integration in many places.

There are several Supreme Court cases that also lay credence to this theory. The analysis provided about the *Milliken v. Bradley* (1974) case, and others around when school systems are defined unitary, and how bussing can work to help eliminate racial isolation. The limits placed on school systems in their attempts to create integrated school districts suggests that the courts are not taking race into consideration when making these decisions, even though the decisions

are having profound impacts based on racial access to particular resources. So regardless of the intent of the court decisions, the ultimate outcome is to maintain some version of the racial status quo and not providing any resources to schools or districts that are attempting to desegregate.

Finally, one of the most profound ways that I think we can see a maintenance of Jim Crow era racial segregation is through the continued existence of the magnet school sections within the various reauthorizations of ESEA. As described in the previous chapter, in the 1972 reauthorization there was a section added to the legislation entitle the *Emergency School Aid Act* which outlined the U.S. governments' stand on segregation and finally began providing money for schools to begin desegregation or integration efforts through the use of magnet schools. There are several things about these sections that are worth mentioning here. First, as noted in the previous chapter, the large increase in racial terminology used in the 1972 reauthorization is due to the addition of the *Emergency School Aid Act*. This trend is also present in Table 5 which shows that of the 15 sections of the 1972 legislation that use racial terminology, nine of those sections are part of the *Emergency School Aid Act*. Further to this, the themes present within these sections in 1972 are overwhelmingly about desegregation at the expense of all else. Additionally, if we consider that even in 2015 half of the sections that use racial terminology are still in reference to desegregation, where the majority of those eight sections are found within the description of the magnet school programs.

Second, the fact that these sections are still used and defined within ESSA in 2015 as the country's main effort to desegregate America's schools. Third, that these sections are now included under the larger heading of 21st Century Schooling. Taken all together, these things suggest that a) desegregation has not occurred, b) desegregation is still the main way in which federal education legislation is able to deal with racial matters, and c) desegregation has moved

from being a systemic issue related to de jure and de facto segregation, to being framed as an individualistic problem that can be solved one-on-one.

All of which suggesting that while Jim Crow laws may not be explicitly a thing with regard to education, especially the explicit requirement for separate facilities and entrances or barricades and all that came with those laws. However, if we look at the intention of segregation, which was to maintain physical distance between the races, then for all intents and purposes we do have a reemergence, or arguably a continuation, of race relations seen through the continued separation along racial lines.

Discussion

This research highlights some many and varied ways in which new racism is at work in U.S. federal education legislation suggesting that to move forward and to begin to fully engage with the impacts of racial segregation as a country we need to acknowledge that racism is still a problem. The biggest problem with race falling to the background of the overall legislation is that when we begin to talk about the achievement gap and how that impacts racialized students, we are unable to engage with how race, racism, and racialization play roles in how those scores have come into being. When considering Schick's (2011) argument that moving from specific language around ensuring that racialized students do well to language around all students doing well, we lose the importance of how racialization impacts those students. In particular, there is a master-narrative in math that racialized students cannot do math. If we cannot see how the test scores referred to in the achievement gap are complicit in perpetuating that master-narrative, then we can never stop the cycle.

Conclusion

What is important to take from this chapter is both how and that racism continues to persist within federal education legislation. This is important because as I illustrated in the introduction, the problem in mathematics education of racialized students is inextricably connected to how racism functions in society and is perpetuated by policy. The one element that is missing from the analysis so far is the connections that need to be made with mathematics education beyond references to the disaggregation of data and the achievement gap more generally. Therefore, in the next chapter I delve into and analyze the presence of mathematics education within the same pieces of legislation and link those findings to a further analysis of the standards movement in mathematics education.

Chapter Seven: Findings: Mathematics Education and Policy

A boy is born in hard time Mississippi
Surrounded by four walls that ain't so pretty
His parents give him love and affection
To keep him strong moving in the right direction
Living just enough, just enough for the city...ee ha!

His father works some days for fourteen hours
And you can bet he barely makes a dollar
His mother goes to scrub the floors for many
And you'd best believe she hardly gets a penny
Living just enough, just enough for the city...yeah

His sister's black but she is sho 'nuff pretty
Her skirt is short but Lord her legs are sturdy
To walk to school she's got to get up early
Her clothes are old but never are they dirty
Living just enough, just enough for the city...um hum

Her brother's smart he's got more sense than many
His patience's long but soon he won't have any
To find a job is like a haystack needle
Cause where he lives they don't use colored people
Living just enough, just enough for the city...

His hair is long, his feet are hard and gritty
He spends his love walking the streets of New York City
He's almost dead from breathing on air pollution
He tried to vote but to him there's no solution
Living just enough, just enough for the city...yeah, yeah, yeah!

I hope you hear inside my voice of sorrow
And that it motivates you to make a better tomorrow
This place is cruel no where could be much colder
If we don't change the world will soon be over
Living just enough, just enough for the city!!!!

~Stevie Wonder, *Living for the City*, 1973

Stevie Wonder's song is suggestive of the struggle that many Black families have been

going through for quite some time. He starts by reminiscing about the love of his parents, how

hard they had to work to make any money, then talks about migrating to New York all the while

explaining how both racism and classism function to impact the discrimination faced by Black

families in school and the job market (Vigliar, 2015). While this song does not speak about mathematics education explicitly, it does talk about the desire of many racialized men to participate in the work force and being denied, as well as the efforts that his sister must go through just to get to school. All of which suggests that, ensuring students make it through school does not necessarily help them become gainfully employed if the employment system is based on race and rigged against you. Therefore, in relation to the discussion that ends this chapter, there must be a continued discussion of how race has a separate impact on schooling and career success in order to fully engage with racism in education.

As noted in Chapter 5 in the presentation of the thematic findings from the legislation in Table 5, there are only 7+3 sections throughout the entire history of ESEA that link racial terminology and mathematics together. This becomes more obvious when reviewing the previous chapter that focuses so exclusively on race and its continued implications in the legislative history of the U.S. However, despite these apparent disconnections, I believe there is a need to discuss the links that do exist between race and mathematics within the legislation. To begin this exploration I first look at how race and mathematics are explicitly linked within the legislation, followed by a brief presentation of findings in relation to the presence of mathematics by itself within the legislation. This discussion will provide a foreground for the presentation of three PDAs of *A Nation at Risk*, the NCTM (2000) *Standards*, and the *Common Core State Standards*. Finally, I conclude with a discussion on the importance of understanding the historical and structural links between racial terminology and mathematics as a way to combat deficit narratives essentializing all Black students as not academic.

Mathematics and Race in the Legislation

As noted above there are 7+3 sections that deal with both race and mathematics. The content of those sections is discussed here and lays a foundation for the necessity of looking farther into how mathematics is dealt with in the legislation and a further look at how national policies in relation to mathematics have shifted over time.

To begin my findings I started with Table 5, which shows that there were 2+1, 3+2, and 2 sections, in the 1988, 1994, and 2015 reauthorizations, respectively. What is most significant about this, aside from the lack of connection between mathematics and race in the 2002 reauthorization, is that these two ideas were not linked with each other prior to 1988. On a surface level this suggests that prior to 1988 legislators did not see or acknowledge the link between mathematics performance and racialization, which often pushes Black students out of higher level mathematics classes. This finding lends credence to my later search through the legislation for mathematics in order to determine if there are any similarities or differences between the representation of mathematics and race together, and mathematics on its own.

Another significant finding from reading through all of the sections outlined is that all of the sections are about increasing the participation, achievement, access, or training for minority students in mathematics. Sometimes this can be in relation to training teachers like the following excerpt:

> Each local educational agency shall assure that programs of training, inservice training and retraining will take into account the need for greater access to and participation in mathematics and science programs and careers of students from historically underrepresented groups, including females, minorities, individuals with limited-English

proficiency, the handicapped, migrants, and, especially, gifted and talented children from within such groups. (P.L. 100-297, sec. 2006 (b)(2))

Other sections refer to the need for more representation of minority students in particular areas like sec. 4104 in the 2015 reauthorization

(3) supporting local educational agencies in providing programs and activities that—

(A) offer well-rounded educational experiences to all students, as described in section 4107, including female students, minority students, English learners, children with disabilities, and low-income students who are often underrepresented in critical and enriching subjects, which may include—

(i) increasing student access to and improving student engagement and achievement in—

(I) high-quality courses in science, technology, engineering, and mathematics, including computer Science. (P.L. 114-95, sec. 4104 (b)(3)(A)((i)(I))

These two sections also outline a third distinction in the linkage between mathematics and race in the reauthorizations, how representation is referred to. For example, in the excerpt from 1988, there is the use of the vocabulary *historically underrepresented groups*, whereas in 2015 the reference is only to *underrepresented groups*. This is a theme that occurs across the various sections represented. In 1988 all 2+1 sections refer to historically underrepresented groups which, like the discussion in the previous chapter about segregation, allows for a nuanced understanding of why it is important to look at who is being represented in our mathematics classes in relation to race. By the 1994 reauthorization, the three full sections all suggest that when considering the teaching or achievement of students in mathematics, historically underrepresented groups, such as minorities, need to be taken into consideration. However, for the +2 sections, there is no reference to the historically underrepresented groups vocabulary, but

specific mention that there should be encouragement for minorities and other groups to have continued participation in mathematics. What is most intriguing is that in the 2015 reauthorization there is absolutely no mention of the historical aspect of the underrepresentation of minorities in mathematics. As is represented in the portion of sec. 4104 above, there seems only to be a concern with the present underrepresentation with no formal recognition that the underrepresentation of minorities in mathematics, for example, has been a long occurring problem.

While there are some intriguing findings that come from looking at the 7+3 sections that deal with both race and mathematics throughout the reauthorizations, there is clearly some missing information to complete this analysis. One thing that is missing is a comparison with how mathematics by itself is covered within the legislation, to determine if there are any combined concerns. Additionally, without more clarity on the political placement of mathematics in the national policy network, it is hard to tell the significance of these few things that I was able to determine. Therefore I first turn to a brief discussion of mathematics in the legislation to provide a comparison point for this discussion of mathematics and race, followed by a political discourse analysis of the national level policies about mathematics to provide further insight.

Mathematics in the Legislation

The above overview about the overlap between mathematics and race highlights that there is not enough of an overlap to constitute an in-depth discussion of these 7+3 sections in relation to the literature I have highlighted in Chapter 3. Therefore, I went back to the legislation to search for all of the mentions and sections across all of the same pieces of legislation, to determine how often the term mathematics was used. My findings of the total mentions of the

term mathematics is presented below in Table 9 and my section analysis is provided in Figure

12, with the overlapping sections on race in a different color to provide some additional context.

Table 9 *Total Sections and Mentions to Mathematics across All Reauthorizations*

	1965	1966	1968	1970	1972	1974	1976	1978	1981	1983	1988	1994	2002	2015
Total Mentions	0	0	0	0	0	2	1	17	2	0	53	63	84	30
Total Sections	0	0	0	0	0	2	1	12	2	0	19	30	18	15
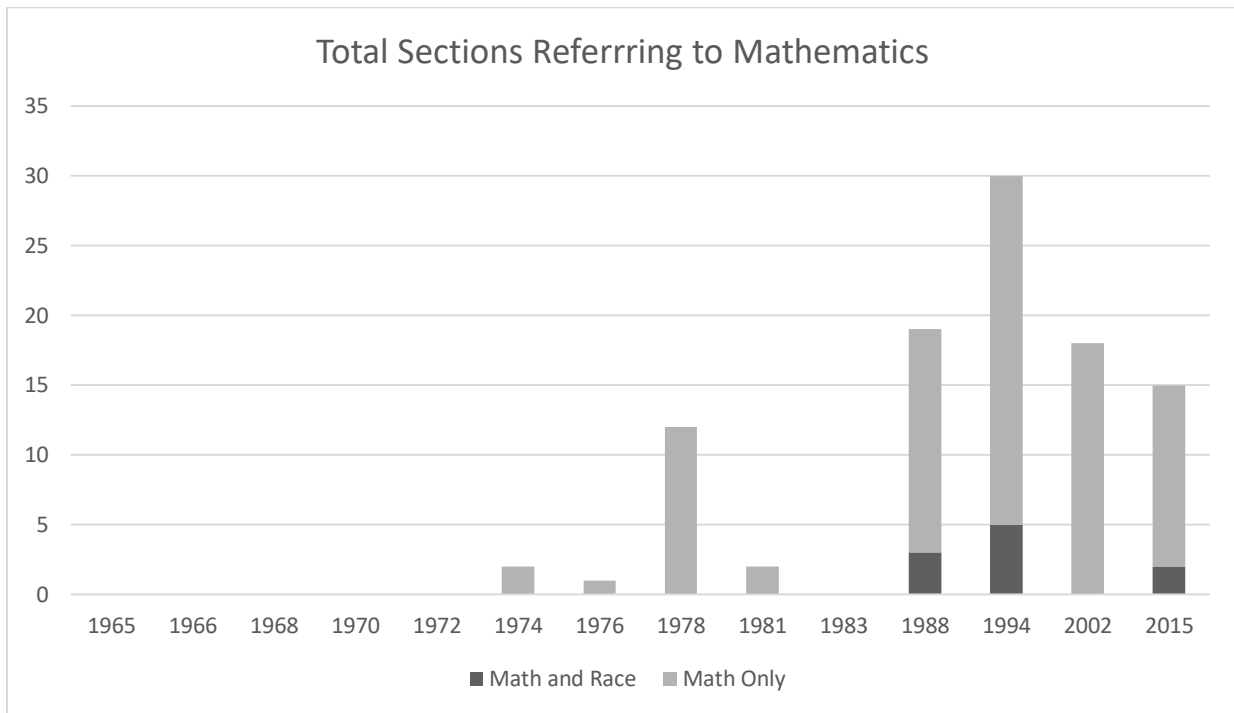
Figure 12. Comparison of sections referencing mathematics with race and without race

The first thing that I note from this data is that the term mathematics did not appear in the

legislation until 1974, and that the prominence of mathematics did not occur until 1978. An

initial explanation for the 1978 upswing is due to the introduction of the National Assessment of

Education Progress (NAEP) which focuses heavily on mathematics and reading as the main

subjects, this explains some of the increase. Additionally, at this time, Congress began desiring

proof that the money being allocated to schools through ESEA, and especially *Title I*, was being

used well (Dossey, 2003). However, what remains unanswered is why race and mathematics are kept separate in the 1978 reauthorization, but are linked in the 1988 reauthorization.

Another thing that becomes evident through a review of the sections that refer to mathematics in 1978 is the beginnings of connections between the requirement for mathematics testing with regard to accountability and achievement practices. This is particularly important to the development of state plans that outline how the states will conduct themselves in relation to the funds they receive through *Title I* funding, as can be seen in the following excerpt, "to develop comprehensive and systematic statewide plans for improving achievement in the basic skills" (P.L. 95-561, sec. 221 (1)), where basic skills include, reading, mathematics and the ability to communicate.

While this information is valuable to elaborate on why mathematics became more prominent within the legislation, it does not help in my continued quest to understand how race and mathematics are linked which is key to understanding the interrelationship between rhetoric around the achievement gap and how the process of racialization works within the legislation. This gap I thought could be filled with a look at national level policies that have had a direct influence on the position of mathematics education, and so I turn to this analysis next.

Political Discourse Analysis and Mathematics Education in Policy

The following are my findings from completing a political discourse analysis of *A Nation at Risk*, the NCTM (2000) *Standards*, and the *Common Core State Standards* (2010). The purpose of doing a PDA for these documents was to help in understanding the connections or disconnections between the main three documents that are referenced with regards to reforms in mathematics education since New Math was a thing in the 1960s. They were chosen based on continued references within various texts as well as their connections to particular

reauthorizations of ESEA. Additionally, each of the documents has had a direct impact on the shape of mathematics education reform directly after their release at the national level.

As outlined in Chapter 4, I have used PDA as a method to engage with each of these documents and as a way to guide what information I have presented below. Therefore, in my exploration of each document I present the circumstances, goals, values, claim for action and means-goal in that order. The order, although a little different from the graphical representation, allows me to provide some background into why or how the document was put together in order to foreground the content of each document. I have also relied on additional academic or publicly available literature to fill in gaps with regard to each of the documents, if the document itself did not provide the information required to complete the PDA. To provide additional structure and continuity I have presented the findings in chronological order with regard to when each document was released publicly. Each section also provides a figure portraying a brief look at the elements focused on as well as a brief discussion of the highlights.

A Nation at Risk: Circumstances

The circumstances that led to the creation of the National Commission on Excellence in Education (NCEE) are quite intriguing. The Commission was actually assembled under the authority of the Secretary of Education, Terrell Bell, because Bell and President Reagan were not seeing eye-to-eye on the importance of education and especially the federal governments' role in K-12 education. Essentially, Secretary Bell called the Commission together as a way to highlight to the President the importance of the federal role in education, although, research suggests that the Commission went farther then even Bell had intended (Hayes, 2004; McGuinn, 2006). In addition to the circumstances leading up to the creation of the Commission and the

release of their final report, *A Nation at Risk*, there is also the reaction to the report that makes this story important.

Research suggests that the vocabulary used to write the report led to the increased reaction, both because the report was not written using academic language, but also because the Commission spent the bulk of the report outlining the many ways in which the public K-12 school system was failing students (Good, 2010). So the reaction to the report actually heightened the profile of education during the Reagan administration, despite Reagan's desire not to have the federal government maintain a role in K-12 schooling (Hayes, 2004, McGuinn, 2006). This can be seen through the changes in the President's running strategies between the election in 1980 and 1984. In 1980, Reagan ran on a platform to eliminate the newly elevated Department of Education from a cabinet level position back to an Office under another department, and advocated for the removal of the federal government in educational matters. However, by 1984, largely due to the publication of *A Nation at Risk*, Reagan dropped the push to eliminate the Department of Education (McGuinn, 2006).

Goals.

The impetus of the ANR report was to "define the problems afflicting American education and to provide solutions, not search for scapegoats" (p. 2). To that end the overarching goal was to offer ways to reform the schooling system. As part of this, the specific goals set to the Commission were:

- assessing the quality of teaching and learning in our Nation's public and private schools, colleges, and universities;

- comparing American schools and colleges with those of other advanced nations;

- studying the relationship between college admissions requirements and student achievement in high school;

- identifying educational programs which result in notable student success in college;

- assessing the degree to which major social and educational changes in the last quarter century have affected student achievement; and

- defining problems which must be faced and overcome if we are successfully to pursue the course of excellence in education. (p. 7)

Values.

The values of the committee come through in the topics that they chose to highlight, such as the elements listed on pages 10 through 12 of the report that outline the *Risk* and the *Indicators of the Risk*. These values include loss of international competitiveness in fields such as the automobile industry, steel work, and machine tools. But also looks to the importance of "knowledge, learning, information, and skilled intelligence…[as the] new raw materials of international commerce" (p. 10). Additionally, the educational risk is outlined in terms that discuss the lack of American competitiveness when international test scores of achievement are compared, how American students' achievement has been decreasing over the past 26 years, including lowered SAT scores and lower achievement scores from those graduating from college. They also provide statistics on how many Americans are considered to be functionally illiterate, the lack of higher order intellectual skills, and the increase in students needing to take remedial mathematics courses once they enter university.

The elements the committee chose to highlight as the risk factors, indicate the things in life that they value and consider important for future discussions about uplifting the American school system. This includes the importance of international competitiveness in schooling, as

well as the economic imperative to maintain the U.S. as a force within the global marketplace. Within the indicators of educational risk that the committee highlighted, they outlined how important achievement, standardized test scores, literacy, mathematical skills, and higher order thinking are to the continued prominence of the country.

One value that was not touched on within the risk factors, but is prominent throughout the remainder of the report is their continued statement that "all, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost" (p. 9). The Commission's continued reference to race and class indicate the value they have placed in understanding how both race and class are implicated in the goal of reforming schooling in the U.S. This is furthered by their references to equity and continued calls for all students, or all learners, to be given the opportunities to do well.

Claim for Action.

In order to reach the goal of maintaining the U.S. global position and increasing achievement, the main recommendation from the Commission was to develop the new basics for high school graduation. These basics included requiring all high school graduates to complete four years of English, three years of mathematics, three years of science, three years of social studies, one and a half years of computer science, with an option to complete two years of a foreign language. Many of these recommendations came from the results the Committee saw for the high school graduates at that time were given too much leniency to choose electives over core subjects, to the point where many high school graduates only needed to complete one year of high school mathematics, for example.

Means-Goal.

The Committee suggests that the ways in which the U.S. will maintain its global position and increase achievement in K-12 education for all students is if the national drive behind education is to "develop the talents of all to their fullest" (p. 14), hold to "the ideal of academic excellence" (p. 15), and attempt to create a "Learning Society" (p. 14). Each of these elements are laid out within the ANR Report, but for the purposes of this research the means-goal of academic excellence is the only one I will focus on for this particular discussion.

There are several elements described within the explanation for excellence in education that are extremely relevant to my larger research agenda in relation to race, mathematics, and achievement. First, is the elaboration of what excellence means. The report defines excellence to mean something slightly different at the individual, school, and societal levels. While it is important to note that they distinguish the individual level from the others, the most important element of this description for this research is in the description of excellence for the school level. The report suggests that "excellence characterizes a school or college that sets high expectations and goals for all learners, then tries in every way possible to help students reach them" (NCEE, 1983, p. 14). In addition to this acknowledgement of the importance of setting high expectations, there is a reference to having high standards and several references to treating students equitably.

Highlights of A Nation at Risk.

CLAIM FOR ACTION (A): the "New Basics" 4 years of English ***3 years of math*** 3 years of science 3 years of SS 1.5 years of comp. sc. 2 years for. lang	**MEANS-GOALS (M-G):** Develop talents ***Academic Excellence*** Create a Learning Society	**CIRCUMSTANCES (C):** Disagreement between the Secretary of Education and President Reagan

GOAL (G): "define the problems afflicting American education and to provide solutions, not search for scapegoats" (p. 2).

VALUES (V): International competitiveness International test comparisons U.S. global position ***"all, regardless of race or class or economic status"*** (p. 9)

Figure 13. PDA highlights of *A Nation at Risk* (ANR)

The elements that I have highlighted in the PDA represented above in Figure 13, outline those elements of ANR that most directly link to my concerns around race and mathematics. First, within the values of ANR there is a direct and overt link created between race and achievement. The document clearly outlines that race should be taken into consideration when academic achievement is being considered, which suggests to me that discounting this linkage is disingenuous to the experiences of racialized students in K-12 schooling or at the very least that race needs to be taken into consideration separately as an important element of schooling in relation to achievement. Second, the way in which academic excellence is defined within the report is suggestive of the importance of race through the references to equity, but also the foreshadowing of how standards and high expectations will begin to play a role in mathematics education after the release of this report. Finally, I have highlighted the suggested requirement

that came from the Commission that all high school graduates should have a minimum of three years of high school mathematics in order to graduate from high school. Each of these elements will be taken up at the completion of all three of the PDAs to provide an overall picture of how each element has changed over time.

The NCTM (2000) *Principles and Standards for School Mathematics*: Circumstances

The 2000 *Standards* are in essence an edited version of an earlier set of standards that the NCTM released in 1989. Therefore, the circumstances for the creation of the 2000 *Standards* is a two part history. The first part, is the most recent history, and the easiest to portray. With the writing and dissemination of the 1989 *Standards*, there came both praise and criticism for the what the NCTM had accomplished (McLeod, 2003). And in the wake of the criticism, the NCTM revised their earlier version to create the 2000 *Standards* document. At the same time that NCTM began revisions, there was a shift in the national conversation about the creation of standards for all states, which was passed into law through the IASA in the 1994 reauthorization of ESEA by Clinton (Lappan & Wanko, 2003). Thus providing legislative support for the NCTM to follow through on the revisions of the 1989 *Standards* document.

The impetus for the creation of the 1989 Standards is necessarily more complex since no document of this kind had ever existed at the national level previously. In short, the 1989 *Standards* were developed over several years and emerged from a political context that was calling for several things. First, was the emergence of the NCTM as a political leader in the policy context of mathematics education. Prior to Shirley Hill's presidency from 1978-1980, the NCTM was involved in discussions around mathematics education, but was not setting agendas as active participants in the policy landscape (McLeod, 2003). This shift was necessary to begin discussions of creating any document that was not directly called for from the government.

Second, a meeting held in the wake of *A Nation at Risk* recommended that professional organizations, such as the NCTM, "should take leadership for directing change in their fields," which should include a set of standards for what should be taught in school mathematics (McLeod, 2003). Regardless of the national call for standards to be created, the NCTM was unable to find a government organization to fund their creation of a document loosely referred to as national standards in mathematics education. A major inhibitor at this time was the Reagan administrations heavy Republican support for local control of education and small government. Also important to note that the original vision for the 1989 *Standards* was evolutionary in nature, it was meant to portray a form of consensus from within the NCTM membership, and was never actually meant as a revolutionary reform document (McLeod, 2003).

Third was a change within the reauthorizations of ESEA itself. In 1978, there was the emergence of discussions around standards in education, and ensuring that students were able to meet those standards. However, there were no agreed upon standards that existed across any jurisdiction, let alone at the national level. And so, all of this history with regard to the NCTM organization, as well as policy and political shifts, undergirds the original creation of the 1989 *Standards* documents, that then foregrounds the revisions and subsequent release of the 2000 *Standards*.

Goals.

According to Chapter 1 the *Standards* are to support a particular vision that NCTM has in mind for mathematics classrooms in the U.S. In particular on page six the NCTM (2000) states that "this document is intended to -

1. Set forth a comprehensive and coherent set of goals for mathematics for all students from prekindergarten through grade 12 that will orient curricular, teaching, and assessment efforts during the next decades;

2. Serve as a resource for teachers, education leaders, and policy-makers to use in examining and improving the quality of mathematics instructional programs;

3. Guide the development of curriculum frameworks, assessments, and instructional materials;

4. Stimulate ideas and ongoing conversations at the national, provincial or state, and local levels about how best to help students gain a deep understanding of important mathematics" (p. 6).

In particular, the NCTM (2000) bases these goals on the idea that "all students should have the opportunity and the support necessary to learn significant mathematics with depth and understanding" (p. 5). Thus we see a clearly articulated goal in mind for what the organization believes the *Standards* can do, or at least support.

Values.

The values underlying the *Standards* are also not a mystery, they are laid out in Chapter 2 of the document. The Principles which should be the basis for decisions made within mathematics education at all levels are encompassed within the following six themes:

- Equity. Excellence in mathematics education requires equity - high expectations and strong support for all students;

- Curriculum. A curriculum is more than a collection of activities: it must be coherent, focused on important mathematics, and well articulated across the grades;

- Teaching. Effective mathematics teaching requires understanding what students know and need to learn and then challenging them to learn it well;

- Learning. Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge;

- Assessment. Assessment should support the learning of important mathematics and furnish useful information to both teachers and students;

- Technology. Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning. (NCTM, 2000, p. 11) Each value is then outlined further over the next 15 pages of the document.

Claim for Action.

In order to reach the goal of all students succeeding in K-12 mathematics, the NCTM suggests in Chapter 8, that "a strong system of support at both the local and the national levels" (p. 368) is necessary. More specifically, they suggest that tracking needs to be removed, that instructional materials need to be consistent with the goals set out, that teachers need to be able to "incorporate new knowledge about how students learn mathematics" (p. 370), a creation of a community of mathematics teachers where responsibilities are shared and efforts to collaborate are encouraged, high-stakes testing needs to be reconsidered, and technology must be meaningfully used, especially in urban and rural areas. In many ways what the NCTM outlines in this final chapter, and what they suggest that mathematics education ought to look like, is a place where all students are fully engaged and learning mathematics in a way that is meaningful, challenging, and equitable.

Means-Goal.

In essence the entire book is the means-goal that the NCTM sees as a way to alter the way in which K-12 mathematics has consistently disenfranchised the majority of the population in the U.S. Within the standards themselves that are provided for each of the four grade bands (K-2, 3-5, 6-8, 9-12), the NCTM has outlined that if students are able to problem solve, develop arguments and proofs, communicate, see connections, and appropriately represent mathematical concepts in number and operations, algebra, geometry, measurement, data analysis, and probability, then all students will be able to succeed in mathematics.

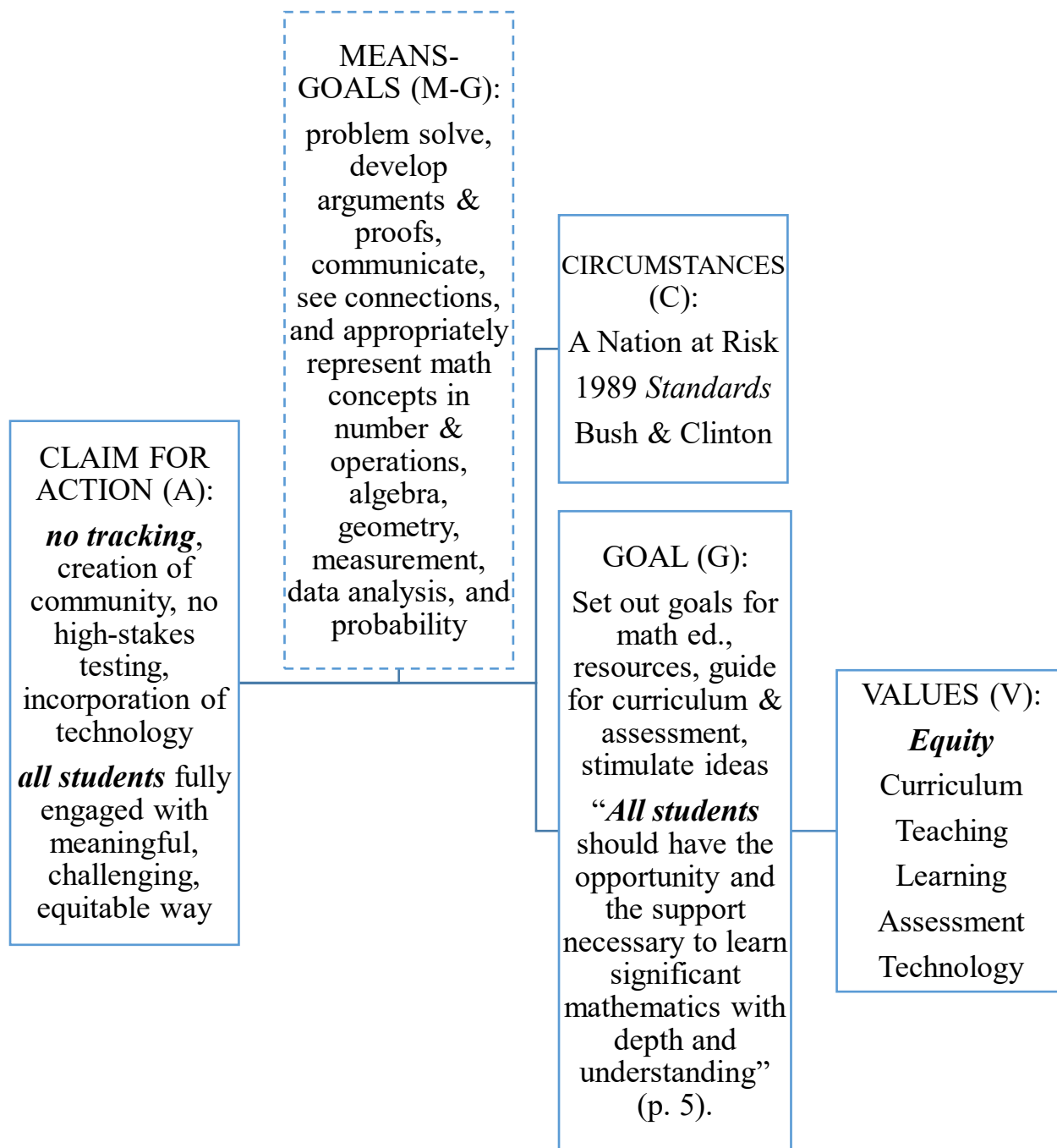**Highlights from the Standards.**

Figure 14. PDA of the NCTM (2000) *Principles and Standards for School Mathematics*

Figure 14 highlights the information presented above with regard to the five elements of

PDA, but also is suggestive of how race is taken into account within this heavily mathematics

focused document. First, this occurs through the references to all students, which was vocabulary that was present within ANR as well. Additionally, the continued theme of equity, understanding that in order for all students to succeed that does not necessarily imply that all students should be treated equally, but that some students may need additional help or assistance in order to meet the same goals as another student. Finally, the reference to the elimination of tracking is very suggestive of racial inequity within mathematics education. In particular, Oakes (1990) argues that tracking has a disparate impact on racialized students, and needs to be eliminated in order for students to have a chance at competing equally. Therefore, I see this reference to tracking as a way of covertly suggesting that systemic practices within mathematics education itself are presently hindering students from full participation, and in order to rectify that situation, tracking needs to be eliminated.

The Common Core State Standards Initiative: Circumstances

The circumstances that led to the creation of the *Common Core State Standards* (CCSS, 2010) started at a meeting in November 2007 (Skinner & Feder, 2012). However, work to complete the actual standards did not commence until 2009. The impetus to create the CCSS seems to be largely based on international test score data releases which suggest that the U.S. is quite low internationally with regard to test scores in mathematics. In particular, in the "Myths vs. Facts" section of the website, they say that "in mathematics, the standards draw on conclusions from the Trends in International Mathematics and Science Study (TIMSS) and other studies of high-performing countries that found the traditional U.S. mathematics curriculum needed to become substantially more coherent and focused in order to improve students achievement, addressing the problem of a curriculum that is 'a mile wide and an inch deep'" (Myths about Process, para. 4).

However, I would be remiss to discuss the emergence of this set of standards without acknowledging the fact that the NCTM *Standards*, both the 1989 and the 2000 versions, existed first. Therefore, the entire history of the circumstances underlying the existence of those first two sets of standards is also relevant here, although it should be noted that the NCTM had no hand or direct influence in the creation of the CCSS. As noted in Chapter One, the CCSS are a publication of the National Governors Association and the Council of Chief State School Officers. In a similar way to how both President Bushes used the NCTM *Standards* as exemplars for their policy initiatives, the CCSS have links to the Obama administration. For example, with the expiration of NCLB and states requiring waivers for not reaching the 100% proficiency mark in mathematics and English in order to continue receiving federal funds, Obama linked CCSS with his *Race to the Top* initiative. Research suggests that while the CCSS were not required of states requesting waivers from being able to meet the NCLB benchmarks and for those schools and districts applying for *Race to the Top* funding, being an adopter of the CCSS was a mark in your favor. Additionally, it is important to recognize that for the CCSS, adoption requires that a state can only be seen as compliant with the CCSS if the state adopts all of the standards exactly as written (Skinner & Feder, 2012). The caveat is that an adopting state can add more standards on top of those provided by CCSS, but they cannot eliminate any, or they are seen as non-compliant. This stipulation was definitely not an element of the previous NCTM (2000) *Standards*, where states were more than welcome to adopt the *Standards*, and alter them in any way they saw necessary to meet the needs of their local populations.

Goals.

The main goal for the creation of the CCSS seems to be based on a desire to create a uniform set of standards for all states, as opposed to continuing to maintain a separate set of

standards in each state. Part of this stems from the fact that particular topics may be covered by one state in grade 3 for example, but covered in another state in grade 4. This is seen as a problem that CCSS would fix, by encouraging all states to cover a given topic in the same year. Additionally, the CCSS are also framed around the goal of ensuring that all students who graduate from high school will have sufficient mathematical skills to succeed in any chosen path (About the Standards, para. 2). Although, while stating that their goal is that all students should be able to complete these, they provide a caveat in the actual write-up of the Standards themselves, which states that "The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs" (CCSS Standards, p. 4). This language seems to assume that not all students will actually be able to complete all of the standards by the time they finish high school, and because they only address students with special needs and English language learners briefly, it begs the question who will be left out?

Values.

The values undergirding the Common Core State Standards Initiative (CCSSI) are not as clearly described as those in the NCTM (2000) *Standards*. Although reading through the documents provided on their website it is fairly easy to determine what is important in the creation and dissemination of this set of standards. The first example is the section of the Frequently Asked Question page that states:

the following criteria guided the development of the standards:

- Alignment with expectations for college and career success

- Clarity

- Consistency across all states

- Inclusion of content and the application of knowledge through high-order skills

- Improvement upon current state standards and standards of top-performing nations

- Reality-based for effective use in the classroom

- Evidence- and research-based. (FAQs, p. 3)

Throughout several different pages and documents that are accessed from their website, it is clear that consistency, college readiness, international comparison, and research-based initiatives were extremely important values that the two main groups supporting this initiative wanted to come out of the standards themselves.

Claim for Action.

The CCSS are not a way to dictate to teachers what to teach, but rather, to "establish what students need to learn" (Myths vs. Facts, Myths about Implementation, para. 1). Through this statement the CCSS suggest that essentially, the existence of the standards will become the way in which the U.S. is able to continue competing at the global level. This stance, is very unlike the NCTM (2000) *Standards*, which outlined the importance of the individual standards themselves as well as how testing, curriculum and teaching are important elements of the overall picture of success in mathematics education.

Means-Goal.

Like the NCTM *Standards* document, the CCSS are meant to be the way in which K-12 mathematics can change. Throughout all of the documentation on their website, the organization states that by using the standards as a guide for teaching practice to ensure that all topics are covered, all students will get through and be able to engage with meaningful mathematics and succeed in whatever career or college path that they choose upon leaving high school.

Highlights from the CCSS.

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                    ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─┐
                    ┆   MEANS-          ┆
                    ┆ GOALS (M-G):      ┆
                    ┆                   ┆      ┌──────────────────┐
                    ┆  The CCSS are     ┆      │ CIRCUMSTANCES    │
                    ┆   the way to      ┆      │      (C):        │
                    ┆ change things, by ┆      │ NCTM Standards   │
                    ┆ ensuring that all ┆      │ NCLB & Obama     │
                    ┆    topics are     ┆      └──────────────────┘
                    ┆    covered, all   ┆
   ┌────────────┐   ┆  students will be ┆
   │ CLAIM FOR  │   ┆  able to engage   ┆
   │ ACTION (A):│   ┆ with meaningful   ┆
   │            │   ┆ math & succeed    ┆
```

Boxes in the figure read:

MEANS-GOALS (M-G): The CCSS are the way to change things, by ensuring that all topics are covered, all students will be able to engage with meaningful math & *succeed* in college or career after high school

CLAIM FOR ACTION (A): The CCSS are not a way to dictate to teachers what to teach, but rather, to "establish what students need to learn" (Myths vs. Facts, Myths about Implementation, para. 1)

CIRCUMSTANCES (C): NCTM *Standards* NCLB & Obama

GOAL (G): Uniform set of standards so *all students* will graduate with math skills for their career "*widest possible range* of students to participate fully from the outset" (p. 4), with accomodations for those with special needs

VALUES (V): Alignment with *college/career success* Clarity Consistency High-order skills Improving current standards Reality-based for effectiveness Evidence- and research-based

Figure 15. PDA of the *Common Core State Standards (2010)*

The highlights for CCSS are quite different from the highlights I presented for both ANR

and the NCTM (2000) *Standards*. First, while using the rhetoric of all students, the CCSS

provides the significant caveat that all students actually means the "widest possible range of

students" (CCSS Standards, p. 4), a caveat that is not present in either of the previous documents.

This phrase also implies that when CCSS says all students, they do not actually mean every

single student, as is assumed with the previous two documents. The second element I would like to highlight is the underlying purpose that runs throughout the CCSS in the focus on career and college success. This is also distinct from the *Standards* which seems to focus exclusively on K-12, while mimicking ANR in its call for a learning society.

Discussion

This chapter shows the ways in which race and mathematics education are linked within both federal education legislation and mathematics education policies, as well as the many gaps therein. What this analysis suggests is that although race and mathematics are being linked, either explicitly or implicitly, through discussions of the achievement gap(s), the legislation and policies around these issues are not providing guidance with regards to how to eliminate the gap(s). In particular, there are a multitude of connections between mathematics and testing, with no acknowledgement of how race plays a role in the discourse. This oversight is especially problematic given that as historical ontology suggests, ideas built upon earlier ideas can begin to constrain our thinking in a particular way. This is valuable for the discussion regarding race and mathematics education, since over the past 30 years with the original publication of ANR followed by the public uproar about the failure of the U.S. education system, there has been a continued limiting of how race and mathematics have been connected at the national level and this trend can be seen in several ways.

First, returning to the 7+3 sections that connect race and mathematics within the legislation. These two ideas are linked together in the legislation for the first time in 1988, which is after the publication of ANR, suggesting that the publication of ANR sparked a federal interest in the connections between race and mathematics. This is further supported by the findings on mathematics alone which shows that mathematics has been present in the legislative

history since 1974, with a large increase in mentions in 1978, although no connections to race were made until 1988.

The second main point to consider from the PDA research is how race is dealt with in relation to mathematics education policies outside of legislation. As the PDAs show, despite ANR clearly and overtly linking race to mathematics as an important topic to consider in relation to mathematics performance, by the time CCSS is released in 2010 there is neither an overt nor a covert mention of race. Additionally, there is the inclusion of a caveat that suggests that not all students should be able to complete all of the tasks identified as important within CCSS. These messages clearly go against both the rhetoric of ANR and the NCTM (2000) *Standards* which suggest that *all* students should be able to complete *all* of the mathematical tasks. On top of that, by completely eliminating race from the conversation CCSS is in essence denouncing the importance of recognizing the historical and systemic ways in which mathematics continues to be used to keep racialized students from participating in higher level mathematics.

The problem with delinking racial discussions from mathematics education legislation and policy is that it allows for arguments claiming that it is a characteristic of Black families or of Black culture to not do well in school to fester. Especially the removal of the historical nature of the underrepresentation of particular groups in mathematics. Without an understanding of how historical and structural impediments have actively limited the ability for Black students to participate fully in mathematics, teachers and policymakers are left with the ignorant assumption that not participating in mathematics is an inherent aspect of Black people. Essentially, what this does is rearticulate the master-narrative and eugenic assumptions about who is seen as intelligent. Finally, all of these sections highlight the importance of discussing equity and what it actually means in relation to the current atmosphere of achievement and accountability that is

practiced in the U.S. However, there is not enough space to fully delve into this topic in this chapter, and I take this theme up in Chapter Eight.

Conclusion

This chapter has outlined in-depth the connections between mentions of mathematics in the legislation with idea that have been presented within national level mathematics education policy documents such as the NCTM (2000) *Standards* and the *Common Core State Standards* (2010). The purpose of which has been to show how ideas within the mathematics education community have related to the ideas presented within the legislation, but have also informed later version of the legislation. In particular, my use of historical ontology in the discussion suggests that ideas perpetuated around race and mathematics within current legislation have their forms in previous policy documents, but are also constraining how discussions of race and mathematics can occur in the present. In particular, in the next chapter, I take up the ideas begun in this chapter, to indicate the risk of maintaining some of these ideas to the life chances of racialized students in direct relation to their K-12 mathematics experiences.

Chapter Eight: Rethinking the Implications of Achievement as Accountability for

Racialized Students: Bringing It All Together

Young, gifted and black
Oh what a lovely precious dream
To be young, gifted and black
Open your heart to what I mean
In the whole world you know
There was a billion boys and girls
Who are young, gifted and black
And that's a fact!
You are young, gifted and black
We must begin to tell our young
There's a world waiting for you
Your's is the quest that's just begun
When you feel really low
Yeah, there's a great truth that you should know
When you're young, gifted and black
Your soul's intact
To be young, gifted and black
Oh how I long to know the truth
There are times when I look back
And I am haunted by my youth
Oh but my joy of today
Is that we can all be proud to say
To be young, gifted and black
Is where it's at

~Nina Simone, *Young, Gifted and Black*, 1969

Nina Simone wrote this song as a political piece to state emphatically that young Black youth were knowledgeable and worthwhile people, as an expression of the tenets of the Black nationalist and Black Arts movements, while also expressing her hope for the future (Kernodle, 2008). I chose this song to start this chapter specifically for two reasons. First, because I read a book of the same title, *Young, Gifted and Black: Promoting High Achievement Among African-American Students* (Perry, Steele, & Hilliard, 2003) which outlined the importance of schooling African American children *as* African American children, and this is a theme that is reiterated throughout my discussion and recommendations for the field in this chapter. However, the main

reason I felt that this song belongs here is because it directly, emphatically, and joyfully declares the exact opposite message of the master-narrative that led me on this research journey. This message, originally banned from the radio but subsequently became one of Simone's biggest hits (Kernodle, 2008), spoke at the time against the deficit images and portrayals of Black people in the midst of civil rights struggles. However, this message is just as important today, given the ways in which young racialized students are unfortunately still perceived through deficit models and negative stereotypes.

I see this chapter as bringing my findings and analysis from Chapters Five through Seven together in an effort to point out the implications of ignoring "race" or moving away from racial language in legislation and policy. In particular, Theresa Perry's (2003) chapter in *Young, Gifted and Black* argues for a distinct understanding of what achievement means for African American students. For example, she indicates that achievement for African Americans should take into account racial microaggressions; the school to prison pipeline; and the deficit narratives, such as the master-narrative, which suggests that racialized students are incapable of doing mathematics. Instead, achievement for African America students as African American students should learn from the history of Black separate schools, that would sing the Black National Anthem, had teachers that would push Black students harder, and recognized that the world is colour-coded, therefore achievement must necessarily look different for racialized students. Spencer (2009) adds to this argument by suggesting that the issue should not even be framed as a matter of achievement, because that term comes with too many preconceived notions, and instead the conversation should focus on how *success* can and should look different for racialized students. In essence, both of these women are saying that, if research, teaching, policy, and legislation do not take into consideration how racism and racialization play a role in K-12 schooling, then too

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much is overlooked. Keeping Perry (2003) and Spencer's (2009) arguments in mind, I return to my theoretical framework to help frame my final discussion about achievement as accountability. Using CRT paired with governmentality this dissertation has aimed to answer questions around what led to what I have called achievement as accountability. In order to explore this idea I proposed four questions that, together with my theoretical framework, helped guide my research through ESEA and its subsequent 13 reauthorizations. These four questions are as follows:

1. In what ways does achievement as accountability alter conceptions of equity in mathematics education?

    a. How are racialized students positioned within accountability policies? How has this changed over time?

2. What are the political and historical underpinnings of achievement as accountability in mathematics education?

    a. How are political calls for reform, especially *A Nation at Risk,* and the call for high academic standards linked with mathematics education calls for reform, and the creation and dissemination of the NCTM *Principles and Standards for Schools Mathematics* (2000)?

The remainder of this chapter uses the five elements of CRT research, a) the centrality of race, b) a challenge to dominant ideology, c) the goal of empowering subordinated groups, d) the experiences of people of colour, and e) its interdisciplinary acknowledgment (Ladson-Billings & Tate, 1995; Tate, 1997; Yosso, et al., 2004), to engage with responses to these questions. Following this analysis, I reflect on my initial presentation of the problems facing mathematics

education that I presented in Chapter One, and conclude with my recommendations for the field based on everything that I have come to know through this research project.

Achievement as Accountability

In proposing my initial research project, I was very concerned with how the idea of achievement as accountability came into being, where achievement as accountability suggests that the goal of testing students is no longer to encourage teacher reflection, but instead is about justifying school hierarchies (Kuchapski, 1998) and shifting policy discussions to educational inputs (Kuchpaski, 2001). More specifically, I wanted to understand how achievement and accountability narratives were related to deficit narratives that continue to perpetuate the idea that racialized students cannot succeed in mathematics. Guiding my research, I relied on questions around how racialized students are positioned within accountability policies, how this has changed over time, what political and historical underpinnings existed, and in what ways does understanding all of this history impact conceptions of equity in mathematics education presently. As a way to frame my final analysis I return to my theoretical framework, CRT, to guide the topics that I cover. To that end, I use the five tenets of CRT to provide a topic to focus on, be it race, dominant ideologies or transdisciplinarity, without necessarily engaging with the focus of the tenet itself. Following my discussion of achievement as accountability, I return to the figure I presented in Chapter One outlining the educational, policy, and social problems to problematize some of the initial connections that I made. I end the chapter with suggestions for future research and recommendations for the field.

A Return to Race

This part of the analysis reflects back on the call for CRT research to centre race and racism, by reviewing some of the major findings and discussion regarding racial language and

racism, followed by a brief discussion of how intersectionality plays a role in the analysis. I

begin this discussion by reviewing the use of the term nonracial in NCLB (P.L. 107-110, sec.

1503(d)(3)). If there was ever any doubt that the idea of "race" was connected to the colour-line,

the use of nonracial in this context implies that there is a normalization of the idea that some

people in the U.S., presumably White citizens, are not raced. Essentially, the use of the term

nonracial suggests that we, those people racialized as White, are not included within the system

of racial classification. While it would be easy to dismiss this use of language as a fluke, since it

only occurred once in the entire 50 year history of the legislation, to me it harkens back to many

of the atrocities I established in my definition of the idea of "race" in Chapter One. These

atrocities include counting slaves as 3/5 of a person and using racial schemes of classification to

rationalize the conquest of racialized groups. In modern terms, this process of othering through

race, suggests that there is a difference, that the history of the idea of "race" has been used to

deny people's wholeness, deny them rights, and to substantiate unequal access to education.

This is especially troubling given that the idea of "race" has been thoroughly disproven as having

any substantial value to determining intelligence, worth, or value, and is largely considered to be

a social construction (Martin, 2009a) with ever changing meanings. This complete denial of the

socio-political impacts of race, racism and racialization through the use of the term nonracial has

huge implications for how discussions around the impact of racism and racialization in relation

to K-12 education needs to be taken seriously in political circles at all levels of government in

the U.S.

In addition to the very problematic way in which the legislation uses the term nonracial,

the findings and analysis in Chapters Five and Six, suggest further need for reflection on the use

of racial terminology in legislation. Chapter Five briefly engages with how new racism is

perpetuated through the use of racial terminology in the legislation, a theme that is taken up further in Chapter Six's analysis. In particular, as I argue in Chapter Six, a reification of race, or racial narratives, as well as a continued conflation of race with class, suggests a continued unwillingness of politicians to acknowledge the continuing ways in which race, racism and racialization play a role in education. This trend is accomplished in the legislation through the covertness of racial discourse, the avoidance of racial language, and by making racial inequality invisible. Thus, from the ways in which racialized students are positioned within federal education legislation, we can see that they are only really visible in areas that seem to be explicitly about race. Even more concerning is the trend to continually eliminate references to nuance around racial issues. One example of this trend is the change in wording that eliminated the references to *de jure* and *de facto* segregation used in earlier reauthorizations, which now is merely referred to as segregation. A second example of this trend, is the removal of the term historically from the phrase historically underrepresented groups, which disregards the historical rootedness of the representation of particular groups. These changes highlight a weakening of national level understandings of the continuing implications of race, racism and racialization within K-12 schooling. To reiterate, what historical ontology suggests, is that given the diminished ways in which racial language is used within the present legislation, future legislation will likely continue the trend of lessening this type of language. The real damage of this trend in language use is the diminished capacity for the recognition of how racism and racialization are then perpetuated through the master-narrative.

Finally, a discussion of race in the legislation also requires an acknowledgement of the intersectional elements and conflation of race with class throughout this analysis. Much of the analysis around racial language also revolves around how class is often used as a replacement for

race. What intersectionality suggests is that it is more than just acknowledging how class stands in for race, but also dealing with those groups who are left out because of their intersection between class and race. In particular for this discussion are middle-class and upper class Black families as well as lower class and working poor White families. Subsuming all racial issues under the banner of class ignores the ways in which race also impacts middle and upper class racialized families separate from concerns over access to money. Similarly, using class as a stand-in for race implies that all lower class families are racialized in the same way. Therefore, it is vital to acknowledge that race and class both have an impact on K-12 education, but that neither is appropriate as a proxy for the other. This conclusion suggests that if future legislation maintains the goal of eliminating the achievement gap(s) then it must be reframed to not only focus on the children of low-income families, but also the children of racialized families.

The Role of Dominant Ideologies

The two main ideologies that I engage with in this research are racism and the master-narrative. They come together most clearly in the research I completed about mathematics and race, especially in relation to how the mathematics education community takes up knowledge through testing. In order to research these ideologies, I relied on historical ontology to engage with how these ideas have shifted over time. To that end, results of the information that I gathered through the use of PDA shows a historical flow of ideas within mathematics education from 1983 to 2010. These findings show how the political call for higher standards was taken up by the mathematics education community and how it developed into the standards movement. This suggests a close linking of *A Nation at Risk*, with both the NCTM (2000) *Standards*, and the *CCSS* (2010). What this historical picture also shows is how discussions of race have been slowly and systematically removed from the policy. Historical ontology suggests from this, that

future mathematics education policies will continue to disregard the importance of race, racism, and racialization to the experiences of students in mathematics classes. What *A Nation at Risk* also foreshadows is the focus on testing and mathematics as ways to improve the political standing of the U.S. internationally. However, this is only part of the political and historical picture of achievement as accountability. In order to see more of the history it is important to also deal with how the legislation frames both mathematics and racial topics.

Continuing with the findings presented in Chapter Seven, the focus on mathematics developed as a way to ensure that government money was being spent responsibly and that the focus on education was actually creating some "results". What started as merely a way to gain a representative sample of American student test scores on topics such as reading and mathematics every four years, NAEP has morphed into the apparatus that gauges who has made adequate yearly progress. This process presents a yearly set of reports that outline how students have done in mathematics and reading called *The Nation's Report Card*, and is also used to determine sanctions against schools that do not complete the requirements laid out in the legislation. What many researchers suggest, and I agree with, is that by framing achievement in this way merely perpetuates deficit model thinking about racialized student performance in mathematics (Gutiérrez, 2008; Martin, 2009a; Spencer, 2009). More importantly, I have determined from both the historical analysis of mathematics policy documents and how mathematics is framed in the legislation, that neither race nor racism are strongly linked to mathematics education, if at all. This is especially important given previous versions of the legislation that have explicitly stated that with regard to mathematics in particular concern needs to be given to those groups who have been *historically* underrepresented in those fields (P.L. 100-297, sec. 2006 (b)(2)). So in dealing with the political and historical elements of achievement as accountability, it is clear that testing

and deficit thinking are the main suggestions to "fixing" the problem of students not doing well in mathematics. It is also clear that these solutions are almost entirely separate from both historical understandings and the political implications of how race and racism function as aspects of K-12 schooling in the U.S.

What this research about mathematics education policy and mathematics within the legislation suggests is that racism and the continued use of racialization practices to attempt to understand discrepancies in educational attainment and achievement is completely without a race analysis of any kind. This is partially because the ways in which race and mathematics are used together, or linked, are so limited as to be almost meaningless. For example, the main stream mathematics education literature that strives to discuss student test scores, merely uses race as a category to assist in the disaggregation of data as a comparative measure (Carroll, 1997; Fuson, Carroll, & Drueck, 2000; Harwell et al., 2007; Huntley et al., 2000; Post et al., 2008; Price, 2010; Reys et al., 2003; Riordan & Noyce, 2001; Stiefle, Schwartz, & Chellman, 2007; Wei, 2012). This practice is also used in the presentation of scores for *The Nation's Report Card*, which is also the basis for claims of the existence of an achievement gap between Black and White student test scores. At a very basic level, these practices ignore, or attempt to simplify, the extremely complex nature of the idea of "race" to a categorical comparison between groups of students. What occurs because of this ignorance or inability to engage with the realities of racism and racialization in K-12 schooling, is that the master-narrative is reified into existence and pseudo-scientific claims of hierarchies of intelligence are able to flourish unacknowledged in the background. Therefore, the danger of mathematics education policies and federal education legislation systematically removing references to race is the continuation of an unequal K-12 education system that is highly stratified based on race. Therefore, part of what this analysis is

attempting to do is bridge the apparent gap between areas where race is made explicit to those places that refuse to deal with it.

Subordinate Groups

> People, people, we are the same/
>
> No, we're not the same, 'cause we don't know the game/
>
> What we need is awareness, we can't get careless (Public Enemy, 1990)

One of the things that Public Enemy (1990) alluded to in the lyrics above is the importance of knowing how the system works in order to be able to fight the elements of the system that are denying people their rights. As I have already discussed in this analysis, policy and legislation play a large role in shaping national conversations around the importance, or the perceived inconsequential nature, of various issues. In particular, the present trend of using covert racial terminology, eliminating racial language, and continuing the practices of new racism within federal education legislation is then mirrored, or enhanced, in mathematics education policies, where race has been completely eradicated from the *CCSS*. Thus, if the goal of federal education legislation is actually to reduce or eliminate the achievement gap(s) there needs to be a stronger and more purposeful focus on issues that are impacting racialized students. Including the ways in which the legislation and policies have a tendency to refer to achievement as an individual characteristic rather than acknowledging the system of policies and assessments that define how achievement is to be understood. This includes, but is not limited to, acknowledging the historical ways in which racialized people have been systematically devalued, how that process continues in K-12 schooling today through tracking and testing requirements, and the importance of noting how the process of racialization treats students differently on both

an individual and systemic level. Without these, and other measures to actively engage with how race impacts schooling, the systems that maintain the existence of the achievement gap(s) will continue unfettered.

Experiential Knowledge

I believe that the use of the songs to foreground each of my chapters, has allowed for me to include the voices of those most directly impacted by racism and racialization. Although it is a balance between acknowledging how particular artists have come to understand the implications of racism and racialization in their own lives, and presenting the songs as an essentialist representation of how all Blacks interrogate these issues. As Ramsey (2003) suggests, what he terms race music, bepop, jazz, the blues, gospel, and hip-hip, are a conglomerate of history, memory, and culture in a particular time and place. Therefore, although I have chosen each song very carefully to represent *a* voice of African Americans in the U.S. about racial issues, at no point can any of the songs be seen as *the* voice, or experience, of all African Americans at that time. That being said, there is still importance to recognizing the different ways in which popular Black musicians have understood and communicated racism and racialization to their generation.

Transdisciplinarity: Reflecting on the Use of Historical Ontology and Meanings of Equity

In his article outlining transdisciplinarity, Max-Neef (2005) suggests that if policies do not deal with the values, ethics, or philosophy underlying their choice of action, policies will always fail. In relation to mathematics education and race, this means dealing with the ethical imperative of how equity is framed. As I outlined in Chapter Three, the majority of mathematics education researchers have a particular understanding of equity as it relates to research within mathematics education. However, when taking into account achievement as accountability, I

think that mathematics education research needs to begin problematizing many of the simplistic ways in which equity is currently considered. For example, when considering the use of the term "race" in mathematics education research, this entire dissertation presents a cautionary tale of rethinking how the field as a whole discusses and links testing as well as how we engage with race and mathematics at the policy level. Accountability policies have forced the field into conflating race with class, delinking race and mathematics, and only engaging with race, racism and racialization on a surface level in relation to the disaggregation of test score data. However, for future research to meaningfully engage with the master-narrative, we need to continually problematize how the cycle between the educational, policy and social problems are connected. If, for example, we acknowledge the processes that maintain racism, and find ways to alter those connections, perhaps we could see a lessening of racism's continued impact on how policy and education function. In this way, we can begin to dismantle some of the ways in which the master-narrative is upheld, bolstered, or arranged. One way to accomplish this goal is to return to my initial visualization of the problems that I identified in Chapter One to add to it and alter it simultaneously.

Reflections on the Interconnections between the Educational, Policy, and Social Problems

Below in Figure 16, I have begun to add some complexity to my initial diagram showing the interconnections between the educational, policy, and social problems that I presented in Chapter One. I do this in an attempt to show where cycles of racism and racialization could be thwarted through a deeper understanding of how racism and racialization function to perpetuate ideas like the master-narrative in mathematics education.
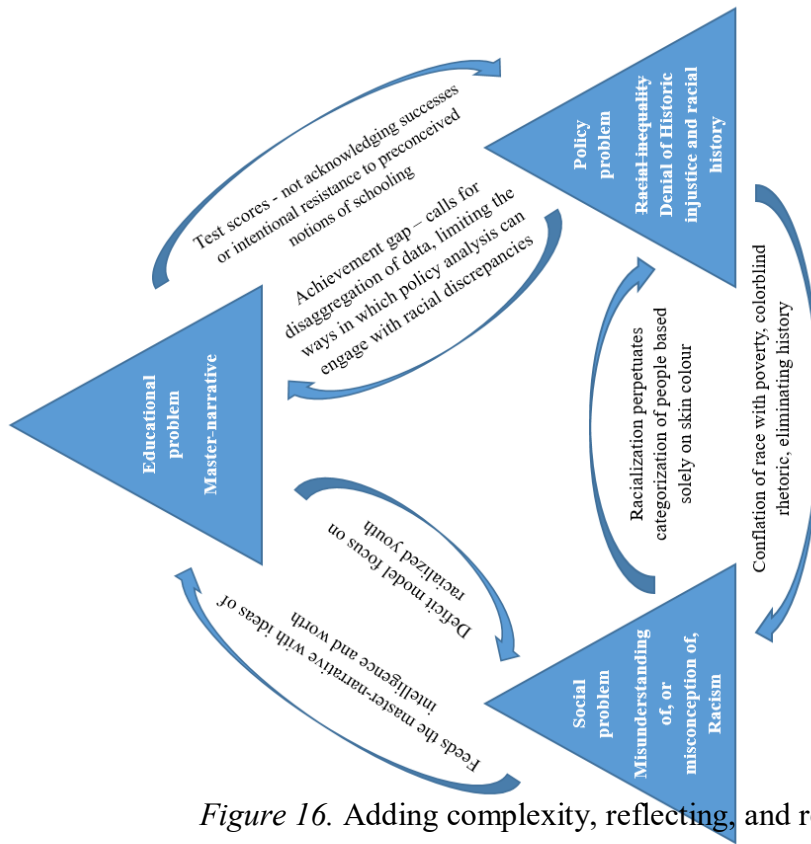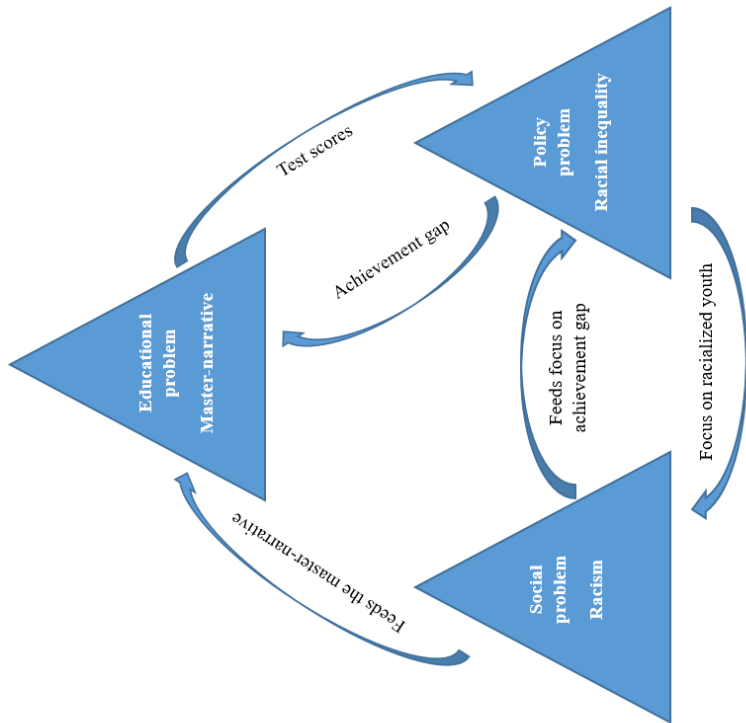
Figure 16. Adding complexity, reflecting, and revising the interconnections between the educat

Figure 16 is designed to examine policy's tendency to define the problem as the achievement gap(s) in educational attainment. By focusing so exclusively on the achievement gap(s), as NCLB and ESSA do, policy perpetuates deficit narratives through the reification of the master-narrative and the use of achievement as accountability. What this reification process accomplishes then is the solidification of the cycle that assumes that Black students cannot achieve in mathematics, tests students and compares their scores across racial categories, determines that Black students cannot score equal to or above White students in mathematics, therefore it must be true that Black students cannot achieve in mathematics. The assumption built into this cycle that Black students cannot achieve in mathematics is built on racist stereotypes about intelligence as well as a presumed hierarchy where Black students are positioned at the bottom and White students are positioned at the top (Nasir, et al., 2009). In order to alter this continuous cycle that maintains its power over the rhetoric in mathematics education, I propose to change the framing of the problem through a reorganization of my initial problem definition. To that end, the set of triangles on the left is merely a reproduction of Figure 2 from Chapter One for easy comparison. In the set of triangles on the right, I have worked to provide more detail, to renegotiate what the educational, policy, and social problems actually are, and to rearticulate how the three problems are interrelated. Most of the information added has been due to the findings and analysis of my research. For example, although I still view the educational problem to be based in the existence of the master-narrative, the ways in which the educational and policy problems link to each other is much more complex than I originally described. As I described in Chapter One, the connections between the educational and policy problems are based in the focus on the achievement gap(s) and the use of test scores, a process that simultaneously places a targeted gaze on Black students, while maintaining a deficit

narrative. Instead, as Spencer (2009) suggests, the ways in which the policy aims to alleviate the achievement gap(s) needs to take into consideration alternate definitions of what achievement means, including, but not limited to, renegotiating the focus of policy from achievement to success, as well as, looking at how resistance plays a role in how some students respond to the limitations of schooling.

Two of the major changes that I have made between the two figures is to alter how I am framing the policy and social problems. For the social problem, I have merely added some clarification, by suggesting that the social problem is actually the misconception, or misunderstanding, of how racism works. This change is directly related both to my definition of racism in Chapter One and my exploration of how new racism functions within legislation in Chapter Six. What this exploration suggests is that new racism works in ways that are mostly subversive, but is nonetheless recreating or maintaining discriminatory practices through the ignorance of how racism functions. The second major change that I made to the problem definitions was to alter the policy problem completely. Initially, I described the policy problem as racial inequality, but given my findings and analysis from Chapters Five through Seven, I believe instead that the policy problem is actually the denial of the history of racial injustice. Somewhat of a nuanced clarification, what this reframing really emphasizes is the importance of the historical situatedness of how the inequality has been perpetuated must play a role in both the problem statement and the proposed solutions. Restating the problems in this way allows for some possibilities to remedy the situation.

In order to break the cycle of perpetuating deficit narratives and the elimination of discussions of the impacts of racism and racialization, I have renegotiated my initial problem definition figure to elaborate on how systems work to maintain those cycles. As a way to alter

this status quo within federal education legislation and mathematics education policy, I end this chapter with a few recommendations in the following section.

Recommendations for the Field & Future Research

After completing my research project I have come to several recommendations that I think need to be taken up by the field of mathematics education in order to begin breaking the cycles identified in Figure 16. While all of these recommendations can be taken up in different ways, I will provide the most detail as they relate to U.S. federal education legislation and policy within the field of mathematics education since those are the areas that I focused on for my research. In essence, all of my recommendations stem from a desire to re-epistemologize what mathematics knowledge means, especially with regard to African American students. This recommendation is based in ideas presented by Ali A. Abdi (2018) with regard to theorizing how education on the African continent needs to adjust for the historical epistemicide that occurred through the colonization of the continent by various European forces. Despite his focus on the African continent, and acknowledging that the histories are quite distinct, I think with regard to dealing with the historical treatment of racialized people in the U.S., including the continued impacts of colonialism, racism, and slavery, the idea of re-epistemologizing knowledge in mathematics education could provide a foundational shift. In particular, this would allow for a deeper consideration of the ethical imperative to engage with how equity should look in K-12 schooling at large, and mathematics education more specifically. This process would thus continue the transdisciplinary process proposed by Max-Neef (2005) as well. The following four points underscore the ways in which changes can start to be enacted within the legislation itself.

1. At a minimum, for legislation, re-epistemologizing knowledge would require returning back to the phrasing about segregation as being a result of both *de jure* and *de facto*

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circumstances as well as the phrasing of historically underrepresented groups in relation to mathematics. Both of these changes acknowledge the historical situatedness of why racialized groups are underrepresented in particular fields.

2. Further to changing the vocabulary back to reflect the historical nature of how racism works, there also needs to be a disentangling of race and poverty within the legislation. To begin this process there would need to be a movement away from language such as disadvantaged, which is enmeshed with the history of ESEA itself and President Johnson's War on Poverty initiatives that allowed for ESEA to be passed originally.

3. There would also need to be a concerted effort to engage with racial terminology more throughout the legislation, especially beyond those sections that relate to desegregation and the disaggregation of test score data.

4. In addition, the ways in which racial terminology and the disaggregation of data would need to be revised to take into consideration the history of intelligence to help guide states, districts, and schools to use the information garnered from these assessments in a respectful way.

These recommendations serve to provide a starting point for altering the legislation and looking at ways in which acknowledging history can help to alter how legislation should be engaging with K-12 schooling.

To continue my recommendations, the next four points outline ways in which mathematics education policy can take up some of the ideas that have come up through this research.

1. First and foremost, for mathematics education policy there needs to be a reengagement with race and equity that was completely eliminated by *CCSS*. With absolutely no

acknowledgement of how race or equity can or should play a role in the mathematics curriculum, the policy is suggesting to mathematics educators and teachers that these issues are unimportant in the mathematics class. As a way of dealing with this obvious lack in mathematics education policy I turn to Theresa Perry's (2003) call to consider education for African American as African Americans seriously. To begin taking this recommendation seriously, mathematics education in particular would need to simultaneously deal with the historical nature of intelligence, the impact of desegregation efforts, and the ways in which culture relates to mathematics. As pointed out in several areas throughout this dissertation, race and intelligence have been subliminally linked to each other in such a way that the racist history undergirding assumptions about who is deemed to be "naturally" intelligent have been sublimated through processes that claim objectivity. These processes allow for ideas like the master-narrative to continue unabated and unchallenged, reified through achievement gap rhetoric, and assumed to be true.

2. Another necessity to begin re-envisioning mathematics education for African Americans as African Americans is to deal with the unforeseen consequences of desegregation that saw the decimation of the African American teacher and administrator population in K-12 schooling. While representation is not always important, as Martin (2008, 2009a) points out, the lack of racialized presence in high levels of policy decision making means that the perspective of how racism and racialization are experienced by students is missing. With increased representation in K-12 schooling, through concerted efforts and direct hiring of racialized teachers, the disparity between racialized groups can begin to alter.

3. Additionally, recognizing the cultural impacts of how mathematics is taught and learned, could have some potentially great impacts on how students are able to engage with various mathematical concepts. As Bishop (1988) shows, there is a value in so-called folk mathematics, that allows students to see the importance and usefulness of mathematics beyond the oft cited practices of memorization and drill-and-kill. This would also include the value of the *Algebra Project* (Moses & Cobb, 2001) and its ability to engage with local mathematical practices of students, as well as the theories behind ethnomathematics (D'Ambrosio, 2016). All of these scholars, and many more, recognize the importance of how culture and lived experience play a role in the value that is placed to particular activities and subject matters, and so should provide models for how mathematics curriculum, teaching, and research should change in order to focus on equity and the impacts of racialization in mathematics education.

4. Beyond these first three points, mathematics education needs to note the power exuded by years of neo-liberal rhetoric that has normalized certain understandings of race within education. Standards, testing, and intelligence, the connections made between these ideas, and then how they are put to use to maintain racial hierarchy within society. Racial hierarchy as a normalized and foundational idea has for a century led us to believe that testing somehow provides a gauge on someone's intelligence. But hidden within those notions is also racist assumptions about who is assumed to be intelligent that have been incorporated into the very fabric of the testing regimes. The ways in which racial terminology is used throughout the reauthorizations of ESEA, but especially in present legislation, outlines some of the ways in which mathematics education research and teaching can begin to reconceptualize the relationship between racialized students and

mathematics. This includes the importance of being able to meaningfully link mathematics teaching and learning with race, especially within policy. Both of the sections that mention mathematics, do so to outline ways that states and local educational agencies can apply for money to help underrepresented groups receive a well-rounded education, which specifically links racialized students and mathematics. For K-12 mathematics teachers this is particularly important since the stated purpose of ESSA is "to close educational achievement gaps" (P.L. 114-95, sec. 1001), and one of the largest achievement gaps exists between Black and White students in mathematics (U.S. Department of Education, 2015). That being said, in order to move beyond perpetuating deficit narratives around the achievement gap, and instead taking the sociopolitical turn that Gutiérrez (2013) suggests, research associated with linking racialized students and mathematics should take into consideration larger societal discussions of race. For mathematics this would include looking beyond test scores to links between housing, income or wealth patterns, teacher turnover, and implicit bias as ways of acknowledging how systemic and structural issues related to race play out in test scores. Finally, while maintaining statistical information about who is teaching racialized students and how racialized students are performing on assessments, these reporting mechanisms need to go farther. By only collecting particular types of data, this process limits the ways in which mathematics education teachers and researchers can then engage with their students, because they are hyper focused on test scores. This is not to say that all teachers do this, but that research and policy give this impression when it is so often repeated. In order to meaningfully change the statistics being kept there first needs to be a change in assessment practices in mathematics education that allows for an acknowledgement of

student gains, regardless of meeting a given target, as well as a concerted effort to keep

students in school rather than pushing them out by forcing arbitrary quotas on schools.

Also, rather than using the disaggregation of test score data to provide a means of

sanctioning schools, it should instead provide a way for schools to gain additional money

for having too many students "fail", thus allowing more money to flow to the schools that

arguably need it more.

Overall, changing the rhetoric of legislation to be more historically accurate, acknowledging

the importance of culture to the teaching and learning of mathematics, looking beyond test

scores, and using test score data to provide additional resources to schools are some of the many

ways in which legislation and policy can begin to re-epistemologize what mathematics

knowledge means and how it is evaluated in the U.S.

The most important thing to acknowledge about this research is that it is only a starting

point. There are several ways and places throughout the legislation that require a further

intersectional analysis now that there is a limited understanding of how racism is maintained

through the legislation to build upon. For example, with regard to mathematics education, a

deeper look at what the sections related to mathematics actually entail would be helpful in

understanding how states, districts, and schools have taken up the policy and implemented, or

not, particular programs. Within these sections, there are two sections that explicitly use the

phrase women of colour in relation to mathematics education, and given how there are

conversations within mathematics education about either race or gender, these sections provide

the perfect location to engage with the intersectionality of race and gender. Continuing in this

same vein, there is a section of the legislation dedicated to the *Bilingual Education Act*, and

given that Latin@ students are also seen as underperforming by the U.S. Department of

Education (2015) an intersectional analysis of how race, poverty, and language all play a role in this narrative would also be valuable. In addition to the *Bilingual Education Act*, there are also several sections devoted to Indigenous education, especially for those groups in Hawaii and Alaska. Maintaining a continued focus on intersectionality, future research on how race, language, and sovereignty come together within these sections would also be valuable. Finally, one of the more surprising aspects of my research into race within the legislation was how much desegregation was still very prominent in relation to the use of racial terminology. Therefore, further research on the impacts of limiting racial terminology in relation to desegregation could help to illuminate some of the ways in which racial terminology continues to be used within U.S. federal legislation. As I hope I have shown through my findings and analysis, by starting with the legislation we can begin to see how ideas have been taken up, magnified or thwarted through the policies within mathematics education itself. Therefore, although all of my suggested research aims itself at the legislation as a starting point, I would greatly encourage any future research to reach beyond the legislation as well.

Conclusion

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.
Sing a song full of the faith that the dark past has taught us,
Sing a song full of the hope that the present has brought us;
Facing the rising sun of our new day begun,
Let us march on till victory is won.

Stony the road we trod, bitter the chastening rod,
Felt in the days when hope unborn had died;
Yet with a steady beat, have not our weary feet,
Come to the place for which our fathers sighed?
We have come over a way that with tears has been watered,
We have come, treading our path through the blood of the slaughtered;
Out from the gloomy past, till now we stand at last
Where the white gleam of our bright star is cast.

God of our weary years, God of our silent tears,
Thou Who hast brought us thus far on the way;
Thou Who hast by Thy might, led us into the light,
Keep us forever in the path, we pray.
Lest our feet stray from the places, our God, where we met Thee.
Lest our hearts, drunk with the wine of the world, we forget Thee.
Shadowed beneath Thy hand, may we forever stand,
True to our God, true to our native land.

~James Weldon Johnson (words) & John Rosamond Johnson (music),
Lift Ev'ry Voice and Sing, a.k.a. *The Black National Anthem*, 1900

I am choosing to end this dissertation, the same way that I began it, with the lyrics of a song. The song I include here is officially known as *Lift Ev'ry Voice and Sing*, but earned the moniker the *Black National Anthem* after the National Association for the Advancement of Colored People (NAACP) adopted it as their official song in 1919. The message of the song signals hope while also providing connections to the past, especially to the Black separate schools that used to sing this song in school and during graduation as a way of enacting what Theresa Perry (2003) refers to as "freedom for literacy and literacy for freedom" (p. 12). Fully engaged in qualitative research, steeped in the interpretivist tradition, I reiteratively searched through the legislation that I identified as important to framing the national conversation about mathematics education. My initial searches through the legislation looked at how much racial terminology was used throughout each piece of legislation, followed by an analysis of patterns in how vocabulary usage changed over time and distinctions that exist between the use of overt and covert racial terminology. To accomplish this I searched for the following terms and their derivatives: race, racial, black, African American, Negro, color, minority, diversity, segregation, desegregation, and integration. One conclusion I can draw from the usage I noticed was that new racism, as defined by Bonilla-Silva (2014), does function within the legislation through the use of a) covertness in racial discourse, b) avoiding racial terminology, c) eliminating direct racial references from political matters that are racial in nature,

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d) mechanisms that produce racial inequality as invisible, and e) reemergence of Jim Crow era race relations and practices (p. 26). This conclusion, though not exactly surprising, is still disheartening given those researchers who would like to claim that U.S. society is now in a post-racial state since electing its first Black president (Wise, 2010).

When I began to link my findings from the legislation about race to the sections about mathematics, it became clear that aside from the insinuation of a link between race and mathematics in concerns over the achievement gap, the legislation itself rarely link race and mathematics together. And when it did, it was mostly for calls to increase the participation, achievement, or access to mathematics for groups that are often underrepresented. A key dilemma I have with the ways in which these calls for increased participation are stated, is that in the present reauthorization of ESEA, the phrase has been altered from historically underrepresented groups to merely underrepresented groups. The elimination of the term historically significantly discounts the structural impediments that many, especially racialized, students have experienced in attempting to participate in mathematics. Further analysis of achievement as accountability suggests that with the present historical trend of reducing racial terminology, any future legislation will necessarily exacerbate the present trend, eventually eliminating racial language all together. While it would be optimistic to hope that this trend is merely a softening of overt racial terminology to appease those who find blatant references to racial discrimination as "harsh" (Ahmed, 2012), the policy in mathematics education suggests a complete disregard for historical and present manifestations of racial discrimination. Therefore, as part of my recommendations I have suggested that a re-epistemologizing of knowledge in mathematics education, combined with a concerted effort to consider education for African

Americans as African Americans (Perry, 2003) could begin a new era in mathematics education research and teaching.

It is easy to call for the end of achievement gaps and to work towards equitable educational goals, however as Rochelle Gutiérrez (2013) suggests, when research and policy becomes detached from issues around power, it becomes much more difficult to actually make the changes being sought after. Therefore, as mathematics educators, practitioners, researchers, and policymakers striving for equity there needs to be more acknowledgement of how students are framed in legislation as a way to alter our preconceptions of racialized students in mathematics classrooms. This research joins the calls for a continued explicit discussion of race and its varied, but very real, impact on racialized students in our mathematics classrooms emphasized by some researchers (Gutiérrez, 2008, 2013; Martin, 2009b). Furthermore, the discussion highlights the need to discover alternative ways to discuss students' mathematical knowledge so that the master-narrative that racialized students, and Black students in particular, are incapable of doing mathematics is not continually reinforced.

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