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## **A Case Study of a Math Teacher of Black Students: Examining Instruction that Addresses the Content Knowledge Gap Through Culturally Relevant Instruction**

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A Case Study of a Math Teacher of Black Students: Examining Instruction that Addresses the  
Content Knowledge Gap through Culturally Relevant Pedagogy

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Date Approved

**A Case Study of a Math Teacher of Black Students: Examining Instruction that  
Addresses the Content Knowledge Gap through Culturally Relevant Instruction**

Theartris Childress, III

Educational Leadership Program

Submitted in partial fulfillment

of the requirements of

Doctor of Education

in the National College of Education at National Louis University

National College of Education

National Louis University

Month of Graduation, 2021

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## ABSTRACT

This program evaluation focuses on the teaching practices of one Chicago Public School math teacher who has demonstrated success over time in the achievement of African American students. The primary research question explored how educators and leaders can learn from best practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students. Employing a qualitative research methodology, with data gathered from teacher interviews and other stakeholders, and observations, this study identified key components to improve mathematics instruction and culturally proficient practices. Policy recommendations and implications illustrate the need for change in policy in addressing the content knowledge gap of mathematics teachers, in elementary school teachers, as well as a focus on culturally responsive pedagogy and practices to address and eliminate opportunity gaps in the educational system at the school district and state levels. The results from this case study demonstrate that it is possible to work effectively with African American students and for them to be confident and successful students. Recent changes in the Illinois School Code to address the need to better prepare educators in culturally responsive practices is another step that will help our state build capacity among those responsible for the teaching and learning of all their students.

## PREFACE

This program evaluation affirmed many things I have felt in my core about how Black children should be taught and furthered my understanding in other ways. My passion and dedication in the service of the most vulnerable has been a foundation to my life's professional work. As a former math and science teacher, I biasedly felt like the examination of excellent mathematics pedagogy and classroom culture was necessary with the hopes of helping more students who looked like me were often overlooked and easily dismissed. This idea originates from the privilege of being a graduate from Xavier University of Louisiana (XULA). XULA is best known for being a national leader in placing African American students into medical school and other health professions since the early 1990s. While I did not continue in this wonderful tradition, I know that I received something special at Xavier and there was clearly an exceptional model that was created to ensure Black students excelled in the sciences. The opportunity to listen, observe and immerse myself in a unique and special classroom that yielded similar results as XULA has been a blessing beyond words.

The parents, teachers, and school leadership that participated in this program evaluation were all clear about the high expectations they had for their Black children and could speak directly to the intentional culture created to meet those expectations. The students interviewed understood that, while the work was challenging, their teacher was going to be right there pushing them, encouraging them and they would not be left behind. There is true power when a student is truly seen and valued by their teacher. Listening to their stories was an honor and their willingness to be authentic and vulnerable was humbling as well as inspiring. Transforming our educational system to be

inclusive and equitable is what schools, districts, and policy makers must consider when seeking to implement culturally responsive pedagogy and practices in order to improve learning for all students.

## ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to all who assisted me in being able to complete this dissertation. My cohort professors, Tema Okun and Mark Larson, established an incredibly supportive space to learn, to be pushed, to become a better educator and better human. I'm thankful for my entire cohort for being the coolest, most thoughtful and fierce advocates for all children. I grew every time we were together. Margo Sickele and Fred Hunter, you are my ride or die! Always positive and encouraging when I doubted myself.

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To my family and friends, thank you for checking in on me over the years to always ask, "So how is the writing coming?" and never judging the response. Your deposits of positivity were so important to me. FYC and the Brothers, thank you for being shining examples of Black excellence. Your daily walk inspires me to be the best version of myself. To my mother-in-law, Willie Shaw, you've been the best cheerleader a person could have. Next, I want to sincerely thank my parents for making sure I had every single opportunity to succeed in this life. Your love, your sacrifices, and continued support still mean the world to me.

Lastly, words cannot express my gratitude for my wife and children. Tanika, you are my sun and moon. You've been there every step of the way. Thank you for always believing in me. Nandi, Jasmine and Theartris (Jeremiah) IV, your brilliance, joy and



openness motivate me. When I wanted to stop, I had to remember you were watching. I love you.

## **DEDICATION**

This study is dedicated to Tanika, my amazing wife, whose unwavering belief and abundant care for me and our children made it possible for me to complete this work. And to our children, Nandi, Jasmine and Jeremiah, your loving presence is why I could not give up. Finally, I dedicate this study to teachers who relentlessly pursue the hearts and minds of those they serve.

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## CHAPTER ONE: INTRODUCTION

*“The spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor; he hath sent me to heal the broken hearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised...”*

*-Luke 4:18-19*

*“And he said unto them, ‘Ye will surely say unto me this proverb, Physician, heal thyself: whatsoever we have heard done in Caper’na-um, do also here in thy country.’”*

*-Luke 4:23*

### Why this Matters: Who will cry for the little boy?

My early teenage years were filled with a constant barrage of questions by my parents regarding my academic achievement or lack thereof. Words like, *“We’re very disappointed in you. We know that you can do better!”* *“Are you even trying?”* *“You’re not stupid!”* *“Why are these grades so awful?”* were not uncommon at home. These concerns picked up speed heading into my sophomore year of high school as my parents looked over the final grades of my Freshman report card. Straight C’s with an A in Gym perplexed them along with my unapologetic response of *“It’s passing so, what’s the problem?”* See I was a three-sport athlete determined to find on the field the greatness my parents sought in my grades. However, coming from a home where both parents excelled through university and continued excelling through graduate school (my father was the first in his family to receive a Master’s from Johns Hopkins), this response was unwelcomed. They could not understand why their son was bringing in a 2.0 grade point average (GPA). To make matters worse, I was attending school in Montgomery County, Maryland, one of the best counties in the country in which to receive a public education, so of course they had to ask, *“What is going on?”*



What truly unnerved them was my inability to answer their questions properly. To be honest, I simply wasn't interested in school. Just doing enough to get by on passable grades was good enough for me and this was the case for most of the guys that I hung out with as a young Black male in a very diverse school. We did not have to prove anything academically. We were athletes and everything we needed - validation from peers, commitment and drive from coaches, hard work and gratification from seeing that hard work wins games and progress that we, as men, all came from our performance in practice and on game day. This is how we saw our situation: who needed good grades, a high GPA, when anyone could see the fruits of our labor and the praise rendered from that fruit?

It seemed all members of the school community adhered to this unspoken understanding of the athlete's role, and with my obvious lack of interest in class my teachers became as disinvested in my education as I was, cementing my academic motivation to accomplish the bare minimum. My experience as a Black male student is representative of research that speaks to the urgency of addressing the opportunity gaps in education that contributes to the achievement gap, we see amongst student subgroups (Dee, 2005). The eligibility requirements were as follows, "Students must achieve a minimum marking period GPA of 2.0 with no more than one "E" in order to be eligible for participation in interscholastic athletics. If a report card is issued during the season, that marking period GPA must also be a minimum GPA of 2.0 with no more than one "E" in order to continue to participate."

Regardless of the number of conversations my parents had with me about achieving, there was no push from the other side. Really, it felt like the school was no

longer trying to reach me, a Black male student, so what use was it anyway? However, with an unusual change in my class schedule sophomore year, the life I was used to having was about to be greatly challenged.

I was placed in Honors Biology! I did not have a B or a teacher recommendation in freshman science last year so what was I doing in this class? I scheduled a sit-down with my soon-to-be teacher to let her know that I had to transfer out. Mrs. Smith, the only Black teacher in the science department, explained there was no mistake in scheduling, simply stating, "I put you in this class and you will not be transferring out." I pressed her, "I don't deserve to be in this class," reminding her of the C I received in my previous year. She interrupted, "All of this foolishness is about to stop." Dumbfounded, I could only listen. She explained that I was much smarter than what I'd been showing at school, she knew my capability, and she was on a personal mission to see to its development. She revealed her intention of keeping an eye on me every day, talking to my teachers and making sure I was taking care of business. Still astonished I wondered, why she even was bothering.

Before that day, I had only a few brief conversations with her and so our relationship remained, at least from my perspective, as one between a normal, boring science teacher and a mostly disinterested student athlete, happy on our opposite sides of the spectrum only to meet when necessary. Nonetheless, I was intrigued. Clearly, it was pointless to dispute this already thought-out and executed plan, so, from the first day of class forward we had a routine: meet before school to discuss homework from the previous night, identify and address any information I was having difficulty with, prepare for quizzes and tests, and discuss progress.

Quickly though, our relationship shifted and became more synonymous with that between parent and child. With every accomplishment, she was the first person I told. I spoke to her about everything, even personal issues or what was going on at home. It made all the difference in the world to have someone who cared about me in the school, making sure I was on top of my work and helping me navigate through the life opening up before me.

That year was the point when my life began to change, and from then on I became an honor student, never bringing home anything less than a B. I was no longer just an athlete but someone who was exploring the possibility of greatness in all aspects of my life. In preparation for four state championships, I also prepared for and earned academic and athletic scholarships to college; and when the time came during my junior year at Xavier University of Louisiana to select my discipline, I knew science was the only answer.

Mrs. Smith changed how I saw myself as a student, and from her I learned and believed that I could excel at whatever I choose to do. Feeling cared for, feeling loved and feeling supported was magic for me. At my high school graduation, I saw many of my Black classmates graduate but only a few had plans to attend college in the fall. It wasn't until graduating from Xavier that I began to fully understand this trend and its ramifications.

After graduating with a degree in biology from Xavier University of Louisiana, I became a math and science teacher in New Orleans. On the first day of school, every student looked like me. When looking at the test scores and what my principal wanted to emphasize, I noticed that the state of Louisiana only cared about language arts and math.

Students in Louisiana had to pass the LEAP (Louisiana Educational Assessment Program) test in order to go onto the next grade. So instead of focusing on science, I switched gears and became a teacher of mathematics.

For the next 10 years, I dedicated myself to middle and high school students, first in New Orleans and then in Chicago, trying to have the same impact on their lives that Mrs. Smith had on mine. I always wanted to know why she put me in that class and what she saw in me. Mrs. Smith intervened in a school of 1200 students where Black young people could ultimately opt in or opt out of their education because no one was paying attention and most teachers treated their students' education just like another job but, she was different. She held teaching as a higher calling and on her own accord, stepped in and changed a life.

What fascinated me most about Mrs. Smith was the unfiltered passion with which she executed her mission, a mission she later described to me as being inspired by that of Luke the Apostle and physician who proclaimed, "The spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor; he hath sent me to heal the broken hearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised..." (King James Version, 1611, Luke 4:18-19) I wondered if this also affected her decision to guide students toward the path of exploring the sciences.

During a visit I made to Gaithersburg Middle School where she was presiding as Principal, Mrs. Smith divulged the following information that set my current course of research into motion:

[Math] is a very critical area. Research has been done on the correlation of mathematical ability and English and writing scores on the SAT. They found that the mathematical thinking ability transcends into all different subject areas. They found ... a direct correlation between high math scores and high English and writing scores. The correlation was not the same the other way around. Students who were high in English and writing did not necessarily score high in Math.

Years later, I received the opportunity, thanks to this dissertation, to sit down with Mrs. Smith to hear her story, a story that changed the course of many lives and many more to come.

### **Purpose**

My prior experiences as a student, teacher, administrator and observer of effective math instruction informs the purpose of my research. Moreover, research that sheds light on the need to address the achievement gap is central to my inquiry. For example, Professor Theresa Perry of Simmons College tells the story of a rural grandmother who sums up the so-called “achievement gap” this way: “If the corn doesn’t grow, nobody asks what’s wrong with the corn. If the corn does not grow, we wonder about the weather conditions. If the corn does not grow, we wonder about the soil. If the corn does not grow, we wonder if the pesticides we sprayed inhibited crops’ growth. If the corn does not grow, we look at the farmer” (Lee, 2010). Conversely, in education, for too often when students ‘don’t grow’ we blame them and hold them at fault rather looking at the surrounding conditions, factors, or influences that may in place that is impeding the growth.

As a black male growing up in Maryland, I experienced math instruction from kindergarten through graduate school taught predominately by white teachers. I saw and experienced the achievement gap between my fellow Black students and our White classmates. As a middle school and high school teacher, I was able to experience this issue from the perspective of the adults charged with supporting Black and brown students. As a consultant, I have observed math instruction nationally. There is common thread in all of my experiences.

This program evaluation focuses on the teaching practices of one Chicago Public School math teacher who demonstrated success over time in the advancing the achievement of African American students in this teacher's classroom. This teacher works in a charter school on the south side of Chicago. The intent of this study is to document the practice of highly effective math teachers of African American students. The purpose of this program evaluation is:

- Increase awareness of effective approaches and practices in mathematics classrooms that serve African American students
- Increase academic performance of African American students in the area of mathematics
- Support the professional development of mathematics teachers who teach African American students
- Advocate for a policy change for increased mathematics content and methods course for K-12 mathematics teachers

## Rationale

In 2014, I began a new role at the Director of Advisory Services for the Academy of Urban School Leadership (AUSL). In short, I managed the consulting arm of AUSL. AUSL partners with schools and school districts nationally who want to improve in any all areas of schooling. Clients include traditional public, charter, turnaround, and private schools from several states across the country. Some common themes across the schools are that they serve students from marginalized communities, largely students of color, and are trying to address the achievement gap and opportunity gap.

As a Black male educator with a math and science background, I am always acutely aware of the how all students are being supported, especially boys of color. When walking and observing many math classes across the country, I witness majority direct instruction and students who struggle to meet the expectations outlined by grade level standards. When I informally speak with teachers, many complain about the curriculum's pacing and struggle to meet the diverse academic needs of their students. Equally as concerning teachers have remarked and demonstrated their need for professional development specifically around their math content and pedagogical strategies.

The National Center for Education Statistics administers the National Achievement of Educational Progress (NAEP) mathematics assessment which measures students' abilities in five content areas: number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and algebra and functions. In 2017, 40 percent of 4th- graders scored at or above the proficient level. Asians/Pacific Islanders had the highest percentage (64 percent) of 4th- graders scoring at or above the proficient level, followed by White students (51 percent). Blacks had the lowest percentage of 4th-grade students scoring at or above the proficient

level, with only 19 percent of these students meeting that level. When looking at the scores for 8<sup>th</sup> graders in 2017 who were at or above the proficient level, a similar pattern emerged. Sixty-two percent of Asian/Pacific Islander students, 44 percent of White student and only 13 percent of Black students scored at or above the proficient level. (NCES, 2018).

The need to identify ways to improve the overall success for Black students is without question. The imperative is as timely today as it was in 2017. Black (and brown) students must have the opportunities to achieve at the same levels as their Asian and White peers.

### **Goals**

The goal of this research is to better understand effective mathematics teaching approaches and use the findings in the spirit of a solutions-oriented approach. First, I want to build the capacity for math teachers who serve students who need the most. Next, I hope to identify and give teachers the strategies to build connections with their students while building their own content knowledge through effective teaching practices. Lastly, it is my desire to inform school administration and district leadership about ways to best support math instruction and ultimately reverse the achievement gap.

### **Research Questions**

While the previously stated data results related to student performance on math assessments are awful to consider, they are all too common. Yet in the midst of overall poor achievement, many teachers have demonstrated the ability to grow African American students in the area of mathematics.

*Primary research question*



1. How can educators and leaders learn from best-practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students?

*Secondary research questions*

2. What is it that promotes this excellence despite a long-standing history of under-achievement?
3. What is it about this teaching that African American students thrive and grow while others do not?
4. What types of professional development opportunities emerge from this research that informs the work of other teachers serving African American student populations?
5. What policies can be implemented as a result of this research that inform the work of other districts, schools, and teachers serving African American student populations?

**Conclusion**

In the coming sections, I will discuss in further detail the current context of math instruction in the new world of common core standards as well as the ideal course of action to improve math instruction for students of color. Lastly, I will advocate for changes in policy to build the capacity of mathematics teachers.

## CHAPTER TWO: LITERATURE REVIEW

### Introduction

Exceptional math instruction in schools that serve predominately students of color is essential for closing and ultimately reversing the achievement gap. In this study the elements that make up this exceptional instruction will be analyzed. Four overarching themes will be discussed within my literature review. The first theme will discuss the root causes of the achievement gap between students of color and their white counterparts. Second, I examine culturally responsive teaching. Third, I investigate culturally relevant mathematics instruction and corresponding best practices. Lastly, I reviewed literature that outlines effective mathematics professional development.

### Root Causes of the Achievement and Opportunity Gap

There are many places to begin when discussing the achievement and opportunity gap. An important part that must be discussed is educational integration that began in 1954 with the Supreme Court Ruling in *Brown v. Board of Education* (1954) of Topeka, Kansas. As schools were integrated, those serving African Americans were closed, and their teachers were fired. There were approximately 82,000 African American teachers across the country teaching African American children at the time of the Brown decision (Hudson & Holmes, 1994). In 2016, 80 percent of American teachers are white (Meckler & Rabinowitz, 2019) and African American teachers are under-represented in comparison to the percentage of African American students in U.S. schools. This lack of representation has repercussions for the academic success of African American students (Eckert, 2018). Prior to integration the schools, Black children were taught, "... not to believe the wider societal messages, but rather than being victimized by what America is

not giving them, they are literally teaching these children to live in a world that does not exist” (Walker, 2018 as cited by Will, 2019).” This intentionally effective pedagogy that includes strong relationships between Black teachers and Black students were lost when black schools were closed.

According to Darling-Hammond (2010), federal policies enacted in the 1970s had a positive impact on student achievement. These investments began to pay off in measurable ways. By the mid-1970s urban schools spent as much as suburban schools and paid their teachers as well; perennial teacher shortages had nearly ended; and gaps in educational attainment had closed substantially. Federally funded curriculum investments transformed teaching in many schools. Innovative schools flourished, especially in cities. Improvements in educational achievement for students of color followed. In reading, large gains in academic performance was achieved for Black students throughout the 1970s and early 1980s, reducing the achievement considerably, cutting it nearly in half in just 15 years...However, this optimistic view of equal and expanding educational opportunity, along with the gains from the “Great Society” programs, were later pushed back. Most targeted federal programs supporting investments in college access and K-12 schools in urban and poor rural areas were reduced or eliminated during the Reagan administration in the 1980s. (Darling-Hammond, 2010, p. 18).

Another factor to understand is that schools, schooling and thus mathematics have been considered to be associated with being White or whiteness. In most textbooks used in this country, Black mathematicians are rarely, if ever, mentioned. Perception of one’s ability is directly related to one’s academic performance. Society as well as academic culture has clouded Black students’ perceptions so that they cannot visualize Black

people excelling in and mastering mathematics and thus feel comfortable and satisfied with achieving at a below average or average levels in mathematics classrooms. Lisa Delpit remarks that "...traditional school culture is and always has been that of White middle-class America" (Delpit, 2012, p. 43). Why would Black students actively participate in an academic experience that has not be created with them in mind? This notion is exasperated by how these same students perceive their teacher and the inverse. There is a tendency for many teachers to assume skill deficits in students rather than to locate and teach to strengths (Delpit, 1995, p.172). What do teachers see when they gaze upon their students? "When teachers do not understand the potential of the students they teach, they will underteach them no matter the methodology" (Delpit, 1995, p. 175). The effectiveness of the teachers is deeply connected to what the teacher thinks of the student. If the teacher does not hold a real value for the student, they cannot also be a motivated to authentically engage students. You cannot effectively teach someone you do not believe in.

Over my last 40 plus years as both an educator and a learner, there are hardly any mathematics textbooks or curricula that include images and contributions that Blacks have made to mathematics. Added with negative and destructive images and lack of access to high-quality math instruction, many Black students have a very bleak and dismal perception about their academic abilities. As stated by Rubel and Chu (2011), "[Urban school] teachers oftentimes adopt a 'pedagogy of poverty,' rife with low expectations and emphasis on rote learning... Students are consistently denied equitable opportunities to learn and therefore remain significantly underprepared" (p. 50). Teachers practicing this pedagogy tend to perform the following tasks: give information, ask

questions, give directions, make assignments, monitor seatwork, review assignments, give tests, review tests, assign homework, review homework, settle disputes, punish noncompliance, mark papers, and give grades (Ladson-Billings, 1995).

Black students in the United States are subject to disciplinary action at rates much higher than their white counterparts. These disciplinary actions put students at higher risk for negative life outcomes, including involvement in the criminal justice system. The Center for Civil Rights Remedies in its report, *Are We Closing The School Discipline Gap?* states:

If we ignore the discipline gap, we will be unable to close the achievement gap. Of the 3.5 million students who were suspended in 2011-12, 1.55 million were suspended at least twice. Given that the average suspension is conservatively put at 3.5 days, we estimate that U.S. public school children lost nearly 18 million days of instruction in just one school year due to exclusionary discipline. (Losen et al., 2015, para. 2).

### **Culturally Responsive Teaching**

In my experience, when students see their teacher as an ally on their journey for an education, they perform better. Combative relationships between teachers and students, in some classrooms are being discarded for a pedagogy that acknowledges students' agency of their own learning path.

Culturally relevant teaching is a term created by Gloria Ladson-Billings (1994) to describe “a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes” (p. 382). She contends that culturally relevant teachers “engage in the world and others critically,”

and in order to do this, “students must develop a broader sociopolitical consciousness that allows them to critique the cultural norms, values, mores, and institutions that produce and maintain social inequities” (1995, p. 162).

Culturally relevant pedagogy rest on three criteria propositions (a) Students must experience academic success; (b) students must develop and/or maintain cultural competence; and (c) students must develop a critical consciousness through which they challenge the status quo of the current social order (Ladson-Billings, 1995, p. 160).

In all of my teaching and administrative career, the majority of the teaching staff came from a different racial and cultural background than the students they taught. In order for those teachers to be maximally effective, there is a need to embrace the differences and learn about the families and communities where they teach. Tyrone Howard suggests that “Teachers need to understand that racially diverse students frequently bring cultural capital to the classroom that is oftentimes drastically different from mainstream norms and worldviews” (2003, p. 197). Also, because teachers and students often come from seemingly dissimilar backgrounds, in order for teachers to connect with and engage students, they must “construct pedagogical practices in ways that are culturally relevant, racially affirming, and socially meaningful for their students” Howard (2003, p. 198). Howard goes on to say:

Culturally responsive pedagogy assumes that if teachers are able to make connections between the cultural knowledge, beliefs, and practices that students bring from home, and the content and pedagogy that they use in their classrooms, the academic performance and overall schooling

experiences of learners from culturally diverse groups will improve (Howard, 2010. p.68).

Olneck's research explains that "teaching that ignores student norms of behavior and communication provokes student resistance, while teaching that is responsive prompts student involvement (Olneck, 1995, p. 310).

Anyone who has taught before understands that relationships matter. This is especially true in the African American context. Noguera, 2008, p. 69) notes:

We know that African American students tend to be relational learners. It's about the relationships between a teacher and student. Students respond well to teachers they know, believe in them, care about them, but also who teach in a matter that elicits a more active approach to learning, rather than just sitting and listening. The research on this is strong and has been available for a long time, but it is not widely practiced. That's a huge obstacle.

Much of what I have seen, in several professional capacities, as a cause of some of the negative statistics on African American students in mathematics is not a cognitive deficiency but more of a lack of inspiration, motivation, and self-confidence. Steele's research (1997) on the effects of racial stereotypes on academic performance demonstrates that students are highly susceptible to prevailing stereotypes related to intellectual ability. "Ironically, their susceptibility to this [stereotype] threat derives not from internal doubt about their ability but from their identification with the domain and resulting concern they have about being stereotyped in it" (p. 614)

I strongly believe that classroom teachers in any context can accomplish the goal of raising the level of persistence, achievement and performance of Black students. One of the most important pieces of this puzzle is the simple yet profound belief and high expectations in their students. “What matters ... [is] teachers having expectations that all students can progress, that achievement for *all* is changeable (and not fixed), and that progress for *all* is understood and articulated.” (Hattie, 2009, p. 35). Belief and expectation lead to the creation of an attainable and achievable pathway for success for each student. Weinstein remarks:

when high expectations are framed in ways that always value the child, support reachable goals on the way to cherished dreams, and provide children with strategies that help overcome obstacles in their path, such expectations can inspire children to grow” (Weinstein, 2002, p. 297).

Doug Lemov (2010) succinctly drives this point when he said, “One consistent finding of academic research is that high expectations are the most reliable driver of high student achievement, even in students who do not have a history of successful achievement” (p. 1). To start with, this pedagogy allows students to be themselves and to be successful academically. Geneva Gay gave us insight as to why this is so crucial:

Students have been expected to divorce themselves from their cultures and learn according to European American cultural norms. This places them in double jeopardy – having to master the academic tasks while functioning under cultural conditions unnatural (and often unfamiliar) to them.

Removing this second burden is a significant contribution to improving their academic achievement. (Gay, 2002, p. 114)



How successful the teacher is in the classroom is directly related to how successful the teacher thinks the student can potentially be. Teachers limit themselves and their students when they make erroneous predictions on what one can know and be able to do.

Additionally, an educational experience must be created that motivates Black students by engaging them with meaningful and interesting tasks. These assignments must guide students on a journey to be a lifelong learner. Ralph Ellison describes culturally relevant pedagogy by saying, “If you can show me how I can cling to that which is real to me, while teaching me a way into the larger society, then I will not only drop defenses and my hostility, but I will sing your praises and I will help to make the desert bear fruit” (as cited in Hammond, 2013, para. 1).

In the case of mathematics, Black students have at least two aspects of society working against their attitudes towards the subject. According to Hubert (2013), “One particular stereotype that oftentimes clouds the mathematics classroom is the ‘White male myth’ which states that White boys are naturally skilled at mathematics” (p. 324). Not only does this stereotype negatively affect females in the classroom, but [B]lack students are also impacted.

The second aspect working against Black students is that in typical mathematics classrooms and textbooks, only famous, White mathematicians are being discussed and praised for their contributions to this field. Thus, Black students walk away with the notion that people that look like them are not as capable of doing mathematics or adding to the body of knowledge. By researching mathematicians from Black cultures, teachers can prepare themselves to empower Black students create a positive mathematics

identity. Leonard, et al., (2010) defined mathematics identity to be one's belief about his or her ability to do mathematics. Part of this includes how a person views their opportunities and barriers to enter a mathematics related field and the motivation a person is willing to put in to obtain the content's knowledge. Seeing that mathematics can be a very gendered and racialized subject, "students can be conditioned to believe they are not the appropriate type of math student" (p. 262). Perception of one's ability is directly related to one's academic performance. One of the aspects of culturally relevant teaching is helping students develop a critical consciousness. Before teachers can help students develop this consciousness, they must develop their own.

Culturally relevant pedagogy provokes issues like race, oppression, privilege and other topics that often are ignored. This allows for a wide range of issues to be explored and not simply content. The school subject is found within a critical topic seen in the community or world at-large, and then raised to students' attention for evaluation. Tate (1995) compared teachers who use this teaching style to school bus drivers – "picking up students where they live and following their directions to a destination of their 'choice'" (p. 172). These elements of culturally relevant teaching align well with the purpose of education: give students the tools they need to be contributing members of society.

I have often said that the common core standards exposed many teachers for their lack of content knowledge and poor pedagogical understanding. Effective teachers consider the standards that need to be taught and contemplate that student experiences that will result in proficiency. David Allsopp (2018) states that "... focusing on the big ideas instead of focusing solely on individual skills and concepts provides opportunities

for students to construct connections across those various skills and concepts and acquire deep learning” (p. 3).

Deep consideration must be given to the capacity of teachers to not only understand standards to be assessed during a given period but the high-leverage math practices that should be used in rigorous classroom spaces. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the National Council of Teachers of Mathematics (NCTM) process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy) (2001). A deep understanding of the Common Core Standards and associated Practices are foundational for a teacher’s ability to provide appropriate rigor coupled with meaningful, research-based practices.

Along with the teacher’s understanding of standards and pedagogy, great teachers create a sense of agency, reflection and choice with the students they serve. Connie Moss notes that when “teachers invite students as partners into the learning process that students can learn to take charge of their own learning by being asked to set their own

goals, assess their progress towards those goals and choose the most effective strategies to improve their work” (Moss, 2012, p. 25). Students must understand how they learn best as well as have a critical lens on themselves in order to advocate for the environment and situations that best suit their individual needs.

In Theresa Perry’s book *Young Gifted and Black*, she offers an in-depth look of the Historically Black School (HBU) and its impact. The historically Black school was conceptualized as a counter-hegemonic community. The power that resides in these schools from history and in the present give Black students a narrative that is opposite than that of the mainstream perception. HBCU administrators, faculty, and staff support the efforts of students seeking to defy societal stereotypes in a supportive environment. They pass on a historical philosophy of education for freedom, racial uplift, citizenship, and leadership (Perry, et al., 2003, p. 93).

### **Effective Mathematics Professional Development**

Teachers often struggle to find time and resources that support differentiation and personalization for every student in math class, and administrators nationwide struggle to differentiate for these students’ teachers with effective, relevant, timely professional learning. Although teachers receive advice and recommendations on how to change their teaching, probably know that some of these changes would benefit their students, they often lack the learning opportunities needed to study the recommendations, decide which changes would be meaningful, and then learn how to implement them. To ensure equitable learning outcomes for all students in mathematics, we need to create ways to overcome existing challenges and ensure equitable professional learning outcomes for teachers who serve African American students. To improve student outcomes, we must

improve the capacity of their teachers. Professional development for teachers of mathematics has been shown to have potential positive effects for both changing teachers' beliefs about mathematics instruction and the instruction they provide (Harwell, et al., 2000 pp. 22-23). The NCTM outlines the importance of mathematics professional development by stating:

The goal of mathematics professional development is to improve instruction in order to improve student learning. The research on professional development suggests that mathematics professional development is effective when it promotes mathematics teachers' growth in four major areas.

1. Builds teachers' mathematical knowledge and their capacity to use it in practice
2. Builds teachers' capacity to notice, analyze, and respond to students' thinking
3. Builds teachers' productive habits of mind, and
4. Builds collegial relationships and structures that support continued learning (National Council of Teaching Mathematics, 2021, paras. 1-2).

One important step is to build a community of educators that understand what we all must do to better teach and support Black children. When teachers make space for the lives of Black children, they help to create a rigorous, supporting, learning environment that is truly better for all children. "If high-poverty schools are to achieve world-class status in mathematics, widespread efforts are needed to advance the implementation of

pedagogical practices supported by Principles and Standards for School Mathematics (PSSM)” (McKinney, et al., 2009 p. 281). Teachers often demonstrate procedures for solving problems and then give students worksheets to practice rather than presenting the students with challenging problems to develop their own solutions. Effective professional development will provide teachers practice and confidence to take risks like this and follow up with a thoughtful discussion of alternative procedures, analyzing each for effectiveness.

### **Conclusion**

Reviewing the literature leads back to the question: how can educators and leaders learn from best practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students? Analyzing teaching that African American students thrive in and promotes excellence despite a long-standing history of under-achievement is essential to furthering the conversation so that school leaders and teachers can create these spaces and environments for themselves. The historical and present data is clear. There is much work to do in creating the educational and instructional places that work for children of color.

## CHAPTER THREE: METHODOLOGY

### Research Design Overview

My research is informed by Patton's (2008) *Utilization-Focused Evaluation*.

Therefore, I am implementing a program evaluation utilizing qualitative data from a case study of one teacher. This program evaluation focuses on the teaching practices of one Chicago Public School math teacher who demonstrated success over time in the achievement of African American students in their classroom. This teacher works in a charter school on the south side of Chicago. The intent of this study is to document the practice of highly effective math teachers of African American students.

When conducting this program evaluation of the math teacher, the evaluation purpose, as Patton (2008) depicted, is to provide formative improvement and learning as well as promote the development of all stakeholders in providing culturally proficient education. Improvement-oriented evaluations share "a focus on improvement—making things better—rather than rendering summative judgment" (p. 116). I investigate how this teaching helps students develop and achieve academic success. Further, I collected additional forms for data to provide a broader view of the city, state, and national environment of math instruction. This data collection includes publicly available math achievement data, curricular and assessment expectations; reflective memos of your own professional observations in relation to effective teaching practices; and informal observations. Additionally, I reflected on my own experiences as a teacher, administrator and a consultant/mentor along with pertinent research.

This research is a comprised of four components: teacher selection, teacher interviews, classroom observations along with video recording and collective

interpretation, and data analysis. My goal is to provide in-depth, ongoing “ground floor” classroom observations that allow me to understand the culture, patterns and routines of the classroom. The priority of this study is to provide a high level of authenticity of the teacher’s day-to-day experiences through documenting the work, by video-recorded segments of classroom instruction while having the teacher explain each portion of that segment.

In his book *Developmental Evaluation: Applying Complexity Concepts to Enhance Innovation and Use* (2011), Patton argues:

Evaluation can also be useful when there is not a fixed model being improved or tested. In cases where there is not yet a clear model, or where the environment is too complex and changing too fast for the model of practice ever to be fixed, developmental evaluators can be of great assistance by helping people articulate their hunches and hopes, do "vision-directed reality testing," tracking emergent and changing realities, and "feeding back meaningful findings in real time so that reality testing facilitates and supports the dynamics of innovation. (pp. 5-6)

This type of evaluation is particularly helpful in the context of social innovation (like schools), where "goals are be emergent and changing rather than predetermined and fixed, time periods are fluid and forward-looking rather than artificially imposed by external deadlines, and the purposes are innovation, change..." (Patton, 2015, p. 457.)

The significance of this study is to unpack the possibilities of replicating and experimenting with the development and continuous growth of African American students in math. The intent of this research is to document the practice of a highly



effective teacher whose students are majority African American. By gaining an understanding of the culture, ambition, and follow through of an experienced teacher we seek to gain insights into useful teacher preparation and professional development.

### **Participants**

The teacher chosen to participate in this research was selected based on her proficiency as a math and science teacher and ability to cooperatively analyze and interpret data as well as have a comprehensive discussion on her proficiencies. The teachers considered were lacking in one of the qualities listed above, necessary to make this research worthwhile. Finally, I came to the University of Chicago's UEI (Urban Education Institute) network, whose core focus is in cultivating and excelling young urban minds by specifically preparing them for college. At the Shaw Elementary campus, I was referred to Mrs. Foster (or Mrs. T. Foster as she is called by her pupils) through her principal who gave her a glowing recommendation and invited me to see the assessment data. While visiting the school, I had impromptu conversations with parents familiar with Mrs. T. Foster, who were excited to speak about their positive experiences with her. When asked if they believed Mrs. T. Foster was the type of teacher that met exemplary standards, it was unanimously affirmative. They spoke of her passion, her ability to build strong relationships with students and parents and her laser-like focus on achievement.

The key participant for this case study from whom I gathered data is a math teacher of all Black students who has demonstrated a consistent result in having her students meet or exceed state standards. Purposeful sampling was used to identify the participants. This intentional or purposeful sampling allows for selection of information-

rich cases whose study will illuminate the questions under study” (Patton, 1990, pp. 5-6). Purposeful sampling involves selecting information-rich cases for study in depth, cases that offer insights into issues of central importance to the purpose of an evaluation, thus the term, “purposeful sampling.” “Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resource” (Patton, 2002, p. 240). “This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest” (Cresswell & Plano, 2011, p. 13). Bernard notes “the importance of availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner” (Bernard, 2002, p. 85).

### **Data Gathering Techniques**

During the program evaluation, I used several data gathering techniques. I conducted one-on-one semi-structured interviews/focus groups with the high-performing teacher as well as students from her math class. I also drew from interviews and informal conversations with administrators, current parents, and coworkers of the teacher. Along with the interviews and conversations, I performed informal classroom observations. This program evaluation includes reflective memos of your own practice. Emerson, et al. states, “noting how memo writing serves a function in doing fieldwork of connecting the data that one is generating through writing fieldnotes of observations and interpreting what is going on, and exploring emergent ideas” (Emerson, et al.,1995, p. 32). I engaged Mrs. T. Foster in an ethnographic interview with the true intention of having a good conversation while, of course, staying within the tentative interview protocol. Lastly, I

performed an examination of best practice research for supporting African American students. My initial interview questions can be found in Appendix A.

### *Focus Group Interviews*

A total of fifteen student interviews were conducted from September 2012 to November 2012. I conducted interviews with classroom students in a small group setting of no more than three students at one time. Each interview lasted from seven to 15 minutes. Additionally, interviews with school coworkers and parents were in an individual setting and lasted between ten and 20 minutes. Lastly, school leadership participated in two 20-minute interviews and several informal conversations. From these interviews, I analyzed the transcriptions and coded for identified themes and patterns to determine their personal perspectives and experiences around the focus teacher, attitudes towards mathematics and the school culture as a whole. I also explored how they currently support or would like to support teachers in implementing culturally proficient practices.

### *Informal Classroom Observations and One-on-One Interviews*

Seven classroom observations took place from September 2012 to November 2012. We created a schedule for the visits with Thursdays being optimal. Observations lasted two hours, which included video recording and note taking. Classroom observations were followed by on-site conferences with Mrs. T. Foster. As a researcher, I was simply in the room for observation, however, I routinely was asked by Mrs. T. Foster to assist in additional explanations and to aid a few struggling students with their work.

During observations I applied the Charlotte Danielson model as the most effective approach to processing the data collection (Danielson, 2009).

The techniques of ethnographic data collection research were applied in this study. It was my intention to learn the traits that make up the classroom culture and to describe it for others. This exploration sought to understand the motivations, philosophies, practices, and feelings of stakeholders in this high-performing math classroom. By immersing myself in the classroom culture, I was able to develop a relationship with my participants to capture behaviors in different contexts of everyday school life. It was my hope to place a human face on data through real-life stories that people can relate to as well as provide an understanding of the ‘statistics’.

#### *Reflective Memos*

During and after data collection, the use of reflective memos allowed me to incorporate insights and observations as an educator and researcher and how they apply to my research questions. Memoing during this ethnographic study allowed me to focus on the discovery and comprehensive description of the culture of the classroom and that of the school community. My aim was to generate and develop a theory from qualitative data that is gathered and analyzed.

#### *Best Practice Research*

Best practices research refers to a systematic process used to identify, describe, combine, and disseminate effective and efficient strategies developed and refined by researchers (Mold & Gregory, 2003). This process involved the identification and

evaluation of effective practices in the areas of culturally responsive pedagogy and teaching mathematics to Black students.

### **Data Analysis Techniques**

At the conclusion of conducting the interviews and informal observations, using the interview transcripts, field notes and other supporting documents, I identified, qualitatively coded, and categorized patterns found in the research data in relationship to the research questions. The process of analysis is described by Richards and Morse as one of transformation and interpretation (Richards & Morse, 2007). Medelyan adds, “coding qualitative research to find common themes and concepts is part of thematic analysis, which is part of qualitative data analysis. Thematic analysis extracts themes from text by analyzing the word and sentence structure” (Medelyan, 2020, para. 7). Lastly, I used the recording reflective memos throughout the data collection and analysis. This method “facilitates an understanding of the impact of their own subjective influences on the collection and interpretation of data” (Primeau, 2003, p. 10). During and after data collection, the use of reflective memos allowed me to incorporate my insights and observations as a former school leader, educator, and consultant and how they apply to my research questions.

### **Ethical Considerations**

The privacy, confidentiality, risks, and benefits are highly important and must be fully considered throughout the course of study. Participants and the school are given pseudonyms, all participants sign an informed consent that explains that their participation is voluntary, and they may withdraw from the study at any time. All field notes and transcripts are stored in a secure place.

This case study provides a counter-narrative to document exemplary teaching to provide strategies to assist in developing teacher instructional capacity. This will give a clear picture of promising practice rather than a critique of ineffective pedagogical methods.

### **Conclusion**

As I researched culturally relevant and mathematical pedagogy, I conducted interviews with many stakeholders to best understand how this teacher created an instructional space that developed high performing Black students in the area of mathematics. Thorough transcription and coding of the interviews, document analysis, and analytic memos were completed to identify emerging themes and patterns among the participants. The data collected and analyzed yields recommendations for school leaders across different levels to support teachers in becoming more culturally proficient and improving mathematics instruction which is further explained in Chapter Seven.

## CHAPTER FOUR: RESULTS

### Introduction

When beginning this in-depth look of a high performing math teacher of Black students, it was important to have a clear understanding of the current reality by analyzing the current system using a framework or structure for examining systems. This chapter will address:

1. Wagner's C's (context, culture, conditions, and competencies)
2. Interpretation of data gathering
3. Judgments
4. Recommendations

The structure I use is Wagner's model *Four Arenas of Change* (Wagner et al., 2006) . This framework considers the "As Is" and "To Be" and focuses that analysis in four areas: Contexts, Culture, Conditions, and Competencies. Wagner refers to these areas as the "4 C's" (2006). This framework is designed as a diagnostic tool to assess a district's organizational effectiveness. *Context* refers to the "skills and demands all students must meet to succeed as providers, learners and citizens and the particular aspirations, needs, and concerns of families and community that the school or district serves" (p. 104). Culture is explained as "the shared values, beliefs, assumptions, expectations, and behaviors related to students and learning, teachers and teaching, instructional leadership, and the quality of relationships within and beyond the school" (p. 102). In other words, while an organizational chart might demonstrate how things "should" get done, culture is the reality: it is the patterns, shared assumptions, and interpretations that shape behavior within an organization. Conditions are defined by Wagner as follows: , "internal to the organization are structural, cultural, economic, and symbolic factors that often constrain but sometimes also support organizational change" (2006, p. 101). Compared to culture, the conditions are the more tangible elements that shape how we make sense of the

surface-level health of the organization. Included are financial issues, departmental configurations, leadership, human resource issues, and so forth. Competencies are important because people--not organizations--carry out change. People within the organization should be equipped with various technical, social, and leadership skills and knowledge. Often, in their absence, even the best designed plans fail. Competencies can be seen both as "hard" and "soft." Hard competencies might be the actual skills and knowledge required carrying out specific tasks, whereas soft competencies might be the dispositions, personal affects, leadership and communication styles of individual people. Wagner defines competencies as “the repertoire of skills and knowledge that influences student learning” (2006, p. 99)

I utilized themes gleaned from my structured interviews/focus groups, interview administrators, classroom observations, reflection memos, and examination of best practice for supporting African American students to address the competencies required for high level culturally relevant math instruction. This analysis was used to present a case study aligned to Wagner’s 4 C framework.

During the program evaluation, the following data gathering techniques were employed

- One-on-one semi-structured interviews/focus groups
  - In addition to the one-on-one semi-structured interview and focus groups, I also drew from informal conversations and semi-structured interviews with administrators, parents, and colleagues
- Informal Classroom observations
- Reflective memos of your own practice



- Examination of best practice research for supporting African American students

### **Assessing the 4C's: As-Is Framework**

#### *Context*

Shaw Charter Elementary School was founded in 1998 in connection to an urban located university. The mission of the school is to prepare 100% of its students for college acceptance and graduation through a pre-K to 12 pipeline that cultivates culturally aware critical thinkers and leaders. Shaw serves grades pre-K through 5 and is one of the four campuses of the University Charter Schools. Shaw engages students in a challenging academic environment and fosters in all students a sense of responsibility for themselves and their community. Shaw is one of the highest-performing non-selective elementary schools in the City of Chicago.

As a charter school, Shaw is exempt from some of the regulations that govern conventional public schools. It is however required to administer the annual Illinois State Achievement Test (ISAT) to all students in graded K-5. In order to renew its charter every five years, the school needs to demonstrate that its students are performing at suitable levels on the ISAT, which measures student proficiency in the areas of mathematics and reading. As with other charter schools, Shaw requires the use a public lottery to select students from the applications submitted by parents. Any child living in the city of Chicago is eligible, but those families living within the attendance boundary are given first choice.

#### *Culture*

Shaw's academic approach is distinguished by a school culture of high academic achievement, featuring rigorous instruction and a curriculum based on research and best practices. They describe themselves as having committed, knowledgeable, and skillful educators, including award-winning and National Board-Certified Teachers, who teach, guide, and inspire

students to excel. Shaw places an emphasis on teaching students to become independent readers by grade three, using whole group, small group and individualized instruction with a focus on higher order thinking in mathematics. They use literacy and mathematics assessments to measure student progress and to tailor instruction and supports to enable all children to reach higher levels of achievement. There is an infusion of technology throughout the curriculum, including four desktop computers in each classroom and ready access to a laptop for every student. The school has a full-day pre-kindergarten that offers developmentally appropriate instruction in reading, science, mathematics, art, music and dance. Increased instructional time is achieved through an August–June academic year and a school day that offers extended hours beginning at 7:00 a.m. and ending at 6:00 p.m.

Shaw is recognized as a high-performing school that has won wide recognition for enabling students to learn and achieve at high levels. On the Spring 2018 MAP assessment, the majority of Shaw students in grades 2-5 scored above the national average in Reading and Math. In 2013, Shaw's campus director was awarded a Chicago Public Schools Principal Achievement Award, a recognition of leaders who guide their schools to exceptional academic growth. The principal was also honored with a Community School Leadership Award in 2012. On the 2017 Illinois State Board of Education Report Card, Shaw students outperformed both the Chicago Public Schools district and the State of Illinois in terms of the percentage of students meeting or exceeding standards on all state reading and math tests.

### *Conditions*

The strategy Shaw uses to improve in mathematics is a consistent focus on improving instruction and making it uniform across classrooms and grade levels. They select their strongest teachers who believe in the capacity of all of their students and,

along with the administration, set norms for student behavior school wide. Grade-level teams assess student skills frequently and use the results both to guide instructional improvement as well as to identify students in need of skill intervention. Additionally, the team responds quickly to address concerns behavioral or academic in nature. One teacher said, "...we know what has to happen in our school to prepare low-income children to thrive."

The general approach for improving math instruction was to immerse its children in challenging and interesting tasks. In order to achieve the above, its administration spent time and resources to provide teachers with substantial learning opportunities and pedagogical support through professional development and a robust coaching and feedback cycle. More minutes were allocated to math instructional time and remediation/intervention blocks. Lastly, Shaw leadership engaged parents and families in the school-wide movement for high math achievement.

### *Competencies*

In order to understand the competencies that a present for high-leverage mathematics instructional practices, I utilized structured interviews/focus groups, interview administrators, classroom observations, reflection memos, and examination of best practice for supporting African American students to analyze practices of the teacher instructional approach in a case study format.

### *The focus teacher – Mrs. Foster*

The competency of Mrs. Foster was undeniable from the first observation. It was evident she had positive relationships with her students and that the relationship was

based on mutual respect. She was firm in her expectations and fair in how she executed those expectations. Mrs. Foster was very clear on the standards she was going to teach, when she would be assessing them, and she shared the information with a class. Additionally, she effortlessly could speak towards the complexity of math standards. Mrs. Foster was acutely aware of the prerequisite skills within the larger standards that would need to be addressed in order to proactively anticipate student misconceptions.

### *Student Interviews*

The student interviews yielded the following results. Students feel like Mrs. Foster has high expectations for all her students. One student said, “She [Mrs. Foster] really wants the best for us. She won’t let you slack or not do your best.” Another student noted, “She expects us to go to college in the future.” Mrs. Foster expects that all students can and will achieve in her classroom, and “she don’t give up on you when you are having a bad day.”

In our conversations about Mrs. Foster, students’ eyes seem to light up with pride as they discussed her attributes. Students shared that Mrs. Foster has strong relationships with them and shows that she cares about them. Descriptive words to represent Mrs. Foster were caring, fun, excited, silly and loving. One student said that “She notices if you aren’t getting it and then will say something nice to make you feel better and then she helps you....” Another student expressed appreciation for the way Mrs. Foster listens and helps them when they need it.” Overall, the students expressed admiration and appreciation for the teacher.

When asked what makes Mrs. Foster’s class special, every student expressed that she makes math fun. “I really like the games and different activities she has us doing. The

games are a lot of fun and you get practice too.” Some students remarked on her pacing in the class saying, “She makes sure to not go too fast for students who need to go slower.” There was a strong sentiment from the students that Mrs. Foster wanted to make sure everyone understood the lesson. A student remarked that Mrs. Foster would sometimes slow down the lesson by “...have some kids that get it (understand the material for the lesson) to work on other assignments and the rest of us she will work extra with us.” Students were aware of Mrs. Foster’s ability to differentiate to make sure that each one was supported in their individual effort towards proficiency of the math standard.

#### *Parent Interviews*

Two parents participated in the parent interview. Both remarked that Mrs. Foster does a really good job of communicating with them, letting them know when a new unit is beginning and what skills are in that unit. The parents appreciated this as it gives them an opportunity to be involved in their children’s education. One parent noted, “I have two boys in her class. One of them is really good at math and the other struggles a bit. Mrs. Foster is so patient with both of them. They both are doing well in her class and they enjoy it.” When asked, what makes the class special, she responded, “you can tell she really loves what she does and that comes across to the students.”

#### *Co-worker interviews*

The interviews with two of Mrs. Foster’s colleagues provided insight on how they see her as a coworker and partner in the work. Both interviewees shared how approachable she is and talked about her open-door policy. “She is very warm and welcoming. She lets everyone know

that she is available to come by and visit class or swing by to bounce ideas off of her.” Her colleagues expressed how Mrs. Foster willingly shares her data with the team during collaborative data meetings. And they were quick to point out that she offers suggestions to others about how to respond to their data. She was described as collaborative, always willing to share techniques that were working for her students, and that she just as openly seeks out advice from the team when she is trying to figure out how to respond to the data for her students.

#### *Interview and informal conversations with administrators*

During my conversation with Mrs. Foster’s principal, her principal noted that Mrs. Foster attends every curricular professional development available as well as tasked with bringing that information back to her colleagues using the train-the-trainer model. Her belief was that if she could do those three things, she would create better outcomes for her students.

Mrs. Foster, as well as her principal, spoke extensively about the school’s commitment to continuous learning, reflection, and the desire improve collective practice. Mrs. Foster is the embodiment of this effort and seen as a teacher leader and “Rockstar” in the school.

#### *Informal Classroom observations and reflective memos of own practice*

An important quality I observed and found evidence of in the student interviews is Mrs. Foster’s ability to help her students create connections with the material being taught. She made sure her students understood the concepts and the corresponding thinking rather than just memorizing the equations or formulas. Instead of teaching math in a series of isolated units, Mrs. Foster’s instruction is more effective when it builds on skills previously learned in spiraled units.

Additionally, Mrs. Foster showed her students why the material they were learning mattered and shared examples of practical application to actual situations. She

effectively planned opportunities for students to connect their learning to the real world in real-time. When I spoke with students about their experience in the math class, seeing the application of the math they were learning made them love math and be excited to learn more. One technique she often employed was for students to discover a pattern. She would set up a contrived situation that led students to discover a pattern. Overwhelmingly they would get excited and motivated in finding and owning an idea.

While skillfully managing the intellectual student experience, Mrs. Foster was able to focus the class's energy on learning and limiting behavioral problems. She appeared to use a proactive management system. She set up the physical classroom in a way that flows naturally and allows students to access materials and work collaboratively. Another key to her management was maintaining high levels of student engagement. Mrs. Foster would strive to plan exciting or upbeat lessons with enough variation to keep students interested and her students wanted to desperately be included.

There was significant evidence that Mrs. Foster was completely invested in her students' success and that she was willing and able to go the extra mile to ensure each one understood the material at the mastery level. She adjusted her teaching strategies to reflect the learning styles of individual students or the class as a whole. She had the ability to anticipate problems or misconceptions and plan accordingly. On a couple of occasions Mrs. Foster presented a challenge to the class. She introduced it like it was the most difficult problem known to man, but it was simply an extension question for the standard they were working on. The students would loudly declare, "bring it on!" or "I'm gonna get this!" When her students were challenged intellectually, they reacted with enthusiasm. Great care was taken in selecting the challenge. While most students were

working feverishly to prove their intellectual superiority, Mrs. Foster would intentionally walk around and sit with students who she could tell had some issues with the lesson or prior activity. When asked about it, she noted that she was reading their faces, watching them work, and could see something needed to be addressed. The challenge gave her time and freedom to engage those students one-on-one.

Along with the commitment to each student's success in her class, the relational connection between everyone was obvious. Beginning class, each day, Mrs. Foster met her students with a warm smile and a greeting and they in turn did the same. Students already knew the established routine for beginning class and most of them would get to it. While taking attendance she walks around the class gauging the effect on each of their faces. Most are happy, focused and ready for the lesson. A couple of students are frowning or are not following the routine to begin class. I witnessed her kneel down next to those students and have quiet, soft conversation that only they could hear. In one instance, I observed a student leave the class after that conversation. That student returned after a few minutes and began working. Later I asked what happened with that student. She noted that he was mad about something that happened during PE and was having trouble getting himself together. She told him to take the pass, get some water, wipe his face off in the bathroom and return to get started. She often would call out loudly to the student "ready for business!" and he would proceed with the work without further incident. Eventually this child began answering questions and by the end of the lesson his affect was as if his troubles never happened. When he engaged, she made sure to make a really big deal out of his involvement. She would make a loud noise or do an exaggerated movement to demonstrate her excitement for his effort.



## **Interpretation**

Through the interpretation of the data, five common themes emerged from each collection of interviews and observations. “Interpretation goes beyond the data to add context, determine meaning, and tease out substantive significance” (Patton, 2008, p. 478). The patterns gleaned give an understanding of the components present that allow for student success. Later I will share quotes and insights from the interviews/observations of Mrs. Foster’s teaching to present a case study of her approach related to mathematics competency.

### **Understanding Teacher’s Sound Mathematical Knowledge**

The awareness given to the teacher’s competence as one of the determining factors of the quality of the teaching of mathematics methodically increases. A teacher must be the master of the content they hope to teach to others. Otherwise, student acquisition of new math information will be limited to the range of understanding of the teacher. Successful teachers are expected to demonstrate a complete comprehension of the content of their mathematics subject area. They should be able to convey the math material to students using methodologies that are developmentally appropriate for capability of the learners they serve as well as show evidence of being culturally relevant (National Association for the Education of Young Children, 2002). These teachers must be skilled planners, seek to incorporate other disciplines into their lessons, and keep current on the changes and progressions in their field. Competence is mentioned in connection with the professionalization of the teacher’s knowledge and defining “mathematics” and “teaching” as essential components of mathematics teacher’s activity (Scherer & Steinbring, 2003).

A teacher's practice contains significant intricacy, consequently, the teacher must have a high level of competence to be able to respond to situations that occur in the classroom and reflect on them. R. Bromme (as cited in Biehler, et al., 1994) distinguishes five fields of knowledge necessary for teachers: (a) knowledge about mathematics as a discipline, (b) knowledge about school mathematics, (c) philosophy of school mathematics, (d) general pedagogical knowledge and (e) subject-matter-specific pedagogical knowledge (p. 75). Harel and Kien (2004) indicate three interrelated critical components defining teachers' knowledge base: (a) knowledge of mathematics content (refers to the breadth and ... depth of the mathematics knowledge, (b) knowledge of student epistemology (teachers' understanding of fundamental psychological principles of learning...) and (c) knowledge of pedagogy (refers to teachers' understanding of how to teach in accordance with these principles... [ pp. 25-26])

Mrs. T. Foster's competency was a journey upon arriving at Shaw Charter School. She was used to a more "traditional approach" to teaching math both in methods and routine. "When I first got there, I struggled too. I just finished up this master's program. I just received some exposure to different algorithms and developed an understanding in the math that math actually works. So, when I got there, it was kind of crazy. The kids had the former knowledge about this new math, and I didn't." Rather than continue to teach in a way that was comfortable, she decided to seek out help through professional development and assistance with her peers.

I immersed myself in a lot of professional development. I sought out as much as I could get. I wanted to learn! There was this, why? And here was this new way. I also just called for help. I wasn't afraid. I wasn't afraid of the learning. I wasn't afraid of change. I wasn't afraid of not knowing [because] my math coach was there. When I didn't get something, I

hollered ‘HELP! I am struggling. I don’t get it. This doesn’t make sense!’

I was very open to learning something new. What has worked for me is that I put myself in a position of a learner. I know that I don’t know everything.

Mrs. Island, Shaw’s Principal, noted that professional development and teacher comfort with the materials was paramount. Mrs. T. Foster, as noted above, had access to a coach to work through any misunderstandings or lack of clarity. Everyday Math, the school’s adopted math curriculum, sometimes required a completely different approach to skill acquisition than to what Mrs. T. Foster was accustomed. Rather than teach in the way she knew the content, she often sought out her coach and peers to get the best understanding in order to respond to student questions and needs.

While observing Mrs. T. Foster’s class I witnessed an example of the “new” math being taught in a way I’ve never seen as students sought to divide a five-digit number by a double-digit number. Rather than teach the concept through the traditional method of the double number on the outside of a bracket and the five-digit number on the inside, Mrs. T. Foster approached the problem with reason. Students were asked to make approximations via multiplication with the larger number rounded to tens, hundreds, thousands, ten thousands, etc. She repeated this process of approximate multiplications three times until the students got the same answer as if they had gone through the “old” method. While the “old” method is fixed on procedure and process, the “new” method was created with the conceptual understanding of division as well as the connected nature of multiplication and division. A novice teacher or one not well versed on the “new” way would not have been able to complete this lesson. Mrs. Foster masterfully framed

questions to her students to construct new knowledge and evidentially arrive at the answer.

### **Relationships**

During the “math message” portion of the lesson, Mrs. T. Foster was popcorn-questioning students on their understanding of the content, when she made her way to Alyssya. Alyssya is the tallest student in the class but you wouldn’t know it from her posture. She hunches in her seat in a way that gives the impression that she wants to be as small and unnoticeable as possible. Mrs. T. Foster asked her a question from the mini-lesson, Alyssya looked down at her desk, avoiding eye contact. She thought for a few moments and responded in the faintest tone, “I don’t know.” Mrs. T. Foster quickly answered with an understanding tone and said, “That’s okay. Let’s break it apart together. Remember, we always know something. Let’s talk through what we know. It might help us in getting to the answer.” While addressing Alyssya, Mrs. T. Foster was also gesturing to the class to put their hands down as if to say, ‘Relax everyone. Let’s slow things down for a moment.’ She resumed the individual lesson, “Okay Alyssya, let’s look at the problem again and just talk about what we know and see in this problem.” Alyssya responded with some things she noticed, still in a faint tone. Mrs. T. Foster responded in an animated and excited voice, “That’s right! Here we go! So, what does that mean when we see that?” Alyssya finally looked up from her desk and said, “It’s division. We need to divide.” Mrs. T. Foster clapped her hands together in celebration and walked toward where the problem is posted on the board. She then turned back to Alyssya and says, “Alyssya, help us by walking through why we need to divide in the problem.” Alyssya, who gives a slight smile, is now sitting up in her chair and postured toward her teacher. She more assertively talks through her thinking on the problem.

As the lesson continues, Mrs. T. Foster then quickly called on another student to explain in his own words Alyssya's thought process on the problem. He gave a concise summary of Alyssya's answer igniting Mrs. T. Foster, before moving on the next problem, to say to the class, "Remember to break the problem down when you don't know what to do. You always know something when you break it into parts. Good job Alyssya." Alyssya is now in full SLANT and seems ready to try to answer another question.

As a student in class, many of us have been placed in an uncomfortable situation where you aren't sure if you know or can do what the teacher expects you to. These instances can be extremely stressful and possibly traumatic. What do we do when we aren't sure or even clearly don't have a clue? If we are in a high-stakes environment, laced with judgment and ridicule, many will choose to disengage from the learning process in its entirety or create a scene to displace the attention to another topic. In either instance, students chose not to press forward toward understanding of content. Mrs. T. Foster actively creates an environment where students feel safe and cared for. This space allows students to feel free to be themselves without judgment.

Trusting student-teacher relations are essential for learning...Given this power asymmetry in the student-teacher role set, the growth of trust depends primarily on teachers' initiatives. Such initiatives include both establishing a family-like climate in the classroom that builds on students' affective experiences at home, and engaging parents in a supportive relationship around their child's learning (Bryk & Schneider, 2002, p. 32).

When Mrs. Foster asks a question about the lesson, 80% of the students consistently raise their hands to be called on. When asked why that is, a student said,

“I’m not always sure I know the answer, but I’ll try to see if it’s right. I know she won’t put me on blast if I’m wrong.”

I asked Mrs. T. Foster, how she created this type of comfort environment and why she made it okay to take risks?

A lot of it is encouragement. I share my experiences as a learner. Things were not explained to me in specific kinds of ways or there were instances where I struggled with things. Just a lot of priming and just making sure that other kids and the environment are conscious of others learning abilities. Let them know that we are all not good at the same things. Some of us struggle at some things. I explained to them that I run from writing. They know that if I am writing something important, I will have someone check my work. Just exposing them to my own personal fears around content. But one of the things I do try to convey is that math is just a language. Just like, we speak English; this is just another type of language with numbers. I often tell them, ‘It’s on the paper. You are bigger than what is on the paper. It’s just a number. Whatever you do, you can conquer what is on the paper.’ I don’t know if you remember but there was a young lady who was totally scared to say her answer. It was a lot of prompting and priming. ‘Just say it! It’s okay.’ I tell them, if I don’t know what you are thinking, there is no way I can correct the misconception or misunderstanding. So, you have to get the thinking out there, even if it is wrong. Something might be right. But I need to hear what you are thinking. Just fostering the environment of ‘you’ve got to

try.’ I have found that working in smaller groups, that students who are less apt to talk in whole group, are more conscious and will actually try when broken into smaller groups. Just trying to make sure that everyone is in it for the long haul.

Being on display for public ridicule was an important topic when students discussed their experience in Mrs. T. Foster’s class. Care and support were mentioned consistently by many students as an important attribute of the class culture. One student noted, “My old math teacher from last year was kind of harsh. If you got an answer wrong, she would make a big deal out of it and everyone would know. It made you not want to try.”

In discussing stress, Mrs. T. Foster spoke about the environment she actively wants to create:

I have read a lot of studies about what happens when fear grips people. It was very interesting. I remember being in class and not wanting the teacher to call on me when I did not know something. And it is the most uncomfortable feeling ever. Because it is like I know, my peers are watching, and I don’t want to sound dumb, I don’t want to sound off. I mean, it happens as adults too, so I don’t want my kids in the classroom to feel like that. I don’t want them to experience that level of stress. Really what it is, is heightened stress. And when that happens, you just block out everything else. I even tell students that when I am introducing a problem, you know something. There is always something that you know. I don’t care how that problem appears, there is something there that you know.

You always have some frame of reference. So, once you know something, you just add on to it one piece at a time.

Mrs. T. Foster is acutely aware of her students' experience in her classroom. When reviewing materials during various activities she is analyzing the faces of her students, looking for the appearance of confusion, distraction, or discomfort. A student describes her take on her teacher's style in saying, "Mrs. Foster can tell when we are all lost and not many of us are getting it. She will tell us to take a deep breath. Sometimes she will tell us to take a brain break and we will do an activity and then come back to it. She wants us to get it but doesn't get mad when we don't." In *Other People's Children*, Lisa Delpit shares, "Good teachers care whether students learn. They challenge all students, even those who are less capable, and help them meet the challenge. (Delpit, 1995, p. 118)" Observing her teaching and listening to the students in Mrs. Foster's class, you know that she meets this definition for a good teacher!

Growing up, my experiences in classrooms were not the most supportive. I felt like most teachers were out to get you for something. If it wasn't the constant nagging about following their very particular set of rules, it was dealing with the pressure to make sure I was keeping up with the fast pace of the learning expectations. Most teachers will ask the class if the students have any questions and that is what support looks like. A barrage of daily note taking, bellringers, nightly homework, pop quizzes, chapter tests were a lot to manage but I knew early on that it was on me to keep up or be left behind. I've heard many teachers say, "I did what I needed to do. I got mine. It is up to them to get theirs." These kinds of statements beg this question, "Who owns the accountability for learning?" I believe the dynamic in most classrooms is set up to put much of the



burden of accountability on the shoulders of the student. But is this fair? What is the proper age of real consent for a student to be able to make a choice to opt in or out of their own learning process? Delpit adds to this point by saying in *Multiplication is for White People: Raising Expectations of Other People's Children*, "We all mouth the mantra 'All children can learn.' I would modify the chant to 'All children do learn.' It's just that some of them learn that we expect them to be successful, and some learn from us that they are dumb. Whatever we believe, they learn (Delpit, 2012, p. 43).

### **A Disciplined Classroom**

In the education space, the word discipline is often used in association with classroom management. Is the goal of classroom management control or to teach the disciplined behaviors that support student growth and maturity? Lisa Delpit, in *Other People's Children* remarks that

The authoritative teacher can control the class through exhibition of personal power; establishes meaningful interpersonal relationships that garner student respect; exhibits a strong belief that all students can learn; establishes a standard of achievement and "pushes" the students to achieve that standard; and holds the attention of the students by incorporating interactional features of black communicative style in his or her learning (Delpit, 1995, pp. 46-47)"

As a result of the relationship, students tend to understand redirection in a different fashion. Oftentimes in classrooms, students will react harshly if they feel they are being disrespected. However, students in Mrs. Foster's class, when redirected, respond in a more reflective fashion. I observed many students simply comply with the directive and get refocused with no loss of momentum. Some students who were dealing

with something more deeply were given the option to go to a predestinated location to collect their thoughts and rejoin the class. Mrs. T. Foster was trying to help students handle their emotions in the hopes that they will be able to reengage the class. Her interactions with students are rooted in care and solutions rather than scorn and disdain. This was exemplified when one of her young men says,

“I feel comfortable in the class because I know that she will protect me. Like when I do something wrong, she isn’t torturing me or anything, she is just disciplining me to make sure I won’t do it again. And when I do something good, she recognizes me. She gives us treats and stuff. And that kind of stuff pushes us on. We want to do good. We don’t only do it for the treats. We do it to make her happy.”

### **Senses student attitudes and adjusts accordingly**

If you have ever looked in the eyes of students as they enter the classroom, you understand that that moment tells you everything about how the learning experience will go for that student for the rest of the day. Mrs. T. Foster takes the time to check-in on every student at the beginning of class. If a particular student is feeling playful and energetic, she matches that energy and will have a humorous exchange while the student is getting prepared for the class period. If a student gives off negative or abnormal energy, Mrs. T. Foster will conference with the student. She will say, “What’s up? You okay?” If she is unsatisfied with the response or feels like the student is not being forthcoming, she will pull the student to the side or in the doorway of the class to investigate further. In these instances, Mrs. T. Foster offers a kind word or assists the student in problem solving the issue. Following these side conversations, the students

then engage in the lesson appearing to feel better and focused on getting into the content. One student describes their interactions with Mrs. T. Foster, “If you are having a good day and feeling funny, she will crack jokes with you and make it funnier. If you are having a bad day, she will ask you why and give you the best way to solve the problem.” In some instances, Mrs. T. Foster gave students space and flexibility within the classroom, to find a place where they feel they can best learn without disruption. This response by Mrs. T. Foster communicates a high level of respect and empathy for students.

### **Understands students on a personal level, personality types, interests**

*“Good teachers communicate with, observe, and get to know their students and the student’s cultural background” (Delpit, 1995, p. 118).*

Investing in student interests is a great way to communicate that, as an educator, your desires are not simply to dispense information. In many of the schools where I taught, you could find teachers supporting students by attending sports games and afterschool performances or having conversations with students on a common interest that you share. I have even seen teachers organize college trips for groups of students to their alma maters to expose them to a new environment. Mrs. T. Foster demonstrates this great interest in her students as individuals and seeks to encourage their personal interests and talents by taking the time to understand her students by exhausting all resources to gain the best insight into their motivations. She speaks with parents to learn how their child operates, so to best engage them in lessons and class participation. These actions build such a strong lasting relationship that students often return to the Shaw Charter campus to visit her well into their high school years. Parents continue to ask her for advice on keeping their children interested in math and science once they leave

elementary school, and her advice is well worth the effort of gaining it. In one instance, she suggested a book about girls in science and math to a concerned parent whose daughter is now engrossed in advanced placement math and science courses in high school.

### **Judgements**

The data findings provide insight into the research questions of this study. The primary research question guiding this inquiry is: How can educators and leaders learn from best practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students? As discussed in the previous section, Mrs. Foster has been successful in working with her African American students because she first had a strong content knowledge. This allowed her to take her students through different pedagogical strategies and experience in order to achieve proficiency on the rigorous mathematical standards. She also formed appropriately caring relationships with her students. All of her students that I interviewed shared how much they love being in her class because they know she cares about them and wants them to do well. Mrs. Foster held a high standard in terms of student work products, but she saw the humanity within each student and skillfully balanced the strong instructional focus with understanding and nurturing.

Following is information gleaned from the study that respond to the secondary research questions.

What is it that promotes this excellence despite a long-standing history of underachievement? Leadership at Shaw knew that overcoming economic and racial inequality in math achievement required a reorganization of mathematics instruction

beginning with pre-K. The school made sure to engage all students in rigorous math experiences. The goal was to have all children become proficient not only on the state standards but become problem-solvers and critical thinkers. Mrs. Foster utilized a curriculum with a strong scope and sequence of instruction. This gave her the opportunity to see the end for each student and proactively address misconceptions or weak prerequisite skills. She seemed preoccupied with constantly checking for her students understanding in order to be responsive to their collective and individual needs. She assessed her students' understanding formally and informally during the lesson. Frequently getting feedback on her students' learning and responding in a meaningful way is a hallmark for Mrs. Foster's instructional experience.

Expanding instructional time is critical to addressing students' needs. Providing more time instructionally was a huge factor in giving students more opportunities to immerse themselves in the problem-solving classroom experience. Another practice that promotes excellence is giving teachers opportunities to collaborate meaningfully around student learning as well as building their own comfortability with the content being taught. Shaw administrators created a robust system of support for math teachers that not only pushed a level of urgency but built on the teachers' skills and increased confidence to address the multitude of student needs on any content standard. Lastly, there was a concerted effort to engage families in the school-wide math focus. Shaw provided parents with frequent feedback on their child's progress on the continuum towards mastery of the grade-level standards as well as sent home games and activities to support student learning and automaticity.

The story below helps us evaluate the next secondary research question.

- “What is it about this teaching that African American students thrive and grow while others do not?”

The answer to this research question begins with my own experiences. As previously mentioned, Mrs. Thelma Smith was one of my high school teachers and she had a major influence on my life, and I believe there is much we can learn from her journey. Mrs. Smith was born to a surgeon father and college professor mother, becoming a member of the third generation of academics in the Smith family (her grandparents were professors and later administrators in Mount Olive, NC). Raised in segregated Dayton, OH, where sitting in the balconies of steaming hot theatres, race riots in school and throughout the city were commonplace, Mrs. Smith was made brutally aware of the malcontent harnessed in the White consciousness and the affect such irrational resentment can create. Still, fueled by the success of previous generations, and her academic lineage, Mrs. Smith attended the University of Dayton, majoring in Biology. With that decision, she remained a minority throughout her education.

Upon graduating from Dayton, she moved to Gaithersburg, North Carolina with the intention of teaching Black students in an integrated school. It was during this experience that her life took a turn in a more specific direction. Almost daily, she witnessed the unfair treatment of Black students by a segment of White teachers for no other reason than the color of their skin. Black students were embedded in an environment that didn't acknowledge their abilities to succeed nor invested much interest in reaching out to understand them. Seeing these students struggle with the same insecurities forced upon them as the ones she encountered during her youth, Mrs. Smith knew of one tried and true method to get those students out of that dangerous mindset and on the road to progress-- encouragement.

Being told of their supposed inferiority could only be balanced by a different story, the story of their potential yet to be realized and in great need to be cultivated. She proclaimed to her students, “You can do anything!” and after time and care to keep that seed firmly planted in their minds, they began to believe her, and their academic progress bloomed. Unfortunately, the educational system had yet to undergo a progressive transformation, preventing Black students from entering honors classes despite their academic performance.

The rules surrounding access to honors classes were based on five criteria, three of which students needed to meet and/or excel in: GPA, test scores, student interest, parent recommendation, and teacher recommendation. To facilitate the option of enrolling in honors classes Mrs. Smith created *Academic Plus*, a program designed to prepare non-honors students for honors level courses. The program included four teachers from each core subject as tutors; it monitored college readiness (a system that kept track of how well-equipped students were becoming for college by keeping track of their GPA), including academic and social requirements for the specific major departments and a plan mapping out their four years at University. Students became self-motivated and determined to reach the honors level and beyond. At the time Mrs. Smith began *Academic Plus*, 3% of the 18% of the Black student body was enrolled in honors courses and three years later that number rose to 37%.

Though students were now getting into honors classes, their experiences were still strained. Some were not allowed to enter these classes. Mrs. Smith encouraged students to relay their experiences back to her; they told her of being overlooked and ignored when attempting to answer questions and/or being singled out and embarrassed for answering incorrectly.

Mrs. Smith continued pushing students forward with the creation of *SEE* (Self-Esteem Enhancement), specifically geared toward female students, and *Models and Mentors*, a program for Black high school students to shadow Black employees of all corporate levels in a variety of local companies. Students were also afforded the opportunity to travel on college tours and speak with Black college students about their experiences on campus. At school they would raise funds for student scholarships via pageants, international fairs and performances by the step team. By any and every means necessary Mrs. Smith, along with faculty and students, stood steadfast in her determination to propel students toward the fulfillment of their potential.

Through these programs and an unrelenting sense of duty to her students, Mrs. Smith accomplished her vision of bettering the academic opportunities and profiles for Black students, providing them with a clear vision of what they wanted to do with their lives, instilling belief in themselves and introducing to them the potential to dictate their own future without allowing anyone else's opinion to sway them from their course. Through their interaction with Mrs. Smith, students began their own support systems in classes, maintaining the idea Mrs. Smith staked her entire modus operandi on, encouragement.

Mrs. Smith found her belief in the power of teacher expectations reflected in her research of Montgomery County's student data:

I looked at Montgomery County data from a psychologist's research on the elementary schools in the county from kindergarten to third grade. It was private but she let me look anyway. For the incoming kindergarteners there was a broad range of academic performance on test scores. This is common and you should know this is true across the races. By second and



third grade, you could see marked difference in the test scores by race. The students' ability did not change, not in those few years. What changed was teachers' treatment and perceptions of the students' ability. Students performed to the teacher's expectations. Students will rise or fall to their teacher's expectations. I truly believe that. If teachers expect their students to do well and encourage them to do well, students will do well. But if teachers don't expect that of them and discourage them and never call on them as well as give students an opportunity to participate, or exclude them, students fade into the woodwork. They will not do what they can do. That is the type of thing that I saw often. And I know in honor's level classes, they would try to limit the number of minority students. I would recommend students for honors classes and then follow up to see if they were placed in them. I would see over and over again where a teacher or a counselor would make an arbitrary decision and exclude a minority student that should not have been excluded. If it was one that I was aware of and caught it, I would follow back up with that student and make sure they had an opportunity to try.

Her words and her example instilled a mission in me, one best described by the Chapter of Luke; that same knowing chapter that spoke to her of healing now speaks to me through its 23<sup>rd</sup> verse, "*And he said unto them, 'Ye will surely say unto me this proverb, Physician, heal thyself: whatsoever we have heard done in Capernaum, do also here in thy country.'*" And this is what I strive for every day -- to bring the words of Luke into manifestation, to inspire young men of my "country" to perform, to strive for

greatness, and to see the possibilities in their wake; to know that their greatness is naturally rendered and cultivated by the encouragement of their peers and mentors. I want them to understand that with each step, their possibilities are coming closer into view and reality, that each individual can create the world they wish to inhabit. My only hope is to give them - to inspire in them - the courage to discover this truth and convince them of its legitimacy. That is what I seek to uncover in the research to follow.

In my experience as Black male student and a Black teacher of African American students, relentless belief is a major factor or dynamic that is needed for Black students to succeed. Do you believe in me? Do you even like me? Do you want to be here? These are questions I asked as a student and Black students continue to ask when looking at their teachers. Teachers have to believe that all of their students can achieve regardless of the obstacles the context. As stated in previous sections, I have addressed the conditions necessary for African American student success in the area of mathematics.

From a national perspective, the data is clear that African American students are underachieving compared to other ethnic groups. According to the National Center of Educational Statistics, “from 1990 through 2017, the average mathematics scores for White 4<sup>th</sup>-and 8<sup>th</sup> graders were higher than those of their Black and Hispanic peers (NCES, 2019). There are factors as to why this disparity exists in places where a Mrs. Foster and Shaw Elementary School is not present.

There is a wide range of early home and early school experience that led to an inequality in the early reasoning and spatial skills. I believe that families do the very best they can with what their context can provide. Childcare and pre-school options are becoming increasing more expensive and all children do not have the same exposure to

early mathematical concepts. Consequently, gaps in mathematic ability form across racial and socio-economic lines as children enter school. The gap in math skills that begins before children enter kindergarten can most likely be described as it on increases over the course of time students are in school. Research shows that teacher knowledge in math is linked to students' academic success. Charlotte Danielson says, "Competent teachers are the most critical piece in improving students' achievement and closing the achievement gap. The single most important influence on student learning is the quality of teaching" (Danielson, 2006). Furthermore, (Kunter, et.al, 2013) researched and published in the *Journal of Educational Psychology* entitled "Professional Competence of Teachers: Effects on Instructional Quality and Student Development." Their finding: "... that students whose teachers had better professional competence and knowledge, endorsed constructivist beliefs, and were enthusiastic about teaching showed higher achievement gains. In addition, students whose teachers were enthusiastic about teaching showed a significant increase in mathematics enjoyment" (Kunter, 2013, p. 805).

To put it simply, the more the teacher knows the better students will do. In my experience as a consultant and administrator, many schools cannot find teachers with an adequate mathematics content knowledge and teachers often lack the confidence to present to their students. This then means that these teachers lack the understanding of strong pedagogical approaches for math instruction. What often happens is that teachers, without the content knowledge required to teach the grade-level appropriate standards, cling to the textbook and supplementary materials as the primary means of instruction. If their students struggle in any part of this process, the teacher does not have the means to differentiate their delivery. Teachers may recognize that some students are not learning

critical skills and genuinely want to help them, but they are already using what they know and working as hard as they can.

In my experience, reteaching in this context looks like two actions. One, the teacher will say louder the same thing they said the first timer. Two, the teacher will say more slowly exactly what they previously said. Making meaning for students is more than the procedural or technical aspects of work. Students should be able to connect what they are doing with why they are doing it in the first place. Many students are taught how to solve problems but only when they appear in isolation with other questions just like it. It is like teaching students how to use different tools in a toolbox. Students are shown how to properly hammer in a nail, use a screwdriver or perhaps use a socket wrench. However, in standardized tests, they do not tell you when it is appropriate to use the hammer, screwdriver, or wrench. Even if the student knows how to use all these tools, that does not mean they have been taught when to use them. Often times, students read a question and look into their metaphorical toolbox and chose the wrong tools. This happens when teachers do not explain the functionality, uses, and purposes for which a tool can be useful. Students are even more at a disadvantage when they need to use all of the tools in the box in a specific order.

This idea of being unable to identify the correct tool or the correct order in which to use tools was evident in an experience I had walking into a math classroom in a school I asked to evaluate. I was observing classes in an elementary school and planned to spend five to seven minutes in each class with an administrator of the school. My goal was to give the school feedback on both the culture and climate as well as how instruction was going. Because of my science background, I try to just observe as much as possible

attempting not to disturb the natural environment of the classroom space.

In one class that I observed, students were working on long division. Several students were walking around with tiny, makeshift white booklets. Each page of the booklet had a long division problem like 874 divided by 6. After a few minutes of checking out what the walls and boards were saying, I saw four Black boys sitting at a large circular table in the corner. They appeared engaged, writing in the booklets and one student was helping another out on one of the problems. I said, “great job fellas. I see you all working hard. Can you tell me why division is important? Like what do you use it for?” They gave me the blindest of stares as if they had been stumped by the final jeopardy question. I kept asking in various ways like, so how can you use division in real life? I could see in their eyes that they didn’t want to say they didn’t know but could not answer my question.

I completely appreciated that they wanted to do their best to answer this stranger’s question. To alleviate the anxiety that I could see crossing their faces I said, “okay let me ask in a different way. Let’s say the four of you and me were working at an old man’s house. Some of us were doing some painting and somebody cutting the grass, and somebody was trimming the bushes. At the end of our work, the guy gives us a total of \$100. So, there is five of us and \$100. How much does each of us get if we all get the same amount?” Immediately, some started writing feverishly on their paper and a some were staring up at the ceiling with their pencil on their lips going through the problem their minds. Then one student said, \$105. Then another said no its \$2 and another \$30. I sat back to let them argue with each other. After a couple of minutes, one student said \$20. I said, the same as before, “that’s interesting. Hey fellas! He said \$20. What do you

all think about that? Hey sir. Tell me how you got that.” The teacher in me wanted him to say exactly what I would do in order to solve it, but he couldn’t explain his thinking and appeared to have something going on his mind but could get it out. So, I asked them if I could get a piece of paper to write on. I asked them how much money we were getting, \$100. And then how many of us were there, 5. I set the problem up for them modeling the problems they had been working on in class with the 100 on the inside of the divisor bracket and 5 on the outside. I asked, do you all know how to solve it now? They yelled, “yes”, and began to flawlessly talk me through the computation of the problem.

By the end, all of them were either out of their seats, huddled close to the paper or on their knees in the seats and elbows on the large circular table telling me what I needed to do. When we got the end, one young man said, “I told you it was \$20.” And another student dapped him up. I told him that while it was great that he could get the answer that he needed to be able to explain his thinking to prove that he was right. Helping teachers put into practice what they know is an important step in the process of preparing students. Professional development is integral to both teacher and student success. The importance of this is examined with the following secondary research question:

- What types of professional development opportunities emerge from the research that informs the work of other teachers serving African American student populations?

Working in schools that serve African American student populations is both a gift and responsibility. It is essential that teachers in these settings immerse themselves in professional development that enhances their effectiveness. Culturally Responsive Teaching workshops and professional development opportunities provide knowledge base building and skill development to prepare participants to engage students and honor the underserved cultural behaviors. These

culturally responsive teaching opportunities have an array different technological tools to recommended.

It is equally as important that math teacher pursue opportunities to enhance their competencies in their content area. These professional learning spaces should provide teachers an assessment and the teaching and learning of common core standards, equity in mathematics and differentiation in the hopes of students can succeed in math.

Policy recommendations flow from the secondary research question:

- What policies can be implemented as a result from this research that informs the work of other districts, school and teachers serving African American student populations?

My policy recommendation advocates for a state- and school-level requirement for districts and schools to identify, create, and provide professional development for use in identifying curriculum and resources related to culturally relevant pedagogy and mathematics instruction. These policies promote equity in the educational system and would require school districts to offer professional development for current practicing teachers to study culturally responsive pedagogy and practices, which will purposefully address both academic and social emotional instruction. Policies adopted at a state level would impact teacher training, helping to better prepare all teachers entering the work force in the practices of a culturally responsive pedagogy and comprehension of mathematics instruction.

### **Recommendations**

Many districts and states have chosen to have students assessed using the Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP) assessment. Most schools take this computerized adaptive assessment two or three times per year. MAP is

nationally normed assessment that can measure growth from testing administration to administration. MAP also looks at what students know based on what is expected for their grade level, thereby identifying a relative grade-level efficiency level. Schools and School Districts should use this data around growth and proficiency to identify and develop targeted coaching for teachers to address weaknesses at the classroom, grade, and school level.

Teachers should be coached and supported to using this data to plan instruction for individual and small groups. Collectively between school administrators, coaches, and grade-level teams, this data should be shared, and action plans should be created. At the Madison Metropolitan School District, teacher teams are expected to analyze the data individually and collectively. As teams they are asked to answer the following questions:

- How many RIT bands are represented in your class? (\*RIT is the scale used by MAP to help measure and compare academic growth.)
- Where are students clustered?
- Are there outliers or clusters of students who seem to be at the upper end or the lower end of the score distribution?
- Which groups of students might need additional support?
- What within the school's curriculum, instruction, and/or environment may be contributing to your current results?

Following the analysis, teacher teams are asked to then consider next steps and take into multiple questions.

- Consider actions such as creating flexible small groups based on student strengths and needs.
- Would it be helpful to create cross-class groupings to address student needs and strengths more specifically?
- What other data (beginning of year assessments, formative assessments, teacher- or team-created assessments, other student work) complements this information?
- How can teachers in all subject areas reinforce disciplinary literacy and mathematical reasoning?

NWEA also suggests using the student MAP data to tailor lessons, create flexible groups, and for choosing supplemental resources like Khan Academy to accelerate or remediate student learning. Additionally, research suggests that student goal setting is an important



step towards increasing student performance. Schunk explains that students use goals to direct their actions, assess their progress, and drive their own learning over time (Schunk, 2003, p. 159). Goal setting allows for students to have an understanding of their own progress and also an agent for improvement thus fostering intrinsic motivation.

As previously stated, I advocate for a state- and school-level requirement for districts and schools to identify, create, and provide professional development for use in identifying curriculum and resources related to culturally relevant pedagogy and mathematics instruction. Illinois recently approved a rule requiring teacher education training programs to adopt culturally responsive teaching and leading standards (Korte, 2021). This will allow schools and school districts to improve student learning, cultural competency and better student outcomes for Black students as well as students most in need.

## **CHAPTER FIVE: ASSESSING THE 4CS ~ TO-BE FRAMEWORK**

### **Introduction**

In consideration of all that has been mentioned, it is clear that mathematics instruction for African American students must improve to address the inequality in achievement. Factors contributing to the achievement gap between African American students and their peers in other racial groups seems overwhelming. The social-economic variable is daunting because this impacts children almost from the womb. High-income parents, most of whom have college education, can invest in their children's education by selecting where to live and which schools their children will attend. By using their financial resources and knowledge, these parents are better prepared to help their children acquire math skills even beyond what the school may provide. Dissimilarly, low-income parents, many of whom have no postsecondary experiences, lack the resources to provide for their children's education in identical ways.

Every year schools across the country see the disparity played out in the classroom. There seems to be a need for a systematic, school-wide/district wide approach to instruction in mathematics. This is especially true in elementary schools where teachers rarely specialize in math. Teachers tasked with teaching mathematics need extensive training in the mathematics content as well as pedagogical approaches. Additionally, schools and school districts need to employ a coherent system of instructional support, collaboration and coordination. Many elementary schools are experimenting with departmentalizing and specializing in earlier grades to compensate for the lack of individual teacher preparation.

## **Envisioning the Success TO-BE**

In order to realize continued success for this school and other schools like this, it is essential to create a vision where all agree on the definition of success and all are able to follow. This section will recommit to the Wagner et al. (2006) 4 C's: competency, conditions, culture, and context. Each of these topics will display the vision for the essential elements that would lead towards success for the students of color in mathematics.

### **Context**

A change effort necessary to address the context involves offering teachers professional development to build mathematics content knowledge and research-based pedagogical strategies. Teachers also will have structures and tools to monitor students' progress toward proficiency. In this way they can develop a deeper understanding about their responsibility for ensuring that students can build capacity in mathematics instruction. And they can relate with a stronger understanding of the importance of a culturally relevant pedagogy in the classroom and the school. Additionally, school administration creates regular opportunities to create common assessments that measure mastery levels and discuss potential ways to respond to the individual and collective learning needs of students related to mathematics standards.

### **Culture**

At the conclusion of a school's change effort, all teachers will have a clear understanding of why high-quality, rigorous mathematics instruction is essential for success of their students and will measure mastery of mathematics content consistently. The culture of the school/district will be for all stakeholders to understand that

mathematics instruction is a responsibility for all parties as they build their capacity in the area of content knowledge and pedagogical strategies. Mastery of mathematics standards are clearly defined and measured for all students. To accomplish this, there will be an understanding and accommodation to ensure that teachers provide appropriately differentiated instruction to guide all students towards mastery. Administration will recognize and provide teachers ample time to collaborate and support each other with the support of school leaders. Parents will be strong partners in their children's education as they are regularly updated on students' progress and given tools and opportunities to support.

In order for the school to flourish the culture should be cooperative and oriented towards growth that seeks to advance all learners. "When teachers believe that together, they are capable of developing students' critical thinking skills, creativity, and mastery of complex content, it happens!" (Donohoo et al., 2017). In my teaching experience, when I was blessed to be a part of such a culture, I felt energized teachers, confident and willing to try new approaches in order meet rigorous learning targets to ultimately advance toward student mastery. School leaders play an essential part in building this culture.

The greatest power that principals have in schools is that they can control the narrative of the school...if the narrative is about high expectations, growth in relation to inputs, what it means to be a 'good learner' in various subjects, and what impact means, then teachers and students will think about learning in a different way (Donohoo, et al. 2017, p. 44).

## Conditions

The conditions provide opportunities for teachers to develop a data-driven culture within their classroom while effectively communicating and supporting student progress toward the standards being assessed. Teachers feel empowered and confident to develop true partnerships with their stakeholders while being championed by the school administration.

As mentioned in previous sections, it needs to be evident to students that their math teacher has a genuine interest and care for them both academically and socially. From the academic perspective, students must understand that they are being held to high standards accompanied with high supports. The University of Chicago's 5Essentials Survey targets the student-teacher relationship as an indicator of a school poised for success (UChicago Impact, 2021). This survey looks at the social components of a school's culture, including trust and commitment and helps identify ways to improve the conditions across the stakeholder community.

Additionally, culturally relevant pedagogy requires teachers to connect the mathematical concepts that are being taught and assessed with the interests and lives of the students they serve. In order to do this, teachers must dedicate time to get to know their students. Building strong relationships with students requires that teachers employ approaches such as icebreakers that reveal something about students, having students use a math journal that allows them to reflect on their progress on the learning standards or instructional activities, engage in discussions with students outside of class time, attend school-sponsored events, create student information sheets and build relationships with

the parents to better understand student motivation or interests. Lastly, teachers should also have a reflective practice that incorporates the student voice. When a teacher earnestly solicits feedback from their students, it communicates respect, value, and a level of vulnerability.

### **Competencies**

High-quality teachers have an extraordinary impact on student outcomes. When students steadily encounter knowledgeable, effective teachers, gaps in learning will be closed and ultimately reversed. Inversely, the impact of ineffective teachers can and most likely will negatively impact those students for several years in the future. Good teachers in future grades can enhance achievement but many times not enough to make up for the skill deficits in the loss of learning that was created from a previous ineffective teacher.

Competencies would be demonstrated by a teacher who has developed a strong mathematics content knowledge that spans across the strands within each grade levels as well as a vertical understanding and articulation across grade-levels. District and school leaders will understand the importance of creating time for professional development and collaboration for teachers.

It is essential ensure that all teachers and staff members participate in regular professional development in culturally responsive pedagogy and behavior management, and ensure that daily, in-school professional collaboration time is used to boost understanding of standards, improve instruction, and paying specific attention to the progress students of color academically and social-emotionally. A way to build teacher capacity in an on-going fashion would be to create partnerships between higher education institutions and schools/school districts. This partnership would provide professional

development programs for teaching faculty and staff that focus in on improving school climate, engaging diverse classrooms, and employing instructional strategies specifically for diverse students (Bailey & Dziko, 2008).

### *Achievement Gap*

In my role as a consultant, many new prospective clients come to me wanting to address the achievement gap of their students. Some schools or districts are more homogenous in their student demographics meaning that most of their student population is made up of students of color and from a lower socio-economic background. Other schools and districts have a sub-group of students who are struggling academically. Typically, these are students of color, most of whom are from a lower socio-economic background. In both cases the conversations are similar. “How can we address the achievement gap?”

### **Conclusion**

The recommendations for improving math outcomes for African American students from the previous sections are in many ways school reform. These efforts involve a mixture of aligning curriculum with rigorous grade-level standards, allocation of time and resources, and culture of continuous improvement. Success requires a clear understanding of how children learn mathematics, the ability to assess what a child knows and how to create learning opportunities that hold students to a high standard rigor while addressing skill gaps simultaneously.

## CHAPTER SIX: STRATEGIES AND ACTIONS

### Introduction

In this section I will explain the strategies and actions necessary for a school or district to implement in order to support teachers in becoming culturally proficient in their pedagogical practice as described in Chapter Five. This is necessary in order to support culturally proficient educators and African American students for academic, social, emotional, and behavioral success. First, school or district leaders have to provide space and time for teachers to work towards understanding culturally responsive pedagogy as well as create a vision for culturally responsive pedagogy to live in their space. This includes addressing the classroom environment, mathematics curriculum and instruction. Once the district and teachers have established a strong foundation for culturally relevant pedagogy and practices, they can analyze the curriculum to ensure it supports culturally competent instruction. These strategies are for the goal of dramatically improving the academic and social emotional outcomes for African American students.

Tate summarized culturally relevant pedagogy in the following way:

- (a) communication between students, teacher, and outside entities;
- (b) cooperative groupwork;
- (c) investigative research throughout the learning process;
- (d) questioning content, people, and institutions;
- (e) open-end problem solving connected to student realities; and
- (f) social action. (Tate, 1996, p.172)

### Implementing Culturally Relevant Pedagogy

Before culturally relevant teaching can be realized, a teacher must develop skills and knowledge needed for this way of instruction. This cannot be a “one size fits all” or mass production process. The key aspect of culturally relevant teaching is that it must be



individualized to fit the needs of particular group of students. A teacher must first obtain an understanding of the cultures in the community where he or she teaches. It is crucial that a teacher knows the ethnic makeup, historical context, current issues, norms, values, businesses, and any other important insight needed to understand the students' larger environment. This process also helps the teacher become better prepared to use the community's culture as a context in the classroom.

Once an understanding of the community has been established, the teacher can then start to develop a knowledge base of cultural diversity – specifically of the cultures present in the community. This knowledge base must go beyond acknowledging and respecting ethnic groups. According to Gay (2002), “Teachers must learn about ethnic groups’ cultural values, traditions, communication, learning styles, contributions, and relational patterns” (p. 107). In other words, factual information must be sought out in order to fully understand the norms of the community. This may involve research using multiple sources of rich information, including but not limited to books, taking a course or speaking with elders in the community or in the school.

The next step in learning involves what and how teachers share learning with their students. The focus of this learning is to discover student learning styles, best communication styles, and cultural contributions to the subject (mathematics, science, art, etc.) of the cultures evident in that specific community.

Park (2001) described learning styles as “cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment.” She goes on to say that these are qualities that “persist though content may change” (p. 180). As discussed in previous sections, there is

evidence of disconnect between how many Black students tend to learn compared to the White, European-based schooling they receive. To implement culturally relevant pedagogy, a teacher must know and be able to implement the specifics of these differences. Similar to learning styles, we also see that communication styles of cultures tend to differ. Gay (2002) stated:

Understanding [communication styles] is necessary to avoid violating the cultural values of ethnically diverse students in instructional communications; to better decipher their intellectual abilities, needs, and competencies; and to teach them style or code-shifting skills so that they can communicate in different ways with different people in different settings for different purposes. (p. 112)

Communication is an important part of any classroom. Teachers implementing this pedagogy must develop a solid knowledge base of how cultural norms influence their students' communication. In my experience as a teacher, if a student did not feel respected when being corrected, it could often inflame and exacerbate a situation. Methods of communication is often connected to ones' own culture and belief systems. As stated by Waddell (2014), "Teachers also have to consider how they themselves fit into the classroom environment they are crafting – thinking about their own beliefs, culture, and learning habits and how these beliefs and habits interact with their teaching practices" (p. 6)

Teachers must also make sure to know their content area thoroughly. As it was once stated, "We can't teach what we don't know." This applies to both knowledge of material to be taught and knowledge of the student population (Gay, 2002). Students

often approach content from different directions; therefore, a teacher must know their content inside and out in order to differentiate and respond to student needs appropriately.

### *Classroom Environment*

In assisting teachers in thinking about their classroom space, I have often posed this question, “If you were not there and students and their families walked into your room, what would the walls furniture arrangement, and feel say about you and your values?” The answers to this question must be considered with sincere intentionality. Culturally relevant teaching can clearly be seen in how a teacher chooses to go about this task. Wiest (2001) stated, “Materials should present both past and present mathematicians, as well as famous and little-known individuals... Cultural diversity in classroom materials is important regardless of the racial make-up of the student body” (p. 18). When students look around a room, the walls, organization should positively influence their attitude. “Classroom and school walls are valuable ‘advertising’ space, and students learn important lessons from what is displayed there. Over time, they come to expect certain images, value what is present, and devalue what is absent,” according to Gay (2002, p. 108). This implies that students should be exposed to and affirmed by variety of cultures, genders, concepts, and places on their classroom walls and in choice instructional materials. It is very important that the images should not reinforce any negative stereotypes of groups presented but rather serve as a link between the curriculum and the inclusive cultures, beliefs and traditions of the students.

### *Curriculum and Culturally Responsive Pedagogy*

Along with images on display for students' eyes to see daily, teachers must also carefully look at the curriculum used in their classrooms. Although it may not always be possible to buy a completely new curriculum, teachers can take the time to improve their current curriculum. This may mean modifying tasks, making sure negative stereotypes are not being reinforced, or adding materials to balance the curriculum.

Since many Black students are already preoccupied with so many other things, it is extremely challenging to attract and capture their attention. This is where teaching the universality of mathematics becomes important and useful. In my experience, my students loved sports, art, video games, and other forms of entertainment. In each of the areas, mathematics is significant and relevant. In sports, for example, analytics has taken over the mainstream. The sports industry uses sports analysis to increase revenue, improve player performance and a team's quality of play, prevent injury and for many more enhancements. In other words, sports teams are using analytics for a competitive advantage. A teacher would simply need to integrate the sports and entertainment worlds into the lesson plan with a focus on the rigor of the standard being taught. When students can visualize the pertinence and significance that mathematics has to the things they love, they will begin to be more attracted and inspired to learn more.

Many math curricula are deficient in problem solving and do not focus on real-world problems. When students do see word problems or applications in the textbook, they are usually relegated to a small section of the text. Some teachers see this gap and seek out supplemental resources for problem solving and mathematical modeling. One problem I have experienced is that all of the real-world word problems are slanted towards the reality and lives of middle-class White people. Many Black students will find

it hard to be inspired by problems involving people and situations that are foreign to their reality. One very important aspect of teaching problem solving, and mathematical modeling is to make sure the problems and situations are relevant to Black students. This is can be accomplished by changing the word problems around or altering the names, places or activities to fit the world of the students they serve.

In addition to providing students with word problems and mentioning applications of the math in the real world, teachers may also develop learning activities and projects that teach relevancy of mathematics to the real world. These types of activities will help in the retention of material because they require students to be creative as well as develop and construct learning models on their own. When students create, design and develop projects, they are more apt to remember and apply the mathematics that are involved.

We as math teachers possess an abundance of power and influence. We can reshape and remold Black students' perceptions by breaking down barriers that have been erected to become whatever their abilities can encompass. A strong, intentionally inclusive curriculum only serves to enhance the student experience through the instructional process.

### *Culturally Relevant Instruction*

When a teacher implementing culturally relevant pedagogy desires to have students work on a task, they should contemplate using cooperative learning strategies. As previously stated, many cultures learn best in communal environments. If a particular student is not as comfortable working in small groups, a teacher could ease this student into group work by having the student start by working in a pair. Group work promotes

the development of higher-level thinking, oral communication, self-management, and leadership skills.

The discussion that precedes, interconnects with, or follows an assignment is essential to students cultivating their critical consciousness and cultural competence, as well as to their mathematical reasoning. Rubel and Chu assert that teachers need to help students develop their critical consciousness with or about mathematics. They stated, “Developing [this consciousness] with mathematics implies investigating societal issues of power using mathematical analysis...The development of [this consciousness] about mathematics involves surfacing issues of power between people and mathematics” (Rubel & Chu, 2011, p.41). An example for teacher would be that they can discuss with students how a person would approach an answer to an assigned performance task may be more important or relatable by one group of people than another. Teachers can also discuss who generates or constructions mathematics, why it originated, and what relevance does mathematics have on an industry, community, or society at large.

A fundamental insight is that all of this significant rhetoric and empowerment of students will not occur without a teacher who has developed a trusting, meaningful relationship with the students they serve. Teachers must make evident to students how they see and want to connect with them as well as their unwavering desire for them to be successful in their class as well as in and around the school. Students must feel like their teachers are setting them up to win. This should not be confused with friendship but more so that teachers have high expectations along with high support. Ladson-Billings emphasizes, “Students treated as competent are likely to demonstrate competence” (Ladson-Billings, 1997, p. 703).

What are the conditions necessary for students to do their best work? If we reflect on our own experiences as a student, what teachers come to mind when you think about who got the most out of you? For me, the adults who come to mind did three things: 1) I felt like they cared about me and thus wanted the best for me 2) They lovingly pushed me to improve. I say lovingly because they were not mean in our interactions, but the critical feedback came from a space of care rather than disdain. 3) They had a relentless quality about them. There was no end in sight with them. They would stay on me without ceasing. No matter how bad I messed up, they were not going to stop making sure I was on track. I could not escape their care, their intensity, their vision of who I could be.

What would schools be like if all the adults in the building cared for their young people like this? The truth is that schools like this do exist, and it is an expectation that the students feel connected and supported to the adults in the building. To have a person rooting for you every step in the learning process gives students a greater likelihood to not sit in doubt of their own ability. As humans, we can all get discouraged and need to be reassured of our capacity.

### **Conclusion**

When students experience culturally relevant mathematics pedagogy, they are equipped with the ability to solve real world problems as well as pose their own questions to be addressed. This pedagogy seeks to empower students to be change agents in the world around them. The mindset of the teacher has a critical role in the learning process. Teachers must see themselves as primarily responsible for the learning of their students and should aspire to know them, do their best to set them up to win and root for them

along the way. Schools and school districts will accomplish this through the development of cultural proficiency, culturally relevant pedagogy, and professional development.



## CHAPTER SEVEN: IMPLICATIONS AND POLICY

This is the value of the teacher, who looks at a face and says there's something behind that and I want to reach that person, I want to influence that person, I want to encourage that person, I want to enrich, I want to call out that person who is behind that face, behind that color, behind that language, behind that tradition, behind that culture. I believe you can do it. I know what was done for me.

—Maya Angelou

(Angelou, as cited in Tucker & Stronge, 2005, para. 1).

### Introduction

The goal of this study was to investigate how educators and leaders can learn from best practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students as well as what factors promote this excellence despite a long-standing history of under-achievement. I recommend a policy to promote higher quality math teachers and support current practicing teachers with ongoing professional development to best accelerate learning for Black students. In mathematics, teachers with high levels of content knowledge have a greater likelihood for students to grasp and ultimately develop proficiency in the object. These skilled teachers can present problems in ways that are recognizable to the students and relate problems to what students already learned.

Teachers who have mastered multiple representations of math models are adept in using these representations to further students' comprehension. The inverse of this notion is that teachers with inferior mathematics content knowledge focus on rules algorithms instead than the why or the how a concept was created. Rote memorization is used as a basis for learning. Teachers with strong content knowledge are likely to immerse students

in rigorous yet thoughtful math questioning as well as solve problems collaboratively. Teachers with weaker content knowledge use the textbook as a foundation to solve and answer questions. Equipping teachers with culturally relevant mathematics practices will be critical to best meeting the needs of all students, especially those who are underserved, in order to eliminate the disparities enabled by the opportunity gap.

### **Policy Statement**

The purpose of this policy advocacy document is to illustrate the need for change in policy in addressing the content knowledge gap of mathematics teachers in elementary school teachers as well as a focus on culturally responsive pedagogy and practices to address and eliminate opportunity gaps in the educational system at the school district and state levels. This document includes research-based arguments to inform policy implications related to increasing professional development of mathematics teachers, an analysis of the educational, economic, social, political moral and ethical needs for the policy change. The following policy advocacy will address the need for an equity plan that requires professional development in mathematics and culturally responsive pedagogy to tackle and eradicate achievement, opportunity, and belief gaps in the educational system at the district, state, and federal levels. This policy will emphasize a requirement for districts and schools to create organizational structures intended to accomplish the following [modified from the Minneapolis Public Schools Equity Framework]:

1. Safeguard that all school and district employees align with organizational beliefs, values, priorities and practices that contribute to equity and aims to give malleable and valuable direction to the

creation and expansion of equity. This includes, but is not limited to, a commitment to growth and providing opportunities for reflection, best practice direction, and collective accountability.

2. Provide curriculum and instruction that is challenging and culturally relevant
3. School and district teachers and staff demonstrate high expectations for students.
4. Professionalize the practice of being a Pedagogy of Equity Educator by requiring continuous professional development and coaching in mathematics culturally responsive pedagogy and practices to cultivate educators' cultural competency.

This equity policy steers toward targeted and specific professional development within professional learning communities that encompass culturally responsive practices and a profound comprehension of the requisite conditions necessary to provide equitable educational opportunities. This strategic recommendation advocates for a state- and school-level requirement for districts and schools to construct and deliver professional development for the implementation of an effective curriculum and corresponding supplemental resources related to mathematics, culturally relevant teaching and learning.

Ultimately, by mandating mathematics and culturally responsive pedagogy professional development for existing elementary teachers, students will experience mathematics instruction of higher quality, personalization, depth, and rigor. Elementary math teachers should take content courses that are rooted in fundamental number theoretic ideas encountered in the early and middle grades. Topics such as Rules of

Arithmetic, integer arithmetic, divisibility, the Division Algorithm, primes, greatest common divisors, the Euclidean algorithm, and modular arithmetic need to be covered.

Additionally, teachers need to be given the opportunity to improve and refine their mathematics teaching practice at the elementary level. The improvement of their pedagogy will come through participation in and reflection on varied teaching and learning models. This experience must include reflection on practice and informed through mathematics content-rich class activities using manipulatives, video case studies, analysis of student work with an emphasis on mathematical reasoning and with attention to standards-based teaching. The improvement of instruction will lead to improved math instruction of all students and especially students of color. Also, state and local school districts must mandate ongoing professional development with consistent coaching in culturally responsive pedagogy and practices to cultivate educators' cultural competency. Lastly, while it is essential to enhance the investment in teachers, it is equally important for schools and school districts to have the ability to dismiss chronically ineffective teachers.

### **Analysis of Needs**

The conclusions drawn from this research suggest the need for significant requirements through state mandates in mathematics instruction and culturally relevant pedagogy for continuous staff development to improve cultural competency for the purpose of improving outcomes for Black students. Institutional racism and a lack of cultural competence at district and school levels needs to be recognized and understood as impacting students' experiences in schools (Bailey & Dziko, 2008). This analysis of need section will focus on the problem and the context. There are six disciplinary areas

brought under analysis: educational, economic, social, political, moral and ethical. Each will be analyzed separately to inform implications for policy related to improving mathematic instruction.

### **Educational Analysis**

As stated in previous sections, in the area of mathematics Black and brown students lag behind their White same-age peers. The National Center for Education Statistics developed its mathematics framework for the National Assessment of Educational Progress (NAEP) beginning in 1990. The process was influenced by, among others, the National Council of Teachers of Mathematics (NCTM) and measures students' abilities in five content areas: number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and algebra and functions. In 2019, 41 percent of 4th- graders scored at or above the Proficient level. Asians/Pacific Islanders (66 percent) had the highest percentage of 4th- graders scoring at or above Proficient, followed by White students (52 percent). Black students had the lowest percentage of 4th-grade students scoring at or above the Proficient level (20 percent).

When looking at the 2019 data for 8<sup>th</sup> graders, a similar pattern emerges. Sixty-four percent of Asian/Pacific Islander students scored at or above Proficient, higher than the percentages for White (44 percent), and Black (14 percent) 8th-graders (Nation's Report Card, 2021). The NAEP consistently reports that the average 8<sup>th</sup> grade Black student is approximately at the same level as a 4<sup>th</sup> grade White student.

The transformative power of an effective teacher is something many have experienced, and I understand on a personal level. Research suggests that, among school-

related factors, teachers matter the most. When it comes to student achievement on math tests, teachers are estimated to have two to three times the effect of any other school factor, including additional student services, facilities, and even leadership (Raj, et al., 2014). In related research, Clotfelter, et al. concluded that a teacher's experience, test scores and regular licensure all have positive effects on student achievement, with larger effects for math than for reading (Clotfelter, et al., 2007). If student success and access to post-secondary options is the goal of the American education system, quality teaching is the means by which that goal is to be achieved. It is a simple fact, supported by qualitative and quantitative research. An educational system is only as good as its teachers. Expanding on this notion is an essential way to ensure the highest levels of instruction in the classroom is to invest in teacher education and support.

Increased rigor and higher expectations for all students is needed across the United States. According to the PISA (Program for International Assessment) scores from 2012, when analyzed in the aggregate, the U.S. is falling behind other countries in math. American students ranked lower than 29 of 65 education systems (National Center for Educational Statistics, 2013). The United States 2010 census report reflects a decrease in the U.S. dropout rate for minority groups. However, the numbers attest to the need for continued educational attainment and intervention to further decrease these numbers. The Organization for Economic Development and Co-operation (OECD, 2011) states that the United States graduation rate ranks near the bottom among developed nations. The study cited the U.S. average math performance was below OECD'S average and has been unchanged since 2003. The US ranked 26th of the 34 OECD countries involved in the study. Since 2003 more than one quarter of the students in the U.S. have not reached

PISA math baseline Level 2 proficiency. Nine percent of U.S. students reached the top levels of performance in math, less than the OECD average and less than those in 2003.

Former President Barack Obama stated in his speech to the Hispanic Chamber of Commerce in 2009, “From the moment students enter a school, the most important factor in their success is not the color of their skin or the income of their parents, it’s the person standing at the front of the classroom.” Darling-Hammonds’s research concludes that the quality of the teacher preparation and certification are by far the strongest correlation of student achievement in reading and mathematics even when taking account student poverty and language status. Her evaluation advocates that policies adopted by states regarding teacher education, licensing, hiring, and professional development make a critical difference in qualifications and competencies that teachers enter the classroom with. She goes on to say, “...this research indicates that the effects of well-prepared teachers on student achievement can be stronger than the influences of student background factors, such as poverty, language background, and minority status” (Darling-Hammond, 2000, para. 73).

While poverty does have a correlation with school failure (Barton, 2004), there is also research that students within the same economic background, students of colors perform academically below White and Asian students (R. Ferguson, 2000; Noguera, 2003). In my experience, some teachers and school leaders attribute the achievement gap between races as specific only to socioeconomic attributes. The aforementioned statistics suggests a relationship between the number of White teachers and the underwhelming achievement of Black students across the nation.

The Institute for Educational Sciences provides the following data. Data collected by a variety of organizations paints the same dismal picture. There are many significant indicators or signals of potential dropouts. Included in the list are poor academic performance, absence/truancy, behavior/non-conformity to school rules, family characteristics, community values, school lacks prevention and intervention strategies, lack rich and interesting curriculum and mode and pace of instruction. The cost to re-educate these students is unsustainable. Addressing the content and pedagogical capacity of its teachers is not only an issue that falls across race and socio-economic lines but also has global implications.

The systems and policies by which states, local school districts, schools, and classrooms function perform a significant position in closing the achievement gap for students of color. The above entities' policies and practices have the opportunity to create environments that foster student success. When states, local school districts, and schools invest in setting high standards for high-quality teacher education, provide time for teacher collaboration in planning curriculum, and engage in meaningful and relevant professional development the conditions for improved outcome for students of color will be set.

School-related factors like low rigor, low expectations and a lack of cultural representation in curriculum play a role in what has to be addressed, but external factors like local economic opportunities, community dynamics and family involvement contribute to the achievement gaps as well. As stated previously, federal, state and local policymakers interested in helping students meet higher learning standards may want to



consider how investments in teacher quality and professional development, along with other reform efforts, can contribute to them in achieving their desired outcomes.

### **Economic Analysis**

The relationship between high-quality academic access and economic opportunity is clearly documented. Economic opportunity and upward mobility have been the cornerstone of American society for centuries. However, an analysis of static data based on this system verifies the slow and deliberate progress of minority groups, specifically African American families, Hispanic Families, and in particular African American males. According to the World Economic Forum (2020), fewer people in the lower- and middle-classes are climbing the economic ladder. Historically, Black people have used education as a means to a better quality of life which is associated with a higher annual income. Without this means, they are relegated to a sub- standard income which is more similar to a caste system.

In his article, the economic value of higher teacher quality, Eric Hanushek concluded that:

A teacher one standard deviation above the mean effectiveness annually generates marginal gains of over \$400,000 in present value of student future earnings with a class size of 20 and proportionately higher with larger class sizes. Alternatively, replacing the bottom 5–8 percent of teachers with average teachers could move the U.S. near the top of international math and science rankings with a present value of \$100 trillion (2011, p. 471).

Improved quality teachers not only have benefits on student achievement but also on future earnings for the students and a financial impact on the nation as a whole. This report describes the challenges schools face in staffing themselves, both as a consequence of the teacher shortage and further contributing to it. It shows that a high share of public school teachers are leaving their posts: 13.8 percent are either leaving their school or leaving teaching altogether, according to recent data. It also shows that schools are having a harder time filling vacancies that turnover, attrition, and other factors (like increasing student enrollment or broadened curriculums) create.

Most educators know that teacher attrition has been a problem in the profession for years. In a 2017 article in the Learning Policy Institute high teacher turnover is cited as contributing to teacher shortages throughout the country, as roughly six of ten new teachers hired each year are replacing colleagues who left the classroom before retirement. Their research demonstrates that urban districts can, on average, spend more than \$20,000 on each new hire, including school and district expenses related to separation, recruitment, hiring, and training (Carver-Thomas & Darling-Hammond, 2017). These financial investments do not seem worth it when many teachers leave within a year or two after being hired. A deficiency in the number of teachers is a detriment to students, other teachers, and the public education system in its entirety. Additionally, an insufficient amount of highly qualified teachers jeopardizes students' ability to learn and high teacher turnover exhausts economic resources that could be better used in other important ways. Professional development can be very costly. A 2015 survey by the New Teacher Project put this figure at an average of \$18,000 annually per teacher (TNTP, 2015). A 2010 *Education Week* article suggested that staff time is

one of the main hidden costs of PD. An expert interviewed for the article estimated some urban districts spend between \$6,000 to \$8,000 per year, per teacher, just on in-service days and training—a cost that often is not factored into the total professional development budget (Sawchuk, 2010).

Exclusionary discipline practices occur at high rates in early learning settings, and at even higher rates for young boys of color. A study of Chicago high school students by Julia Burdick-Will states that violence in schools adversely impacts reading and math scores on standardized test scores but not on GPAs (Burdick-Will, 2013). The results suggest that violence affect the amount of material learned by the entire body, but not the study skills or effort of individual students. The study also reveals that students' perception of safety go relatively unchanged, even in years when violence is low. Human capital investments have been shown to promote economic growth and development (Galor & Moav, 2004). On the other hand, there is a consensus among economists and policymakers that violence and crime negatively affect the quality of life of individuals (Heinemann & Verner, 2006).

As a result, studying how violence affects investments in education has compelling policy relevance. The direct and indirect cost associated with investments in schooling might be exacerbated in a violent context; for example, in areas with high levels of violence, disruption of access routes and, more importantly, destruction of schools will increase the time and cost of going to school (Akbulut-Yuksel, 2009). Violence and crime may also affect the opportunity cost of going to school and the

returns to education. Communities must compare the benefits and associated costs of crime versus the returns to investments in education and productive citizenship.

An inequity in school funding also needs to be addressed. Systemic practices that prevent all students from attaining superior educational experiences are usually connected to the disproportionate distribution of funds. Lower performing schools struggle to attract and retain high-quality educators and these same schools tend to serve large numbers of low income and minority students. Furthermore, inequitable funding for these schools often times results in school buildings that are inadequately maintained and are outfitted with obsolete technology and instructional materials.

### **Social Analysis**

There are numerous social issues relating to the success of minority students. This policy addresses the effect of student achievement based on family life, culture, and discipline practices. Every individual or group must accept some responsibility for the direction of their own lives. However, this does not negate the obligation of societal groups charged with ensuring that each child reach their fullest potential. Issues related to minority educational progress dates back to the inception of this country. Carter G. Woodson's, *The Miseducation of the Negro* (1933) was one of the first in-depth analyses of social issues relating to individuals, group and societal responsibilities specifically addressing African American issues. He asks, "Can you expect teachers to revolutionize the social order for the good of the community"? He says, "Indeed the educational system of a country is worthless unless it accomplishes this task" (p. 31).

Success in school is understood to be a decisive element in children's success in later life. Mathematics can be a key gatekeeper in schools, as students' mathematical proficiency is used to decide many aspects of their school trajectory. One part of the existing status quo is that some people have more power, more access and more opportunities to realize their educational and social potential, than others. People of color have historically been more likely to be left out from those opportunities, and thus their futures impacted. Consequently, the separating, grouping, in the area of mathematics has a limiting effect on students of color.

There is ample evidence that students of color disproportionately experience adverse disciplinary actions in school, such as in- and out-of-school suspensions and expulsions. The majority of research also demonstrates that suspensions and expulsions do little to change behavior and can push students out of school altogether. According to a 2012 study prepared by researchers at Johns Hopkins University concluded that being suspended just one time in the ninth grade is related to an increased risk of dropping out (Balfanz, et al., 2012). Furthermore, of all demographic groups, Black boys have the highest rates of expulsions, suspensions, detentions, and arrests in school settings (Gregory, et al., 2010).

Studies have shown that high school dropouts are more likely to be unemployed (U.S. Bureau of Labor Statistics, 2015). Young adults with low educational levels and skills are more likely to live in poverty and depend on government assistance more often and for longer periods of time. In addition to re-educating students, the larger society incurs negative cost and destruction of the society. The 2010 census reports that women who drop out of high school are more likely to become single parents. A study finds

individuals who live in single-parent families as teens received fewer years of schooling and are less likely to attain a bachelor's degree than those from two-parent families (Duncan & Ziol-Guest, 2021).

The National Center for Education Statistics reports study of different socio-economic classes from 1990 to 2011, the dropout rate for young adults in high-income households was generally lower than that of those from lower-income households (2017). These include family socioeconomic status (SES; i.e. a composition of family income, parental education and employment/occupation), parental marital status, home environment, language use, parent-child interaction, parental warmth, discipline, and mental health (Duncan & Brooks-Gunn, 1997).

Additionally, family socioeconomic status and family structure are highly associated with parental mental health, which in turn is linked to effective parenting and negative child behavioral outcomes (Frank & Meara, 2009). Whether a student comes from a dual-or single-parent family, the prevailing objective most parents have for their children is to be successful in school. The symbiotic relationship between teacher and parent as it relates to enforcing in-class study habits and behaviors is a crucial part of a child's educational development. The responsibilities of a single parent may not always allow for a mother or father to consistently monitor a child's progress. Also, the stress a child may feel as a result of missing a parent or dealing with the existing living circumstances could lead to psychological and emotional problems in school. To effectively engage students, instructors must reach out in ways that are culturally and linguistically responsive and appropriate. Educators must examine the cultural assumptions and stereotypes they bring into the classroom that may hinder

interconnectedness with the student. Culture is defined as values, beliefs, attitudes, preferences, customs, learning styles, communication styles, history; historical interpretations, achievements; accomplishments, technology, the arts, literature, the sum total of what a particular group of people has created together, share and transmit (Rosenberg & McLeskey, 2009).

Providing students with a better quality of instruction will positively impact opportunities for better paying jobs, better housing, access to healthier food options and better health care. Additionally, strong education allows for access to broaden a students' social network with is associated with upward mobility. The imperative to address the achievement gap has implications not just for our children, but also for our nation as outlined below.

### **Political Analysis**

The rapidly expanding mix of culture and ethnicity in America will continue, and the changing demographics will affect U.S. education. Although some legislation and judicial decisions that affect immigration quotas, employment practices, and educational opportunities in the United States exist, these guidelines will be revisited in the years ahead. American culture has changed rapidly since civil rights legislation was passed in the 1960s. However, politics becomes a major player in the education arena. This is largely due to the political landscape in the American society that involves financing of education, special interest/group influence. Alyssa Dunn says that, "Everything in education—from the textbooks to the curriculum to the policies that govern teachers' work and students' learning—is political and ideologically-informed" (Dunn, as cited by Walker, 2018). The experience of schooling contributes to the socialization of citizens,

and curricular choices inevitably legitimate some forms of knowledge while excluding others. Educational attainment is a key determinant of the economic success of individuals and groups. Both what is taught and how it is taught is shaped by the cultural, social, political, and historical contexts in which a school is situated.

When the economy takes a downward turn, everyone can quickly suffer. With less money making its way through society, schools may feel a funding crunch and go into a budget crisis. For example, during a slow economy, the costs of fuel for school buses and food for school lunches may increase. These costs are often passed on to the schools, the parents and the students. When the costs to the schools begin to outweigh the money coming in through taxes and other funding sources, programs that are deemed unessential - such as nonacademic or arts concentrations - are cut and teachers may lose their jobs. These cuts not only affect schools, they also impact the students and their opportunities to get a quality education.

Brimley and Garfield (2005) found that the constantly increasing financial burden on local school districts coupled with the simultaneous increase in state controls and standards has resulted in a challenge to the traditional notion of local control. The increase in standardization at both the state and national level caused many local citizens to feel decreased influence. The Tenth Amendment to the United States Constitution delegated authority over education to the states. States vary from highly decentralized local education systems to more centralized state systems such as that of Hawaii. The recent trend has been movement toward increased state standards and accountability systems. Zeigler and Johnson (1972) found that business lobbyists have strong influence on state legislators, even on educational matters. Burbridge (2002) found, "These results



confirm a role for interest groups in state education spending, particularly in terms of the level of effort states' [sic] undertake for education" (p. 253). According to McLendon and Ness (2003), in 2001, the Florida state legislature abolished the state university board of regents and established a new K-20 "superboard" to govern both K-12 and higher education. Since the new board members were handpicked by the state governor, the move was viewed as an effort to further politicize university governance. In 2002, a state constitutional amendment reversed the move and reestablished the statewide university board of regents.

In a larger context, the No Child Left Behind Act (NCLB) in 2002 was an important step in dealing with the pervasive inequities in the educational system. The focal point of the law was to increase accountability by identifying schools that were in need of improvement. However, simply holding schools accountable for meeting state standards did not address the imbalance. The legislation defined "highly qualified" teachers as those who hold at least a bachelor's degree, are fully licensed or certified by the state in the subjects they teach and can demonstrate competence in the subjects they teach.

In 2015, The Obama administration attempted to improve upon NCLB with the *Every Student Succeeds Act* (ESSA), which addressed equity in school systems. A few important highlights of this law:

- Advances equity by upholding critical protections for America's disadvantaged and high-need students.

- Requires—for the first time—that all students in America be taught to high academic standards that will prepare them to succeed in college and careers.
- Sustains and expands this administration’s historic investments in increasing access to high-quality preschool.
- Maintains an expectation that there will be accountability and action to effect positive change in our lowest-performing schools, where groups of students are not making progress, and where graduation rates are low over extended periods of time. (U.S. Department of Education, 2015, para. 8)

In most accounts, many states and school districts have benefited from the funding ESSA provides, the law does not require states or districts to improve mathematics or equity practices.

In September 2020 President Trump’s administration attacked critical race theory and diversity training. Trump announced an executive order via twitter banning federal contractors from conducting racial sensitivity training, emphasizing his desire to stop “efforts to indoctrinate government employees with divisive and harmful sex- and race-based ideologies.” During his first day in office, President Biden rescinded the Trump administration’s executive order prohibiting critical race theory training for federal agencies and federal contractors (Biden, 2021). As a result, the development, analysis and delivery of diversity training programs focused on diversity and based on current science may continue unencumbered.

As of February 2021, some of newly elected President Biden’s proposed education policies include safely reopening schools in the midst of the coronavirus

pandemic, investing in early childhood education, eliminating the funding gap between affluent and low-income districts, increasing teacher pay and investing in teacher mentoring, leadership, and additional education (Biden, 2021). Politicians have made it a priority to increase testing and accountability requirements but as nation have neglected to significantly improve the cultural competence of the largely white teacher population to effectively support Black students.

### **Legal Analysis**

The proposed policy advocates equity for all students but particularly students from disadvantaged environments. The Every Student Succeeds Act (ESSA), passed in 2015, is the nation's main education law for all public schools. "This bipartisan measure reauthorizes the 50-year-old Elementary and Secondary Education Act (ESSA), the nation's national education law and longstanding commitment to equal opportunity for all students" (U.S. Department of Education, 2021). The law holds schools accountable for how students learn and achieve. The main purpose of ESSA is to make sure public schools provide a quality education for all students, which includes the achievement of students in poverty, minorities, students who receive special education services and those with limited English language skills.

Under ESSA, states get to decide the education plans for their schools within a framework provided by the federal government. The plan must include a description of the following:

- Academic standards
- Annual testing
- School accountability
- Goals for academic achievement
- Plans for supporting and improving struggling schools

With this legislation, states must have “challenging” academic standards with respect to reading, math, and science. This means a state’s curriculum must prepare students to succeed in college and in a career readiness. Also, states must apply these standards to all students, including those with learning and thinking differences. ESSA further requires states to identify schools that are struggling.

Additionally, discrimination is illegal as stated in the U.S. Constitution, which guarantees equal treatment to all, including public school students. Students of color and those from disadvantaged communities have the right to demand the education you believe your child needs. This means that schools and school districts have the moral, ethical and legally responsibility provide a high-quality education that results in students having the opportunity to be successful in school and in life. This is especially important in the context of assigning students to academic opportunities, extracurricular activities, or special school programs.

Lastly, in the pursuit of providing the most disadvantaged students an excellent education, removing a chronically under-performing teacher depends on your state’s laws and district policies, and usually requires support from the principal, district superintendent, and the local teacher union. This law says that every student deserves a great teacher in every class, every year. It is essential that schools and districts hold accountable those who consistently fail our students. Providing low-income students teachers who are as effective and experienced as those for higher-income students is essential if a state and our country are to reach equity in education. Schools and districts must address teacher effectiveness as, as previously mentioned,

their performance in the classroom and directly impacts student outcomes. ESSA is a federal law, but teacher effectiveness is defined by individual states.

### **Moral and Ethical Analysis**

Schools and district must expect ethnic, gender and cultural diversity within their classrooms. They need to be prepared to work with a diverse population of students and be respectful of their individual learning needs by employing a variety of teaching methods to ensure that all students have access to the curricular content. Teachers play a huge role in student's lives and form a major influencing factor beginning in childhood. They can help students develop imagination that will help them to paint their own world. What was once regarded as one of the noblest of professions, these educators can lay the foundation for the lives of the students they are to serve. Apart from imparting academic knowledge, these mentors are also responsible for instilling essential life lessons in their students as well as allow for students to learn more about themselves in a number of different ways.

To set a superior standard, teachers must follow an ethical code of conduct to show professionalism and communicate high expectations with high support. Those ethics ensure that the educator guides remain unbiased while doing their job and fulfilling their objective of providing uncompromising and excellent education. Professional morals and ethics determine their responsibilities towards the students. One's own moral and ethical compass directly leads to the level of commitment to their students, particularly those most in need. In the preamble of the National Education Association it states, "...the protection of freedom to learn and to teach and the guarantee of equal educational

opportunity for all. The educator accepts the responsibility to adhere to the highest ethical standards” (NEA, 2020, para. 2).

The Association of American Educators, in their code of ethics, requires the following of its members who represent teachers from across the nation:

- The professional educator responsibly accepts that every child has a right to an uninterrupted education free from strikes or any other work stoppage tactics.
- The professional educator assumes responsibility and accountability for his or her performance and continually strives to demonstrate competence.
- The professional educator recognizes that quality education is the common goal of the public, boards of education, and educators, and that a cooperative effort is essential among these groups to attain that goal.
- The professional educator makes concerted efforts to communicate to parents all information that should be revealed in the interest of the student.
- The professional educator endeavors to understand and respect the values and traditions of the diverse cultures represented in the community and in his or her classroom.
- The professional educator manifests a positive and active role in school/community relations. (Association of American Educators, 2021).

The state of Pennsylvania instituted practices that support inclusion, diversity and equity. Under General Strategies and Tactics, the call for all educational entities to:

- recognize any biases or stereotypes that you may have absorbed;

- treat each student as an individual and respect each student for who he or she is;
- rectify any language patterns or case examples that exclude or demean any groups;
- be sensitive to terminology;
- get a sense of how students feel about the cultural climate in your classroom;
- become more informed about the history and culture of groups other than your own;
- convey the same level of respect and confidence in the abilities of all your students;
- don't try to "protect" any group of students;
- be evenhanded in how you acknowledge students' good work; and
- introduce discussions of diversity within the school faculty.

This policy for culturally responsive teaching corresponds directly with focus towards academic excellence and character development that intentionally engages the different backgrounds, perspectives and ideas of the community and world. This policy strived to create and enhance an inclusive environment that challenges schools and districts to see beyond their own perspectives and honors the diversity of each member of our community with the ultimate goal of providing each child with the skills necessary for success in the modern world. Educational institutions have a professional responsibility to support all students, especially students most in need.

Finally, it is worth noting that the state of Illinois implemented new teaching standards to better serve this state's diverse populations. These standards – The Illinois Culturally Responsive Teaching and Learning Standards - were adopted in December of

2020 and include practices for culturally responsive teaching, these new standards will influence how universities prepare future generations of teachers with the knowledge and skills necessary to improve “academic and behavioral outcomes for Illinois’ increasingly diverse students.” (Illinois State Board of Education, 2020). This is a step in the right direction as we prepare educators for the students they will see before them in the classroom.

### **Implications for Staff and Community Relations**

Culturally responsive pedagogy is a method for improving engagement and equity. When schools and districts begin the work of creating a systemwide plan for transforming the schools and classrooms into places that truly support all students achieving their own highest levels, staff must understand their own racial biography and its impact on education. In *Courageous Conversations about Race*, Singleton and Linton provide exercises and conversation starters for committed groups, on the road to equity and cultural responsiveness. They write that there are four agreements for any courageous conversation:

- Stay engaged.
- Speak your truth.
- Experience discomfort.
- Expect and accept non-closure (Singleton & Linton, 2006, pp.19-21).

These exercises and others like them create a level of relational trust and understanding around racial equity. This process allows for teachers and leaders to begin to recognize the unique backgrounds and experiences of culturally diverse students through culturally responsive learning.

Part of the culturally responsive learning requires that educators work to building and sustaining collaborative relationships with students and families which, Gay says, is



essential not only for understanding students' and families' experiences, but also for meeting students' learning needs and desires.

An important way parents can support their children's education is by providing a healthy home environment. As a parent and educator, schools can help parents by offering parenting workshops, helping their families find needed community-based support programs and government assistance programs, and encouraging them to model supportive learning behavior, such as reading to and in front of their children. In my experience, parents who are involved in the community are typically going to be involved in the school, as well. Schools and districts should connect them, with information on community activities at local museums, community organizations, and parks districts as well as develop community service-learning projects that bring together parents, teachers, civic leaders, and administrators.

One key point is to keep parents informed and make it easy for them to ask questions or express concerns. This is vital to parent involvement. Schools need to make sure they are holding parent-teacher conferences, sending student work home with explanations of the grades, sending out regular e-mails or some correspondence describing the work that is happening in the classroom, and also make sure that teachers available to take parent calls and to meet with parents as needed. "One of the foundational pillars of effective practice is that whatever initiative a school or district designs, there has to be a real intentional focus on building relationships of trust and respect with families. The relational piece is the glue that holds the rest of the initiative together. Having trust is really important for any initiative to be sustained" (Mapp,

2018). Families and the school have to in accord on what the goals are for students and how the school can best support the learning of the home to best support the goal.

Successful parent-involvement programs typically develop in response to a specific need in the school or its community and are both focused and flexible in addressing that need. Parents are the most important partner in a child's education and schools can reap large dividends by capitalizing on their support. To be sure, such relationships require a lot of work by both educators and parents. Although success will not come easy, the rewards are too great for a school not to try.

### **Conclusion**

Schools and districts that have closed the achievement gap have put in place policies and practices that focus on addressing the following human capital needs: Teachers who work to close the achievement gap are well-prepared to address students' academic, social, and emotional needs. Teachers are supported in their efforts to revise and improve their instructional practices in order to produce high-achieving student outcomes. The impact of better mathematics instruction has educational, economic, social, political, legal and moral implications. By requiring elementary teachers to improve their math competence they provide students access to a better quality of life.

## CHAPTER EIGHT: CONCLUSION

### Introduction

This program evaluation focused on the teaching practices of one Chicago Public school math teacher who has demonstrated success over time in the achievement of their African American students. The intent of this study was to document the practice of a highly effective math teacher of African American students. Through interviews and informal observations, using the interview transcripts, field notes and other supporting documents, five themes were identified that support high leverage mathematics instruction and cultural competence. These themes were used to present opportunities to explore the implications of the following research questions for school districts seeking to address the achievement gap through equity initiatives and cultivating culturally proficiency in teachers:

- How can educators and leaders learn from best practice research and case studies of exemplary math instruction the instructional and pedagogical skills needed to work effectively with African American students?
- What is it that promotes this excellence despite a long-standing history of under-achievement?
- What is it about this teaching that African American students thrive and grow while others do not?
- What types of professional development opportunities emerge from this research that informs the work of other teachers serving African American student populations.

- What policies can be implemented as a result from this research that informs the work of other districts, school and teachers serving African American student populations.

From the program evaluation, the overarching theme of culturally responsive teaching emerged. This became evident through the analysis of themes in policy that are related to an expanded need for equity and cultural proficiency. Many elements are required when considering the extensive task of progress toward equitable practices at the school, district and state level.

These elements were distilled from analyzing the qualitative data from the study and the research gathered of mathematics instruction, culturally responsive pedagogy and practices in the areas of professional development and professional learning communities. Based on the 4 Cs framework by Wagner et al. (2006), this case study was centered around context, culture, conditions, and competencies. The center of these themes of culturally responsive pedagogy and practices is a focus toward equity that must yield relentless effort for improved educational and life outcomes for Black students. An unflinching attention toward equity should produce a level of urgency for transformation in schools and districts that need a commitment in providing excellent instruction to students most in need and historically ignored.

### **Discussion**

This program evaluation emphasized the magnitude of concentrating on equity as core value and culturally responsive pedagogy as a means to close and ultimately reverse the achievement gap. That a child's future should not be determined by their zip code,

gender or color of their skin. In his 2013 inaugural address, President Barack Obama said, "We are true to our creed when a little girl born into the bleakest poverty knows that she has the same chance to succeed as anybody else." (Obama, 2013, para. 12)

Historically, minorities and low-income students, attend and complete college at far lower rates than their counterparts but are suspended, expelled, and drop out at higher rates. However, when Black students have access to strong, caring teachers and challenging curricula they can and will achieve at high levels.

Blankstein and Noguera state in their book *Excellence through Equity*, "To achieve excellence through equity, we need to maintain our focus on teaching and learning; engage in the courageous conversations about culture, be transparent with our community, and empower our stakeholders" (Blankstein & Noguera, 2016, p. 257) in order to address the inequities within the educational system. In *Literacy and Liberation*, Warren talks about how the ability to read was the primary means of which to provide educational, social, legal, and economic freedom during the Civil War Era in U.S. history (Warren, 2005).

Today, I advocate for schools and districts to implement research-based teacher practices that improve cultural proficiency in educators as a means to best support the achievement of Black students. In order to meet the goal of executing systemic and long-term change with the implementation of culturally relevant practices and beliefs, I outline below steps to be taken in schools and district who seek to better meet the needs of its Black students. The steps are guided by this study and the Illinois State Board of Education Culturally Responsive Teaching and Learning Standards that will be implemented October 2021.

- Actions needed in implementing Culturally Responsive Pedagogy
  - Understanding and value the notion that what is seen as correct is often based upon our individual experiences
  - Teachers who know their students outside the classroom and leverage that knowledge to help students achieve
- Components such as self-awareness and relationships to others will be seen in a Culturally Responsive Classroom Environment
- Curriculum considerations that include Culturally Responsive Pedagogy
  - Students will see themselves in the curriculum content
  - Understand how curriculum and instruction impacts those who are not part of the dominant culture
- Culturally Responsive Instruction

Teachers able to assess how their own biases and perceptions impact their teaching. To further support the recommendations, I developed an equity policy that places an emphasis towards professional development on culturally responsive pedagogy and teaching practices as well as ensuring an equitable education for all students with schools, districts, and state-level. More explicitly, my equity advocacy seeks to ensure that all persons who service children begin by examining and eliminating established biases, beliefs, policies, practices, and teaching that perpetuate racial inequalities in treatment as well as achievement. Furthermore, my policy pushes to mandate ongoing professional development and coaching in culturally responsive pedagogy and practices to cultivate educators' cultural competency and consistent monitoring of social-emotional and achievement data of Black students and students' most in need.

As a result of intentional and purposeful training with equity in mind and research-based culturally responsive instructional practices, culturally relevant curricula, and ongoing teacher training on culturally competent teaching practices, the policy promotes growth and positive change in cultural proficiency for teachers. Obviously, for the State of Illinois, this effort will now be guided by the new learning standards for culturally responsive teaching and leading. These standards go into effect October 2021 when they will be incorporated into teaching, school support and educational administrative courses, programs and certifications.

### **Leadership Lessons**

Throughout this study, I have learned multiple leadership lessons. My first take away from this experience falls under the transformational leadership umbrella. As I observed and was frequently discussed, School leaders and teacher as leaders must possess the ability and desire to create a positive environment for adults and students. While at Shaw, several students, parents, and Mrs. Foster remarked about how the school feels warm, welcoming, and inviting. The school leadership appeared to be charismatic, empathetic, and motivating with strong ethical values. Creating equitable spaces requires transformational leadership that seeks to relentlessly build capacity of all stakeholders, brings people together around a common vision and allows for support along the way.

Also, addressing the opportunity gap and the belief gap are central to providing an equitable educational system. Yates wrote an opinion article, *Let's Stop Calling it an "Achievement Gap" When It's Really an Opportunity Gap* (Yates, 2018). In this article he calls out that those who use the achievement gap do not account for the troubling tactics in the historic and modern systemic components, such as red-lining and the

underfunding of Black and Brown dominant public schools, has impacted the kind of education students who have less privilege often receive. The belief gap is an important issue that must be addressed as any. It refers to the difference between what students can actually achieve and what teachers and others think or believe they can achieve.

### *Opportunity Gap*

The truth is, in order to work towards closing the achievement gap, we must take a very real and hard look in addressing the opportunity gap that often exists between students of color and their White and Asian peers. Linda Darling-Hammond said, "The opportunity to learn - the necessary resources, the curriculum opportunities, the quality teachers - that affluent students have, is what determines what people can do in life" (Coutts & LaFleur 2011, para 8). The opportunity gap is the disparity in access to quality schools and the resources needed for all children to be academically successful. According to the Schott Foundation, students from historically disadvantaged families have just a 51 percent opportunity to learn when compared to White, non-Latino students, according to the Schott Foundation's Opportunity to Learn Index (Schott, 2021). In closing the opportunity gap, we will make progress toward closing academic achievement gaps that separate most Black and Hispanic students from their White and Asian peers. School districts must commit to eliminating the opportunity gap if we are going to build a stronger, safer and more prosperous nation.

If every child is to have an opportunity for success, every student must have a true opportunity to learn. Having a high-quality education system for all students regardless of their ZIP codes is not only the democratic measure for leadership, but also increasingly the major determinant of a nation's economic fate. The Local Initiatives Support



Corporation has created a map to answer the question of, “How much does where you grow up influence your chance for social mobility and economic opportunity?”

The Opportunity Atlas, a new data tool from the U.S. Census Bureau and Harvard University’s research institute shows us. The Opportunity Atlas uses census and IRS data to show what kinds of average outcomes children have as adults, based on where they grew up, and how those compare to average outcomes of children who grew up elsewhere - a study of 20 million Americans from childhood in the late 1970s and early 1980s to their mid-thirties in this decade (Local Initiatives Support Corporation, 2021).

In my role as advisory director, I had the opportunity to travel across the country, visiting schools. I was to help the school improve. Some of them knew exactly what they want to get better at while others hope I can figure out the problem. In entering someone else’s space, I try my best to put people at ease so I can hear and feel their reality. Some of the educators want to get better but don’t really want to tell or show the raw truth. They would rather try to have all the teachers and students be on “best behavior.” Like my mom would say, “you better be on best behavior when company is over.” Translation: don’t do anything to embarrass me or else. The flaw in that thinking is that what you want hidden always rises to the surface. Sometimes in very obvious ways. Others in very subtle yet more powerful ways.

When first walking through schools and being introduced around to key people, I of course try to get a sense of how the space feels. What’s on the walls? Is the place warm and welcoming? Does it feel institutional? Everyone is friendly to me because I am an outsider but what are the interactions of the people with one another? Do people greet

each other while passing in the hallway. Do students look genuinely happy to see the adults? Is joy evident in this space?

The most critical factor I look for is belief systems of the adults. First with the leadership, but all the way down to the custodians and lunch staff. How do I measure belief systems? It's very simple and obvious when listening to the adults talk about the school, students, parents, and community. The answer is in the pronouns. I believe there is a strong correlation between belief systems and expectations. In schools that suffer from low expectations for students, there is subconscious (and sometimes conscious) distancing from the adult themselves and the students. They use words like "these and them" to talk about kids. Most usually in a negative way.

"These kids don't come to school."

"Those kids don't want to listen."

"College is not a realistic option for them."

Conversely, in schools with a strong belief in their students speaking differently about the students they serve. It comes across as if they feel an ownership or responsibility for the outcomes and choices of their students. When speaking about students, adults often use possessive pronouns. They use words like "my and ours" to talk about kids.

"My students need to improve on subject/verb agreement."

"Our kids are going to be college-ready."

### *The Belief Gap*

If the belief systems are strong, with the right support, schools can and will improve. But this is the starting point. Many administrators will point to Carol Dweck's (2008) work and say, "We just need to get the growth mindset in my teachers." While I

am a huge fan of Dweck's work on mindsets, I first need to do an examination of the belief systems of adults in front of kids. My question is always, "Who owns the kids?" Transformational schools have a community feel and ownership connected to the success of its students.

The goal is to create exceptional schools in which talented, caring teachers work collaboratively to make the student experience coherent and consistent, establish and maintain high expectations for student conduct with supports and be responsive to individual student learning and social emotional needs. School administrators and school leadership teams must create a tenor or feeling within the school that connects all students with all adults. This undercurrent should not just be stated as an expectation but more so fostered by regular acknowledgement and critical, supportive feedback. Improving the education of low-income students requires systems of strong supports for high-poverty schools, including access to extremely well-educated adults who have an aspiration to work with low-income children. This along with supports in how to create and maintain a culture of continuous improvement as well as a collective shared responsibility. This culture must be accompanied with access to professional development, time and resources for education students from marginalized communities. In a real sense the means that classroom doors are open to coaching, peers and school administration in order to improve the capacity of the collective.

While most principals and teachers do not feel comfortable with the transitions from their state standards to Common Core, schools and school districts would be well-suited to partner with external expert partners in order to provide professional development as well as planning time for teachers during the summer to help ensure a

rigorous academic focus and increased confidence for the next school year. Creating a new normal built around mastery of rigorous standards, shared accountability and community support will propel schools and districts to be centers of excellence that best serve children of color to compete in today's changing society.

### **Conclusion**

Hearts and Minds! The work towards equity for all is only about shifting the hearts and minds of those in power and with influence. Ralph Waldo Emerson said, "Sow a thought and you reap an action; sow an act and you reap a habit; sow a habit and you reap a character; sow a character and you reap a destiny." If we change hearts and minds, we can change the destiny of the Black and Brown children they serve. That is a tall task but that must be sought after to right some of the wrongs of this country. Thomas Jefferson said, "A democracy is nothing more than mob rule, where fifty-one percent of the people may take away the rights of the other forty-nine." People of African descent have experienced the horrors at the hands of racism since 1619. Those in power have historically and systemically disenfranchised Black people and those most in need. It is time to support those who America has exploited and relegated to a permanent under-class.

We must advocate and fight for the futures of our children and not only the children that look like us. If we believe Nelson Mandela's words and Steve Jobs, respectively, when they said, "Education is the most powerful weapon which you can use to change the world" and "The ones who are crazy enough to think that they can change the world are the ones who do so" (Jobs, 2011), combined with the indelible mark Mrs. Thelma Smith left on me, my journey and those I have been able to impact, I understand

that it just takes one person to decide. A person with conviction that says we can do better and here is how.

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## **Appendix A**

### **Teacher Interview Questions**

Administration Procedures: The researcher will review the purpose of the interview, which is to document the practice of a highly effective math teacher of African American students as well as investigate how this teaching helps students to develop and achieve academic success. The teacher, Mrs. Toi Smith, will be informed of the interview 24 hours in advance. The interview will last approximately one to two hours, depending upon the nature of the responses and the follow-up questions required. Each interview question will be open-ended.

1. How do you think your experiences growing up have influenced your choice to become a math teacher?
2. Why do you think you have had the success you have had?
3. Typically, students struggle in math. How do you engage students who have negative perceptions of math?
4. What do you want to take away knowing and believing at the conclusion of a year of instruction?
5. What practices and routines do you employ in the classroom to cultivate these values and concepts? Refer to interview protocol in Appendix B.
6. How do you handle discipline? Are there special things that teachers of African American students need to know about discipline?
7. If you could revamp teacher education so that math teachers would be more effective with African American students what changes would you make?

## **Appendix B**

### **Focus Group Student Interview Questions**

Administration Procedures: The researcher will review the purpose of the interview, which is to document the practice of a highly effective math teacher of African American students as well as investigate how this teaching helps students to develop and achieve academic success. The researcher will also provide students with assurances of confidentiality. Students will be informed that the interview will last approximately one-half hour, depending upon the nature of the responses and the follow-up questions required. Each interview question will be open-ended.

1. What is special about being in Mrs. Smith's class?
  
  
  
  
  
  
  
  
  
  
2. How did you feel about math before Mrs. Smith's class? How do you feel about math now?
  
  
  
  
  
  
  
  
  
  
3. Would you want to pursue a career using mathematics?
  
  
  
  
  
  
  
  
  
  
4. What happens in class that helps you learn best?

## Appendix C

### Focus Group Parent Interview Questions

Administration Procedures: The researcher will review the purpose of the interview, which is to document the practice of a highly effective math teacher of African American students as well as investigate how this teaching helps students to develop and achieve academic success. The researcher will also provide parents with assurances of confidentiality. Parents will be informed that the interview will last approximately one-half hour, depending upon the nature of the responses and the follow-up questions required. Each interview question will be open-ended.

1. What is special about having your child in Mrs. Smith's class?
2. What changes have you seen in your child while they have been in Mrs. Smith's class?
3. Can you tell me about a specific time when you realized Mrs. Smith was different than most teachers?



## **Appendix D**

### **Focus Group Faculty/Staff Interview Questions**

Administration Procedures: The researcher will review the purpose of the interview, which is to document the practice of a highly effective math teacher of African American students as well as investigate how this teaching helps students to develop and achieve academic success. The researcher will also provide coworkers with assurances of confidentiality. Coworkers will be informed that the interview will last approximately one-half hour, depending upon the nature of the responses and the follow-up questions required. Each interview question will be open-ended.

1. What do you think Mrs. Smith adds to the school culture?
2. How does Mrs. Smith add to the professional learning community?
3. Can you tell me a story that you think embodies what Mrs. Smith is all about?

## Appendix E

### Letter to the Shaw Charter School Director

August 20, 2012

Ms. Tanika Island  
Shaw Charter School  
1119 East 46th Street  
Chicago, IL 60653

Dear Ms. Island,

I would like to ask your permission to perform an ethnography of one of your teachers, Mrs. Toi Smith, for my dissertation research.

The intent of this study is to document the practice of a highly effective math teacher of African American students. I will investigate how this teaching helps students to develop and achieve academic success. This research will consist of teacher, parent and student interviews, classroom observations and video recording, and collective interpretation and analysis. My goal is provide in-depth, ongoing “ground floor” classroom observations that allow me to understand the culture, patterns and routines of the classroom. The final data gathering will include MAP data, ISAT scores and interim assessments.

I look forward to your response. Thank you for your consideration.

Best,

Theartris Childress, III

## Appendix F

### Letter to Students, Parents and Guardians for Inclusion in the Study

August 20, 2012

TO: Students, Parents and Guardians

FROM: Theartris Childress, Graduate Student, National-Louis University

Dear Parents, Guardians and Students,

I hope that your student is experiencing an exciting and productive school year. I am a graduate student in the Educational Leadership Doctoral Program at National-Louis University. In partial fulfillment of my graduate studies, I am required to complete a dissertation in my major area of concentration.

The intent of this study is to document the practice of a highly effective math teacher of African American students. I will investigate how this teaching helps students to develop and achieve academic success. The focus of this study will be centered on the dynamic math teacher, Mrs. Toi Smith. I personally believe that an amazing teacher makes all the difference in the world. The hope of this investigation is to understand the culture of high-quality math instruction so that it may help math teachers of African American students.

Therefore, with your permission, I would like to interview students and parents of Mrs. Smith. Participation in a brief interview is completely voluntary. Students may withdraw from the study at any time and without negative consequences. Interviews will be audio-recorded. All of the information will be used to understand the culture of achievement that exists in Mrs. Smith's classroom.

Please be assured that your student's anonymity and confidentiality of information will be upheld. The anticipated completion of this study is November 2012. Ms. Island has given her approval to conduct this research.

Please complete the information consent form, found on the following page, and return the form to Mrs. Smith. If you are interested in this research, results will be available to the Director by January 2013. Should you have any questions, please feel free to contact me. Thank you for your time and consideration,

Best,

*Theartris Childress, JJJ*

**Appendix G****Dissertation Research Consent Form****Please return to Mrs. Smith**

Name of Participant \_\_\_\_\_

Address \_\_\_\_\_

Participant's Age \_\_\_\_\_

\_\_\_\_\_

I **will** participate.

\_\_\_\_\_

I **will not** participate.

## Appendix H

### Informed Consent Form

I consent to participate in a research study conducted by Theartris Childress, Graduate Student in the Educational Leadership Department at National Louis University, Chicago, Illinois. The study is entitled “Don't ask, ‘What's wrong with the corn.’ - Quality Math Instruction in a Chicago Public School” and will take place from August 2012 through December 2012.

The intent of this study is to document the practice of a highly effective math teacher of African American students. I will investigate how this teaching helps students to develop and achieve academic success.

I understand that my participation will consist of multiple audio-recorded interviews with the researcher approximately one hour in length at a time and location convenient to me. In addition, the researcher will observe my classroom multiple times for approximately 1-2 hours based on my schedule.

I understand that I am being invited to participate in this study because I have demonstrated high levels of success in the area of mathematics with my African American students.

I understand that my participation is voluntary and can be discontinued at any time without penalty until the completion of the research project. Only the researcher will have access to all transcripts, audio recordings, field notes from the interviews and classroom observations, as well as written classroom assignments and these will be secured.

I understand that the results of this study may be published or otherwise reported to scientific bodies.

In the event I have questions or require additional information I may contact the researcher Theartris Childress; trechildress@gmail.com; cell [REDACTED]

\_\_\_\_\_  
Participant Name (Please Print)

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher Signature

\_\_\_\_\_  
Date