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# Exploring the Implementation of Culturally Relevant Pedagogy to Support Black Male Middle School Students' Success in Math

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## Abstract

Teachers' understanding of the socioeconomic background may result in improved skills at addressing the barriers to the academic achievement for middle school Black male students. However, there is a lack of understanding regarding teachers' perceptions of barriers and culturally relevant pedagogy (CRP) efficacy when educating Black students in the literature. The purpose of this basic qualitative study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of middle school Black male students in math. Ladson-Billings' culturally relevant pedagogy was used as the theoretical framework for this study. This study included research questions regarding teachers' perception of CRP implementation and strategies teachers used for CRP pillars to support Black male students' outcomes in math. Six middle school teachers at a charter school familiar with CRP implementation participated in virtual semi structural interviews and lesson plans were analyzed to determine the types of CRP strategies used in the instruction. Three themes emerged from the use of Braun and Clarke's thematic analysis of the responses: implementing all CRP pillars was associated with improvement in students' grades and teaching the whole child, and teacher strategies included engaging students' cultural knowledge to support mathematics comprehension. Therefore, it was determined that implementing CRP supports the academic achievement of middle school Black male students in math but more research is necessary to understand how implementation of three pillars of CRP will benefit students, educators, and administrators. The implication for positive social change is that integrating CRP methods into more diverse classrooms has the potential to reduce the achievement gap between Black and White students.

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# Dedication

I dedicate this completed dissertation to my Lord and Savior Jesus Christ! The foundational scripture of my life is Jeremiah 29:11, “For I know the plans I have for you,” declares the LORD, “plans to prosper you and not to harm you, plans to give you hope and a future”. Because of my relationship with the Lord, I have learned not to give up when it would have been so easy to do so. I owe everything to Christ, my Lord and Savior.

In loving memory of my father, Elder Leonard Onwuachi, if it were not for your love, dedication to righteousness, compassion, diligence, and perseverance, I would never know how to win in life. Thank you for reminding me that my trust should always be in the Lord, who is my strength. I can honestly say that you were the perfect example of what it means to be a father. I will love you for all eternity daddy!

Thank you to my mother Joyce Fleming-Onwuachi. You have shown me what strength looks like. Thank you for being the example of what is means to stand up and tackle life challenges. I am grateful for your strength and candor, Mum. I am eternally grateful.

To my daughter Amaka, I am so grateful that the Lord saw fit to allow me to birth you into this world and partner with your father to raise you. You are my daily inspiration, and everything I do is to demonstrate to you that our only barrier is the one we set for ourselves. You can and will accomplish everything the Lord has planned for your life.

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# Chapter 1: Introduction to the Study

## Background

In the United States, Black students score below White students in all core academic areas, including mathematics, on standardized measures of achievement (Zilanawala et al., 2018). The achievement gap is even wider among Black male students (Zilanawala et al., 2018). Black male students have limited opportunity for quality education as they encounter numerous systemic factors that create educational opportunity gaps that limit their academic achievement (Hackett et al., 2018). Hackett et al. (2018) argued that systematic racism within the educational system left some schools and educators aligned only toward the needs of White students. Thus, Black students struggle to achieve the culturally diverse teaching needed to succeed in academics (Hackett et al., 2018). Also, Black male students are more likely to struggle in education, as educators and administration confuse racial form of behavior and communications with poor compliance or lack of assertiveness in the classroom (Zilanawala et al., 2018).

The issue of poor Black male student achievement is evidenced by national assessment data. For example, the National Assessment for Educational Progress (NAEP) standardized test results showed that only 14% of Black eighth-grade students were proficient in mathematics, compared to 44% of White students (NAEP, 2019). These data suggest that Black students are more likely to struggle within the classroom compared to their White peers (NAEP, 2019).

Furthermore, a significant amount of research is focused on assessing the potential reasons for the achievement gap for Black students, particularly Black male

students (Figueroa, 2019; Ladson-Billings, 1994; Milner, 2017; Zilanawala et al., 2018). Figueroa (2019) addressed the significance of the teachers' perception of Black male students as an important determinant of how Black school age students perform academically. The researcher addressed the fact that mathematics is one of the areas often overlooked when determining whether the teacher's perceptions and knowledge of a teaching strategy, which is known as culturally relevant pedagogy (CRP), may play a role in Black male students' academic achievement. Researchers also assert that understanding the cultural needs of non-White students is often difficult for teachers to grasp, even those with years of experience in urban schools (Gillborn et al., 2017; von Stumm, 2017). Yet, there remains a notable absence of exhaustive research in academic literature regarding the impact of CRP upon the academic achievement of Black male students, specifically exploring educator perceptions in mathematics.

Anderson et al. (2017) found that one of the repeated concerns in the literature involved the omission of all three pillars of CRP, which are important for the proper implementation of theory, namely, academic achievement, cultural competence, and sociopolitical consciousness. Anderson et al. stated that the sociopolitical consciousness element of CRP was the least common pillar studied in CRP. Similarly, Ladson-Billings (2014), the originator of CRP strategies, noted that this element was most likely to be absent in her own observations of classrooms. Ladson-Billings asserted that the sociopolitical pillar component of CRP is the issue that impact their students, their students' communities, the world and the world around Black students. Currently, a teachers' understanding of the sociopolitical consciousness component of CRP would

include, for an example, gaining an understanding of the perceived police brutality among Black men and the Black Lives Matter Movement. According to Ladson-Billings, understanding what affects Black students in their communities can make an impact on how teachers relate to the children they teach.

Although this study focused specifically on Black male students in middle school, the benefits of the strategies of culturally relevant pedagogy have been recognized in many states as a methodology to reach student of all races. The findings of this study may be useful to a broad audience as CRP is recognized and used across many states. According to Schettino et al. (2019), teachers can best educate students when they appreciate the culturally defined experience and understandings students bring with them to school. Because of the evidence that CRP makes a difference in the lives of students, 28 states in the United States are implementing the practices and programming in their school curriculum (Schettino et al., 2019). However, it is not clear if educators implement all three pillars of CRP (Schettino et al., 2019).

CRP is a form of instruction in which educators engage learners whose experiences and cultures are excluded from mainstream settings, and uses the backgrounds, knowledge, experiences, and social consciousness/sociopolitical aspect of students' life to inform their lesson planning and instructional methodology (Allen & Hancock, 2017; Ladson-Billings, 1994; Milner, 2017). Its methodology includes teachers considering every student in the classroom and differentiating lessons to meet the needs of the student and include the student's cultural background.

The major components of CRP are found in its three pillars: academic achievement, cultural competence, and sociopolitical consciousness. Each pillar must be trained, understood, and implemented in the classroom, and unless all three are implemented, CRP may not be effective (Anderson et al., 2017). In academic achievement, the first pillar, teachers acknowledge that their primary function is to cultivate the minds of their students. Culturally relevant teachers hold high and transparent academic expectations and meet students where they are (Ladson-Billings, 1994; Milner, 2017). They know the content, the learner, and methods for teaching the content to the learner. Such educators closely consider why they are teaching content and how they are going to teach it based on who their students are as people and as learners. Cultural competence requires that teachers understand culture and its role in education, take responsibility for learning about their students' culture and community, and integrate their own identity, culture, biases, and privilege to critically assess and strengthen their instructional practice (Ladson-Billings, 1994; Milner, 2017). When cultural competence is being executed as it should, the classroom can be described as full of mirrors and windows: students see themselves reflected in the classroom (mirrors) and have opportunities to learn more about and see into the lived experiences of others (windows; Ladson-Billings, 1994). The teacher uses their students' culture as the basis for learning and helps students recognize and honor their own cultural beliefs and practices while accessing and learning about the wider world. Finally, sociopolitical consciousness requires that teachers actively educate themselves and their students on the personal and sociopolitical issues that impact their students, their students' communities, and the

world; they also incorporate this into their teaching (Ladson-Billings, 1994). This pillar also inherently means that teachers encourage students to think about and consistently question why things are the way they are and encourage students to see themselves as agents of social change and transformation (Ladson-Billings, 1994). Students are therefore empowered to think and act in ways that challenge the inequitable status quo among people, within communities, and in society (Escudero, 2019). However, there remains a gap in the literature on the impact of CRP when the pillars of cultural competence, academic achievement, and sociopolitical consciousness are effectively carried out in instruction.

According to Anderson et al. (2017), researchers found teachers overwhelmingly emphasized the elements of academic success and cultural competence in their implementation of CRP. The authors asserted this trend likely reflects the fact that "the teachers possessed an incomplete understanding of culturally relevant pedagogy and perceived sociopolitical consciousness as incongruous with the teaching of academic standards or at least with the pressure to pass the test" (Anderson, 2017, p. 8). Specifically, Anderson et al. (2017) noted that district-level policy statements did not raise questions about curricula or social inequity. Anderson et al. found that one of the repeated concerns in the literature involved the omission of all three elements of the pillars of CRP. Among them, sociopolitical consciousness is an important pillar of CRP for the proper implementation of theory. Anderson et al. discovered in studying research that the sociopolitical consciousness element of CRP was the least common pillar studied in CRP. Similarly, in her own observations, Ladson-Billings (2014), the originator of

CRP strategies, noted that this element was the most likely to be absent the classrooms. Ladson-Billings asserted the sociopolitical pillar component of CRP is the issue that impacts their students, their students' communities, the world, and the world around Black students.

Golden (2017) provided a picture of the future of Black male students if CRP is not fully implemented in the classroom. Golden (2017 illustrated that the ultimate impact of the continued achievement gap in the United States is an irreparable gulf. Further, the guidelines of Every Student Succeeds Act (ESSA; 2020) are essential to ensuring that all students are provided with equitable attention regardless of race or country of origin. As such, the use of CRP may be more important than ever to aid educators and administrators in meeting the guidelines of ESSA (2020).

Based on the literature, as well as the need to align with the guidelines of ESSA, I conducted this study to provide insight into whether teachers implementing all pillars of CRP in mathematics would support the achievement of middle school Black male students in the subject. In this chapter, I provide a background of the study, along with a review of the purpose of the study and the problem statement. I also present the research questions, definitions of terms, and the conceptual framework. The chapter concludes with a summary and the assumptions and limitations of this study.

## Problem Statement

The problem is that it is not known how teachers implement CRP to support middle school Black male students' academic achievement in math. According to the literature, there is a lack of understanding regarding teachers' perceptions of barriers and

CRP efficacy when educating Black students (Gillborn et al., 2017; von Stumm, 2017; Zilanawala et al., 2018; McCarthy et al. 2020; Figueroa, 2019). A local charter school in a Southwest state proposed addressing math deficiencies—documented by the state assessments from the feeder district—of incoming middle school Black male students through the instructional implementation of CRP. According to the site superintendent, the school is using a secondary research organization that aids in CRP training: Transformational Teaching Track., This organization will provide teachers with instructional methods to support the academic performance of Black male middle school students and the student's connection to the content. Training at the charter school is aligned with the three pillars and practices that will lead to success with CRP implementation. Anderson et al. (2017) pointed out that the sociopolitical consciousness element of CRP was the least common pillar studied and implemented in the classroom with CRP. Unless schools intentionally implement all three pillars of CRP in instruction, the potential impact of CRP on students will not be realized.

Due to low academic performance of the incoming charter school students, parents of middle school Black male students are transferring their children into the charter school in expectation of seeing improvements in their student's grades. Middle school teachers will receive 8 weeks of inservice professional development training in CRP instructional strategies to support middle school Black male students in math before the start of the academic school year and weekly professional development thereafter. The superintendent of the charter school made it her priority to provide an in-depth professional development training in CRP before the academic school year in July 2020,

with a keen focus on the three major pillars of CRP, cultural competence, academic achievement, and sociopolitical consciousness. The demographics of the sixth- to seventh-grade students in the charter school is made up of 60% Black male students, 35% Black female students, 20% Hispanic male students, 13% Hispanic female students, and 2% students with two or more races. Data for the 2018 and 2019 school year from the State of Texas Assessment for Academic Readiness for the feeder district showed that Black male students transferring to the charter school from the feeder district were 2 years behind in math compared to their peers going into the sixth and seventh grade (Judson ISD, 2017; Texas Education Agency, n.d.). The feeder district uses the high yield instructional strategies model and Goodheart Wilcox and Pearson Education Inc. for the mathematics curriculum. Black students' math assessment performance was 66% in 2018 and 71% in 2019,approaching grade level, compared to 82% in 2018 and 85% in 2019 for their White peers (Texas Education Agency, n.d.). These numbers represent all middle school Black students within the feeder district, which is the most comprehensive statistics currently available.

Middle school Black male students enrolling in the charter school from the feeder district are performing at grade level in math at the 60 percentiles for the 2019 assessment year (Texas Education Agency, n.d.). White male, White female, Hispanic female, Hispanic male and Black female students who will enter the same charter school and grade level exhibit bettered exam outcomes for achievement when compared to Black male students. Black male students' academic achievement status was rated at 32%, which is lower than that of White male students (40%), White female students

(60%) Hispanic female students (37%), and Hispanic male students (38%; Texas Education Agency, n.d.). The National Center for Education Statistics (2012) reported that the achievement gap between Black male students and White male students was 15 points. Moreover, contemporary research illustrates that the achievement gap is most significant for Black male students in comparison to other nonWhite students in education (Carrol, 2017; Francis, 2019; Howard, 2019). Yarnell and Bohrnstedt (2018) found that for each year Black students fall behind, the achievement gap widens in academic performance for the entire school district. In this school district, several consecutive years of poor performance in math for Black students enrolled in the feeder district and the poor performance of the Black male students enrolling in the charter school middle school raised the question of the whether the use of CRP strategies by teachers may support the academic achievement for this group in mathematics. The problem is that it is not known how teachers implement CRP to support the academic achievement middle school Black male students in math.

## Purpose of the Study

I used Feuerstein's mediated learning experience theory for this study. Although Feuerstein's assessments were not developed specifically for Black male middle school students, they provide insight into the prevailing educational question: What forms of instruction help Black male students learn mathematics? Other researchers can use answers to this question to guide the instructional CRP strategies that teachers use in their classrooms as well as investigate the importance of the role of the teacher in the learning process of Black male middle school students (Warthen, 2017). The purpose of this study

was to gain an understanding of how teachers are implementing CRP to support the academic achievement of middle school Black male students in math.

National and international data have revealed a lack of achievement in mathematics for Black students over the past several decades (National Center for Education Statistics, 2011). According to Ladson-Billings (1994), participating in CRP fundamentally means that teachers use the connection between the students' school and home lives while meeting the requirement of the curriculum and state standards during their instruction. Paulk (2014) confirmed the relationship between CRP and the academic success of Black male students in science when CRP strategies were implemented in instruction. Robinson (2019) also highlighted that the gaps in performance and achievement in literacy were closed when CRP strategies were implemented for Black male students. Paulk (2014), Burns (2018), and Robinson (2019) confirmed the effectiveness of CRP with Black male students.

## Research Question(s)

Research Question 1 (RQ1): How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math?

Research Question 2 (RQ2): What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math?

## Framework for the Study

The conceptual framework that I used for this study was that of Ladson-Billings for pedagogy, which is a basis for the principle of CRP. Ladson-Billings (2009) identified

essential aspects of teaching with CRP strategies including the following three fundamental pillars:

1. Academic achievement
2. Cultural competence
3. Sociopolitical consciousness

Each pillar lays the foundation for the strategies that are vital in the implementation of CRP (Ladson-Billings, 2009, p. 128, 152, 154). For this research, I focused on all three pillars of CRP. Cultural competence is the first pillar, which is the premise for understanding the knowledge (e.g., individual culture and self-assessment concerning culture), attitudes (e.g., acknowledging cultural differences), and skills (e.g., acquisition of cultural knowledge and skills and viewing behavior within the cultural context). The second pillar is sociopolitical consciousness, in which teachers address the issues that impact students, students communities, and the world, incorporating the knowledge of their students into the instruction (Ladson-Billings, 1994). The third pillar is academic achievement, which is the examination of equitable processes that lead to achievement among all students (Ladson-Billings, 1994). All three pillars must be integrated in providing a holistic and effective approach to CRP (Anderson et al., 2017; Ladson-Billings, 1994).

My focus for this qualitative study was how teachers are implementing all three pillars of CRP in the classroom to support middle school Black male students' academic achievement in math. The classroom included students of all ethnicities and the educators used CRP for the means of all students. However, in the interviews with the educators, I

focused on how all three pillars of CRP were used in the classroom to address the achievement gap that disproportionally effects Black male students. The scope of this study was the teachers that use CRP in the classroom to support Black male students' academic achievement in math. I used the interview questions to explore teachers' skills and knowledge about CRP, its core meaning, and ways through which Black male students can benefit from instruction that has their cultural background in mind. I conducted semistructural interviews with educators at the public charter school.

I used CRP pillar-specific instructional strategies to understand how teachers have successfully implemented CRP. I used CRP to assess academic success fostered by educators for middle school Black male students between the sixth and seventh grades. The findings of this study can be used to advance knowledge in academic literature regarding the use, effective strategies, and barriers of implementing CRP for of addressing the needs of Black boys in math.

## Nature of the Study

In this qualitative study, I used a basic qualitative method research design to understand how teachers are implementing CRP to support the academic achievement of Black male middle school students in math. I considered this research design appropriate for this study because, as Ravitch and Carl (2016) stated, qualitative research is used to explore meaning regarding how people construct significance from their experiences. Additionally, a qualitative methodology is useful for exploring how individual lives are shaped by surrounding social and institutional structures (Ravitch & Carl, 2016).

I interviewed educators in their school environment to collect teachers' perceptions of CRP strategies for supporting middle school Black male students and the potential impact of these strategies on the students' academic progress in mathematics. The middle school teachers included in the study were from various demographics. Teachers participated in one-on-one virtual semistructural interviews that lasted 60-90 minutes. I audio-recorded and transcribed all participant responses. Six seventh grade math teachers at a local charter middle school participated in this study. I transcribed and uploaded the data from the interviews with participants into the NVivo 10 for thematic organization. I used Braun and Clarke's (2006) model for thematic analysis for data analysis.

## Definitions

The relevant terms used in this research study are defined as follows:

*Achievement Gap:* An achievement gap is the distribution of services that benefit students differentially based on race. The achievement gap is measured by statistical differences in comprehension of subjects based on the race of the student (Great Schools Partnership, 2013; Ladson-Billings, 2001).

*Achievement Gap in Mathematics:* An achievement gap in mathematics is the statistical differences between students based on race. The origination of the achievement gap in mathematics can be identified based on unequal distribution of services and unfair policies that only benefit specific groups of students (Warthen, 2017).

*Opportunity Gap:* Opportunity gap is the unequal or inequitable distribution of resources and opportunities (Great Schools Partnership; Ladson-Billings, 2001, 2013).

*Black:* For this study, Black refers to any of the various populations having dark pigmentation of the skin (Davis, 2010).

*Critical Race Theory:* Critical race theory is a framework that offers researchers, practitioners, and policymakers a race-conscious approach to understanding educational inequality and structural racism (Price, 2016).

*Culturally Relevant Pedagogy (also known as Culturally Relevant Education, Culturally Relevant Teaching:* Culturally relevant pedagogy is a pedagogy designed to empower students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes.' This approach to teaching involves teachers building a bridge from students' experience at home to their experience in the classroom, bringing elements into their daily learning at school that validate their culture and make lessons 'hit home' because of those connections (Ladson-Billings, 1994).

*Spiraling Curriculum:* Spiraling curriculum is defined as a course of study in which students will see the same topics throughout their school career, with each encounter increasing in complexity and reinforcing previous learning (Hausman, 2015).

## Assumptions

According to Simon (2011), an assumption is an unexamined belief that is essential for research to be conducted but cannot be empirically verified. My first assumption for this study was that all participants would answer the interview questions with sincerity and candidness. Second, I assumed that all participants were familiar with CRP and had used its strategies in the classroom with their Black male students. Although individual teachers used their own instructional strategies, I assumed that all

teachers used the Pearson Mathematical Curriculum as prescribed by the school. In addition, I assumed that there would be beneficial academic outcomes for the students because of the effective instructional strategies using CRP to support Black male students' math progression. My final assumption was that teachers would be able to communicate the details of the specific strategies of CRP that influenced the academic success of Black male students in mathematics.

## Scope and Delimitations

The scope of this study was exploring teacher-reported impact of CRP on Black student outcomes in math. For this purpose, I defined the scope of this study based on the research and academic literature gap in the understanding of CRP strategies that impact academic success of Black male students in mathematics. The findings of this study will lead to an improved understanding of how CRP implementation may serve to decrease the achievement gap for Black male students.

According to Simon (2011), delimitations are characteristics a researcher uses to limit the scope and define the boundaries of a research study. Delimiting factors include the choice of objectives, the research questions, variables of interest, theoretical perspectives adopted (as opposed to what could have been adopted), and the population chosen for investigation (Simon, 2011). I confined this study to one charter middle school, with preselected sixth- and seventh-grade teachers at the charter school. Six sixth- and seventh-grade teachers participated in this study.

## Limitations

Simon (2011) stated that limitations are potential weaknesses in the study and are beyond the control of the researcher. The first limitation of this study is that the research findings may not be generalized, as I used a specific demographic for this research. A second research limitation is researcher bias. My background as a person of the African descent and experience in CRP may lead to bias because of my knowledge of the strategies that should be used but are not being used with Black male students. However, to mitigate this limitation, I used bracketing to document bias throughout the data collection and analysis process. Bracketing is a reflexive journaling process that is ideal for mitigating and observing personal research bias (Tufford & Newman, 2012).

## Significance

Burns (2018) noted that systematic processes demonstrate educators' failure to connect with students at a cultural level. In addition, Burns stated that systemic discrimination impacts Black male students and may contribute to their inability to close gaps in academic achievement. Thus, the education community may learn from the findings of this study the instructional means to support the academic achievement of Black male middle school students in math and reduce the gap in educational outcomes.

By understanding the background of the students and being aware of factors ranging from socioeconomic status, institutional racism, to parents' level of education, teachers may address the barriers to the academic achievement for Black male middle school students. Moreover, by understanding these factors, the educator may be able to use CRP to support the academic achievement of Black male middle school students

(Ladson-Billings, 1994). Therefore, the significance of this study is revealing if the effects of the barriers are countered when CRP techniques are incorporated into mathematical instructional designs and support the academic accomplishment of Black male middle school students in mathematics.

Based on advancing knowledge in the field of education concerning CRP, researchers identified a need for accountability systems that are broader and more meaningful for the implementation of CRP strategies. Educators may use these strategies, which are not seen in standardized test results alone, to connect more and understand the academic needs of their students (Schettino et al., 2019). Schettino et al. (2019) asserted that this push for more accountability in culturally relevant education (CRE) suggests that in a racially, ethnically, and religiously diverse society, teachers can best educate students when they appreciate the culturally defined experiences and understandings students bring with them to school. This study is significant, as educators can use its findings to address the gap in academic research regarding the outcomes of Black male students through teacher-implemented CRP methods. Researchers may use the findings from this study to address existing research gaps in future research regarding CRP and the academic success of Black male students.

## Summary

In Chapter 1, I presented the problem regarding the achievement gap in mathematics among Black male middle school students and an explanation for closing it. In addition, I discussed a historical perspective of Black male students and their underperformance in the U.S. educational system and the continued widening of the

achievement gap. Further, I presented the conceptual framework guiding this theory. Finally, I presented the significance of the research detailing the premise of understanding why studying instructional strategies for Black male middles school students in mathematics and the role CRP may contribute to supporting their academic achievement. In Chapter 2, I will present a review of the contemporary literature related to the purpose of this study.

# Chapter 2: Literature Review

Black students in the United States are historically more likely to score poorly in examinations in K–12 settings compared to White students (Gregory & Roberts, 2017; Soland, 2017). The differences in testing achievement between White and Black students are categorized as the achievement gap (Zilanawala et al., 2018). The achievement gap has been a problematic issue in both public and private schools in the United States (Goddard et al., 2017). Data from the National Assessment for Educational Progress (NAEP, 2019) illustrated that 14% of Black students are proficient in math compared to 44% of White students at the same grade level.

Black students are more likely to struggle in mathematics throughout K–12 education and into collegiate settings (NAEP, 2019). Despite reform in terms of racial equality and education policy changes, Black students are more likely to meet systematic issues that contribute toward their decreased performance academically (Hackett et al., 2018; Zilanawala et al., 2018). The achievement gap between Black and White K–12 students is attributed to systemic racism issues (Alexander et al., 2016). Systemic racism is policies and institutions that provide privilege and opportunities to a majority group based on gender and ethnicity (Alexander et al., 2016; McTier et al., 2017). In terms of education, systemic racism is distinguished based on Black students' struggles, the achievement gap, and the assertiveness of power over Black students based on erroneous stereotypes and racially charged bias (Alexander et al., 2016; McTier et al., 2017).

According to previous research on the achievement gap between Black and White students, differences exist in reasoning based on teacher perception of students and

pedagogical techniques (Figueroa, 2019; Gillborn et al., 2017; von Stumm, 2017). One method for decreasing the achievement gap is posed as CRP. CRP is posed as useful for reducing the achievement gap, as it targets students' culturally specific needs. Specifically, through cultural competence, academic achievement, and sociopolitical consciousness, students are provided an effective and culturally sensitive pedagogy (Gillborn et al., 2017; von Stumm, 2017).

According to previous research, CRP is an ideal teaching pedagogy for addressing the achievement gap (Anderson et al., 2017). The CRP approach includes three pillars: (a) academic achievement, (b) cultural competence, and (c) sociopolitical consciousness. These three pillars are used as guiding measures to discuss student support and learning that is based in multicultural pedagogy (Allen & Hancock, 2017; Brown-Jeffy & Cooper, 2011; Ladson-Billings, 1995). However, according to previous assessments, CRP implementation fails to integrate all three pillars (Golden, 2017). Particularly, sociopolitical consciousness is most frequently underincorporated in pedagogical assessments (Anderson et al., 2017; Ladson-Billings, 2014). Literature examining how CRP is implemented in the classroom is lacking. Golden (2017) demonstrated that some educators struggle with the implementation of CRP. In alignment with policies such as Every Student Succeeds Act (2020), it is critical that all students, regardless of ethnicity and race, are provided with an equitable education (Anderson et al., 2017). CRP may prove useful for this purpose, but it is unclear from the surveyed literature regarding how teachers implement CRP to support Black students (McTier et al., 2017). The purpose of this study was to understand how teachers are implementing CRP to support Black male

middle school students' academic achievement in math. In the following sections, I will provide the search strategy and the chapter organization for this literature review.

## Literature Search Strategy

I used a series of defined keywords and academic databases to create the search strategy for this study, as Cooper et al. (2018) and Torraco (2016) suggested. I used the following databases to search for the literature: EBSCO, Science Direct, SpringerLink, JSTOR, EBSCOHost, and Online Research Databases, and Mendeley. The keywords used to conduct the searches included *culturally relevant pedagogy, culturally relevant pedagogy and Black students, culturally relevant pedagogy and mathematics, culturally relevant pedagogy in K–12 education, achievement gap, achievement gap of Black students, the achievement gap in mathematics, achievement gap in Black students and mathematics, systematic racism,* and *the achievement gap*.

I also used a series of inclusion criteria to ensure I accessed the most relevant literature. The inclusion criteria were as follows: (a) English-only text, (b) peer-reviewed literature, and (c) full-text literature. I used English-only text to ensure I accessed literature that was not biased from translation. I also focused on peer-reviewed literature for this review to ensure I accessed and used relevant and current information (Cooper et al., 2018; Torraco, 2016). The time frame for the literature review was 5 years (i.e., 2016 to 2020). However, I accessed some literature published prior to the past 5 years and use it to demonstrate seminal CRP assessments. I accessed 85 articles from the past 5 years for this review. Only 5% of the literature was published earlier than the designated time frame. In the next section, I provide the chapter organization for this review.

In this chapter, I review the literature focused on the achievement gap, CRP as an alternative to pedagogical training and teaching, and mathematics outcomes from CRP implementation for Black students. I delineate the following sections to provide a comprehensive review of the literature: (a) theoretical framework (b) academic achievement gap and student race, (c) educator diversity and cultural aptitude, (d) culturally relevant teaching, (e) CRP outcome on student achievement, (f) CRP and mathematics outcomes, (g) CRP training, (h) limitations of CRP, and (i) summary and conclusion. First, I introduce the guiding theoretical framework of CRP to provide a review of the relevancy to the study's purpose.

## Theoretical Framework

For this study, I used the theoretical framework of culturally relevant pedagogy, which was developed in 1995 by Ladson-Billings. The main tenant of CRP is those multicultural strategies when integrated into pedagogical techniques, decrease achievement gaps, and create culturally aware educators and students (Brown et al., 2019). The integration of multiculturalism through CRP includes educators that are open-minded, culturally sensitive, and respectful of all students regardless of ethnicity or race (Brown et al., 2019; Ladson-Billings, 1995). Ladson-Billings (1995) defined CRP as follows:

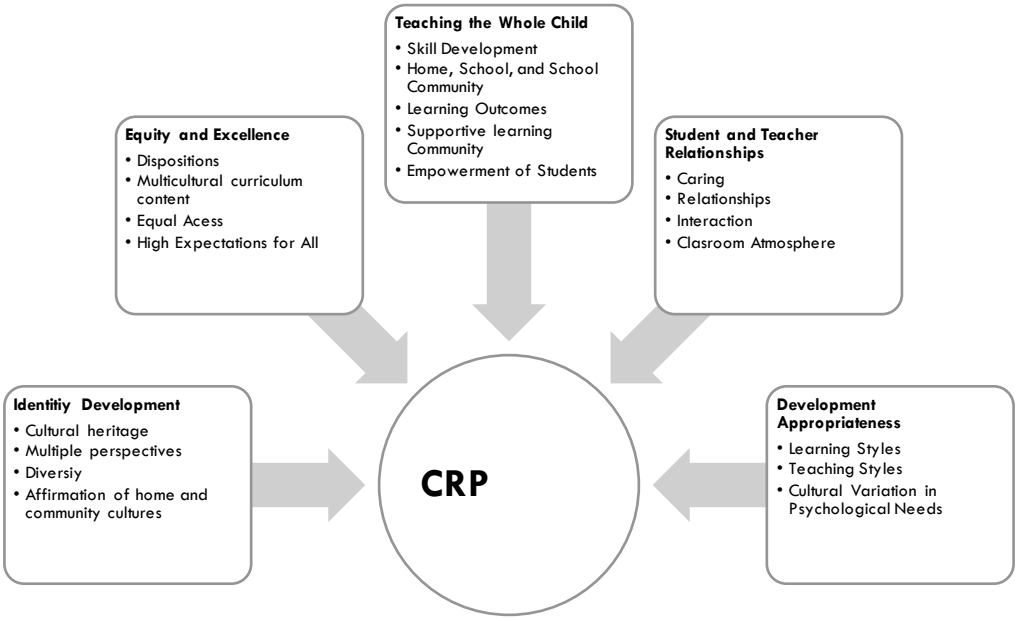
> A pedagogy of opposition not unlike critical pedagogy but specifically committed to collective, not merely individual, empowerment. Culturally relevant pedagogy rests on three criteria or propositions: (a) students must experience academic success; (b) students must develop and/or maintain cultural competence; and (c)

> students must develop a critical consciousness through which they challenge the status quo of the current social order. (p. 160)

There are three domains of CRP: (a) academic achievement, (b) cultural competence, and (c) sociopolitical consciousness. In these three domains, the educator, the education institution, and the student are supported through strong classroom expectations and a renewed emphasis on multiculturalism (Allen & Hancock, 2017; Brown-Jeffy & Cooper, 2011; Ladson-Billings, 1995). Figure 1 depicts the adaptation of the key tenants of CRP through achievement, student and teacher relationships, equity, and teaching.

**Figure 1**

*CRP Tenants*




*Note.* Adapted for this study from Brown-Jeffy and Cooper (2011, p. 72)

As shown in Figure 1, the community, educators, administration, students, and teachers play a role in the conceptual framework of CRP (Brown-Jeffy & Cooper, 2011). The support of developmental appropriateness is based on gauging and considering learning and teaching styles and the psychological needs of students. Equity and excellence are ensured through equal access, high expectations, and the inclusion of a multicultural curriculum (Brown-Jeffy & Cooper, 2011; Howard & Rodriguez-Scheel, 2017). Identity development of students is supported through including diverse perspectives, affirming socio-cultural backgrounds, and promoting cultural heritage learning. Also important is instructing the whole child, which includes assessing skills, learning outcomes for diverse student's needs, empowering students, and supplying a

learning environment that can decrease achievement gaps. Finally, student and teacher relationships are critical to ensure a caring environment in the classroom and between the teacher and students (Brown-Jeffy & Cooper, 2011; Howard & Rodriguez-Scheel, 2017). For this study, the qualitative approach is aligned with CRP, as administrators can use this approach to examine teachers' implementation of CRP with Black male middle school students to support their academic achievement in mathematics. Administrators can also use CRP to assess how educators are implementing the pillars of this framework with Black students to support their achievement in mathematics.

## Literature Review Related to Key Concepts and Variables

### Academic Achievement Gap and Student Race

In the United States, increasing globalization, immigration, and growing minority populations have increased student diversity (Tichnor-Wagner et al., 2016). Educators refer to this phenomenon as the increase of culturally and linguistically diverse (CLD) classrooms. Data from the U.S. Census Bureau (2017) illustrate that populations such as Latino and Black are growing in the United States. Hispanic populations are projected to grow significantly in the next 10 years (de Brey et al., 2019). However, Black students' diversity has remained constant in the past 20 years (Kelley et al., 2015). The shift toward a growing minority population has also led to a push toward the adoption of diverse education methods (Kelley et al., 2015; Samuels, 2018; Tichnor-Wagner et al., 2016). According to Tichnor-Wagner et al. (2016), diversity in the United States requires an immediate change of pedagogical practices to address the diverse skills, needs, knowledge, and language of students. Samuels (2018) further noted, “Teachers must

develop knowledge and appreciation of diverse cultures, explore how equitable and inclusive practices can be implemented in schools, and imagine strategies for challenging existing barriers" (p. 22). In line with these considerations, CRP is considered an ideal approach to address these needs (Lambeth & Smith, 2016). In the subsequent sections of this literature review, I will discuss the specific domains and literature related to CRP. In this section, I will present the importance of race, culture, and socially aware teaching practices.

Culture and academics are inseparable in the K–12 education setting (Dee & Penner, 2017). Students' unique cultural values and upbringing are an integral part of their personality, community, and language (Dee & Penner, 2017). However, K–12 settings are historically gauged through the lens of a monolithic culture that does not consider modern students' multiculturalism (Dee & Penner, 2017; Ruth et al., 2018). According to Dee and Penner (2017), the lack of alignment in school and institutional practices is detrimental to minority students. However, the historical basis for K–12 education was guided by predominantly White practices (Ruth et al., 2018). Western-based methodologies were integral to pedagogical practices that remain in the contemporary K–12 educational setting (Ruth et al., 2018). Ruth et al. (2018) exemplified the lack of congruence between academia and race by exploring the United Kingdom Research Excellence Fund, which demonstrated that that pedagogy is not aligned with diverse students' needs and challenges or multicultural values.

### *Black Male Student Treatment in K–12 Environments*

In considering the treatment and disparities of Black male students in the K–12 education system, it is important to discuss briefly the history of scientific racism, which has pervaded many modern pedagogical practices (Bailey et al., 2017). In the 18th century, naturalist-based inquires asserted the superiority of White male students' intelligence over minority groups based on erroneous scientific methods (Bailey et al., 2017). Such methods involved measuring the cranium and comparing White European crania to those of African American groups (Bailey et al., 2017). As a result, the false scientific information was used to specifically assert dominance over African American groups, as well as aid in the transcontinental slave trade (Staub, 2018). In terms of education, research from Arthur Jenson was produced and labeled as the bell curve hypotheses (Staub, 2018). The hypotheses used scientific information to assert that the IQs in White populations were higher than in Black populations. As such, the scientific racism spread throughout K–12 pedagogy and educator practices before segregation (Bailey et al., 2017). Despite desegregation, the lasting impact of historical actions against Black groups continues to impact Black students (Bailey et al., 2017).

Educational discipline is also noted to be disproportionately provided to Black male students. Black male students are expelled and suspended more than any other ethnic race in schools (Kunesh & Noltemeyer, 2015). Researchers indicate that educators judge Black male students more harshly based on erroneous stereotypes regarding behavior and speech (Kunesh & Noltemeyer, 2015). The modern pedagogical environment for Black male students is also characterized by increased disciplinary

policies that tend to favor students other than Black male students (Welch & Payne, 2018). According to Welch and Payne (2018), the reasoning for these practices is the assumption by some educators that Black male students are more likely to exhibit disruptive behavior, which is rooted in poor educator multiculturalism.

The testing practices in the K–12 educational system are also highlight practices leveraged toward ethnic nonminority students. Davis and Martin (2018) explored the standardized testing in Baltimore City Public School System and found that educators referred to only teaching Black students what they needed to pass, rather than providing a detailed educational approach (Davis & Martin, 2018). The purpose of this approach was to ensure the student passed to the next level and that educators met basic standards of student passing grades (Davis & Martin, 2018). Educators also noted that they felt that the teaching practices for Black students were reduced due to the focus purely on passing standardized testing practices. Such practices illustrate that practices are skewed in part toward ethnic nonminority students in the United States. Although passing standardized testing is essential, it is also critical that Black students are provided equitable educational environments (Davis & Martin, 2018).

Researchers also demonstrated that Black students are more likely to experience microaggressions from educators. According to Welch and Payne (2018), Black students are more likely to be disciplined and experience microaggression, which further enforces racially segregated ideologies in the K–12 setting (Welch & Payne, 2018). As a result, Black students experience higher levels of depression, anxiety, and low self-esteem (Welch & Payne, 2018). Similarly, Richard and Hardin (2018) demonstrated that Black

students are more likely to face suspension. In an assessment of suspension records for 4,293 students across 41 schools, the log-linear analysis demonstrated that African American students were most likely to be suspended due to behavioral issues than White students. As a result, Black students missed more classes and fell behind their peers. Richard and Hardin (2018) noted that such practices further contribute to the achievement gap and reinforce systematic racism in K–12 settings.

In an assessment of Black educator's perception of White teachers and Black students, researchers frequently classify Black students as "inner-city" or "urban." Black educators noted that some White teachers remarked that teaching such schools and diverse students was too difficult due to behavioral issues. Thorius (2019) emphasized that such remarks reinforce systemic racism and illustrate a lack of multicultural educator competency.

Similarly, Scott et al. (2018), based on educator responses and a series of observations, demonstrated that Black students, specifically male students, were more likely to receive poorer feedback than White students. Educators similarly failed to consider behavioral issues and address negative feedback loops (such as interruption and angry response from an educator) in the classroom (Scott et al., 2018). Researchers illustrated that the poor perception of Black students can negatively impact the outcomes of such students, which leads to poor outcomes in terms of student achievement. Liou et al. (2016) explored outcomes for Black students through an assessment of students in West Coast City, an educationally progressive region. The authors found that despite reporting high-diversity, Black students graduated at lower rates than White students and

were more likely to experience microaggressions in the classroom and from peers. However, White students were more likely to be recommended for awards, had higher graduate rates, and attended four-year colleges.

Black students are also more likely to experience disparities in terms of how they are treated by educators. Neal-Jackson (2018) provided a discussion of these practices through reviewing misconduct cases filed by Black students against educators. Neal-Jackson (2018) noted that it was not uncommon for educators to use terms such as "un-ladylike" or "below average" specifically for Black students. Black women were also more likely to experience racially charged and sexist accusations from educators. Neal-Jackson (2018) argued that the specific language used in the classroom, and when describing students illustrated disparities in the treatment of Black versus nonBlack students. Neal-Jackson (2018), in a study not focused specifically on Black male student achievement, demonstrated the continuation of disparities for Black students and the critical need to address these practices for equality in K–12 education.

In considering the experiences of Black students, Cross (2003) and Young and Laible (2000) noted that despite de-segregation, racially divisive tactics are still evident in the K–12 setting. The resulting pedagogical methods are thus based on the benefit of White students and fail to acknowledge and promote diversity (Hytten & Adkins, 2001). Hytten and Adkins's (2001), in their assessment of modern pedagogical techniques, illustrated that the policies, institutions, and practices are based upon White privilege and fail to support diversity. However, despite assessments indicating the importance of considering pedagogical biases, it is not clear that educators have addressed this bias for

the need of Black male students. Further, the current achievement gap for Black male students indicates that further approaches are required to consider how educators can decrease racial disparities.

### *Equitable Education and Educators*

Equitable education entails providing teaching practices that include multicultural practices. Assessing previous literature on teacher experiences in multicultural practice is one approach to exploring the achievement gap (Larkin et al., 2016). Larkin et al. (2016) assessed the intersection of race and pedagogy by exploring preservice educators. The educators reported their use of experience and training for multiculturalism and racially diverse students in the classroom. The surveyed educators indicated that race was introduced during training, but only briefly. The pedagogical focus toward race, the history of prejudice, and socio-cultural values were not a primary focus of their preservice teaching practices (Larkin et al., 2016). Participants further remarked that education and training were based on the idea of "colorblindness." Larkin et al. (2016) noted that colorblindness-based teaching fails to support or consider student's diversity. Giroux (2018) also noted that color-washing practices are not ideal for creating an equitable environment or addressing the achievement gap.

Researchers frequently discuss academic performance, culture, and race in academic literature but rarely highlight equitable practices in terms of pedagogical techniques for educators. Pabon (2017) explored the Black male educator's perception of pedagogical techniques, race, and culture in K–12 settings. The participants discussed broad themes regarding internalized suffering, systematic racism, and intelligence

perceptions of the students and White educators toward students. Pabon (2017) argued that future researchers should consider Black students' suffering and the intersection of race with modern pedagogy that is primarily aimed toward White majority groups in the United States. According to Alim and Paris (2017), cultural pedagogy should be implemented beyond theoretical or academic discussions. Teachers should provide a modeled form of education and pedagogy by considering systemic racism, the previous injustices against Black students, and the empowerment of multicultural differences (Alim & Paris, 2017; Pabon, 2017).

According to academic literature, modern pedagogy is primarily centered on Western logic and White communities and students. One such example is Morales-Doyle and Gutstein (2019) exploration of Chicago urban schools. The authors assessed the impact of STEM incorporation, the neoliberalism of K–12 settings, and privatization toward White majority classes. Morales-Doyle and Gutstein (2019) found that STEM pedagogy created a more inclusive environment by creating community relationships, student and teacher relationships, and diverse students. According to Morales-Doyle and Gutstein (2019), communities that are excluded from equitable education are placed into "racialized labor force preparation" (p. 532). Racialized labor force preparation is a systemic racism model that creates inequitable preparation for students of color and places privilege and opportunities for White students. The lack of inclusion of pedagogical and cultural practices in educational settings thus results in achievement gap and disparities between majority and minority communities (Morales-Doyle & Gutstein, 2019).

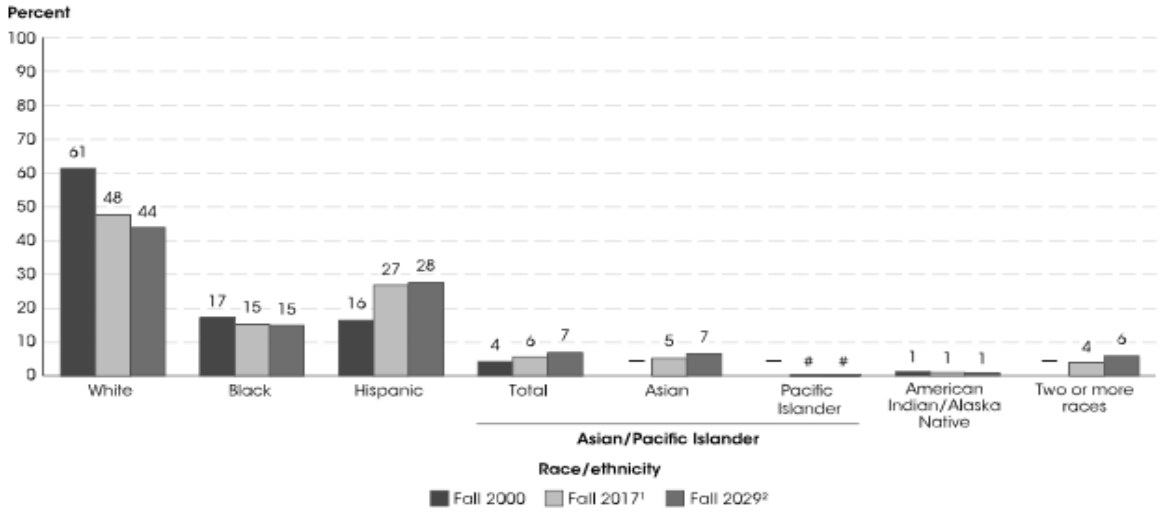
The administration, teacher, and community guide the creation of knowledge based on multiculturalism through their relationships in the K–12 educational environment (Ohito & Oyler, 2019). According to Ohito and Oyler (2019), race and culture should be included in conversations in all classrooms, guided by pedagogical practices such as CRP. Dee and Penner (2017) similarly noted that equitable pedagogy requires that practice and praxis be confronted in developing teaching practices, educating preservice teachers, and training existing and veteran teachers. However, the current education models lack inclusivity (Alim & Paris, 2017; Larkin et al., 2016; Morales-Doyle & Gutstein, 2019; Pabon, 2017; Ruth et al., 2018). Central to inclusive pedagogy is the educator's role in the classroom and the practices they employ, which I will review in the following section.

**Educator Diversity and Cultural Aptitude**

Diversity in the classroom is a commonly discussed argument in academic literature (Chen & Bonner, 2017; Ebersole et al., 2016; Gay, 2019; Ladson-Billings, 1992). Data from the National Center for Education Statistics (NCES, 2019) demonstrated that educator diversity and knowledge of different cultural practices are lacking in the United States. In urban regions, over 70% of students are nonWhite (Figure 2).

**Figure 2**

*Distribution of Minority Students Enrolled in Elementary through Secondary Schools 2000, 2017, And 2029 Predictions*




— Not available.
# Rounds to zero.
[1] Includes imputations for prekindergarten enrollment in California and Oregon.
[2] Data for fall 2029 are projected.
NOTE: Prior to 2008, separate data on students who were Asian, Pacific Islander, and of Two or more races were not collected; data for students who were Asian included students who were Pacific Islander, and students of Two or more races were required to select a single category from among the offered race/ethnicity categories (White, Black, Hispanic, Asian, and American Indian/Alaska Native). Race categories exclude persons of Hispanic ethnicity. Detail may not sum to totals because of rounding. Although rounded numbers are displayed, the figures are based on unrounded data.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 2000–01 and 2017–18; and National Elementary and Secondary Enrollment by Race/Ethnicity Projection Model, 1972 through 2029. See *Digest of Education Statistics 2019*, table 203.50.

*Note.* Data obtained from the NCES (2020)

In contrast, most K–12 educators are White, which indicates a lack of cultural knowledge, skills, and experiences outside of their community and experiences (Bonner et al., 2017). Empirical literature indicates that students of color' education require methods such as CRP. Educators using this approach appreciate and emphasize diversity in the classroom (Bonner et al., 2017; Coleman, 2012; Miller & Harris, 2018).

### *Diverse Classrooms*

In the United States, disproportionality of diversity representation exists (Chen & Bonner, 2017; Ebersole et al., 2016; Gay, 2019; Ladson-Billings, 1992). Juvonen et al. (2018) noted that diversity in schools impacts student learning and achievement outcomes. Many students reflected feeling neglected or misunderstood by educators in a sample of 26 schools and 4302 middle-school students. Students enrolled in settings without diversity were more likely to report feeling supported by educators, thus leading to an increase in segregation between predominantly White schools and schools with a diversity of student racial composition (Juvonen et al., 2018). According to Juvonen et al. (2018), ethnic diversity leads to poor support of students and decreased academic achievement. Rucinski et al. (2019) similarly demonstrated diversity outcomes in a sample of 526 middle-school students in urban settings. Rucinski et al. (2019) examined the surveys of teacher-reported child socialization abilities, teacher-child aggression, and quality of outcomes, and investigated child self-reported depression and anxiety in the students. The researchers also used classroom observations to assess educator diversity and ability to manage diverse classrooms. Rucinski et al. (2019) identified that diversity increase learning achievement and the social development of students. However, students in low diversity classrooms experienced high depression, increased anxiety, and poor or even aggressive relationships with administration and teachers.

The creation of inclusive and diverse classrooms can also decrease educator stress and improve the wellbeing of student populations. In an assessment of NCES data by McCarthy et al. (2020), stress on educators was reduced based on the ethnic composition

of the student classroom and general populations. Educators in classroom settings with little diversity representation experienced more stress and increased anxiety and aggression among students. According to McCarthy et al. (2020), addressing this issue can be in part addressed by "the need to recruit teachers of color, particularly in areas with high concentrations of non-white students (p. 20)." The increase in diversity in the classroom, alongside educator-guided diversity practices, is thus considered imperative for students' mental and academic development (Juvonen et al., 2018; Rucinski et al., 2019; Wells et al., 2016).

**Culturally Relevant Teaching**

In this section, I present the definitions, key constructs, and the relevant literature regarding CRP. This section includes an overview of the relevant literature, including the the purpose and application of CRP as a diverse pedagogical methodology. Ladson-Billings, who developed CRP in 1995, argued that the current pedagogical methods were lacking diverse approaches that met needs of the growing student population in the United States. CRP, as defined by Ladson-Billings (1995), is "a pedagogy of opposition not unlike critical pedagogy but specifically committed to collective, not merely individual, empowerment" (p. 160). The application of CRP in teaching extends beyond the definition and includes three key constructs defined as high expectations, cultural competence, and promotion of critical consciousness (Byrd, 2016). According to Ladson-Billings (1995), addressing these three constructs will help educational institutions and instructors guide diverse student populations to academic success and achievement.

CRP is designed through high expectations, cultural competence, and promotion of critical consciousness to meet students' diverse needs. Through these three key constructs, an educator can shift the classroom culture toward considering and empowering diversity and increasing the students' understanding and application of cultural competency (Byrd, 2016). To provide instructors with the context of CRP application, Ladson-Billings (1995) defined the sub-goals for CRP. They include (a) academic success, (b) cultural competence, (c) critical consciousness, (d) positive perspectives on parents and families, (e) communication of higher-expectations for all students, (f) learning within the context of culture, (g) student-centered instruction, (h) culturally mediated instruction, (i) re-shaping the current curriculum, and (j) guiding teachers as facilitators of a culturally competent curriculum (Byrd, 2016; Ladson-Billings, 1995).

Firstly, academic success is defined as an approach in which educators use cultural values and lessons to create high-achieving students (Ladson-Billings, 1995). Cultural competence is also central, as this involves the educator's use of pedagogical techniques and lessons to meet the needs of culturally diverse students (Ladson-Billings, 1995). For this process, relationships must be built among parents, students, and teachers. As relationships are strengthened, the educator can learn about the student's culture and incorporate diverse educational practices in the classroom (Ladson-Billings, 1995).

Further, cultural competency is a critical practice of ensuring that families are involved in their children's educational progress. Examples provided by Ladson-Billings (1995) for this process included discussing new languages, incorporating sociocultural

practices of different cultures into the classroom, and learning about new cultures and practices in the school setting. Finally, critical consciousness is the act of including issues such as politics, economics, and race as discussion topics in the classroom (Ladson-Billings, 1995). For example, systemic racism pervades broad topics that cover science English. Educators can adapt cultural discussions toward these topics (and the grade level) to discuss how sociocultural values shape the modern United States (Ladson-Billings, 1995). Students can also be guided toward discussing social inequity issues in terms of culture and race, which serves as a critical reflection of equality and diversity within the classroom and, ideally, within their personal lives.

Researchers consider social consciousness a key tenant of CRP, as it is essential to creating students prepared to understand diversity, equality, disparities, and create positive changes in the world as they progress academically and professionally (Ladson-Billings, 1995). The tenants of CRP are bounded, as Ladson-Billings (1995) described, as:

> Resting on three criteria or 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. (p. 160)

In this format, students are guided toward understanding their peers' diversity and respecting their community and the socio-cultural diverse nature of the United States. Samuels (2018) explored the perceptions of K–12 teachers about culturally responsive teaching in low socioeconomic schools. Most of the participants were volunteers who

taught in K–12 schools within the same larger urban school district. The teaching experience varied from less than 1 year to more than 20 years. The findings revealed that most participants considered culturally responsive teaching beneficial; however, Samuels (2018) also noted that limited resources and time were some of the challenges.

Additionally, the participants noted other factors such as anxiety with resolving conflicts among students with opposing ideologies and a lack of understanding of the cultures and assets of the students they serve. Samuels (2018) stated that research about culturally responsive teaching shows that this approach can lead to positive outcomes for students. Still, educators must have the preparation and tools to create and facilitate environments that embrace cultural responsiveness.

### *CRP Educator and Training*

The educator must guide the transmission of ideals through CRP based pedagogy. For some students, the acquisition of these ideals requires training and professional development. However, researchers indicate that training that is specific for CRP is largely lacking in the modern educational setting (Lambeth & Smith, 2016). According to Lambeth and Smith (2016), preservice teachers should be provided a significant amount of time and learning to consider the diversity of the modern classroom and assess how to build CRP-based teaching approaches. However, it is unclear if the current training methods for preservice educators to meet diverse student needs are adequate (Gay, 2002; Lambeth & Smith, 2016).

The current training programs for educators include workshops, such as educational programs and seminars (Hu et al., 2017). Hu et al. (2020) explored the

assessment of preservice teacher's usage of CRP as a means of demonstrating the impact of these programs. According to Hu et al. (2020), preservice teachers were provided a detailed discussion of multicultural programs and students' diversity in the United States. However, they lacked practice models and activities for learning how to use CRP in their classrooms. Acquah and Szelei (2020) also noted that training methodologies are in place for teaching diverse students and classrooms but a discussion of how such programs can be implemented upon entry into the teaching profession is lacking.

Literature also reflects that a critical barrier to CRP adoption in the classroom is the lack of training and ability to conceptualize how to employ CRP-based methods. For example, Freire and Valdez (2017) explored CRP barriers reported by dual language educators in the United States. In this research, the participants cited lack of time, poor knowledge of CRP based material, and a lack of belief that these materials were appropriate for younger children groups as the key obstacles. However, Freire and Valdez (2017) deduced that these barriers could be quickly addressed if the administration and fellow educators decided on appropriate models for teaching CRP at all age groups and developed curriculum and training for educators. Lee (2018) noted that CRP barriers are approachable, but educators and administrators must develop bridged pedagogy between educational material and age group-appropriate teaching methodologies. However, there is a need to study how CRP is implemented specifically with Black male students to support the mathematics achievement of this demographic.

In terms of the efficacy of CRP, educators have noted positive outcomes for students. Wah and Nasri (2019) reported that CRP had impacted students from diverse

backgrounds positively. Redding (2019) reviewed classroom outcomes for educators that used CRP and found that students are more likely to feel supported by same-race educators. Thus, these results indicate that CRP is critical for educators of different races to meet the needs and support racially diverse student groups. However, this benefit is yet to be assessed for Black male students.

CRP researchers often evaluate student learning outcomes in terms of the reported differences in students' ability to relate to and address their peers. For example, Durden et al. (2016) reviewed two black educators' CRP use and noted that pedagogical development was more effective for the students' diversity. Similarly, Dickson et al. (2016) posed a model of assessing the efficacy of CRP through the proposed culturally responsive teaching self-efficacy instrument that measures educators' beliefs regarding their CRP methods in the classrooms. In this study, the authors modified the test for student measurements. As a means of testing the model, Dickson et al. (2016) explored a sample of 748 seventh-grade students. The results showed that students exposed to CRP teaching were more likely to show an increase in cultural responsiveness. However, Dickson et al. (2016) and Durden et al. (2016) did not assess the impact of CRP upon the student academic achievement in their studies. Thus, there is a gap in the understanding of the efficacy of CRP toward the academic achievement and outcomes of student populations in the United States.

Researchers Kucan et al. (2019) further demonstrated that connecting students to historical issues using CRP increases student literacy. Kucan et al. (2019) reviewed the Hill District teaching paradigm and assessed educators for their ability to engage with

students in a manner aligned with CRP. Additionally, the educators focused their assessments on synthesizing the historical and contemporary elements of culture and race from the primary articles that lead to systematic issues in the current global climate. Kucan et al. (2019) reported that by including local history and inviting students to review historical documents and even visit historical sites, both educators felt more prepared to have CRP. Students demonstrated a better understanding of the topics covered within the classroom.

In terms of literacy, research centers on the need for CRP and the fact that it can improve literacy. However, I only found one study in literature that showed student achievement scores as a basis for illustrating this connection. Instead, researchers use participant reflections (e.g., students and educators; Kucan et al., 2019) and self-efficacy and reading comprehension performance (Kelley et al., 2019). For example, Gorski (2016) noted that a part of CRP is cultural competence, increasing literacy, and decreasing the achievement gap. Still, Gorski (2016) did not provide achievement scores to illustrate that claim. Similarly, Tancock et al. (2017) noted that using CRP and community-reading events could increase literacy. Neither Gorski (2016) nor Tancock et al. (2017) included academic achievement scores as part of their data collection. Therefore, there remains a lack of understanding of how CRP educators implement CRP for addressing the needs of Black male students in mathematics courses.

Teachers who use CRP employ many different approaches (Farinde-Wu et al., 2017). Farinde-Wu et al. (2017) investigated seven award-winning urban teachers' teaching practices and identified similar culturally relevant practices. Educational

practices included building relationships, celebrating and encouraging students, creating a classroom culture of success, constructing student-driven lessons, and using materials that reflect different cultural perspectives. However, the findings were not generalizable to all successful teachers of diverse students due to the small sample size (Farinde-Wu et al., 2017). In another case study of three social studies classes, teachers used similar practices in teaching students of diverse racial and ethnic backgrounds (Martell, 2018). Martell (2018) revealed different teaching practices among the three classes, such as (a) discussing ways to help students make sense of race, (b) sharing of different racial and ethnic perspectives, and (c) encouraging students to question the world around them. Survey results showed that students benefited from this pedagogical approach by developing their own cultural and racial identities (Martell, 2018). However, this study's limitation was the narrow focus on three self-identifying culturally relevant teachers and the small sample size (Martell, 2018). According to Martell (2018), future studies are required to examine the practices of self-identifying culturally relevant teachers in varying school contexts to understand the benefits of CRP.

Scholars consider the lack of CRP application in the actual classrooms problematic, as it leaves preservice teachers inadequately trained and students lacking diversity in pedagogical approaches (Callaway, 2016; Hu et al., 2017; Hu et al., 2020). For this literature review, assessing CRP training was beyond the scope of the present study. However, it is important to note that training may present a challenge to classroom incorporation. Next, the empirical outcomes of CRP incorporation in the classroom are discussed.

**CRP Outcome on Student Achievement**

CRP discussion first arose in the mid-1990s (Yu, 2018). Since the early induction by Ladson-Billings (1995), multiple researchers have assessed the application of CRP in terms of student achievement and success. One key outcome of CRP is positive academic performance (Yu, 2018). Byrd (2016) demonstrated that CRP is a key outcome for students in their socialization and academic success. Byrd (2016) explored CRP in a sample of 315 sixth- and seventh-graders in the United States using student and educator surveys. The educators responded that CRP increased students' socialization and allowed an opportunity to explore the issues of racial disparities and inequalities in the United States. Students similarly reflected that CRP teaching methods improved their relationship with their peers and allowed for a new perspective regarding inclusivity and respect of differing cultures.

Previous studies also indicate that CRP can increase student success in specific subjects, such as science. Yu (2018) explored CRP as used in a model referred to as the teacher quality enhancement (TQE) project. The researchers considered TQE project ideal for exploring student perceptions of science and increasing their academic performance. Yu's (2018) study included 77 student volunteer students within an academic program across seventh to eighth-grade students. Student demographics included free- or reduced-lunch students of lowered socioeconomic status who struggled previously in science performance. Pretests and posttests demonstrated a positive statistical achievement in science after the camp. Yu (2018) determined that science achievement improved after the TQE summer camp. Also, resources from parents or

guardians aided in providing guidance and motivation to the students. Yu (2018) indicated that the inclusion of CRP-based methodologies, such as the TQE program, increased science achievement among deserving students. Further, Yu (2018) argued that the findings illustrate the importance of including diverse teaching approaches for urban students.

Previous researchers found similar results to Yu's (2018) findings, demonstrating the importance of CRP methods for supporting African American patients' academic achievement. Morales-Doyle (2017) explored nine students, including one African American woman, four Latina women, and four Latino men ranging from the 11th to 12th grade. Using a case-study approach, the researcher explored a justice-centered advanced chemistry class program. In the program, Morales-Doyle (2017) assessed and emphasized issues regarding social and environmental justice. The findings based on responses from teachers and students revealed that students were more likely to succeed in the classroom and complicated topics if the relevancy to larger issues were emphasized. Morales-Doyle (2017) emphasized that CRP, guided by socially relevant issues, can affect the students' academic achievement and citizenship in the school and in their personal lives.

The dramatic demographic shifts in the United States student population over the last 10 years have led to an increased number of culturally and linguistically diverse students (de Brey et al., 2019), adding to the challenges teachers face in providing instruction appropriate for diverse learners (Bui & Fagan, 2013). The dearth of research in this area shows that a cultural mismatch exists between the school and home

environment (Ebersole et al., 2016; Ladson-Billings, 1995) that a culturally responsive educator must overcome to serve diverse learners (Brown & Rhodes, 2017). According to CRP proponents, cultural differences influence how individuals interpret their lives and educational experiences (Djonko-Moore et al., 2018). CRP aims to meet the needs of students from culturally and linguistically diverse backgrounds "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant and effective for them (Gay, 2010, p. 31)."

Aronson and Laughter (2016) noted several researchers contributing to quantitate assessments (Choi, 2013; Duncan-Andrade, 2007; Hubert, 2013; Nykiel-Herbert, 2010; Rodriguez et al., 2004). Choi (2013) explored the uses of CRP by eighth grade social study educator to support the outcomes of ELL students. Nykiel-Herbert (2010) also explored pretest and posttest scores of ELL students and found positive results. Further, Hubert (2013) used data from 34 high school students and found a positive impact on pretest and posttest scores within the classroom. Similarly, Duncan-Andrade (2007) found that student academic outcomes were increased for students in classes that used CRP methods. However, Duncan-Andrade's (2007) assessment was based on observed classroom practices and teacher-reported narratives. Aronson and Laughter (2016) noted that future research should move beyond standardized models of student achievement and explore comprehensive models that examine the learning outcomes for multiple domains of education and course objectives.

Throughout the academic literature, the efficacy of CRP is widely promoted for supporting student achievement for some courses such as mathematics and increasing student motivation and confidence (Bell & Soslau, 2018; Chunoo & Callahan, 2017; Howard & Rodriguez-Scheel, 2017). However, empirical evidence regarding its impact on student achievement is absent in academic literature. Researchers, such as Gay (2013), indicated two significant obstacles to the implementation of CRP associated with teacher quality: negative teacher attitudes and expectations for students of color and inaccurately linking disability and diversity (Gay, 2013). Similarly, Milner (2017) reported that race should be a critical objective in the CRP framework. However, the inclusion of black educators is often overlooked (Milner, 2017). Further, Milner (2017) noted that there is a need to include pedagogy that is more closely focused on specific races to meet diverse classrooms' needs.

***Barriers to Educator Use of CRP***

One limitation of CRP is its narrow focus on one grade level. However, researchers have not assessed teacher implementation in the classroom (Bui & Fagan, 2013; Hubert, 2013; Martell, 2018), which can affect the validity and reliability of reported results (Paulk, 2014). Previous research is also largely composed of case studies or qualitative evidence (Dee & Penner, 2017), making it difficult to link student gains directly to CRP or other aspects of the teacher's practices or experience (Byrd, 2016). Hubert (2013) did not explore CRP's results toward the students' academic achievement scores. Researchers Choi (2013) and Nykiel-Herbert (2010) and Rodriguez et al. (2004)

demonstrated positive effects on student test scores. Yet, more recently, assessments from Aronson and Laughter (2016) indicated that quantitative assessments often are,

> Moving beyond the questionable validity of standardized test scores as predictors of anything academic, we believe these increases in affective domains represent gains in real academic skills and concepts that correlate with more important goals toward becoming lifelong learners. The connection of CRP to positive student outcomes requires an expansion of "achievement" beyond only test scores to include other qualitative measures of academic skills and concepts (p. 198).

In reflection of Aronson and Laughter (2016), there is a need to consider closely how CRP, when implemented, aids Black male students in mathematics. However, an abundance of research is focused on the English curriculum and reading achievement (Bui & Fagan, 2013; Kelley et al., 2015). Researchers have shown that the increase in CRP adoption in urban settings has increased literacy. Powell et al. (2016) provided quantitative evidence demonstrating the impact of teachers' implementation of CRP on academic performance. The study consisted of 27 female, majority White, elementary teachers. Of the 456 student participants, 87% were on free and reduced lunch, and 28% were classified as English language learners (ELLs). The results revealed that students in classes with high CRP implementers had higher reading and math scores than other students (Powell et al., 2016). These researchers and others have proven CRP's effectiveness to improve student learning and academic achievement (Wah & Nasri, 2019).

There is a link between improved classroom diversity and a decrease in prejudice and harassment based on color. Özdemir et al. (2018) demonstrated that classroom ethnic diversity decreases harassment and discriminatory beliefs. The authors explored a sample of 902 Swedish adolescents to assess the differences in harassment and prejudiced beliefs based on the children's surrounding social networks. The authors found that the children in primarily White groups with preconceived notions of immigrants were more likely to harass fellow students. Conversely, students with a diverse set of friend groups were less likely to harass students and hold prejudiced beliefs. Similarly, Berger et al. (2016) illustrated the relationship between decreased prejudice, harassment, and bullying in schools and the increasing diversity of students across all age groups.

Researchers have illustrated that classroom diversity is a critical element to address in the United States (Samuels, 2018). Researchers further revealed that students and teachers benefit from increased classroom diversity and further accept students of color throughout adolescence (Juvonen et al., 2018; Rucinski et al., 2019; Wells et al., 2016). Additionally, data reviewed in this section demonstrated that educators must be prepared to teach culturally diverse groups or run the risk of increased student and teacher stress (McCarthy et al., 2020; Munniksma et al., 2016). Additionally, the lack of classroom or school diversity is more likely to be associated with prejudice and harassment of students of color (Özdemir et al., 2018). However, national data show a disproportionate number of either nonWhite educators and students or educators of color and primarily White students in many schools. The abundance of literature is focused on

the benefits of increasing diversity, and researchers have not explored how elements of CRP or a similar model empirically illustrate an improvement in student outcomes.

Powell et al. (2016) warned that the findings were preliminary; however, future research is needed to get a more comprehensive picture of this pedagogy's impact on student learning and academic performance (Wah & Nasri, 2019, p. 595). After a systematic review of six qualitative studies, Wah and Nasri (2019) stated:

> Finally, we need more and comprehensive research, including teachers who are proficient in practicing this pedagogy. More studies related to this pedagogy and its impact on students' academic achievement should be carried out as it is contributed to the country that is multiracial, especially in the context of education. (p. 595)

Researchers have related a teacher's level of cultural proficiency to student achievement level (Powell et al., 2016) and described how teachers use CRP in diverse classrooms (Farinde-Wu et al., 2017; Martell, 2018). Scholars have called for further investigations of the practices and their effectiveness, specifically their impacts on academic performance (Chun et al., 2016; Wah & Nasri, 2019) in varying school contexts (Martell, 2018). In this consideration, my goal for this study was to explore teacher implementation of CRP as a means of addressing academic achievement in mathematics addresses some of these limitations regarding educators' implementation of CRP.

**CRP and Mathematics Outcomes**

The purpose of this study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of middle school Black male

students in math. As a means of demonstrating relevant literature, I discuss the literature specific to mathematics, CRP, teacher implementation, and Black male student academic achievement in this section. Notably, the findings for a particular topic are limited, which is a gap in the reviewed literature. However, all related studies show the need for the current study and the known data.

Findings from prior research show that using a student's culture to teach math can positively impact student perceptions of mathematics and student engagement (Aronson & Laughter, 2016; Hubert, 2013). This methodology's initial foundation is evident in the work of Tate (1995) who suggested that using teaching models that reach students' cultural is needed to create mathematics equity in a classroom. Researchers additionally illustrated that such modalities could be successful for students. Ramirez and McCollough (2019) explored culturally relevant mathematics education approaches for undergraduate students and found positive student perceptions. Further, for high school students, Thomas and Berry III (2019) found that CRP was useful for increasing students' outcomes in mathematics. However, the researchers did not provide specific results regarding pretest or posttest scores. Additionally, the Thomas and Berry III (2019) did not examine how Black male student achievement was affected through CRP teacher implementation.

Researchers also explain that CRP for mathematics requires additional educator training (Timmons-Brown & Warner, 2016). Timmons-Brown and Warner (2016) illustrated the importance of exercise to increase mathematics departments' use of CRP through a conference workshop for educators in similar grade levels. Because of training,

the participant educators reported an ability to contextualize formally, including CRP for mathematics. Additionally, the authors noted that the workshop was critical for educators to develop networks with similar grade level teachers to develop an increased understanding of how to use CRP in the classrooms. Timmons-Brown and Warner's (2016) findings are essential but do not indicate how teachers implemented CRP. Further, it is not clear how CRP was implemented to improve the academic achievement of Black male students.

There is a dearth of literature on the use of CRP and mathematics. Researchers have argued that CRP usage engagement positively affects mathematics achievement (Aronson & Laughter, 2016; Hubert, 2013). However, the assessments of teacher implementation of CRP for mathematics were not clear from the reviewed literature. There is a lack of assessments that consider how CRP can be used specifically in the context mathematics. Further, the lack of literature focusing on Black male students illustrates a noted gap in the reviewed literature. In the following section, studies that examined CRP in the context of African American students are presented.

### *CRP for African American or Culturally Diverse Students*

In the previous section, I discussed the available literature regarding mathematics and CRP. Notably, I noted a lack of literature in Black male student achievement regarding mathematics or teacher implementation. I provide a more detailed discussion of studies that focused on Black students in this section including details literature relevant to African American students. In some studies assessed, the populations included

ethnicity and racial populations beyond solely Black students, which I also review here to provide a thorough synthesis of the available literature.

As a result of the disproportionality in educator diversity in classrooms, many researchers have investigated the impact of ethnic diversity upon student achievement and reduced stress. Juvonen et al. (2018) demonstrated that students benefit primarily from diversity through exploring school-based ethnic diversity in a sample of 26 schools and 4,302 students in middle school settings. Juvonen et al. (2018) explored student vulnerability, equality of treatment, and groups' distancing through observations. Juvonen et al. (2018) reported that students enrolled in middle schools with increased diversity were more likely to feel supported by educators and closer to their peers, and feel that teachers provided fair treatment in the classroom. However, Juvonen et al. (2018) noted that in the United States, despite increasing ethnic diversity, school segregation is more common, which ultimately leads to poor support for students and a lack of diversity acceptance among White students.

Similar findings regarding the importance of diversity in the classroom were mirrored in Rucinski et al.'s (2019) study for upper elementary students. Rucinski et al. (2019) similarly noted the growing segregation of schools in the United States and addressed the importance and outcomes of increased classroom diversity. The authors studied data from 526 third- to fourth-grade students in a sample of 35 urban elementary school settings. The measures included teacher-reported child socialization abilities, teacher-child aggression and quality of outcomes, and child self-reported depression and anxiety. The researchers also included classroom observations assessed using hierarchical

linear modeling. Rucinski et al. (2019) reported that diversity led to an increase in learning outcomes and socioemotional development. Conversely, classrooms with little diversity illustrated higher levels of childhood depression, anxiety, and child-teacher aggressive relationships. These findings illustrate that a critical consideration for the increase of childhood development is ensuring diversity of the public school classroom at both elementary and middle school (Juvonen et al., 2018; Wells et al., 2016). However, these findings are limited in terms of exploring teacher implementation of CRP methods for solely Black male student achievement in mathematics.

A recurring theme in the data from a survey of 423 elementary, middle, and high school teachers in Southern California was a strong sense of efficacy and competence in teaching diverse students, accompanied by a motivation to continue to learn and develop expertise in CRP (Bonner et al., 2017). Researchers also suggested that teachers with elevated personal efficacy levels were more likely to use culturally responsive strategies in their classrooms (Callaway, 2016; Thomas & Berry III, 2019). In contrast, teachers with low confidence in teaching mathematics or low self-efficacy were least likely to use CRP (Thomas & Berry III, 2019). Boutte (2018) assessed data from 1000 preservice educators that were involved in CRP-based courses and found that educators reported increased comfort in teaching settings with high student diversity. Besides increasing the pedagogical methods of educators, CRP also furthers educators' diversity (Chunoo & Callahan, 2017). Through increasing CRP methods within a leadership framework, the entire school climate and educators within the system are ideally affected. However, it is

not clear how educators implement CRP with Black male students in support of their mathematical achievement.

Outcomes from research on CRP demonstrated the positive effects on student learning, achievement, and attitudes toward people of different cultures. In a quantitative study of 315 sixth- and 12th-grade ethnically diverse students, Byrd (2016) researched student perceptions of educators' use of culturally relevant teaching. Byrd (2016) also examined school racial socialization and its connection with student academic outcomes and racial attitudes. The findings revealed that constructivist practices and the promotion of cultural competence were positively associated with better educational outcomes. Also, cultural socialization, critical consciousness socialization, constructivist teaching practices, and positive interaction support were positively correlated with racial attitudes (Byrd, 2016). Byrd (2016) noted that the self-reported nature of academic outcomes as the study's limitation. However, the study's strength is that participants were balanced by racial group and attended schools across the United States. Yet, Byrd (2016) did not focus on Black male students in mathematics.

One benefit of CRP is its positive effect on student learning and student achievement. Wah and Nasri (2019) identified six small-scale case studies that examined CRP's impact on student learning and achievement. In the case studies, students' interests in the content, grades, attitudes, and beliefs about learning improved due to CRP. However, Wah and Nasri (2019) could not directly link CRP with student achievement, making it challenging to support the effectiveness of CRP on academic achievement (Aronson & Laughter, 2016).

Based on contemporary research findings, CRP is effective for learning and achievement in African American, biracial, and Latino students. Djonko-Moore et al. (2018) explored the impact of CRP student content knowledge, engagement, and interest. The narrative inquiry results showed that field trips and hands-on activities aided the 34 African American, Latinx, and Biracial children to build content knowledge, use scientific vocabulary, and create unique understandings regarding science and climate change (Djonko-Moore et al., 2018). In recent literature, researchers have demonstrated the benefits of CRP in urban environments with African American, Latinx, and diverse students. However, the focus of these researchers was not on Black male students in mathematics, limiting the transferability of the findings to this group.

Regarding Black students, some researchers illustrate that CRP methods are useful for providing an equitable educational environment. Wiggan and Watson (2016) illustrated in their qualitative case study the importance of a CRP and critical theory to support African American middle school students' needs. The authors revealed that the use of a multicultural curriculum and antiracism education positively impacted students' social, cultural, and academic achievement. However, Wiggan and Watson (2016) conducted the study in a small high performing private school with a low student-teacher ratio, school-specific multicultural curriculum, and antiracism education. Although the school was situated in a low-income urban area, most families were working class, which does not apply to many urban schools located in low-income areas.

More recent investigations have also revealed a positive effect on student outcomes, such as student engagement and learning (Chun et al., 2016), students'

interests, grades, exploration, commitment, and self-concept of education (Wah & Nasri, 2019). For example, Dee and Penner (2017) explored empirical evidence from 1,405 eighth grade student GPA. The results indicated that students enrolled in CRP-based courses increased their GPA, earned credits, and were more likely to move to the ninth grade. The results of Dee and Penner (2017) illustrate empirical evidence for the efficacy of academic achievement; however, their focus was not on a specific curriculum, such as mathematics or English literacy classes, as in the current study. Additionally, the sample used included students whose GPA was below 2.0 and were "identified by the early-warning indicators as at-risk of high-school failure" (p. 12). Thus, although Dee and Penner (2017) contributed to the statistical relationship between CRP and academic achievement, a gap is still notable concerning language usage, vocabulary, reading, and mathematics, which I addressed within the current study by exploring MAP outcomes.

Furthermore, there is a need for more studies on this pedagogy and its impact on students' academic achievement (Wah & Nasri, 2019). It is not known to what extent the CRP level is related to the achievement of Black male students in mathematics. When exploring previous studies, the "level" of CRP used is variably defined or clarified. For example, Dee and Penner (2017) noted that educators were using CRP following the school-based curriculum. However, the researchers did not define the specific "level" or detailed description of CRP reliance within the classroom. Similarly, Chun et al. (2016) did not define how heavily CRP was incorporated within the classroom but instead focused on teacher perceptions of the practice and impact on academic performance.

Existing literature shows CRP results in a wide range of outcomes such as increased engagement, motivation, and improved attendance (Aronson & Laughter, 2016; Byrd, 2016; Dee & Penner, 2017). One of the most significant outcomes of CRP is that it improves the performance of ethnically and racially diverse students (Gay, 2013; Powell et al., 2016). In a study of 110 Latino middle school students, Chun et al. (2016) indicated that high teacher expectations and the use of diverse teaching practices have a positive impact on performance when mediated by academic self-efficacy. The direct effect of culturally responsive teaching on academic performance was not supported. However, the students self-reported their grades from the previous grading period (Chun et al., 2016). Official grades or records of outcomes over time could strengthen the study's validity (Byrd, 2016). The study shows the importance of CRP in racially diverse classrooms, which include Black male students. However, these findings do not show how educators implement methods for the needs of Black male students in mathematics.

Overall, researchers have indicated that CRP can address students' culturally specific needs, as reflected in student and teacher interviews (Brown & Rhodes, 2017; Epstein et al., 2011). Additionally, researchers reflected that CRP could improve students' motivation and confidence (Aronson & Laughter, 2016; Hubert, 2013). However, Bui and Fagan (2013) did not find significant statistical results for CRP intervention groups. Further, although Dee and Penner (2017) demonstrated academic achievement in a group of academically at-risk students in eighth grade, examinations specific to language usage, vocabulary, reading, and mathematics were not assessed in their study. Therefore, further research is needed to understand the direct link between Black male student achievement

in mathematics through teacher's CRP practices. Ultimately, there are gaps in the existing literature on the effectiveness of CRP in the classroom (Chun et al., 2016).

**Limitations of CRP**

Assessments of student academic achievement in correlation with CRP have some limitations. Bui and Fagan (2013) assessed statistical results for an intervention CRP for struggling students. However, Bui and Fagan (2013) did not demonstrate statistically significant findings regarding CRP implementation. In contrast to Bui and Fagan (2013), Wah and Nasri (2019) demonstrated statistically substantial academic achievement outcomes but focused on an at-risk population. Additionally, researchers have not explored educational outcomes for an extended period (e.g., one-year assessment) regarding language usage, vocabulary, reading, and mathematics. Powell et al. (2016) demonstrated academic achievement for a single course assessment in a CRP-based classroom. However, they did not provide the outcomes for one-year evaluation.

Research concerning CRP efficacy is primarily composed of self-reported data from teachers and observations within the classrooms. Bell and Soslau (2018) explored CRP's effectiveness through the outcomes of pretest and posttest on educator beliefs regarding equity, skills, and knowledge. Bell and Soslau found that posttest scores increased after CRP training, which positively impacted students in the classroom, but student outcomes were not measured in the author's assessment. Similarly, Howard and Rodriguez-Scheel (2017), in a review of the efficacy of CRP after 20 years of its first introduction, noted that the outcomes appear positive for students, educators, and administrators. The findings of Howard and Rodriguez-Scheel and Bell and Soslau

demonstrate that CRP can be effective in the classroom but further exploration is needed in terms of teacher implementation.

Although researchers have described how teachers use CRP in diverse classrooms (Farinde-Wu et al., 2017; Martell, 2018), additional research is needed on quantitative investigations of the practices and the effectiveness, specifically on CRP's impact on academic performance in differing school contexts (Chun et al., 2016; Martell, 2018; Wah & Nasri, 2019). Despite theoretical support, evidence linking this approach to student achievement is limited and consists of small-scale case studies (Wah & Nasri, 2019).

Research regarding how teachers use CRP outcomes to improve student achievement (e.g., student outcomes) also exists in the reviewed literature (Kim et al., 2019). Epstein et al. (2011) examined CRP's effects on the perspectives of urban low-income African American and Latino high school students regarding race in a diverse New York City school. Epstein et al.'s results indicated that CRP was useful for demonstrating the diverse history of equality and disparities in the United States. In the same vein, Hubert (2013) conducted a case study of the perspectives of high school African American students on the effects of culturally relevant mathematics pedagogy. The researchers obtained data regarding the efficacy of the CRP methods from student interviews. Students remarked that the CRP model increased teacher relationships, opportunities, confidence, and motivation. However, Hubert (2013) did not explore CRP's results toward the students' academic achievement scores. Hubert (2013) and Kim

et al. (2019) are limited in terms of the student population, as both studies did not focus on Black male student achievement in mathematics.

An additional limitation of CRP is inconsistent results regarding its effect on student academic outcomes. Bui and Fagan (2013) measured fifth-grade students' reading skills in two groups participating in a reading intervention program at one urban elementary school in northern California. One group used multicultural literature and cooperative learning, whereas the other received only the straight reading intervention program. Bui and Fagan did not report statistically significant differences in student's reading skills between the groups. Some evidence exists for delineated improvements in academic achievement through CRP implementation. In a comprehensive review of 40 peer-reviewed qualitative and quantitative studies and dissertations, Aronson and Laughter (2016) demonstrated that CRP "was demonstrated repeatedly to have positive impacts on student outcomes" (p. 172). However, the authors' findings are limited, as some of the discussed literature was not focused on Black male student achievement in mathematics.

Overall, the reviewed studies illustrate that CRP can address students' culturally specific needs (Brown & Rhodes, 2017; Epstein et al., 2011). Additionally, researchers reflected that CRP could improve students' motivation and confidence (Aronson & Laughter, 2016; Hubert, 2013). In terms of statistical differences, Bui and Fagan (2013) did not find CRP intervention group results. However, Dee and Penner (2017) demonstrated academic achievement in a group of academically at-risk students in eighth grade. Yet, Dee and Penner did not assess mathematics or Black male student

achievement. Therefore, research is needed to understand the direct link between Black male student achievement in mathematics and teacher's CRP practices. Ultimately, there are gaps in the existing literature on CRP's effectiveness in the classroom (Chun et al., 2016).

Assessments are also needed to examine how educators' implementation and pedagogical techniques impact students' academic achievement (Wah & Nasri, 2019). It is unknown to what extent the CRP level is related to Black male students' achievement in mathematics. There is also a lack of understanding regarding how teachers implement CRP and what tenants, or domains are included in the pedagogical approaches. Dee and Penner (2017) noted that educators were using CRP based on the school-based curriculum. Chun et al. (2016) did not define how heavily CRP was incorporated within the classroom but instead focused on teacher perceptions of the practice and impact on academic performance. As a result, any form of a detailed description of CRP's use by educators within the classroom is not available in educational literature.

## Summary and Conclusion

In the literature review, there is a notable gap regarding CRP employment by educators for supporting the academic achievement of Black male students. The case studies reviewed in this literature review demonstrated that CRP affects student learning and achievement (Aronson & Laughter, 2016; Wah & Nasri, 2019). Aronson and Laughter (2016), for example, demonstrated that CRP implementation resulted in positive gains on test scores and positive impacts on affective domains such as student motivation and ability. Aronson and Laughter suggested further research to understand how teachers

use CRP to address students' needs in various subjects. However, there is a critical need to address how CRP is implemented to address Black male students (Abdulrahim & Orosco, 2020). Understanding the link between CRP and achievement is essential because of the shift in the classroom ethnic and cultural composition. Between 2000 and 2017, the percentage of school-age Hispanic children increased whereas other nonHispanic groups decreased (de Brey et al., 2019). Thus, teachers must prepare to work with CLD learners (Williams, 2019). Teachers who use CRP can effectively address the needs of diverse students (Aronson & Laughter, 2016) using student culture as a conduit to teach them more effectively (Gay, 2002).

Much of the reviewed literature focused on CRP-based teaching practices that educators used with diverse learners or urban populations (Farinde-Wu et al., 2017; Martell, 2018). In a case study conducted on seven award-winning, urban teachers of various disciplines and grade levels, Farinde-Wu et al. (2017) identified several standard teaching practices: building relationships, celebrating and encouraging students, creating a classroom culture of success, constructing student-driven lessons, and utilizing materials that reflect different cultural perspectives.

Other studies indicate that culturally intelligent teachers demonstrate high expectations for student achievement and encourage cultural competence and critical consciousness (Ladson-Billings, 1995; Morrison et al., 2008). In another case study conducted in a diverse urban high school within Massachusetts, teachers used classroom discussions, shared different racial and ethnic perspectives, and encouraged students to question their perspectives (Martell, 2018). Although Martell (2018) demonstrated

qualitative results, a gap exists in literature needing a quantitative study to assess the connection between students' performance and CRP methodologies by educators for Black male students' needs. However, researchers have failed to detail a standardized description of how the educators are using CRP within the classroom. For example, it is not clear if CRP is the focus of pedagogical methods or only variably included within certain learning objectives. Instead, research focused on CRP classes emphasized or included school-based literature that is focused on a CRP methodology. Thus, clarification is needed regarding the CRP level used based on the curriculum and the educator's pedagogical methods.

In reflecting on the reviewed literature, my goal for this study was to understand how teachers are implementing CRP to support Black male middle school students' academic achievement in math to address a gap in the previous literature. The literature reviewed highlights the importance of addressing this critical issue for the betterment of educator practices and Black male student outcomes in the United States. Ideally, the findings from this study will be useful for supporting the achievement of Black male students in mathematics. Further, researchers can glean from the findings of the present study information regarding educator practices and implementation of CRP. In the following chapter, I will present the methodology and research design. I will also discuss issues of trustworthiness and ethical assurances in Chapter 3.

# Chapter 3: Methodology

The purpose of this study was to gain an understanding of how teachers are implementing CRP to support Black male middle school students' academic achievement in math. In the United States, Black students have historically experienced lower academic achievement compared to their peers (National Center for Education Statistics, 2011). CRP is posed as a method to address educators' pedagogical approach to addressing the achievement gap (Ladson-Billings, 1994; Paulk, 2014). The problem is that it is not known how teachers implement CRP to support the academic achievement of Black male middle school students in math. As such, in the current research, I addressed the gap in literature through providing how teachers are implementing CRP to support the academic achievement of Black male middle school students in math.

In Chapter 3, I present the research design and methodology. My aim is to provide a detailed overview of the study procedures for use by future researchers who may desire to replicate the findings. In this chapter, I provide a discussion of the sampling techniques, the qualitative methodology, and research design justification. In addition, I discuss the recruitment, data collection, and data analysis procedures. The following section includes a discussion of the research questions that guided this study.

## Research Design and Rationale

In the present study, I used a basic qualitative approach to explore how teachers are implementing CRP to support the academic achievement of Black male middle school students' in math. The study purpose, the problem statement, and the research questions were appropriate for a qualitative approach, as my aim was to garner the perceptions of

educators. A qualitative approach is ideal for exploring a phenomenon that explores personal perceptions, lived experiences, and opinions (Tracy, 2019). The qualitative methodology is defined as a model that explores phenomena from cultural perspectives, participant reflections, lived experiences, or opinions (Tracy, 2019).

I also considered a quantitative approach when exploring methodologies to use for this study. A quantitative approach is used to measure relationships between single or multiple variables (Bernard, 2017). The use of a quantitative methodology involves collecting and analyzing data (either secondary or primary) to address hypotheses posed by the researcher (Bernard, 2017). Quantitative approaches provide relatively objective results that point toward mathematical findings related to defined variables. Conversely, a qualitative methodology provides descriptive, often narrative data (Merriam & Tisdell, 2015). A qualitative methodology is ideal for exploring a phenomenon that required participant reflections. The problem addressed in this study was not appropriate for a quantitative approach, which, according to Tracy (2019), requires statistical analysis, or measuring a specific phenomenon in a population. Tracy (2019) stated that a quantitative approach is used for measurable phenomena. Therefore, as the phenomenon addressed was in this study not measurable, a qualitative approach was more appropriate.

The chosen research design for this study was a basic qualitative design. A basic qualitative design is a qualitative approach that gathers individuals' perceptions to provide a description of a particular phenomenon (Marshall & Rossman, 2016). A basic qualitative design approach is ideal for exploring participants' perceptions toward the study phenomenon and providing rich data with descriptions of the approaches

(Moustakas, 1994; Tracy, 2019). Therefore, I used a qualitative design to investigate the participants' perceptions of the implementation of the CRP to support the academic achievement of Black male middle school students in math.

I considered a range of research designs for this study besides a basic qualitative approach, including phenomenology, ethnography, and a case study. First, I considered an ethnographic design as an alternative design to examine cultural values. Ethnographic studies involve observation and participation (Atkinson, 2016). I did not select an ethnographic design, as my aim for the current study was not to examine or document cultural values or settings. Next, I considered a case study approach. A case study design includes documentation of a phenomenon within multiple sites and data sources (Yin, 2012). However, I did not choose a case study approach, as the understanding of the study phenomenon was lacking. Therefore, I chose to describe the phenomenon first rather than conduct a case study.

Finally, I considered a phenomenological approach. A phenomenology study is ideal for exploring the lived experiences of individuals toward a particular phenomenon (Moustakas, 1994). The phenomenological approach was not appropriate, as this design is used to explore lived experiences, whereas my aim for the current study was to describe the perception of participants toward the study phenomenon. The chosen design was a basic qualitative design, which I considered appropriate for addressing the research questions and the study's purpose. A basic qualitative design is used for exploring and presenting qualitative data through a descriptive approach regarding a phenomenon that is not previously defined (Tracy, 2019). I used the basic qualitative design to obtain

responses from participants regarding how teachers are implementing CRP to support the academic achievement of Black male middle school students in math, which is yet to be described in previous literature.

## Role of the Researcher

In this study, my role as the researcher included acting as an observer who collected and analyzed data. This process involved creating an interview guide, recruiting participants, and interviewing the participants. I exclusively analyzed the data collected. I had no previous relationships with the study site and did not foresee any personal relationships with participants. To manage researcher bias, I employed reflective journaling through the methods of bracketing. According to Tracy (2019), bracketing involves documenting personal bias throughout data collection and analysis as a means of noting and mitigating bias from interfering from the results.

## Methodology

I used semistructured face-to-face interviews with six middle school teachers of math as the source of primary data for this study. I considered the semistructured interviews ideal for the research design and for addressing the research questions, and used it to obtain rich descriptive data. I used an interview guide (Appendix A) to ensure the interview questions were aligned with the research questions and gain detailed data, as Tracy (2019) suggested. I compared the results with extant studies and found them to be consistent with the current literature. According to Tracy (2019), by considering the findings developed in interviews, researchers can determine their similarity or dissimilarity with empirical literature (Tracy, 2019).

## Procedures for Recruitment, Participation, and Data Collection

The population of interest for this study was educators. The target group from this population was employed middle-school educators. I delineated the following inclusion and exclusion criteria for this study:

1. Participants had to be employed as middle school educators
2. Participants had to be familiar with CRP implementation for Black students' math academic achievement
3. Participants had to be willing to be interviewed for 60-90 minutes and be audio-recorded

The unit of analysis for this study was the middle school educators' perceptions regarding implementing CRP to support the academic achievement of Black male middle school students in math. The sampling method I used in this study included purposive sampling. Purposive sampling involves selecting participants from the target population through a nonrandom sampling technique based on specific sampling criteria (Lavrakas, 2008). Purposive sampling was ideal for this study, which I used to select individuals with the relevant experience to address the posed interview questions.

For this study, site authorization was through reaching out to the human resource (HR) department of the school district. The site authorization included a letter providing an overview of the study, the IRB approval letter, and my contact information. After site approval, IRB approval was requested (Appendix B). After IRB and site approval, I recruited the participants from the study site. Before interviews, I provided informed

consent forms to each participant. Data collection involved online interviews with six math teachers at a local charter middle school.

## Expert Panel

I used an expert panel to validate the interview guide developed for this study. The expert panel included three professional colleagues with terminal degrees in education or a related field. I provided three reviewers with the interview guide and had 5 to 10 days to provide feedback. Following Denzin and Lincoln's (2011) recommendation, I incorporated their feedback into the interview questions to ensure the interview guide was credible, flowed logically, and was appropriate for addressing the research questions and the purpose of the study.

## Data Collection and Management

In this section, I present data collection and management methods in detail. The process of data collection first involved site authorization and IRB authorization. After completing these processes, I commenced data collection beginning with participant recruitment. In the following section, I will discuss the processes followed in site and IRB authorization.

### *The Site and IRB Authorization*

First, for site authorization, I sent a request letter to the middle-school charter district. The flyer contained the study's purpose, the inclusion criteria for participants, and information regarding IRB approval (Appendix C). I also provided the letter to the HR department for review. After gaining site approval, I provided this information and the

study procedures to the IRB board for review. After site and IRB approval, I commenced participant recruitment.

### *Participant Recruitment*

To recruit participants for this study, I distributed recruitment flyers (Appendix D) with details of the study's purpose, the significance of the study, and the site and IRB approval information. Also included was my contact information including email and phone number. I distributed the flyer across the charter school via email to limit human contact per COVID-19 regulations. I included interested participants in the study. In the case that the flyers would not yield a sufficient number of volunteers, I planned to use snowball recruiting as a backup plan. Snowball recruiting is the process of gaining potential participants through asking the current participants for referrals of anyone else that is eligible for the study, or that would be interested (Tracy, 2019).

I thanked the individuals who expressed their interest in participating in this study for their time and asked them a series of questions to ensure that they met inclusion criteria. I thanked those who did not meet these criteria for their time. I emailed individuals who met these criteria an informed consent form to fill out before any interviews. Afterward, I scheduled an in person semistructured interview with each participant. The sample size for this study was six participants, but I planned to place any additional participant who expressed interest in the study on a waitlist in the case some participants withdrew from the study.

### *Data Collection*

I collected data through in-person semistructured interviews and recorded each interview on a password sensitive device. I conducted the interviews after participants filled out the informed consent forms. I also provided the participants details regarding their risk associated with their involvement in the study and their right to withdraw at any point without consequences. I conducted interviews with six participants for 60 to 90 minutes and audio-recorded the interviews for future analysis. I coded all interviews using pseudonyms such as P1 or P2. I used pseudonyms to ensure that all personal names and identifiers were absent from transcripts for the participants' ethical protection.

After the interviews, I imported the audio files to Rev.com for transcription. After transcription, I provided each participant with a summary of their responses for member checking. Member checking is key to ensuring dependability and credibility of the findings (Tracy, 2019), which I will discuss further in a subsequent section on trustworthiness. I allowed participants 5 to 10 days to review the summaries, which was a brief analysis of their perspectives. The participants provided feedback regarding this analysis. The feedback acquired included new commentary, interpretation of their discussion, or clarification on variables that they felt were incorrect to their reflections. After member checking, I conducted data analysis.

### Data Analysis Plan

For data analysis, I used the thematic analysis guidelines presented by Braun and Clarke (2019). The guidelines by Braun and Clarke (2019) are a clear methodology for analyzing transcribed data and rigorously presenting the findings. The key objective of

thematic analysis is to use transcripts and provide themes derived from coding relevant reoccurring phrases, words, and ideas. The thematic analysis results were themes related to participants' coded responses that addressed the posed research questions. I uploaded the transcripts into NVivo. NVivo is an organizational software for coding and grouping of analogous text (Braun & Clarke, 2019). However, I only used this software for organization and conducted all coding procedures manually. The thematic analysis process involved six steps, which I will discuss below.

***Phase 1***

In Phase 1, I gained familiarity with the data through reading and re-reading the transcripts, following the guidelines of Braun and Clarke's (2019). According to Braun and Clarke (2019), this process is essential to ensure familiarity with the transcripts before moving to the next process of thematic analysis.

***Phase 2***

In Phase 2, I framed the initial codes by reviewing the transcripts. Braun and Clarke (2019) outline the review of transcripts as the second step in thematic analysis process. I reviewed each transcript and marked analogous texts as codes. These codes were key to developing themes. Codes included, for example, CRP strategies or barriers to CRP implementation. I logged these codes in the NVivo software as a group and linked them back to each participant. This activity is essential to ensure the credibility of the findings (Braun & Clarke, 2019).

***Phase 3***

In Phase 3 of the thematic analysis, I searched for themes amongst the noted codes developed in Phase 2. This step involves generating themes from the codes (Braun & Clarke, 2019). In this process, I reviewed the codes for similarities and grouped them into themes. Simultaneously, I grouped similar codes into themes. The next step of the thematic analysis process is reviewing the themes developed in Phase 3 (Braun & Clarke, 2019).

***Phase 4***

Phase 4 of the thematic analysis process is reviewing of themes from Phase 3 (Braun & Clarke, 2019). In Phase 4, I reviewed the themes developed in the previous step to ensure they were link back to the codes discussed by each participant. I reviewed he themes with the dissertation chair to ensure that the process objectively represented the findings discussed by the participants.

***Phase 5***

In Phase 5, I named the identified and reviewed themes. The names should be short and accurately capture the themes' meaning (Braun & Clarke, 2019). I also developed a summary of the themes for use in presenting the themes in Chapter 4.

***Phase 6***

In this final phase, I used the themes and codes developed to present the findings. I developed the findings and presented them in Chapter 4 by each theme and for each research question, as Braun and Clarke (2019) recommended. I presented the themes along with the codes relevant to each theme to ensure that the findings represented the transcriptions.

## Trustworthiness

A qualitative research design must adhere to multiple trustworthiness variables (Korstjens & Moser, 2018). Study rigor is established through the following variables of trustworthiness: dependability, transferability, confirmability, and credibility (Connelly, 2016). In this section, I discuss each of these variables in terms of the strategies used for this study.

### Credibility

The process of credibility ensures that the presentation of the findings is an accurate representation of the perspectives of the participants (Connelly, 2016). Threats to credibility include misrepresenting data, researcher bias, sampling strategy, and the design used to collect and analyze data. For this study, researcher bias was a threat to credibility. To address this bias, I employed bracketing, which is a form of reflexive journaling used during data collection, analysis, and presentation of findings. I used reflexivity to discuss the findings in congruence with previous research and mitigate bias.

This study's sampling design was also a threat to credibility (Connelly, 2016). The purposive sampling strategy was ideal for gathering information from participants with relevant information through interviews. To ensure that this sampling method was not a threat, I only enrolled participants who met the inclusion criteria for this study. The chosen approach was a qualitative phenomenological approach in terms of the research design and methodology. The qualitative approach is ideal for gathering data from individuals' lived experiences (Tracy, 2019). However, also provided the results in

context of previous literature along with a discussion of how future researchers may better explore the phenomena using other designs and methodologies.

**Dependability**

Dependability adds to trustworthiness and refers to the findings being represented accurately across different geographic places and times (Connelly, 2016). The threats for this study included presenting the findings in an accurate manner to capture the responses obtained from the interviews. For this study, I mitigated this threat by providing interview questions validated by an interview guide (Appendix A). The interview guide will allow future replication of this study. Additionally, in this chapter, I present the study protocol to provide details for future replication. I also used an audit trail. An audit trail is used to ensure the dependability of the findings (Tracy, 2019). In the audit trail, I presented the study procedures and the empirical method I used for thematic analysis. I linked the findings to participating expressions through tables presenting thematic codes and excerpts from the interviews. An audit trail is used to provide a context and ensure the transparency of results to validate a study's rigor (Tracy, 2019).

**Transferability**

Study transferability refers to the findings' ability to be generalized beyond the target population. For this study, the findings' transferability is limited because I used a qualitative phenomenological approach. A phenomenological design relies on the individual experiences of participants (Tracy, 2019). To mitigate this risk, I will discuss the findings in the context of previous empirical literature in Chapter 5. I will highlight the findings I found to be consistent or inconsistent with previous research in the

discussion. Following Tracy's (2019) suggestion, I will provide clear recommendations for future research, practice, and limitations of the study design in Chapter 5.

### Confirmability

The confirmability domain refers to the ability to ensure that the findings are replicable by future researchers (Connelly, 2016). For this study, I addressed the threat of confirmability by providing a clear research protocol. I clarified all changes to this protocol with justifications in Chapter 4. I also used member checking in the data collection process to ensure that the findings represented the participant's reflections accurately before data analysis.

## Ethical Procedures

Ethical considerations are critical to consider per the Belmont Report. According to this report, participants should be treated ethically and protected from risk to harm. The Belmont Report's three principles include persons, beneficence, and justice (Adashi et al., 2018; Sanjari et al., 2014). For this study, to uphold participants' ethical treatment, I did not start data collection until received site and IRB approval. After this process, I provided informed consent forms to participants to ensure that they were aware of the harm present in this study, which was minimal. Following Sanjari et al.'s (2014) recommendation, I informed the participants about their freedom to withdraw at any time without consequences.

Secondly, I protected the participants' confidentiality using pseudonyms during the entire collection and analysis process. Richards and Schwartz (2002) identified use of pseudonyms as one way of protecting the confidentiality of participants. I used

pseudonyms to avoid disclosing the participant's names and personal identifiers in the study at any point. I protected data by storing all data on a password-protected USB drive, which I kept in a locked cabinet in a private office. I stored this information on a password-protected personal computer. After 3 years, I will destroy the data permanently per IRB requirements.

## Summary

The specific problem addressed in this study is that it is not known how teachers implement CRP to support Black male middle school students' academic achievement in math. My goal for this study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of Black male middle school students in math. The research questions for this study are as follows:

**RQ1:** How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math?

**RQ2:** What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math?

I used a basic qualitative approach to address the research questions. I also used an interview guide validated by three reviewers for interviews with six participants. I analyzed the data collected using thematic analysis. I will present the findings in Chapter 4 thematically. In Chapter 5, I will discuss the findings in the context of previous literature.

# Chapter 4: Results

The purpose of this study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of Black male middle school students in math. The research questions for this study are as follows:

**RQ1:** How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math?

**RQ2:** What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math?

This chapter includes the following sections: (a) a description of the study setting and participant demographics; (b) a description of the data collection procedure; (c) a description of the data analysis procedure; (d) a presentation of the study results; (e) a discussion of the evidence of trustworthiness; and (f) a summary.

## Setting

The study took place at a local charter school in Southwest state in United States. A local charter school in a Southwest state proposed to address math deficiencies that was the problem I addressed in this study. The deficiencies have been documented by the state assessments from the feeder district. The setting was appropriate for this study because my goal was to explore the teachers' reflections on assessments that had shown improvement in mathematical progression or lack thereof. The study participants were six middle-school educators who were familiar with CRP implementation for Black students' math academic achievement. Table 1 indicates the relevant demographic characteristics of the study participants. The training referenced in Table 1 refers to culturally relevant

pedagogy identity mapping, in which each teacher must analyze their own background, religion, sexual orientation, and socioeconomic background, and from that viewpoint understand that each child in their classroom comes with a unique identity. The curriculum is then built around educating children in the content based on the knowledge and identity of the children who are taught.

**Table 1**

*Participant Demographics*

| | Experience teaching middle school | Experience teaching math | CRP training source |
|---|---|---|---|
| P1 | 8 months | 4 months | Training provided by school district |
| P2 | 7 years | 6 months | Independent professional development |
| P3 | 3 years | 2 years | Training provided by school district |
| P4 | 15 months | 15 months | Peer-to-peer instruction from fellow teachers |
| P5 | 4 years | 4 years | Training in graduate school |
| P6 | 2 years | 5 years | Training provided by school |

## Data Collection

I conducted a single one-to-one, semistructured interview with each of the six participants. The average duration of the interviews was approximately 1 hour. I conducted all six interviews in person and recorded them on a password-sensitive device. There were no deviations from the planned data collection procedure described in Chapter 3, or unusual circumstances during data collection.

## Data Analysis

I transcribed audio recordings of the interviews into Microsoft Word documents using Rev.com, a professional transcription service. I then imported the transcripts into

NVivo 12, a computer-assisted qualitative data analysis software. I applied Braun and Clarke's (2019) inductive thematic method to the data in this study.

**Step 1: Familiarization**

In the first step, I gained familiarity with the data through reading and rereading the transcripts in full. According to Braun and Clarke (2019), familiarizing oneself with the data is the first step in thematic analysis. This process was essential to ensuring familiarity with the data holistically. In addition, Braun and Clarke (2019) stated that reading interview transcripts is essential to facilitate the identification of patterns of meaning within and across the different transcripts. I made handwritten notes during this step regarding repeated words, phrases, and ideas.

**Step 2: Coding the Data**

I reduced the participants' responses into excerpts each expressing one idea relevant to the study purpose. I then grouped different excerpts that expressed similar ideas into inductive codes, following the approach Braun and Clarke (2019) provided. For example, P2 said that when CRP was implemented, "You could see the confidence building in them [students]." P3 said that when CRP was used, "Confidence will be built. At that point, when that confidence is built, they [students] can take on the world." Both of these quoted data excerpts showed the participants' perception that when CRP was implemented, students' confidence was increased. I assigned the two excerpts assigned to the same code. I labeled the code descriptively, with a phrase that summarized the meaning of the data assigned to it. The label I assigned to this code was increased student

confidence. Overall, I assigned 72 data excerpts to 12 codes. Table 2 indicates the initial codes and the number of data excerpts assigned to them.

**Table 2**

*Initial Codes*

| Initial code (alphabetized) | *n* of participants contributing (*N*=6) | *n* of data excerpts assigned (*N*=72) |
|---|---|---|
| Alignment between content and everyday life | 4 | 8 |
| Applicability supports understanding | 5 | 8 |
| Building teacher-student relationships | 1 | 1 |
| Improved behavior | 1 | 3 |
| Improved grades | 6 | 8 |
| Increased Black male students' academic success | 6 | 6 |
| Increased equity | 2 | 2 |
| Increased overall success | 2 | 10 |
| Increased student confidence | 2 | 7 |
| Representation among same-race teachers | 2 | 5 |
| Using culturally relevant names in word problems | 4 | 5 |
| Using culturally relevant scenarios as examples | 6 | 9 |

### Step 3: Searching for Themes

I developed themes by grouping related codes, which is the procedure Braun and Clarke (2019) provided. For example, I grouped the codes improved grades and increased Black male students' academic success to form a preliminary theme because they both indicated the effects of CRP on students' academic success. I also grouped five codes that indicated the effects of CRP in domains other than academics to form a second preliminary theme. I formed a third preliminary theme by grouping five codes that indicated CRP implementation strategies. Thus, I grouped 12 codes to form three preliminary themes, which I labeled as categories pending their finalized naming in Step

5 of this analysis. I identified the findings as divergent when they represented the views of fewer than half of the participants. I grouped divergent data with the codes that were most closely related to them. I discuss the data in the presentation of the results by their relevant theme. Table 3 indicates how the codes were grouped to form the preliminary themes.

**Table 3**

*Grouping of Initial Codes into Preliminary Thematic Categories*

| Preliminary theme<br>Initial code grouped to form theme | *n* of participants contributing (*N*=6) | *n* of data excerpts assigned (*N*=72) |
|---|---|---|
| Preliminary theme 1: CRP effects on academics | 6 | 14 |
| Improved grades | | |
| Increased Black male students' academic success | | |
| Preliminary theme 2: CRP non-academic effects | 3 | 23 |
| Building teacher-student relationships (divergent data) | | |
| Improved behavior (divergent data) | | |
| Increased equity (divergent data) | | |
| Increased overall success (divergent data) | | |
| Increased student confidence (divergent data) | | |
| Preliminary theme 3: CRP implementation strategies | 6 | 35 |
| Alignment between content and everyday life | | |
| Applicability supports understanding | | |
| Representation among same-race teachers (divergent data) | | |
| Using culturally relevant names in word problems | | |
| Using culturally relevant scenarios as examples | | |

**Step 4: Review of Themes**

In Step 4, I reviewed the preliminary themes to ensure they were linked back to codes discussed by each participant, as Braun and Clarke (2019) recommended. I

checked the themes against the data to ensure they accurately reflected patterns in the participants' responses.

**Step 5: Naming the Themes**

I reviewed the data associated with each theme to assess their meaning, as Braun and Clarke (2019) advised. I also compared the themes to the research questions to identify which question each theme addressed. I then named the themes to indicate their significance as answers addressing the research questions. Table 4 indicates the finalized names assigned to the preliminary themes.

**Table 4**

*Naming of Preliminary Themes*

| Preliminary theme label | Finalized theme name |
|---|---|
| CRP effects on academics | Theme 1: Implementing all three pillars of CRP was associated with improvements in students' grades |
| CRP non-academic effects | Theme 2: Implementing all three pillars of CRP was associated with teaching the whole child |
| CRP implementation strategies | Theme 3: Reported strategies involved engaging students' cultural knowledge to support mathematics comprehension |

**Step 6: Presenting the Findings**

I will present the findings in more detail in the following section of this chapter. I will organize the presentation by research question. Table 5 provides a preliminary overview of how I used the themes to address the research questions and a preview of the organization of the presentation of results.

**Table 5**

*Themes Used to Address Research Questions*

| Research question | Theme(s) used to address question |
|---|---|
| RQ1 – How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math? | • Theme 1: Implementing all three pillars of CRP was associated with improvements in students' grades<br>• Theme 2: Implementing all three pillars of CRP was associated with teaching the whole child |
| RQ2 – What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? | • Theme 3: Reported strategies involved engaging students' cultural knowledge to support mathematics comprehension |

## Results

As stated in the previous section, this presentation of the results is organized by research question. Under the heading for each question, I present the themes used to address it in detail. I also include quotes from the data as evidence for the findings.

### Research Question 1

RQ1 was as follows: How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math? The following two themes addressed this question: Theme 1: implementing all three pillars of CRP was associated with improvements in students' grades, and Theme 2: implementing all three pillars of CRP was associated with teaching the whole child. In the following subsections, I will present these themes.

### *Theme 1: Implementing All Three Pillars of CRP Was Associated with Improvements in Students' Grades*

The finding indicated that all six participants perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as improving students' grades. The participants described all or most students' grades as improving when CRP was implemented. In relation specifically to Black male students, the participants described their grades and comprehension of math content as improving when CRP was used.

All six participants associated the implementation of CRP with improvements in all or most students' grades. More specifically, the participants associated academic achievement, one of the three pillars of CRP, with teachers' cultural competence, another pillar of CRP, in which teachers use students' culture as the basis for learning (Ladson-Billings, 1994). Asked about the effect of CRP on students' grades, P1 said, "Yes, there was a change in grades." P1 further added that the change (improvement) in grades was associated with increased student comprehension of the math content through CRP, stating, "When a content is taught to a student that has a cultural relevance to them, they're able to better understand those concepts, because they see real-world examples of those things, and they're able to make sense." P4 expressed a perception similar to P1's, saying that students' grades improved when CRP implementation aligned mathematics content with students' real-world experiences: "They tend to do better if it's more in terms of what they understand and what they can relate to versus general word problems." P2 said that since the implementation of CRP, "I have noticed grades slowly

improve," and added that students' motivation was also improving through the use of CRP: "And not even just improving grades, [but] kids wanting their grades to improve, showing up to tutoring." P5 expressed a similar perception to P2's, saying that students seemed more invested in learning math when they could see the alignment between the content and their everyday lives: "The students were really invested, started applying the math situations to their lives, [and I saw] tremendous growth." P3 described the effect of CRP on grades in terms of the increased confidence in asking questions that she perceived CRP as affording students: "Once they're able to ask questions, then they're able to understand, so their grades will improve." Asked if students' grades improved when CRP was implemented, P6 indicated that most students' grades had risen: "My majority answer would be yes."

All six participants also perceived CRP implementation as improving the performance and comprehension specifically of Black male students. P1 associated Black male students' increased success with cultural competence in math instruction that made the content more familiar and applicable to those learners:

> As far as African American males and them being taught within a culturally relevant way, I have found that for them, while there is still some struggle, there has been some success, because they better grasp mathematical concepts when the content is presented to them in a way that has to do with their everyday world, and that is more culturally relevant, rather than just give it to them in a general manner.

P2 said regarding Black male students, “I think of my seventh-grade boys specifically because they are so high-functioning in mathematics. There's so many gifted young men,” whose potential was not previously being realized. However, with the implementation of CRP, P2 believed that her Black male students were better able to reach their full potential: “With mathematics being such a difficult class for a lot of our minority students, seeing them thrive with just the implementation of [CRP], it's new to me, it's new to our school, but they're really thriving with it.” P4 described Black male students as more successful in math when CRP was implemented: “I feel like they understand it a little bit better. Instead of putting in general terms, if I change it, like with the money, then they catch onto it quicker because they can relate to that.” P4’s reference “like with the money” was to her translating of purely numeric problems, such as arithmetic with negative numbers, into monetary terms, so that students were able to add and subtract dollars instead of abstract numbers. P4 added regarding her success with this teaching method, “It's [money is] something they know about, so they catch on quicker than if I just keep doing, ‘What's a negative and a negative,’ they still trip up. But if I do the money way, they're like, ‘Oh, okay.’” P5 also spoke about using cultural competence to make math relevant to Black male students’ everyday lives as increasing those learners’ success:

> Those Black male students, one of the students stated that, “I have a job now, Ms. [name redacted]. I get this amount of money taken away for taxes. What is this taxes thing?” So, there were very interesting conversations of pulling in, “This is real world. Math is very important, and this is how we use it.”

P6 had seen Black male students perform better academically when she substituted names from their culture into word problems, an application of her cultural competence. Specifically, P6 said that Black male students were more successful when she engaged in, "Knowing that some of their names are very relevant to the culture that they're from, having those types of things incorporated in the teaching and then also relating it specifically to Black male students." Although all participants associated CRP implementation with students' earning better grades, including Black male students, half of participants perceived CRP use as benefitting students in other, additional ways, as I will discuss under Theme 2.

### *Theme 2: Implementing All Three Pillars of CRP Was Associated with Teaching the Whole Child*

Three out of six participants contributed data to this theme. I classified all of the initial codes associated with this theme as divergent findings, meaning that fewer than half of the participants attested to them. It should be noted, however, that no participant expressed disagreement with any of these findings. The three participants who contributed to this theme indicated that they perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as having a number of benefits associated with teaching the whole child. Those benefits included increased confidence and improved behavior, as well as building teacher-student relationships and improved racial equity in education.

Two participants indicated the divergent finding that they associated CRP implementation with increased student confidence. Although no other participant

disagreed with this perception, they did not reference effects of CRP on student confidence. P2 said that when CRP was implemented,

> You could see the confidence building in them. Whereas last year with the students, man, I just remembered them hating math class, and walking out of class, and just having such a struggle. And this year [with CRP implementation], no kid is perfect, but you can see the confidence building.

P2 expressed that one of the ways she perceived CRP implementation as increasing students' confidence was that the classroom had become a safe place for experimenting and making mistakes. The participant stated, "When we implement culturally relevant pedagogy, we're giving them the opportunity to learn how to use their voice, to ask the right questions, and to be okay with failing sometimes in a safe space instead of being afraid." P2 believed that CRP enhanced students' confidence by establishing the classroom as a space in which self-assertion was safe and students could become aware of their inherent value: "We're creating environments for our students where they're allowed to—with people like them, where it's safe—we're preparing them to be able to assert their place and know their worth." P3 also associated CRP implementation with helping students feel safe, with the result that their confidence increased:

> The changes that I noticed are that the students were more willing to answer or participate in the classroom because they felt a part of the classroom. Specifically for Black males, once they feel a part of something, they're going to foster it, so good or bad, if they're going to get the answer wrong, they're still going to say

> what they think, and then now they're able to be corrected and get that extra step that they need or the extra help. It impacts their learning a lot, because they are more open to learning and they feel like it's for them.

Notable in P3's response was her perception of the relationship between Black male students' increased confidence and improved academic performance: "they're still going to say what they think, and then now they're able to be corrected." P3 elaborated by adding that just as increased confidence resulted in improved academic performance, improved academic performance increased students' confidence, such that confidence and academic performance were mutually reinforcing, stating, "Once they're able to ask questions, then they're able to understand, so their grades will improve, [and] confidence will be built. At that point, when that confidence is built, they can take on the world."

Two participants expressed the perception that CRP implementation led to increased racial equity in education. No participant disagreed with this view but the other four participants did not reference equity. The two participants' discussions of equity indicated sociopolitical consciousness, a pillar of CRP, in which teachers were required to educate themselves on the personal and sociopolitical issues that impact their students and incorporate those issues into their teaching (Ladson-Billings, 1994). P2 expressed her perception that CRP implementation leveled the educational playing field for minority students:

> Our students, specifically minority students, their experiences in public education are vastly different than those of the predominantly white narrative in these kinds of systems. And so, for me, culturally relevant pedagogy is creating an equitable

> space where my students' needs are met in a way that will help them thrive, instead of just pushing them through a system that wasn't created to help them succeed. So, by taking these practices, these CRP practices, we're looking at the whole child, and we're looking at all of their academic success and how to be successful.

P4 suggested a specific mechanism by which CRP implementation in middle-school math might make education more equitable for minority students. When CRP was implemented, P4 said, "The word problems, the stories that they [students] encounter, have more to do with their culture than the general questions. I feel like that helps them understand the situations better." Thus, solving story problems aligned with the majority culture might depend on understanding scenarios unfamiliar to students from other cultures. Students from other cultures, therefore, face a compounded challenge, in which they needed cultural translation to solve a math problem. P4 said, "It's hard to understand something in general terms if you have no idea what they're talking about, so you have to try to figure the situation out on top of the math." CRP implementation, therefore, increased equity in education by removing the challenge of cultural translation from minority students' learning, placing them in the same situation as the majority students for whom the standard curriculum was already culturally aligned.

One participant, P2, indicated the divergent finding that CRP implementation was associated with improved student behavior. No other participant disagreed with this perception and participants did not reference effects of CRP on student behavior. P2 associated improved student behavior with cultural competence in instruction: "When

students can connect to things of their culture, they're more likely to pay attention, and it helps build connections, and it also helps with behavior." Thus, P2 perceived cultural competence as contributing to improved behavior by more effectively engaging students' attention. P2 indicated that Black male students specifically had a high capacity for engagement that CRP allowed her to harness in ways that other pedagogical practices did not: "These gentlemen, they're just like sponges. They can be more engaged, and they're just naturally a little bit more rambunctious, so they want to be challenged. They want to be on the go."

P2 also indicated the divergent finding that CRP implementation enhanced teachers' ability to build relationships with students. No participant expressed disagreement with this view. P2 said, "Having a curriculum that is based around culture pushes us to understand each other's cultures [and] creates a space where your student and teacher relationships can fully be built." Thus, P2 perceived CRP implementation as contributing to the building of teacher-student relationships by fostering mutual cultural understanding. In the presentation of Theme 3, I will provide a more detailed discussion regarding the strategies through which the participants perceived CRP implementation as leading to the benefits in Theme 1 and Theme 2.

**Research Question 2**

RQ2 was as follows: What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? I used one theme to address this question. This theme is as follows:

### *Theme 3: Reported Strategies Involved Engaging Students' Cultural Knowledge to Support Mathematics Comprehension*

All six participants contributed to this theme. The participants indicated four strategies for CRP implementation. The strategies included using culturally relevant scenarios as examples during math instruction, aligning math content with students' everyday lives, using culturally relevant names in word problems, and accomplishing representation with same-race teachers. The participants indicated that these strategies were successful in improving students' math performance because they engaged students' cultural knowledge and identities to support comprehension of math content.

All six participants indicated that they used the strategy of citing culturally relevant scenarios when teaching math. As discussed under Theme 2, P4 expressed the perception that using cultural competence to align elements of math instruction such as word problems with the students' cultures enabled them to address the math content directly without that content being mediated by the additional challenge of understanding culturally unfamiliar scenarios. Regarding this strategy, P1 stated, "Culturally relevant pedagogy was implemented in my instruction just as far as taking concepts, especially mathematical concepts, and presenting them with scenarios that were culturally relevant to my students." P2 said that the strategy of using culturally relevant scenarios was effective in improving student performance because, "When students can connect to things of their culture, they're more likely to pay attention, and it helps build connections." P3 noted that instructors needed cultural competence to implement the strategy of using culturally relevant scenarios in instruction because, "Once you

understand their [students'] line of thinking, you can put it into word problems. You can put it into everyday math, the simple math, so that they can relate, so that they can understand what you're doing."

P4 said that using culturally relevant scenarios in instruction was effective because, "The students understand it better if it's culturally relevant because they understand the idea, and they can break down the stories better . . . It makes more sense to them when they're thinking it out because they can relate." P6 suggested that using culturally relevant scenarios as examples in instruction was effective because it validated students in a meaningful way, through, "Having their culture integrated with it [instruction], and then knowing that, 'Oh, well, my culture matters to me. I'm a minority, and that matters to you as a teacher.'"

A second culturally competent strategy that four participants reported using was substituting culturally relevant names into word problems. P2 said that in word problems, a name from a minority culture might be, "A name that in a predominantly white school, they're not going to know how to say." However, when she used minority names in word problems in her class, the students were immediately engaged:

> Today, one of the questions, the name was "Mateo." All of my kids knew how to say Mateo, and they're like, "Oh, so-and-so's not here. That's his name in Spanish." And so, they're immediately connecting because they see those names inside word problems.

P3 spoke of purposefully substituting her students' names with majority names in the word problems she presented to her class: "You can have a word problem, and you

can take out the word 'Tim' and put in the word 'D'Von.'" P3 perceived this strategy as increasing student engagement: "Now that child and everyone in that classroom is waiting to hear their name being said, and now they're reading that problem, they're following along with that problem." P5 also used the strategy of substituting her students' names into word problems to increase her students' engagement:

> It [the generic curriculum] had the content that I needed, but it was kind of missing this child being represented. So, what I would do sometimes is, I would add a child's name to the curriculum: "Jada, what's the amount of money you make over two weeks?" when giving X, Y problem. Or adding their neighborhood. That way, it'll catch their attention and make them pay attention just a little bit more than they were before.

P6 described the strategy of substituting culturally relevant names into word problems, saying, "You're not just looking at the overall common names that you see, but you're being culturally relevant by including names that are more relevant and related to the children that are in your campus." P6 said that this strategy was effective because, "They notice those things. The kids notice … their names are very relevant to the culture that they're from."

Four participants reported that they used the strategy of aligning math content with their students' everyday lives. This strategy was similar to using culturally relevant scenarios as examples, but it specifically involved making math content applicable and concrete by presenting it to students in the form of problems that they were likely to solve in their everyday lives. For P1, aligning math content with students' everyday lives

involved an emphasis on demonstrating to students that math was applicable in familiar, practical situations, or, "Making sure that the subject and the concept that they are being taught can be used in their everyday, real-world experience." P4 provided an example of how she aligned math content with students' everyday lives:

> If there's something like a word problem, and they don't understand the situation, or they don't understand certain words, I will reword it or put it in terms of something they're more familiar with. For instance, when they're doing negative numbers, sometimes they forget when you're subtracting two negative numbers that you combine them to get a total. So, for me, it's easier if I use money. You owe somebody $5, you gave them $2, how much is left? … So, if I put it in a money terms, then they're like, "Oh, okay." They get it better.

P4 provided a second example related to calculating the area of a rectangle, saying that students did not understand the content if it was presented in the form of an unfamiliar example: "I'll ask them like, 'Oh, in a garden, if you box off.' And they don't understand because it's hard to figure out a situation that you've never encountered." Posing the problem of calculating an area in more familiar terms helped students understand it, P4 said, "If I tell them, 'Oh, well, let's say you're trying to make a box,' . . . that helps them out more." P5 indicated that in addition to showing students that math was useful, applying math to practical problems made it familiar and engaging: "Most students were really engaged. And they were like, 'Oh, this is actually relatable,' or, 'I've seen this in my household,' or, 'With my parents.'" P5 clarified that aligning math problems with students' everyday lives removed a barrier to learning by demonstrating

for students that math was useful and applicable to them, when they might otherwise not value math:

> In math, specifically, students feel as though it does not apply to them, it's useless, and that really they cannot learn because it's not applicable to them. But while using CRP, I've noticed that students are like, "Hey, I actually will need this in the real world. My mom uses this every day. I can use this when I go to the grocery store or go to the corner store." So, it really does a 180 on their mindsets about math in the real world and how it applies to them.

In a divergent finding, two participants described providing students with same-race teachers as a manifestation of sociopolitical consciousness that enhanced students' engagement and motivation. P2 said that when students were provided with same-race teachers, "Representation matters. They're [students are] seeing that, 'You know what, that could be me,' or, 'My teachers look like me,' or, 'They've been through things like me.' And so, it's fostering an environment where they can really thrive." P6 indicated that providing minority students with minority teachers contributed to building positive teacher-student relationships: "Being a minority as well myself, you find that students see themselves more relatable to you. So, in the classroom education setting, they were able to, relationship-wise, they felt that they could build better relationships." This excerpt concludes the presentation of results. In the following section of this chapter, I will address evidence of trustworthiness in the findings and then provide a summary of the results.

## Evidence of Trustworthiness

The trustworthiness of qualitative research is assessed using the four components of trustworthiness (Korstjens & Moser, 2018). Study rigor is established through the variables of credibility, transferability, dependability, and confirmability (Connelly, 2016). In this section, I discuss each of these variables in terms of the strategies used to enhance it.

### Credibility

Findings are credible when they accurately represent the perspectives provided by participants (Connelly, 2016). Threats to credibility include misrepresenting the data, researcher bias, an inappropriate sampling strategy, and flaws in the data collection and analysis design. For this study, researcher bias was a threat to credibility. To address this bias, I employed bracketing, a form of reflexive journaling used during data collection, analysis, and presentation of findings.

Inappropriate sampling can also be a threat to credibility (Connelly, 2016). The purposive sampling strategy in this study was appropriate for gathering rich, relevant, accurate information from participants. To ensure that the sampling method strengthened rather than threatened credibility, I only included participants who met the inclusion criteria in the study.

### Dependability

Dependability refers to the extent to which the findings in a study can be replicated using the same methods in the same research context at a different time (Connelly, 2016). Threats to dependability include study procedures that are not fully

described or that are otherwise not replicable for purposes of verifying their integrity. For this study, I mitigated this threat using an interview guide to structure data collection (Appendix A). The interview guide will allow other researchers to replicate the data collection procedure. Additionally, in Chapter 3, I described the study plan in detail to provide details for future replication.

**Transferability**

Transferability refers to the extent to which study findings hold true of samples and settings other than those from which they were drawn (Connelly, 2016). For this study, to support the findings' transferability, I will discuss the findings in the context of previous empirical literature in Chapter 5. According to Tracy (2019), the findings that confirm or contradict previous research should be highlighted in a study. I provided the inclusion criteria for the sample in Chapter 3 and described the sample in the present chapter to assist the reader in assessing the transferability of the findings to other samples and settings on a case-by-case basis.

**Confirmability**

Findings are confirmable when they are no artifacts of researcher bias and they accurately indicate the perceptions of the participants. (Connelly, 2016). For this study, I used member checking to ensure that the findings represented the participant's perspectives accurately. I also provided direct quotes from the data as evidence for the findings in the present chapter so that the reader can compare the researcher's interpretations to samples of the data from which they were drawn.

## Summary

I used two research questions to guide this study. RQ1 was as follows: How do teachers perceive the implementation of all three pillars (i.e., academic achievement, cultural competence, and sociopolitical consciousness) of CRP for the support of Black male student academic outcomes in math? I used two themes to address this question. The first theme for RQ1 was that implementing all three pillars of CRP was associated with improvements in students' grades. The finding indicated that all six participants perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as improving students' grades. The participants described all or most students' grades as improving when CRP was implemented. In relation specifically to Black male students, the participants described their grades and comprehension of math content as improving when CRP was used.

The second theme for RQ1 was that implementing all three pillars of CRP was associated with teaching the whole child. The three participants who contributed to this theme indicated that they perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as having a number of benefits associated with teaching the whole child. Those benefits included increased confidence and improved behavior, as well as building teacher-student relationships and improved racial equity in education.

RQ2 was as follows: What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? The theme used to address this question was that reported strategies involved engaging students' cultural

knowledge to support mathematics comprehension. All six participants contributed to this theme. The participants indicated four strategies for CRP implementation. The strategies included using culturally relevant scenarios as examples during math instruction, aligning math content with students' everyday lives, using culturally relevant names in word problems, and accomplishing representation with same-race teachers. The participants indicated that these strategies were successful in improving students' math performance because they engaged students' cultural knowledge and identities to support comprehension of math content. Chapter 5 includes discussion, interpretation, and implications of these themes.

# Chapter 5: Discussion, Conclusions, and Recommendations

National data from the NCES (2011) revealed a lack of achievement in mathematics for Black students, which has persisted for several decades. Participating in CRP fundamentally means that teachers use the connection between the students' school and home lives while meeting the requirement of the curriculum and state standards during their instruction (Ladson-Billings, 1994). The purpose of this study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of Black male middle school students in math. The study was significant to conduct because the education community can use its findings to design the instructional means to support the academic achievement of Black male middle school students in math and reduce the gap in educational outcomes. Teachers can also use the findings from this study to gain an understanding of the factors that can increase their ability to use CRP to support Black male middle school students' academic achievement, which is consistent with Ladson-Billings' (1994) recommendation. In this study, I addressed the gap in academic research regarding Black male student outcomes through teacher CRP implemented methods.

To address the research questions in this study, I used a basic qualitative method to gain an understanding of how teachers were implementing CRP to support the academic achievement of Black male middle school students in math. I collected data from educators in their school environment who were middle school teachers. The middle school teachers in the study represented varying demographic variables. In this study, six participants participated in one-on-one semistructured interviews in person that lasted

approximately 1 hour. To analyze the data, I used Braun and Clarke's (2019) thematic analysis method.

The research questions for this study were two. RQ1 was: How do teachers perceive the implementation of all three pillars (i.e., academic achievement, cultural competence and sociopolitical consciousness) of CRP for the support of Black male student academic outcomes in math? RQ2 was: what are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? To analyze the data collected from the semistructured interviews, I used Braun and Clarke's (2019) thematic analysis. I first transcribed the responses from the participants and then reduced them into excerpts expressing a single idea relevant to the purpose of the study. I grouped all excerpts that expressed similar ideas together (see Table 6).

**Table 6**

*Participant Excerpts*

| Participant Excerpts | *N* of data excerpts assigned |
|---|---|
| Alignment between content and everyday life | 8 |
| Applicability supports understanding | 8 |
| Building teacher-student relationships | 1 |
| Improved behavior | 3 |
| Improved grades | 8 |
| Increased Black male students' academic success | 6 |
| Increased equity | 2 |
| Increased overall success | 10 |
| Increased student confidence | 7 |
| Representation among same-race teachers | 5 |
| Using culturally relevant names in word problems | 5 |
| Using culturally relevant scenarios as examples | 9 |

I then developed themes by grouping the related codes. This process resulted in three preliminary themes (see Table 7). They include CRP effects on academics, CRP nonacademic effects, and CRP implementation strategies.

**Table 7**

*Related Code Grouping*

| Preliminary themes | *n* of data excerpts assigned (*N*=72) |
|---|---|
| Preliminary theme 1: CRP effects on academics | 14 |
| Improved grades | |
| Increased Black male students' academic success | |
| Preliminary theme 2: CRP non-academic effects | 23 |
| Improved behavior (divergent data) | |
| Increased equity (divergent data) | |
| Increased overall success (divergent data) | |
| Increased student confidence (divergent data) | |
| Preliminary theme 3: CRP implementation strategies | 35 |
| Alignment between content and everyday life | |
| Applicability supports understanding | |
| Using culturally relevant names in word problems | |
| Using culturally relevant scenarios as examples | |

I then reviewed these three themes and checked them against the transcribed interviews to ensure they accurately reflected the patterns in the participants' responses. I then named themes, which resulted in the following final three themes: a) implementing all three pillars of CRP was associated with improvements in students' grades, b) implementing all three pillars of CRP was associated with teaching the whole child, and c) reported strategies involved engaging students' cultural knowledge to support mathematics comprehension (see Table 8).

**Table 8**

*Finalized Themes*

| Preliminary theme label | Finalized theme name |
|---|---|
| CRP effects on academics | Theme 1: Implementing all three pillars of CRP was associated with improvements in students' grades |
| CRP non-academic effects | Theme 2: Implementing all three pillars of CRP was associated with teaching the whole child |
| CRP implementation strategies | Theme 3: Reported strategies involved engaging students' cultural knowledge to support mathematics comprehension |

I used two themes that emerged from the data collected to address RQ1. To arrive at the first and second themes, I grouped the coded data that represented similar ideas from the transcribed interviews together (see Table 7). I used underlying concepts related to the grouped coded data to name and describe the themes. I then compared the themes to the research questions to determine which ones addressed each research question. The first theme that emerged was implementing all three pillars of CRP was associated with teacher perceived improvements in students' grades. This theme indicated that all six participants perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as improving students' grades. For the Black male students, the participants described their grades and comprehension of math content as improving when CRP was used. P2 said of Black male students, "I think of my seventh-grade boys specifically because they are so high-functioning in mathematics. There's so many gifted young men whose potential was not previously being realized."

However, with the implementation of CRP, P2 believed that her Black male students were better able to reach their full potential: “With mathematics being such a difficult class for a lot of our minority students, seeing them thrive with just the implementation of [CRP], it's new to me, it's new to our school, but they're really thriving with it.” The second theme that emerged in relation to RQ1 was that implementing all three pillars of CRP was associated with teaching the whole child. Three of the participants indicated that they perceived the implementation of the three pillars of CRP for the support of Black male students’ academic outcomes in math as having a number of benefits associated with teaching the whole child (see Table 7).

RQ2 was as follows: What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? The three pillars of CRP include academic achievement, cultural competence, and sociopolitical consciousness. I used one theme from the data to address RQ2. After coding the data and grouping the codes by similar ideas, I generated themes by describing the coding data, resulting into a third theme (see Table 7). I compared this third theme to the research questions to determine which of the research questions, the theme addressed. The theme that emerged was that reported strategies involved engaging students’ cultural knowledge to support mathematics comprehension. The participants indicated four strategies for the implementation of CRP. All these strategies included using culturally relevant scenarios as examples during math instruction. P4 expressed the perception that using cultural competence to align elements of math instruction such as word problems with the students’ cultures enabled them to address the math content directly, without that content

being mediated by the additional challenge of understanding culturally unfamiliar scenarios. Aligning math content with students' everyday lives using culturally relevant names in word problems was another strategy. P2 said that in word problems, a name from a minority culture might be, "A name that in a predominantly White school, they're not going to know how to say." However, when she used minority names in word problems in her class, the students were immediately engaged. Accomplishing representation with same-race teachers was another strategy that was used in the classroom. P2 said that when students were provided with same-race teachers, "Representation matters. They're [students are] seeing that, 'You know what, that could be me,' or, 'My teachers look like me,' or, 'They've been through things like me.' And so, it's fostering an environment where they can really thrive." Table 9 below provides a summary of the themes that emerged from the data and the research questions each theme addressed.

**Table 9**

*Summary of Themes and Related Research Questions*

| Research question | Theme(s) used to address question |
|---|---|
| RQ1: How do teachers perceive the implementation of all three pillars of CRP for the support of Black male student academic outcomes in math? | • Theme 1: Implementing all three pillars of CRP was associated with improvements in students' grades<br>• Theme 2: Implementing all three pillars of CRP was associated with teaching the whole child |
| RQ2: What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? | • Theme 3: Reported strategies involved engaging students' cultural knowledge to support mathematics comprehension ( |

## Interpretation of the Findings

The conceptual framework I used for this study was that of Ladson-Billings for pedagogy, which is the basis for the principle of CRP. Ladson-Billings (2009) identified essential aspects of teaching with CRP strategies comprising three fundamental pillars: academic achievement, cultural competence, and sociopolitical consciousness. The first theme that emerged from the data collected was that implementing all three pillars of CRP, as perceived by the participants, was associated with improvements in students' grades. The participants of the study felt they had a good grasp on the pillars of CRP and

the responses they provided were based on those perceptions. All participants in the study participated in either CRP training in a school setting, training provided by the school district, or peer to peer instruction from fellow teachers. The participants described that all or most students' grades improved during the marking period when CRP was implemented. For Black male students, the participants noted their grades and comprehension of math content improved when CRP was used. This theme was reflected in the literature such as the study that was conducted by Byrd (2016). Byrd found that CRP was a key outcome for students in their socialization and academic success using quantitative methods. In another quantitative study, Yu (2018) found science achievement improved with CRP and the inclusion of CRP based methodologies can increase student achievement in various educational areas. It is important to note that these studies, as well as the current study, could only conclude the effectiveness of CRP using the perceptions of teachers because there is currently no verifiable instrument for measuring the three pillars of CRP directly.

The P1 participant from the current study stated that when content is taught to a student that is culturally relevant, they are able to better understand the concepts that are presented to them. Morales-Doyle (2017) also arrived at a similar finding in their study in which teachers and students revealed that students were more likely to succeed in the classroom if complicated topics were related to current issues. Morales-Doyle (2017) also emphasized that CRP, guided by socially relevant issues, can affect students' academic achievement. P1 from the current study also confirmed the statement by Morales-Doyle (2017), stating that they found that Black male students are able to better grasp

mathematical concepts when the content is presented to them in a way that has to do with their everyday lives. Participant P6 stated that when she substituted names from their culture into word problems, Black male students were able to better comprehend the math according to the teacher. This finding from the study was consistent with the finding from the study conducted by Duncan-Andrade (2007) who found that student academic outcomes were increased for students in classes that used CRP. Thomas and Berry III (2019) also arrived at similar results, finding that CRP was useful for increasing mathematics outcomes for students. They found that the implementation of CRP not only improved students' grades, but it also added to their motivation to improve their grades. Both participants P2 and P5 stated they noticed children starting to improve their grades and showing up for tutoring. P5 also added that students seemed more invested in learning math and started applying the concepts they learned to their everyday lives. P3 added that just as increased confidence resulted in improved academic performance, improved academic performance increased students' confidence, so that confidence and academic performance were mutually reinforcing.

The second theme that emerged from the study was that implementing all three pillars of CRP was associated with teaching the whole child. The three participants who contributed to this theme indicated that they perceived the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math as having a number of benefits associated with teaching the whole child. The benefits included increased confidence, improved behavior, and building teacher-student relationships. P2 said that when CRP was implemented, you could see the confidence

building in them. P2 expressed that one of the ways she perceived CRP implementation was increasing students' confidence was by making the classroom a safe place for experimenting and making mistakes. As the first theme revealed, participants associated CRP implementation with increased student confidence. P2 stated that they could see confidence building in the students' when CRP was implemented. P2 also expressed that she perceived CRP implementation as increasing students' confidence by making the classroom a safe place for experimenting and making mistakes. This practice was similar to the educational practices of the teachers studied by Farinde-Wu et al. (2017), which included building relationships, celebrating and encouraging students, creating a classroom culture of success, constructing student-driven lessons, and using materials that reflect different cultural perspectives.

Two of the participants in the study also stated that CRP implementation led to increased racial equity in education. Researchers such as Özdemir et al. (2018) and Berger et al. (2016) confirmed a link between improved classroom diversity and a decrease in prejudice and harassment based on color. P2 also stated that CRP implementation enhanced teachers' ability to build relationships with students, but researchers had not cited this as one of the benefits in the literature. P2 stated that having a curriculum that was based on culture pushes teachers to understand each other's culture and creates a space where your student and teacher relationships can be built. This aspect is an important element of successful teaching practices because if the students have a strong relationship with their teacher, they are motivated to learn, ask questions, and seek further guidance on topics.

The last theme that was revealed addressed RQ2: What are the reported strategies used for all three pillars of CRP for the support of Black male student academic outcomes in math? For RQ2, Theme 3 was that reported strategies involved engaging students' cultural knowledge to support mathematics comprehension. The six participants indicated four strategies for CRP implementation, including using culturally relevant scenarios as examples during math instruction, aligning math content with students' everyday lives using culturally relevant names in word problems, and accomplishing representation with same-race teachers. All the participants indicated that these strategies were successful in improving students' math performance because they engaged students' cultural knowledge and identities to support comprehension of math content. P4 expressed that the perception that using cultural competence to align elements of math instruction such as word problems with the students' cultures enabled them to address the math content directly. Hubert (2013) and Aronson and Laughter (2016) confirmed this statement in their studies, concluding that using a students' culture to teach math can positively impact student perceptions of mathematics and student engagement.

The findings of this study showed that the three fundamental pillars increase academic achievement for Black male students. The three pillars of CRP are aligned with the four strategies the participants cited implementing in their teaching. Using culturally relevant scenarios as examples during instruction aligns with the pillar of academic achievement. Aligning math content with students' everyday lives aligns with the sociopolitical consciousness and accomplishing representation with same-race teachers is in alignment with cultural competence. Teachers can help Black male students improve

their academic performance in mathematics by combining the three fundamental pillars of CRP. As cited by three of the participants, the implementation of the three pillars of CRP for the support of Black male students' academic outcomes in math has a number of benefits associated with teaching the whole child. Some of those benefits include increased confidence and improved behavior, as well as building teacher-student relationships and improving racial equity in education.

## Limitations of the Study

This study only has a few limitations regarding the findings. One limitation is that the study's findings may not be generalizable, as I conducted the research with limited number of participants from a specific demographic in a specific location. Therefore, the findings cannot be generalizable to a wider population and are only significantly relevant to the teachers in the school, the study's research site. The second limitation of the study is researcher bias. Being an individual of African descent with a background in CRP could have led to bias because I knew the strategies that should be used but were not being used with Black male students. To mitigate the limitation of researcher bias, I used bracketing to document the bias throughout the data collection and analysis processes.

## Recommendations

Recommendations can be made for further research on the topic of CRP based on the findings of this study and the literature review from a previous section of the study. The achievement gap has been a problematic issue since the establishment of public and private schools in the United States. Black students are historically more likely to score lower on examinations in K–12 settings compared with White students (Goddard et al.,

2017; Gregory & Roberts, 2017; Soland, 2017). Many of the studies conducted have explored CRP in relation to K–12 students from the perspectives of teachers and administrators. Future researchers could conduct research to explore the perspectives of students to understand how they feel CRP affects their academic success and their perceptions about school and their teachers. Educators could use data from this study to further advance CRP in the classroom and increase academic success among their students.

Some scholars such as Golden (2017) noted that previous assessment have demonstrated that CRP implementation failed to integrate all three pillars. Anderson et al. (2017) noted that sociopolitical consciousness is the most frequently under incorporated into pedagogical assessment. Researchers could conduct studies with educators to better understand why this specific pillar of CRP is not always integrated into the classroom. Researchers could conduct mixed-methods study with educators to assess their understanding of sociopolitical consciousness and then gain their perspectives on why this pillar is not being integrated. Results from this study could yield information that educate teachers could use to learn about this pillar and find practical and effective ways to integrate it into the classroom.

Current literature examining how CRP is implemented in the classroom is lacking (McTier et al., 2017). Therefore, further research is needed to explore the different practices teachers use to implement CRP in the classroom and specifically how it is implemented to support Black students. Researchers could conduct research with administrators to gain an understanding of how they support teachers implementing CRP

in the classroom and whether outside support services are provided to them to assist with implementation. It would also be useful to conduct research with teacher participants from different regions in the United States to determine if CRP is implemented differently in some geographic regions. Because research indicates that training specific for CRP is lacking in modern educational settings (Lambeth & Smith, 2016), it is imperative to understand what resources are available to teachers.

Preservice teachers' practice models and activities for learning how to use CRP in the classroom are lacking (Acquah & Szelei, 2020). Acquah and Szelei (2020) also noted that although training methodologies are in place for teaching diverse students and classrooms, there is a lack of discussion on how such programs can be implemented upon entry into the teaching profession. Researchers could conduct additional research using a time series design. An assessment can be done at the beginning of the school before CRP is implemented in the classroom and then a follow-up study done at the end of the school year to determine whether the strategies the teachers used in implementing CRP had any effect on the academic achievement of the students. Information from this study could provide educators and administrators with information they could use to better implement CRP in the classroom. Regarding the understanding of how to implement CRP properly in the classroom, Freire and Valdez (2017) noted that the lack of training or ability to conceptualize how to employ CRP-based methods has been identified as a critical barrier to CRP adoption in the classroom in literature. Future researchers could conduct research with teachers to explore their perceptions on what support services they feel would be most beneficial for them to properly employ CRP based methods in the classroom.

Although CRP has been found to be effective at increasing student academic achievement, more research still needs to be done on the topic. Understanding implementing CRP and specifically the three pillars will benefit not only the students but also educators. Because the three pillars are the foundation of CRP, research findings from studies exploring the experiences and perspectives of everyone, including educators, administrators, and students, will lead to a better understanding of the pedagogical approach. The teachers and school districts can use these findings to implement CRP effectively to benefit Black students.

## Implications

This study has several implications for positive social change. The data obtained from the six study participants provide valuable information that can be used in schools and the classroom to effectively implement CRP. CRP methods have been proven in the literature to be useful for providing an equitable educational environment for Black students by integrating aspects of the real world and situations they relate to into learning concepts. If this teaching method is integrated into more diverse classrooms, it has the potential to assist in reducing the achievement gap between Black and White students as cited by Figueroa (2019). The findings of this study can inform educators about the instructional means to support the academic achievement of Black male middle school students in math and reduce the gap in educational outcomes. Utilizing the data obtained from the study participants, other teachers can better understand the students they teach and have a better awareness of the factors that affect them such as socioeconomic status, institutional racism, and parents' level of education, contributing to the academic

achievement of Black male students. The findings of this study show that barriers experienced by Black male students can be countered when CRP techniques are incorporated within mathematical instructional designs and support.

The findings of the study also have implications for school administrators. Because the findings showed that CRP approaches could increase academic achievement in mathematics for Black male students, school districts can use this information to create appropriate training programs for teachers. School districts can also use the data from the study to incorporate CRP approaches into the overall curriculum of the school. They could also include the required training and designated training and implementation workshops in the recommendations from school districts. Teachers could also benefit from the study by encouraging their school districts to provide appropriate and effective training on CRP and more importantly, the proper way to implement CRP in the classroom.

## Conclusion

The purpose of this study was to gain an understanding of how teachers are implementing CRP to support the academic achievement of Black male middle school students in math. Black students struggle to gain from the culturally diverse teaching they needed to achieve success in academics (Hackett et al., 2018). Not all hope is lost with closing this achievement gap because CRP has the potential to help Black students and specifically Black male students perform better in subjects such as math. The findings of the study showed that implementing CRP results in the academic achievement of Black male middle school students in math. The participants in this study had positive

experiences incorporating CRP into the classroom, indicating that further CRP implementation by both teachers and administrators is promising. This study was significant, and by exploring educators' perceptions in mathematics, I added to the absence of exhaustive research in academic literature regarding the impact of CRP upon the achievement of Black male students.

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# Appendix A: Interview Guide

Question 1: How long have you been teaching in the Middle School Environment?

Question 2: How long have you taught math?

Question 3: What is your experience in teaching based on the foundation of culturally relevant pedagogy?

Question 4: What is your experience in teaching at schools that are majority minority?

Question 5: What does culturally relevant pedagogy mean to you?

Question 6: What training was provided to you as a teacher to foster implementing culturally relevant teaching in your classroom?

Question 7: How was CRP implemented in your instruction?

Question 8: In your opinion, what changes have you noticed among your students, and then specifically Black male students that shows an impact of teaching based on the CRP model?

Question 9: Did you notices a change in grades based on the CRP model?

Question 10: If there was a difference in grades based on the CRP model, what specific strategy led to the improvement?