ABSTRACT

Title of Dissertation:	DEVELOPMENT AND VALIDATION OF THE PERCEIVED CULTURALLY RESPONSIVE CLIMATE MEASURE FOR AFRICAN AMERICAN STUDENTS (PCRC)
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This study makes the contribution of developing a measure that provides voice to African American students, offers a broader view of their school experiences than existing cultural responsivity measures, as well as consequences for their academic outcomes. The present study reports the development and initial validation of a measure of perceived culturally responsive climate for African American adolescents (PCRC). The study relies on the existing longitudinal Maryland Adolescent Development in Context Study (MADICS) dataset, a public use dataset collected from 1991-2000. The present study uses two waves of data from participants aged 13 to 18, and the subsample consists of 533 African American youths in Wave 3 (49.3% female; mean age of 14) and 399 African American youths in Wave 4 (51% female; mean age of 17). With the goal of creating a novel measure capturing youth perceptions of cultural responsiveness by both teachers and the school climate, this study combined student self-reported Wave 3 MADICS questionnaires of meaningful and culturally responsive curriculum, high academic expectations, teacher discrimination, peer discrimination, autonomy and self-advocacy, and school social support (i.e., teacher and peer support). Results indicated that a second order factor

structure best fit the PCRC measure; the PCRC measure demonstrated adequate

internal consistency and test-retest reliability; and the PCRC predicted later math and

non-math subject academic ability self-concept for African American adolescents.

The study holds implications for schools, educators, and school psychologists hoping

to give voice to African American student perceptions of culturally responsive

teaching practices and school climate.

DEVELOPMENT AND VALIDATION OF THE PERCEIVED CULTURALLY
RESPONSIVE CLIMATE MEASURE FOR AFRICAN AMERICAN STUDENTS
(PCRC)

by

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2021

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Acknowledgements

Table of Contents

List of Tables

List of Figures

Chapter 1 & 2: Introduction and Literature Review

The opportunity gap between African American students and their peers has been a concern for educators and researchers for several decades. African American students have lower standardized test scores, receive lower grades, and are far more likely to drop out of school compared to European American students (Bohrnstedt et al., 2015; Jencks & Phillips, 1998; Planty et al., 2009). This gap in opportunity is commonly and less accurately referred to as the achievement gap in the literature and focuses attention on the fallacy that African American students have a cultural deficit (i.e., differences in language use, culture, and behavior) that is counter to academic achievement (Brandon & Brown, 2009; Cochran-Smit, 1997; Cooper, 2003; Howard & Terry, 2011). The deficit perspective of African American achievement is not only inaccurate, it is now seen as a contributor to the opportunity gap, as the gap is not a student problem - it is a system-level problem (Arnett, 2019; Rahman & Turner, 2019). That is, the opportunity gap is not necessarily reflective of the students' abilities to learn, rather it is a reflection of the education system, biases in the education system, and of the adults within the system who should be meeting the needs of African American students (Arnett, 2019). To combat the progression of the opportunity gap and mitigate its lasting impact, research has focused on varying interventions and protective factors. These include but are not limited to affirmation interventions for students of color (Cohen & Sherman, 2014), increases in gifted program access for African American students (Olszewski-Kubilius, Lee, Ngoi, & Ngoi, 2004), efforts to integrate schools with families and communities (Trusty,

Mellin, & Herbert, 2008), multicultural student education and curricula (Okoye-Johnson, 2011), as well as improved school racial climates (Mattison & Aber, 2007). Two prominent areas of study aiming to improve teaching and school practices for African American students are culturally responsive teaching practices (Ford, Stuart, & Vakil, 2014; Ladson-Billings, 1995) and school racial climate (Eccles, Wong, & Peck, 2006; Griffin et al., 2017). While school racial climate speaks to student perceptions of equal treatment, support, and intergroup interactions (Byrd, 2017), culturally responsive pedagogy addresses the need for system change in school curriculum, encouraging student self-advocacy, and high expectations for students (Howard, 2001; Ladson-Billings, 1995). The present study aims to validate a new measure utilizing culturally responsive pedagogy and racial climate to obtain a more holistic understanding of African American students' school experiences through perceptions of classroom-level and system-level items within the following domains: meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, promoting student self-advocacy and autonomy, and school social support.

Culturally Responsive Pedagogy

Culturally responsive teaching and school practices have received increased attention in the educational literature throughout the last several decades, as educators have begun to develop and utilize new instructional strategies to improve the academic opportunities of ethnically and linguistically diverse students (Gay, 2018). Culturally responsive pedagogy was first developed by Ladson-Billings (1995) in

response to literature written on the academic failure of African American students and the theorized reasons therein. Prior to the current conceptualization and implementation of culturally responsive school practices and teaching strategies, prior research aimed at changing the ways in which schools provided instruction, focused on the goal of training African American students in skills "needed" to succeed in United States' mainstream society (Ladson-Billings, 1995, p. 467). This previous research focuses on, "cultural compatibility," (Jordan, 1985) for example, given the perception that there is a mismatch between African American culture and African American students' academic needs. In short, these deficit theories maintained that students should change in the ways they learn to fit a larger mainstream culture, instead of schools changing their approaches to education to meet the needs of a changing U.S. student population (Howard & Terry, 2011; Ladson-Billings, 1995). Culturally responsive practices counter the deficit perspective (Arnett, 2019; Rahman & Turner, 2019) and work toward addressing what researchers call the education debt for African American students (Ladson-Billings, 2006). The education debt has been constructed via historical, economic, sociopolitical, and moral decisions and policies that have negatively impacted the chance for equitable education for African American students (Ladson-Billings, 2006). That is, the education debt serves as evidence that the American education system was not constructed to allow African American students to thrive, and in many cases those historical, economic, sociopolitical, and moral factors actively contributed to the opportunity gap for African American students (Ladson-Billings, 2006). Culturally

responsive school practices allow for the development of academic opportunities for African American students impacted by this debt (Gay, 2018).

Culturally responsive practices are more than a set of limited teaching strategies, or tools that can be incorporated into previously developed lessons (Gay, 2018). The culturally responsive pedagogy involves a set of cultural, professional, political and ideological foundations that go beyond teaching practices, and focuses on underlying beliefs and commitment of educators and educational systems to bring student success to fruition (Howard & Terry, 2011). This includes recognizing students' cultural wealth and developing dynamic and individualized teaching practices, while understanding that an educator's role should be to nurture students academically, socially and emotionally, culturally, and psychologically (Ford, Stuart, & Vakil, 2014; Howard & Terry, 2011). Culturally responsive practices go beyond "good teaching," in that they actively work to challenge Eurocentric frameworks that currently shape school practices, while being seen as liberating and emancipatory (Gay, 2018). Teachers who employ culturally responsive practices not only encourage but empower a student to learn beyond the constraints of mainstream Eurocentric canons of knowledge (Gay, 2018). The results of these practices include more humane interpersonal skills; better understandings of the interconnections among individual, ethnic, and global identities; and an understanding that knowledge should be not only shared, but also critiqued, revised, and renewed (Gay, 2018). In this way, culturally responsive teaching practices distinguish themselves with the promotion of cooperation, community, connectedness, and student critical consciousness (Gay, 2018). These dynamic teaching strategies are meant to engage African American

4

students in meaningful learning activities that foster their school belonging, as well as help students connect with their teachers, and with each other (Brown, 2007; Dickson, Chun, & Torres Fernandez, 2016).

Educators are now aiming to rely more heavily on culturally responsive teaching and school practices as it is validating, inclusive, multidimensional, transformative, empowering, humanistic, and ethical (Gay, 2018). In addition, the use of the culturally responsive pedagogy in schools has empirically demonstrated relation to overall student engagement (Hill, 2009; Rodriguez, Jones, Pang, & Park, 2004) as well as to student academic achievement outcomes (Ladson-Billings, 1995, Lopez, 2016; Rodriguez et al., 2004; Terry, 2010).

In Ladson-Billings' (1995) foundational study linking African American culturally responsive teaching to literacy outcomes, community-nominated culturally responsive teachers were observed. Students in their classes performed higher than their peers on standardized tests and performed at or above grade level compared to other students in the district (Ladson-Billings, 1995). Lopez (2016) conducted a study aimed at examining the extent to which teacher-reported culturally responsive teacher beliefs and behaviors were associated with Latinx elementary student achievement, wherein student achievement was measured four times throughout the school year. It was concluded that teachers' positive beliefs about the role and use of Spanish during instruction, about accessing students' prior cultural knowledge, as well as their critical awareness (i.e., a teacher's knowledge of the ways the dominant curriculum reflects inequality and deficiency-orientations for traditionally marginalized students) were all positively related to the students' reading outcomes.

5

Additionally, the teachers' use of Spanish to facilitate learning and engagement, as well as their cultural knowledge, were also positively related to reading outcomes for the students (Lopez, 2016). Culturally responsive teaching practices have also been used in summer programs for culturally diverse students and have been aimed at increasing science and mathematics assessment scores (Rodriguez et al., 2004). Students within the culturally responsive summer program remarked on their appreciation for the program's focus on cultural affirmation and learning activities within a socio-cultural context (Rodriguez et al., 2004). Though the literature thoroughly examines the culturally responsive pedagogy from a theoretical and nuanced standpoint, more evidence-based research is needed to document causal effects of culturally responsive practices on student achievement outcomes (Lopez, 2016; Sleeter, 2012). In addition, measures examining the ways in which culturally responsive teaching practices have been implemented more generally, have been flawed. Existing measures have primarily focused on the teachers' perspectives of their own culturally responsive self-efficacy and have not focused on evaluating student perspectives and student voice concerning the culturally responsive practices of members of their schools (e.g., perceived school-wide level, teachers, etc.).

Measurement

Measures identifying culturally responsive teaching practices can be categorized in three ways. The first category of measurement primarily measures the culturally responsive pedagogy from the teachers' perspectives and focus on a teacher's reported attitudes and self-efficacy for teaching in a culturally responsive

manner (Guyton & Wesche, 2005; Hershfeldt et al., 2009; Natesan, Eebb-Hasan, Carter, & Walter, 2011; Ponterotto, Baluch, Greig, & Rivera, 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017; Spanierman et al., 2011). Two of the most prominent measures of teacher self-report culturally responsive teaching practices are the Culturally Responsive Teaching Self-Efficacy Scale (CTSE) as well as the Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE) developed by Siwatu (2007). When developing both scales, Siwatu (2007) used two foundational ideas: (1) culturally responsive teachers understand and value the cultural contributions of the cultures of the students in the classroom, and (2) culturally responsive teachers acknowledge that there is possible discontinuity between students' home culture and school culture while understanding the consequences of such cultural mismatch. Though a one-factor solution was utilized in the development of both scales, the items were developed based on four culturally responsive teaching competencies: curriculum and instruction, classroom management, student assessment, and cultural enrichment (Siwatu, 2007). While these measures are foundational in measuring educators' use of culturally responsive practices, more objective measures like those relying on direct observation, indicate that teachers are not always the most accurate judges of their own culturally responsive practices (Debnam, Pas, Bottiani, & Cash, 2015).

Direct observation measures of culturally responsive teaching practices offer a more objective means of measurement and serve as the second type of culturally responsive pedagogy measure (Debnam et al., 2015). Debnam and colleagues (2015) measured teachers' use of culturally responsive practices via teacher-report (i.e.,

Double-Check Self-Reflection Tool, the Multicultural Efficacy Scale, and the

Culturally Responsive Teaching Self-Efficacy Scale) and direct observation methods

(i.e., ASSIST observational measure - Assessing School Settings: Interactions of

Students and Teachers; used to evaluate social processes in the classroom) with a

sample of elementary and middle school teachers from a Maryland school district.

The ASSIST direct observation measure was developed by Ruby and colleagues in

2001, and included the following subscales: teacher control of the classroom, teacher

anticipation and responsiveness, teacher monitoring, teacher proactive behavior

management, teacher and student meaningful participation, and culturally responsive

teaching strategies (e.g., connecting lessons to real world examples, engaging in

storytelling and sharing, positive humor to engage or diffuse problems, integrating

cultural artifacts relative to students' interests into learning activities). Researchers

found that teachers tended to self-report higher levels of culturally responsive

teaching practices than were directly observed via the ASSIST. Given the finding of

teachers over-reporting their own use of culturally responsive practices, measures of

culturally responsive teaching practices should also rely on insight from the direct

observers, like the students themselves.

The final culturally responsive measurement type is student-report (Boon &

Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016), and at the present, there are

two known measures of cultural responsiveness from the perspective of students

(Boon & Lewthwaite, 2015; Dickson, et al., 2016). Though Dickson and colleagues

(2016) describe their measure as the, "first quantitative measure of students'

perceptions of culturally responsive teaching," (p. 151) in actuality it was the first

quantitative measure of students' perceptions of culturally responsive teaching in the

United States. In 2015, Boon and Lewthwaite had actually created the first measure

of culturally responsive pedagogy based on interviews with Australian Indigenous

students and their families. The interviews aimed at understanding those aspects of

culturally responsive teaching that resonated with Aboriginal students, and solidified

seven subscales of Indigenous cultural values, explicit learning objectives, ethic of

care, literacy teaching, behavior support, and pedagogical expertise (Boon &

Lewthwaite, 2016). Though there are two existing measures of cultural

responsiveness from the perspective of students, they are limited in quantity and are

specific to groups other than African American adolescents. Given that most

measures have focused on teacher-report (Siwatu, 2007), student voice has been lost,

especially for African American students. The present study aims to give voice to

students through developing a more objective and student-focused measure of African

American students' perceptions of their multi-level school experiences. Key aspects

of racial climate measures, culturally responsive pedagogy, and multi-level student

experiences (e.g., perceived school-level curriculum, individual perceptions of

experiences with teachers and peers, perceived system-level support of autonomy

etc.) are included in the present measure of perceived culturally responsive climate to

form a more holistic scale of culturally responsive school practices and student

experience.

School Racial Climate

School racial climate refers to a school's norms and values around race and interracial interactions between individuals in the school (Chavous, 2005; Green, Adams, & Turner, 1988). The various theorized dimensions of racial climate have varied through the years. Initial school racial climate included factors like equal status, interdependence and working together, association between racial groups, racially supported norms (Green, Adams, & Turner, 1988), and personal association with people of other racial groups (Chavous, 2005). Recently though, racial climate literature has had more of a focus on time spent with people of other racial groups, intergroup respect, respect shown by teachers, and frequency of racial tension (Byrd & Chavous, 2011), while some racial climate literature focuses more simply on a school's racial fairness and racial discrimination (Griffin et al., 2017). Racial climate measures have predominantly measured students' perceptions of race relations, racial treatment, racial fairness, and experiences of racism in the schools (Watkins & Aber, 2009), and most studies have focused on the perceptions of college students (Ancis, Sedlacek, & Mohr, 2000; Chavous, 2005; Watkins & Aber, 2009). The number of racial climate studies focused on elementary schools or secondary schools are limited (Watkins & Aber, 2009), and most have focused on a limited number of factors like discrimination and fairness within the schools (Byrd, 2017; Griffin et al., 2017; Mattison & Aber, 2007; Watson & Aber, 2009). Conclusions drawn from most studies examining racial climate, suggest that students of different racial backgrounds often perceive their campus' racial climates in very different ways. Similar to a

school's use of culturally responsive practices, racial climate is linked to academic outcomes for African American students.

Schools with positive racial climates have been linked to higher educational aspirations and grades for African American students (Griffin et al., 2017), while negative school racial climates with high rates of discrimination, have been associated with lower grades, fewer educational aspirations (Eccles, Wong, & Peck, 2006; Griffin et al., 2017), lower academic self-concept (Eccles et al., 2006), and less academic curiosity and persistence (Butler-Barnes, Chavous, Hurd, & Varner, 2013) among African American students. While school racial climate speaks to students' perceptions of equal treatment and intergroup interactions, the culturally responsive pedagogy addresses the need for system change in the school curriculum, encouragement of student self-advocacy, and high teacher expectations (Howard, 2001; Ladson-Billings, 1995). These aspects culminate to form a more extensive lens through which African American students can perceive their schools' racial climate. While racial climate measures aim to survey students' current perceptions of their school climate (e.g., racial fairness, perceived discrimination, individual experiences of racism etc.; Griffin et al., 2017; Mattison & Aber,2007), the culturally responsive pedagogy focuses on understanding schools' continuous commitments to evolving the curricula for all students (Howard & Terry, 2011). The current measure of perceived culturally responsive climate, aims to capture those aspects of the school perceived by African American adolescent students as indicative of racial climate (e.g., teacher discrimination, peer discrimination) as well as their perceptions of system-level aspects of culturally responsive school practices that are promoted by schools

continuously (i.e., promotion of self-advocacy and autonomy, meaningful and culturally responsive curriculum etc.). Though climate is not always measured through the perceptions of a singular group as representative of the entire system (Stapleton, Yang, & Hancock, 2016), the current measure aims to draw on student perception as their experiences have been underrepresented in the culturally responsive pedagogy literature. A measure examining perceived racial climate as well as perceived culturally responsive practices has not yet been developed and may give voice to African American students while combining to form a more integrated and comprehensive measure of school experiences.

Measurement

Previously developed measures of racial climate are limited because they have primarily been conducted with college students (Ancis et al., 2000; Chavous, 2005; Watkins & Aber, 2009), and have varied greatly in the theorized dimensions of racial climate (Byrd, 2017; Griffin et al., 2017; Mattison & Aber, 2007). Of the few studies (Watkins & Aber, 2009) conducted within elementary schools and secondary schools, most have operationalized racial climate as a culmination of discrimination and fairness exhibited in the schools (Byrd, 2017; Griffin et al., 2017; Mattison & Aber, 2007; Watson & Aber, 2009).

A study conducted in 2017 by Griffin and colleagues also relies on the MADICS dataset's teacher and peer discrimination scale to measure overall racial climate - as does the current study, in order to capture a racial climate aspect of the overall perceived culturally responsive climate construct. Specifically, their measure

12

of racial climate for African American high school students included the Racial

Fairness subscale of the unpublished Racial Climate Survey-High School Version

(Mattison & Aber, 2007), as well as the teacher and peer discrimination scale from

the MADICS study (Griffin et al., 2017). The discrimination subsection, utilizing

MADICS discrimination scales, asked students about incidents of race-based teacher

discrimination in the classroom, being picked on by peers, and lack of inclusivity

from peers (Griffin et al., 2017). The Racial Fairness subscale (Mattison & Aber,

2007; Watkins & Aber, 2009) includes items aimed at examining a school's racial

fairness, student's experiences of racism, and student perceptions of systemic change

needed within their schools. These measures distinguish themselves from other

scales, by including items aimed at exploring students' perceptions of school-wide

racial inequities that should be addressed. Racial climate measures have

predominantly measured students' perceptions of race relations, racial treatment,

racial fairness, and experiences of racism in the schools (Watkins & Aber, 2009). The

present measure aims to build upon racial climate measures by incorporating items

that evaluate students' perceptions of equality not only in their interactions, but also

in the school's more nuanced climate which includes curriculum, their promotion of

high expectations, and their support of student voice, which have all been linked to

positive student outcomes (McKown & Weinstein, 2008; Nadler & Komarraju, 2016;

Peterson, 2014). The present measure of perceived culturally responsive climate

includes similar items aimed at understanding students' own autonomy and voice in

school-wide rules and policy aligned with culturally responsive school practices,

while still including those items regarding discrimination from peers and teachers which are essential to measures of racial climate.

Theoretical Framework

The present study will be conducted within the framework of critical race theory; current conceptualizations of Ladson-Billings (1995) culturally responsive pedagogy; Howard's (2010) aspects of education which African American students view as culturally responsive; and Hanson and Voight's (2014) framework for students' perspectives of school climate. This study relies on these four frameworks because they challenge Eurocentric and deficit-based forms of educational oppression, advocate for the inclusion of African American student voices in education, and place emphasis on the importance of climate and its role in school experiences.

Gaining prominence in the 1970s, critical race theory has six major tenants (Dixson & Rousseau; 2005; Matsuda, 1995): (a) critical race theory recognizes that racism is ingrained into American life; (b) it brings skepticism toward societal claims that America is a meritocracy; (c) it challenges ahistoricism and presumes that racism has contributed imbalances in privilege; (d) it insists on the recognition of the experiences of people of color when analyzing inequity; (e) it is interdisciplinary; and (f) it works toward ending all forms of oppression. Critical race theory inspired Ladson-Billings and Tates' (1995) call for the use of a critical race theory perspective in schools and serves as Ladson-Billings (1995) framework for the culturally responsive pedagogy (1995) which is another component of the present study's

14

framework. Ladson-Billings' (2014) updated conceptualization of culturally responsive pedagogy incorporates traditional known aspects of culturally responsive teaching practices (i.e., incorporating culture into curriculum and educators refraining from deficit-perspectives), along with allowing for fluidity of cultural expression and heterogeneity of cultural experiences. Current culturally responsive school practices mean educators understand that culture is not static, and that they should facilitate a more meaningful incorporation of culture in the classroom beyond superficial gestures (Ladson-Billings, 2014).

An additional framework utilized in the development of the current measure is Howard's (2001) study concerning those aspects of teaching that African American elementary students perceive as culturally responsive. African American students described culturally responsive teachers as those who displayed caring bonds and attitudes toward them, established a classroom community, and made learning entertaining (e.g., incorporating imagination into lessons, teaching in an animated manner, telling jokes and trying to make students laugh etc.; Howard, 2001). These aspects of culturally responsive teaching perceived and valued by African American students, are incorporated into the dimensions of perceived culturally responsive climate. The current measure takes into consideration those aspects that African American students valued and then some, given aspects of the meaningful and culturally responsive curriculum domain, as well as the remaining hypothesized domains of the perceived culturally responsive climate measure.

The final framework used in the conceptualization of perceived culturally responsive climate is Hanson and Voight's (2014) framework for understanding

adolescent students' perspectives on school climate. Through a synthesis of the

school climate research (Cohen et al., 2009; Hanson & Voight, 2014; Voight,

Hanson, O'Malley, & Adekanye, 2015), they define positive school climate as

characterized by students feeling physically and emotionally safe, part of the school

community, that adults in the school respect them, care about them, have high

expectations for their well-being and success, and students are given the opportunity

to provide input into how things work in the school. These aspects of positive school

climate are incorporated into the present dimensions of perceived culturally

responsive climate described in more detail below.

The dimensions of the current measure of perceived culturally responsive

climate were selected through the lens of the theoretical frameworks discussed above

as they pertain to the school experiences of African American adolescents. The

present study aims to examine the larger construct of perceived culturally responsive

climate, thus hypothesizing a factor structure which includes the perceived culturally

responsive climate items corresponding not only to the six domains, but also to the

larger construct of perceived culturally responsive climate.

Perceived Culturally Responsive Climate

As there is an opportunity gap between African American students and their

peers (Bohrnstedt et al., 2015; Jencks & Phillips, 1998; Planty et al., 2009), and as

culturally responsive practices and positive climates have been evidenced to

positively impact African American adolescent students, a comprehensive measure of

perceived culturally responsive climate for African American students is needed. This

study relies on frameworks of culturally responsive school practices and racial climates which highlight six aspects to be promoted: (a) meaningful and culturally responsive curriculum; (b) high expectations; (c) teacher discrimination (d) peer discrimination; (e) student self-advocacy and autonomy; and (f) school social support (Brown, 2017; Cantrell, Correll, Malo-Juvera, & Ivanyuk, 2014; Chavous, 2005; Gay, 2000; Voight et al., 2015). These domains of perceived culturally responsive climate were chosen as they gather information about student perception across levels, they have been supported in the literature for their positive outcomes for African American adolescents and provide a more comprehensive understanding of the adolescent student experience. Given the constructs supported in both the culturally responsive pedagogy literature, as well as the racial climate literature, it is necessary to develop a measure examining the range of constructs from an African American student perspective.

The six domains of perceived culturally responsive climate were selected as domains for the present measure based on the theoretical framework of critical race theory (Dixson & Rousseau), culturally responsive pedagogy (Ladson-Billings, 1995), aspects of education that African American students view as culturally responsive (Howard, 2010), and Hanson and Voight's (2014) framework for students' perspectives of school climate. To strengthen the rationale for their selection, each domain speaks to components of existing culturally responsive pedagogy and school racial climate measures. The domains of culturally responsive curriculum, high expectations, student autonomy, and social support are all fundamental aspects of existing culturally responsive pedagogy measures at the item- and domain-level

17

(Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016; Guyton & Wesche, 2005; Herschfelt et al., 2009; Ponterotto et al., 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017; Spanierman et al., 2011), while the domains of teacher and peer discrimination are both components of existing racial climate measures (Griffin et al., 2017; Watkins & Aber, 2009). The theoretical frameworks described and existing culturally responsive pedagogy and racial climate measures, provide rationale for the development of the domains included in the current measure. However, the aim of the study is to develop a novel measure of perceived culturally responsive climate.

Though the current measure of perceived culturally responsive climate will not involve multi-level assessment (e.g., analysis of the students' curriculums, school documented reports of discrimination etc.), instead the domains are measured from the perspective of the African American students themselves. The PCRC measure relies on African American student perception as it is an essential aspect of critical race theory, racial climate, and it gives voice to the students themselves, rather than relying on researchers' interpretations. Racial climate is often defined by and measured through perceptions of the individuals experiencing, interacting, and engaging with the climate (Hope, Skoog, & Jagers, 2015; Mattison & Aber, 2007). Conceptualizations of racial climate place importance on the voices, experiences, and perceptions of marginalized communities (Hope, Skoog, & Jagers, 2015). One of the main tenets of critical race theory states that the framework insists on the recognition of the experiences of people of color when analyzing inequity (Dixson & Rousseau; 2005; Matsuda, 1995). For these reasons, the present measure aims to measure

18

student perception of multi-level school experiences, rather than examine them directly.

The suggested use of the present measure of culturally responsive school climate, is for use within developmental psychology venues as well as for use within schools as a means of providing perceived climate information to school administrators and educators. In doing so, schools may better understand their areas for growth in fostering positive student perceptions of culturally responsive school climate.

Perceived Culturally Responsive Climate and Academic Outcomes

Supported in the culturally responsive pedagogy literature, the dimensions of meaningful curriculum and high teacher expectations have evidenced positive academic achievement outcomes (Gentrup, Lorenz, Kristen, & Kogen, 2020; Peterson, 2014). The dimensions of teacher and peer discrimination are more widely referenced throughout the racial climate measurement literature (Griffin et al., 2017; Mattison & Aber, 2007; Watkins & Aber, 2009), with positive school racial climates supporting achievement (Griffin et al., 2017) and negative racial school climates negatively impacting student achievement and mental health (Eccles et al., 2006). The dimensions of school social support and the promotion of student self-advocacy and autonomy have been referenced in both the culturally responsive teaching literature (Ford et al., 2014; Ladson-Billings, 2009; Howard, 2001) as well as the climate literature (Green et al., 1988; Voight et al., 2015). Both of these hypothesized dimensions of the current measure of perceived culturally responsive climate have

been linked to positive academic achievement for African American students (Cole, Matheson, & Anisman, 2007; Nadler & Komarraju, 2016). As culturally responsive teaching practices and positive school climates are related to academic achievement for African American adolescent students (Griffin et al., 2017; Ladson-Billings, 1995, Lopez, 2016; Rodriguez et al., 2004; Terry, 2010), a comprehensive measure of perceived culturally responsive climate should be tested as a predictor of African American adolescent achievement.

In addition, the present measure of perceived culturally responsive climate should predict academic outcomes beyond another similar published measure (i.e., school attachment measure) predicting later academic achievement. Adolescent students' attitudes and feelings about their schools, impact their later academic outcomes (Butler-Barnes, Estrada-Martinex, Colin, & Jones, 2015). An adolescent's attachment to their school can serve as a prolonged source of motivation throughout their years in school (Butler-Barnes et al., 2015). Their connections to their school can serve as a promoting or inhibitory environment which can impact adolescents' achievement beliefs (Butler-Barnes et al., 2015; García-Coll et al., 1996). As a students' school attachment is impacted by the school environment and experiences therein (e.g., social experiences, peer resources, belonging etc.) while impacting academic outcomes, it is reasonable to examine another measure of student experience (i.e., perceived culturally responsive climate) and its impact on adolescent academic outcomes. The current PCRC measure should predict those academic outcomes for African American adolescents above and beyond a school attachment measure.

As many culturally responsive measures primarily speak to teaching, specifically, or teachers' self-efficacy and attitudes (Guyton & Wesche, 2005; Hershfeldt et al., 2009; Natesan et al., 2011; Ponterotto et al., 1998; Siwatu, 2007; Siwatu et al., 2017; Spanierman et al., 2011) while not taking students' perceptions or voice into consideration, a measure is needed to better understand African American adolescents' culturally impacted school experiences. Similarly, as most racial climate measures primarily speak to simply racial discrimination and fairness students of color face in schools (Byrd, 2017; Griffin et al., 2017; Mattison & Aber, 2007; Watson & Aber, 2009), a measure aimed at understanding those experiences, in addition to classroom-specific experiences, school relationships, and perceptions of system-level experiences can give context to more comprehensive student perception of their schools. The current measure of perceived culturally responsive climate fills gaps in the literature by developing a measure offering insight into perceptions of multi-level school experiences, while giving voice to students' perceptions of those experiences.

Hypotheses

1. The expected six-factor structure of the self-report perceived culturally responsive climate measure for African American students (PCRC) will fit the data. The factors include: meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, autonomy and self-advocacy, and school social support.

2. PCRC items will fit a bifactor latent structure (see Figure 1) with items linked to the hypothesized perceived culturally responsive climate domains, as well as to the larger construct of perceived culturally responsive climate. The bifactor model will fit the data better than a first order, latent correlated factor model.

3. The PCRC measure will demonstrate adequate model fit, internal consistency, and test-retest reliability over time.

4. African American students' ratings of perceived culturally responsive climate will predict the later positive academic outcomes of academic ability self-concept and GPA.

5. The PCRC will demonstrate convergent validity with a published school attachment measure and will predict academic outcomes above and beyond the predictive power of the school attachment measure.

Chapter 2: Method

<u>MADICS</u>

The present study utilizes data from the Maryland Adolescent Development in Context Study (MADICS, 1991-2000) conducted by Eccles and colleagues. The purpose of the MADICS longitudinal study was to examine environmental influences on individual behavior and their contributions to successful pathways through adolescence. The study oversampled African American students in Prince George's County, which has a large African American community with a wide range of SES.

In the fall of 1991, researchers contacted 1,700 adolescents and their families to participate in Wave 1 of the MADICS study, with 1,482 students and families consenting to participate. At this time the adolescents were in the 7th grade and attending junior high school. The MADICS study collected data at six different time points, but the present study utilizes data from Waves 3 (W3) and 4 (W4) (Table 1). W3 begins during the adolescents' 8th grade year and consists of in-home surveys and telephone interviews with primary caregivers. All of the measures used in this study at W3 were youth self-report. Information collected at this time point focuses on race and ethnicity constructs. The final wave used within this study is W4 which took place during the adolescents' 11th grade year via face-to-face interviews and a self-administered questionnaire. In the overall study, the constructs focused on relationships in high school, studying, identity, discrimination, family relationships, values etc.

Participants

All of the participants who took part in the study lived in Prince George's County, Maryland during the time of data collection and came from a range of ecological settings including: low income and high-risk urban neighborhoods, middle class suburban neighborhoods, as well as rural neighborhoods. The overall sample is also representative of differing socioeconomic statuses with income normally distributed around a mean of $45,000-$49,000 during the year of 1990 (and a range of $5,000-$75,000). Regarding this study, 533 African American adolescents participated in data collection in W3 (8th grade) and 399 African American adolescents participated at W4 (11th grade) (Table 1). The percent of female participants was 49 percent at W3 (266 males, 263 females) and 51 percent at W4 (191 males, 207 females).

Procedures

In the fall of 1991, 1,700 adolescents and their families from schools within Prince George's County were contacted and recruited via letters sent home with the students. Of those contacted, 1,482 agreed to participate in the MADICS study. The letters asked for parental permission for their child and his/her parent and older sibling to participate in the longitudinal study. The present study utilizes data at Wave 3 and Wave 4 (Table 1). At Wave 3 and 4 (8th grade and 11th grade) the adolescents filled out a 45-minute in-home self-administered questionnaire. The present study utilizes youth self-report data for all constructs tested.

Demographics

The present study will include participant demographics on age, gender, and SES.

Measures

Perceived Culturally Responsive Climate for African American Adolescents (PCRC)

The current measure of perceived culturally responsive climate (PCRC) includes six W3 scales developed by the MADICS researchers to measure meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, autonomy and self-advocacy, and school social support. The original MADICS scale names were updated to better reflect the items therein, to improve the scale names' face validity.

Meaningful and Culturally Responsive Curriculum

Meaningful and culturally responsive curriculum was examined using a 10-item scale originally titled, Curricular Meaningfulness ($\alpha = .82$; see Appendix B). Math items from this meaningful and culturally responsive curriculum measure have been used in a published study (McKellar et al., 2018) serving as their relevant math instruction measure. The meaningful and culturally responsive curriculum scale measures how often the participants learn about people and places that are important to them (e.g., "How often do you read books about people of your cultural or racial group?"), how often students discuss problems and issues that are important to them, how often they learn things that are helpful in their everyday lives, and how often

teachers use examples that interest participants within the subjects of English, social studies, mathematics, and science. Additionally, the scale measures how often participants read books about people of their ethnic or racial group in their English class. The items use a 5-point Likert scale (1 = *almost never*; 5 = *almost always*), and item responses are averaged for a scale composite score.

High Expectations

High expectations were assessed using a 5-item unpublished MADICS scale originally titled, Youth School Task Culture (α = .68; see Appendix B). The high expectations scale measures participants' school perceptions of whether everyone can get good grades if they do their very best, whether everyone is challenged to do their best (e.g., "How true is it that everyone is challenged to do their very best?"), if teachers think how much they learn is more important than test scores and grades, if teachers want their students to understand the material rather than memorize it, and whether trying hard counts a lot. Item responses are averaged for a scale composite score, and all items use a 5-point scale Likert (1 = *not at all true at your school*; 5 = *very, very true*).

Teacher Discrimination

Teacher discrimination was measured by the MADICS scale originally titled Perceived Differential Treatment by Race (α = .88; see Appendix B). This teacher discrimination scale has been used in a published study (e.g., Wong, Eccles, & Sameroff, 2003) serving as one half of their discrimination measure (i.e., combined with the peer discrimination scale that is also utilized in the current study). All items

are averaged to obtain a composite score. The teacher discrimination scale measures frequency of racially discriminatory experiences from teachers like being called on less than peers, being graded harder (e.g., "How often do you feel that teachers grade you harder than they grade other kids because of your race?"), being disciplined more harshly, being thought of as less smart (5-point scale Likert; 1 = *never*; 5 = *every day*), and being discouraged from taking certain classes based on race (5-point scale Likert; 1 = *never*; 5 = *more than six times*).

Peer Discrimination

Peer discrimination was measured using a published 4-item MADICS scale originally titled Racial Relations Between Students (α = .79; see Appendix B). This peer discrimination scale has been used in a published study (e.g., Wong et al., 2003) serving as the other half of their discrimination measure (i.e., combined with the teacher discrimination scale that is also utilized in the current study). All items are averaged to obtain a composite score. The peer discrimination scale measures the frequency of racial tension between peers, being excluded from teams and activities based on race (e.g., "How often do you feel like you are not picked for certain teams or other school activities because of your race?"), getting into fights because of race, and other kids not wanting to hang out with the participants because of their race (5-point scale Likert; 1 = *almost never*; 5 = *almost always*).

Self-Advocacy and Autonomy

Self-advocacy and autonomy was measured using an unpublished 6-item MADICS scale originally titled, Student Participation and Autonomy at School (α =

.67; see Appendix B). The self-advocacy and autonomy scale measures the frequency of participants being able to decide where they sit, choose their partners for group work, participate in making school rules and policy (e.g., "In your 8th grade school, how often do students get to participate in making school rules and policy?"), discuss their work in class, have their ideas and suggestions used in classroom discussions, and engage in classroom discussion about what they are learning. All items use a 5-point scale Likert (1 = *almost never*; 5 = *almost always*), and responses are averaged for an overall composite score.

School Social Support

School social support was assessed by combining 8-items from unpublished MADICS scales originally titled, School Social Support from Adults, School Social Support from Peers, and Youth School Ability Culture (α = .68; see Appendix B). All items are averaged to obtain a composite score. Items asking participants about peer support have been used in a published study (e.g., Byrd & Chavous, 2011) as part of their overall measure of school belonging. Those questions assessing peer support evaluate how often participants can depend on friends and peers when they are experiencing a social problem, personal problem (e.g., "When you have a social or personal problem at school, how often can you depend on your friends to help you out?"), or when they are having trouble with schoolwork (5-point scale Likert; 1 = *almost never*; 5 = *almost always*). Items assessing teacher support measure how often participants can depend on their teachers for help when experiencing a social or personal problem (e.g., "When you have a social or personal problem at school, how

often can you depend on your teachers to help you out?"), how often they go to their teachers for help with schoolwork (5-point scale Likert; 1 = *almost never*; 5 = *almost always*), whether they perceive teachers as only caring about smart kids, and if they believe teachers have given up on their students (5-point scale Likert; 1 = *not at all true at your school*; 5 = *very, very true*).

School Attachment

School attachment at W3 was measured using a 3-item MADICS scale originally titled, Youth Intrinsic Reasons for Attending School ($\alpha = .75$; see Appendix B). This school attachment measure has been used in a published study (e.g., Butler-Barnes et al., 2015) serving as their school attachment measure. The school attachment scale measures importance of reasons to go to school like going to school because they like their classes, because they like what they're learning (e.g., "I go to school because I like what I'm learning"), and because it makes them feel smart. All items use a 7-point scale (1 = *not an important reason*; 5 = *a very important reason*).

Self-Report Grades

At W4, the MADICS dataset includes a 5-item question asking the participants: "On your 1st semester report card from 11th grade," (a) how many A's did you get? (b) how many B's did you get? (c) how many C's did you get? (d) how many D's did you get? and (e) how many F's did you get? Participant responses were averaged to determine overall GPA (see Appendix B).

Academic Ability Self-Concept

Academic ability self-concept in African American participants at W4 was examined using a 6-item scale created by MADICS researchers originally titled, Youth Self-Concept of Academic Skills (α = .84; see Appendix B). The academic self-concept scale measures the participants' perceptions of their skills in math (e.g., "Compared to other kids your age, how well do you do in math?"), their skills in other subjects, how they believe they compare to other kids their age in math and other subjects, as well as how they expect to perform the next year in math and other school subjects (e.g., compared to other kids your age, how well do you do in math?). Math items from this overall academic ability self-concept measure have been used in a published study (McKellar et al., 2018) serving as their self-concept of math ability measure. The items use a 7-point scale (1 = *much worse than other kids*; 7 = *much better than other kids*), and all items are averaged to obtain a composite score.

Analyses

Descriptive analysis (means, standard deviations, and ranges) of all variables (Table 4) was assessed to determine if they present normal distributions. Intercorrelations among the variables were conducted to identify relationships between them (Table 3). The present study relied on SPSS version 27 for the descriptives and correlations, and M*plus* version 8.0 for all other analyses. When determining factor structure of the larger PCRC measure (as well as for all CFA analyses), the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA) were used as

model fit indices. Criteria for good model fit was a CFI ≥ 0.95, RMSEA ≤ 0.06, and SRMR ≤ 0.08. For all models, factor variance was set to one to allow M*plus* to provide all of the unstandardized coefficients.

Factor Structure of the PCRC

The factor structure of the PCRC was evaluated to determine how the proposed factor structure fit the data. I ran a confirmatory factor analysis (CFA) to assess if the theory-based bifactor structure of the PCRC fit the data with items loading onto expected PCRC scale constructs (i.e., meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, autonomy and self-advocacy, and school social support), as well as to the larger construct of perceived culturally responsive climate. Using nested model testing, I compared the bifactor structure to a first order structure in which the PCRC items load onto scale constructs only. A second order factor structure was also tested, and it demonstrated a better fit compared to the bifactor and first order factor structures.

Internal Consistency

The PCRC measure was evaluated for adequate internal consistency. Cronbach's alpha and McDonald's omega coefficients were conducted to determine if all items combine to consistently measure the general construct of perceived culturally responsive climate for African American adolescent participants.

31

Test-Retest Reliability

The PCRC measure was evaluated for test-retest reliability. With the exception of a single item (i.e., from the high expectations domain), all W3 PCRC items were re-administered at W4. Model fit was evaluated at both time points, with the exclusion of the item. Test-retest reliability was tested with the assumption of measurement invariance. Then, test-retest reliability was examined via the correlation between latent PCRC across time points.

PCRC Predication of Academic Outcomes

African American adolescent participants' ratings on the PCRC were evaluated for their prediction of later positive academic achievement outcomes of academic ability self-concept and GPA. To determine predictive validity, I conducted a latent variable path analysis in M*plus* using W3 latent perceived culturally responsive climate (PCRC) and W4 latent academic self-concept and observed GPA as outcomes. To account for missing data, full information maximum likelihood (FIML) was used. Gender, SES, and age served as the demographic controls for the model.

Convergent Validity

The PCRC measure was evaluated for convergent validity, or its predictive power for academic outcomes above and beyond that of a published school attachment measure. To demonstrate convergent validity, correlations were run between the PCRC and an existing school attachment measure. Following latent variable path analysis for the PCRC, latent school attachment was added as an

additional predictor. This determined whether the strength of the relation between the

PCRC and the academic outcomes of GPA and academic ability self-concept, was

above and beyond the strength of the relation of school attachment with GPA and

academic ability self-concept.

Chapter 3: Results

<u>Descriptives</u>

Means, ranges, standard deviations, and alpha reliability coefficients of the studied variables can be found in Table 4 of Appendix A. Most means were as expected, although the mean W4 academic ability self-concept rating was higher than expected as it was 5.22 within a 7-point scale. Similarly, the teacher discrimination (reversed) mean W3 rating was 4.36 on a 5-point scale. All Cronbach's alpha and McDonald's omega were adequate, ranging from 0.66 to 0.88 (Taber, 2018).

<u>Correlations</u>

Bivariate correlations were computed for all variables used in this study (Table 3). The correlation between the two outcome variables of GPA and academic ability self-concept ($r = .37$) was statistically significant, as expected. Additionally, all PCRC domains demonstrated significant correlations with one another. Of note, the high expectations domain and the school social support domain did not demonstrate significant correlations with the academic ability self-concept outcome. Additionally, with the exception of the teacher discrimination domain, none of the PCRC domains demonstrated significant correlations with the GPA outcome. The convergent validity comparison measure of school attachment demonstrated significant correlations with both academic ability self-concept and GPA.

Prior to determining factor structure, item content was evaluated for face validity. To increase face validity, three items within the autonomy and self-advocacy subscale were replaced (Appendix B). That is, three items were removed, and three others were substituted which more closely matched the construct of autonomy and self-advocacy. The new, substituted autonomy and self-advocacy items were selected from the MADICS scale originally titled, Student Participation and Autonomy at School. These new items were selected because they demonstrated face validity for a scale aimed at understanding a student's autonomy, compared to the three original items asking students about whether they thought they *should* be able to exercise their autonomy in school. For this reason, the three items were replaced prior to additional data analysis. The three new items asked students about their ability to discuss their own work in class, whether their ideas and suggestions were used in the classroom, and if there is classroom discussion concerning what they are learning.

To test the factor structure of the PCRC, confirmatory factor analyses were run on a model including all of the correlated PCRC subscales. This study expected a bifactor model, although it was not clear that it would be a bifactor or second order CFA model. A second order factor structure (not the bifactor model structure) provided the best model fit for the overall PCRC measure. Both the PCRC bifactor model and correlated first-order model did not converge. The data best fit a second order model, with the second order model predicting PCRC items loading onto their respective latent first-order factors (subscales/domains, i.e., meaningful curriculum, high expectations, teacher discrimination, autonomy, and school social support), and

those subfactors loading onto the second order PCRC factor (Figures 4, 5, & 6; Appendix B). PCRC second and first-order item- and factor-level coefficients were evaluated, and the peer discrimination subscale was dropped from the larger PCRC measure to improve overall model fit. Model coefficients and factor loadings are provided in Table 5 of Appendix A.

To improve model fit, confirmatory factor analyses were run separately on each of PCRC's domains to determine which domains had less-than-ideal model fit. The model fit of School Social Support was improved after two items were removed (for theoretical rationale, see Table 8 of Appendix A). To improve fit based on M*plus*' suggested modification indices, item correlations were added to the PCRC confirmatory factor analysis; the theoretical rationale for all item-level correlations to improve model fit in the CFA, path, and test-retest models can be found in Table 8 of Appendix A. The model fit was adequate for the final second order W3 PCRC model (CFI = 0.95, SRMR = 0.05, RMSEA = 0.03). The W4 PCRC model fit indices were adequate although the CFI approached the fit criteria (CFI = 0.94, SRMR = 0.05, RMSEA = 0.04).

Regarding the internal consistency of the PCRC scale and domain averages, Cronbach's alpha and McDonald's omega results indicate that participants responded in a consistent manner to both the items in the overall PCRC scale and to the domain-specific items (e.g., school social support) at W3 and W4 (see Table 4). The PCRC provided an alpha coefficient of 0.87 at W3, and 0.83 at W4. It also provided an omega coefficient of 0.87 at W3 and 0.83 at W4. As all full scale and domain scales' reliability coefficients are above the adequate range, the perceived culturally

responsive climate measure demonstrates sufficient internal consistency at both W3 and W4.

Test-retest reliability was evaluated to determine how consistently participants responded to the PCRC items over time. The strength of the correlation between the latent second order PCRC W3 and W4 factors were examined, with the assumption of measurement invariance between the two waves. The test-retest model provided a significant positive correlation between the W3 and W4 PCRC second order factors (r = .57, p = 0.00); fit indices were adequate although the CFI approached the fit criteria (i.e., CFI = 0.89, SRMR = 0.07, RMSEA = 0.03). Researchers have suggested that test-retest correlation coefficients within the range of 0.4 and 0.75 are moderate (Fleiss, 1986), and others have defined 0.4 to 0.59 as fair/moderate (Cicchetti, 1994). PCRC's test-retest correlation was expected to be moderate, so the correlation of 0.57 matches the expected correlation range. These results suggest that the PCRC measure demonstrates adequate test-retest reliability.

PCRC Prediction of Academic Outcomes

To determine the predictive power of the PCRC for African American adolescents' academic outcomes, a latent variable path analysis tested W3 latent PCRC second order factor prediction of W4 self-reported latent academic ability self-concept and observed GPA outcomes. Gender, SES, and age served as demographic controls. First, a CFA tested the expected latent structure of the academic ability self-concept scale, and a two-factor structure fit the academic ability self-concept outcome best, with items pertaining to math (e.g., compared to other kids your age, how well

do you do in math?) loading onto a math ability self-concept factor, and items

pertaining to achievement in other subjects (e.g., compared to other kids your age,

how well do you do in other school subjects) loading onto an other-subject self-

concept factor. The correlated first order academic ability self-concept factors, were

used as outcome variables in the path analysis in addition to the observed GPA

variable. The path analysis results indicated that the direct effect of the latent PCRC

factor on latent academic ability self-concept was positive and significant for both the

math self-concept and other-subject self-concept factors, and PCRC was not a

significant predictor of GPA, although there was a trend towards the significance of

GPA as an outcome (see Table 7 of Appendix A); model fit indices suggested

adequate model fit (i.e., CFI = 0.94, SRMR = 0.05, RMSEA = 0.03).

Convergent and Incremental Validity

The convergent validity of PCRC's correlation with and the incremental

predictive power of school attachment, above and beyond PCRC, with academic

outcomes was tested. The correlation between observed PCRC and school attachment

was statistically significant ($r = 0.82$). Latent PCRC was not a significant predictor of

latent math self-concept, other-subject self-concept, or observed GPA, above and

beyond the predictive strength of latent school attachment. Similarly, latent school

attachment did not serve as a significant predictor of latent math self-concept, other-

subject self-concept, and observed GPA, above and beyond the predictive strength of

the PCRC.

38

Chapter 4: Discussion

The contribution of this study to the cultural responsivity conceptual, measurement, and academic field of research is the inclusion of African American student voice regarding their culturally responsive school experiences. These results also further the understanding of how those student experiences impact academic outcomes for African American adolescents. This study represents the development of the first measure of perceived culturally responsive school climate for African American students. The conclusion from this study is that the perceived culturally responsive school climate measure and its prediction of later academic outcomes demonstrates psychometric strength (e.g., predictive validity) and may suggest relevance for African American adolescents. Specifically, the results of the study indicated that a second order factor structure fits the PCRC data best, and that the PCRC measure predicts academic outcomes for African American adolescents (i.e., math and non-math subjects self-concept; it is related to an established school attachment measure although it does not demonstrate incremental validity above and beyond school attachment in predicting academic outcomes). The findings are consistent with literature indicating that culturally responsive curricula, school social support, high expectations, autonomy and self-advocacy (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016; Guyton & Wesche, 2005; Herschfelt et al., 2009; Ponterotto et al., 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017; Spanierman et al., 2011) and teacher discrimination (Griffin et al., 2017; Watkins & Aber, 2009), are essential elements of culturally responsive school practices and

positive school racial climates. Thus, the inclusion of all the previously listed elements in a combined measure of perceived culturally responsive school climate is supported by the literature, as well as by the results of the present study. The results also bolster the existing literature indicating the importance of perceived culturally responsive school practices and climate in the promotion of academic outcomes (Cole, Matheson, & Anisman, 2007; Eccles et al., 2006; Gentrup et al., 2020; Griffin et al., 2017; Nadler & Komarraju, 2016; Peterson, 2014). The development of a perceived culturally responsive climate measure for African American students is novel because previous measures of culturally responsive school practices from a student perspective were limited in quantity and scope (e.g., two existing measures with domains specifically related to the populations for which they were developed, and include domains related to teaching practices only). In addition, these measures do not include some of the aspects of perceived culturally responsive climate that I have previously argued as essential to culturally responsive practices, nor were they specifically developed for the African American student population (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016). This discussion will address the PCRC model, psychometrics (e.g., internal and test-retest reliability), and impact on academic outcomes in the context of relevant theory and research, in addition to limitations and implications of this study.

PCRC Structure

The results suggested that the construct of perceived culturally responsive school climate is composed of the expected components of culturally responsive and

meaningful curriculum, school social support, high expectations, discrimination, and self-advocacy and autonomy. The domains of perceived culturally responsive climate were selected based on their accordance with critical race theory (Dixson & Rousseau), culturally responsive pedagogy (Ladson-Billings, 1995), aspects of education that African American students view as culturally responsive (Howard, 2010), and Hanson and Voight's (2014) framework for students' perspectives of school climate. The culturally responsive curriculum, high expectations, student autonomy, and social support domains are essential aspects of existing measures of culturally responsive teaching practices (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016; Guyton & Wesche, 2005; Herschfelt et al., 2009; Ponterotto et al., 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017; Spanierman et al., 2011), while the teacher discrimination domain is fundamental to existing racial climate measures (Griffin et al., 2017; Watkins & Aber, 2009). The inclusion of the theorized domains in the measurement of the larger construct of perceived culturally responsive school climate, is confirmed by the second order factor structure of the PCRC measure. In this way, the PCRC model results were consistent with the expected theoretical model and relevant literature.

Though some studies have indicated that bifactor models can often fit a range of psychometric data better than multidimensional second order models due to possible unmodeled complexities causing bias (Yang et al., 2017), the second order factor structure fit the PCRC measure better than the hypothesized bifactor model. Although the data fit each domain factor, as separate factors, and the data fit the second order model with each domain loading onto the larger perceived culturally

41

responsive climate construct, the data did not fit, as well, a first-order model in which each item individually loaded onto the general factor. This may be due in part to the items from each domain being individually selected to fit a wide range of differing PCRC components, which were expected to combine to form the larger PCRC measure.

As argued in the introduction, the selected domains of PCRC are essential elements of PCRC. One might argue, though, that other domains of PCRC would be relevant like student perceptions of their teachers' value for their culture (Boon & Lewthwaite, 2015) or the inclusion of family in student learning (Dickson, Chun, & Fernandez, 2016). Indeed, the two existing measures of culturally responsive teaching practices from the student's perspective have included student perception of these two aspects of cultural responsiveness (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016), but not of the other domains used within the present study such as the promotion of self-advocacy and autonomy, high expectations, school-wide social support, or climate-level perceptions like those of teacher discrimination. Future research could examine student perceptions of their schools' demonstrated value of their culture, as well as student perceptions concerning how and in what ways schools attempt to include family and community stakeholder perspectives.

Unexpectedly, the domain of peer discrimination did not load onto the general PCRC construct as well as the other hypothesized domains. When considering teacher discrimination versus peer discrimination in the context of the overall construct of culturally responsive school climate, it seems easy to imagine that peer discrimination might load less onto a PCRC measure of teacher and school cultural responsivity,

compared to teacher discrimination. It is also noteworthy that teachers hold a position of power in a student's education (Repress, Small, Francis, & Cordova, 2013). The power that teachers have over a student's education may impact their identity development, their relationship with their identities, and their views on prejudice, discrimination, and racism within the education system generally (Repress et al., 2013). That is, a student's experiences with their teachers may strongly impact their views on racism at their schools (Repress et al., 2013), which may relate to their views concerning their school's culturally responsive practices or lack thereof. Additionally, of the hypothesized domains (high expectations, meaningful and culturally responsive curriculum, school social support, teacher discrimination, peer discrimination and the promotion of self-advocacy and student autonomy) the peer discrimination domain is the sole hypothesized domain in which educators do not have a direct contribution. For this reason, it is possible that curriculum, social support, high teacher expectations, teacher discrimination, and the promotion of self-advocacy and autonomy more closely fit together in loading onto a larger PCRC construct. Though peer discrimination did not fit the PCRC measure as well as the other domains, the data largely fit the expected theoretical model and African adolescent participants who provided self-report ratings, tended to respond to the PCRC factors in similar ways.

Student Self-Report

The present study offers the contribution of the only cultural responsivity measure featuring student perception of their culturally responsive school climate.

43

Student voice can be conceptualized as the ways in which students have opportunities to share in school decisions that will shape their lives and the lives of their peers (Fielding, 2001; Levin, 2000; Mitra, 2008). Providing African American adolescent students with a voice in their education and allowing them to vocalize their views on their schools' climate practices, directly aligns with the present study's critical race framework because the PCRC's measure prioritizes the experiences of African American students. Student voice has been described as a pyramid with the foundational level of, "being heard," "collaborating with adults," and "building capacity for leadership," which is at the top of the pyramid (Mintra, 2005, pp. 523). The final and highest level of, "building capacity for leadership," includes students serving as a source of criticism and protest in schools by questioning issues such as structural and cultural injustices within schools (Mintra & Gross, 2009). This level of student voice has been associated with positive youth development outcomes like engagement in the school community, and school attachment (Mintra, 2009) which is often associated with academic outcomes (Mintra, 2004; Mintra, 2009). The potential use of the present perceived culturally responsive school climate measure in schools could offer students the opportunity to reflect on their schools' efforts in promoting cultural responsivity, while providing direct feedback to adult leaders concerning areas for growth and further development. Students can communicate their perceptions of practices and climate in a more objective manner, I believe, than the teachers' perceptions of their own culturally responsive practices. Indeed, some research has found that teachers can demonstrate an inflated perception of their own use of culturally responsive practices (Debnam et al., 2015). The current measure has

not been validated at the group level (e.g., class- or school-level), only at the student/individual level. Future studies merit testing teacher and observation validation, and consider testing both student- and teacher-reported PCRC, along with observations of culturally responsive practices, using the same models as those tested in the present study.

In addition to the benefits of allowing students the opportunity to use their voice in advocating for their educational needs, I, and probably students, would argue that it serves as a more objective measure than previously relied-upon measures of cultural responsivity. Most measures identifying culturally responsive teaching practices solely focus on the teacher's perspective, their self-reported attitudes, and self-efficacy (Guyton & Wesche, 2005; Hershfeldt et al., 2009; Natesan, Eebb-Hasan, Carter, & Walter, 2011; Ponterotto, Baluch, Greig, & Rivera, 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017; Spanierman et al., 2011). Though there have only been two measures developed examining culturally responsive school practices from the perspective of students themselves (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016), they have primarily focused on student views of a narrow realm of teaching practices without accounting for the larger school climate and the environmental context in which those teaching practices take place. In addition to the existing measures solely focusing on culturally responsive teaching, those measures were not developed specifically for African American students (i.e., measures were developed with Indigenous Australian students and Latinx students; Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016). This novel measure of culturally responsive school climate includes a broad range of domains (i.e.,

meaningful and culturally responsive curriculum, teacher discrimination, school social support, high expectations, and autonomy and self-advocacy) capturing both culturally responsive teaching practices as well as perceptions of the larger school climate.

PCRC and Academic Outcomes

These results suggest that the current measure of perceived culturally responsive school climate has the ability to predict academic outcomes for African American adolescents. Specifically, the higher a student's ratings of their perceived culturally responsive school climate, the higher their rating of their own academic ability self-concept. Though the PCRC was not a predictor of self-reported GPA, academic ability self-concept is seen as having influence on a student's academic self-efficacy beliefs as well as their academic motivation (Ferla, Valcke, & Cai, 2009), and it is closely related to students' performance on standardized tests and course grades (e.g., Marsh, Trautwein, Ludtke, Koller, & Baumert, 2005). Indeed, academic ability self-concept has demonstrated reciprocal effects with other academic achievement constructs, such as grades (Marsh & O'Mara, 2008). Although the PCRC measure did not predict academic outcomes above and beyond an existing school attachment measure (Butler-Barnes et al., 2015), neither did school attachment predict academic outcomes above and beyond PCRC, and the PCRC did demonstrate the capacity to predict later academic ability self-concept for African American adolescents. Culturally responsive school practices are put in place to be validating, comprehensive, multi-dimensional, transformative, emancipatory, and empowering

46

for students (Gay, 2018; Woodley, Hernandez, Parra, & Negash, 2017). Through culturally responsive instruction, students become the primary source, consumers, and producers of knowledge (Gay 2018). As culturally responsive teaching practices benefit students through empowerment (Gay, 2018), it makes sense that the current study finds the PCRC measure to positively predict student's academic ability self-concept for achievement. Additionally, research has found relations between culturally responsive practices and other proxies of academic ability self-concept like, grades and standardized test scores (Cherfas et al., 2018; Ladson-Billings, 1995; Lopez, 2016; Rodriguez et al., 2004).

The PCRC's capability of predicting academic ability self-concept, has important implications for its use with African American adolescents in the reduction of the opportunity gap. The opportunity gap between African American students and their European American peers, is a direct reflection of the education system and biases that perpetuate differences in the attainment of academic achievement (Arnett, 2019). The PCRC measure was created as a means of better understanding student perceptions of those factors that researchers find vital to improving overall teaching practices which are linked to academic outcomes and may help close the opportunity gap – culturally responsive teaching practices and school racial climate. As the PCRC is predictive of later academic outcomes for African American adolescents, schools may consider its use as a means of collecting contextual information on their policies, inclusion of student voice, teaching practices, and methods of supporting African American students. The measure may provide direct guidance on those domains of perceived culturally responsive school climate in which schools may need to develop

47

or foster, in order take action in dissipating the negative impact of the opportunity gap for African American adolescents.

Limitations

There are several limitations that may have impacted the results of the present study. First, is the fact that all variables included within the models were measured via self-report from the participants, including their grades. The use of multiple methods of measurement is typically seen as the most effective methodological approach, as solely relying on self-report measures can increase the risk of social desirability bias. Future studies utilizing these variables should incorporate measures from outside sources like school-reported outcomes (e.g., report cards) in order to lower the likelihood of social desirability bias influencing the academic results.

The second limitation is the prevalence of missing data throughout the utilized waves within the dataset. Specifically, the number of African American participants dropped from 533 in W3 to 399 in W4. Though the present study uses W3 as the first time-point, the total number of participants (533 participants) decreased from W1 (863 participants). For this reason, the results of the present study may demonstrate bias due to self-selection. That is, it is possible that those who continued through W4, may have demonstrated higher academic ability self-concept scores compared to those who discontinued participation, though academic ability self-concept was not assessed at W1. Though attrition can be common in longitudinal studies, within this particular study, attrition took place over the course several years. Attrition may have impacted the statistical power of the study and pose a threat to overall validity. To

48

address the impact of attrition, maximum likelihood estimation in M*plus* version 8 was used, which is the same statistical technique employed for similar longitudinal studies using this sample (Wong et al., 2003). Third, although the long-term aim of the present study is to support the use of the PCRC within schools, the MADICS scales utilized within the PCRC were not disseminated beyond developmental psychology venues. The current PCRC measure is intended not only for dissemination to education-oriented venues, but also for application within school settings.

This study validated the use of the overall PCRC score, not the future use of the subscale/domain-level subscores. Additionally, items included in the school attachment measure, used in the present study to test for convergent validity, presume school attachment. That is, the items ask students about their reasons for liking school, without necessarily providing students an option to indicate that they do not like school or feel any attachment to their school. An additional limitation stems from the MADICS scales and items' previous development, and therefore, additional concepts or items of interest cannot be added to previously gathered data. If I could have designed and selected items for my ideal PCRC measure, I would have included additional items across domains. For example, I would have liked to add culturally responsive curriculum items or autonomy and self-advocacy items aimed at understanding how teachers encouraged students to develop a social and political critical consciousness, and how those practices were taught across subject areas. Items like these would communicate a more current perception of the ways in which teachers can utilize culturally responsive practices inside and outside of the

49

classroom. An additional limitation stems from categorical item responses assumed to be continuous in my analyses.

Lastly, the MADICS dataset was collected from the years 1991-2000, which may impact the results' generalizability to African American adolescents today. As the present study examines the dimensions of perceived culturally responsive climate through current culturally responsive frameworks, it is notable that U.S. surveys indicate that issues related to racism, discrimination, and microaggressions have received increasing attention within the U.S. over the past few years. According to a survey conducted in 2017, the number of Black individuals who consider racism to be a "big problem," has almost doubled from 2009 to 2017 (i.e., 44% of Black people to 81% of Black people surveyed) (Pew Research Center, 2017). As individuals become more aware to the need for culturally responsive practices in schools, their conceptualizations of those practices may differ. Additionally, as the country becomes more diverse, research related to culturally responsive school practices will need to expand in complexity, scope, and quantity. In 2019, 69% of individuals surveyed rated that over the past 20 years the country has become "more diverse," (Pew Research Center, 2019). According to U.S. Census data, White individuals will become a minority in the country by 2045 (United States Census Bureau, 2018). Though this statistic does not fully recognize the abundance in ethnic diversity that may result, it does indicate changing demographics in the country – and may give insight into the ways in which educational research is changing. Research within the areas of culturally responsive school practices has greatly increased over the years and has focused on gaining more clarity into the construct's operationalization and

the dimensions that combine in its measurement (Bennett et al., 2018). As the country is becoming more diverse, the awareness of and views on the PCRC domains (e.g., teacher discrimination, meaningful and culturally responsive curriculum etc.) may differ from those of adolescents of several decades prior. Additionally, given how long ago the data was collected, the current conceptualization of microaggressions and microassaults were not included in the PCRC measure. Also not included in the measure due to the age of the dataset, are items evaluating the ways in which social media has provided African American adolescents valuable resources and inspiration for advocating for social justice and equity inside and outside of their schools. Access to social media for the current generation of African American adolescents, may impact their views on concepts such as culturally responsive curricula as well as teacher discrimination. As such, findings from this study may not be generalizable to those outside of the racial contexts of 1991-2000. Future PCRC validation studies may be conducted with African American adolescents, with their scores compared to those of African American students who participated in the MADICS study. In this way, the contextual effects of differences in schools or time period may be evaluated. Future studies on perceived culturally responsive climates for African American adolescents may also be conducted to further understanding of how growing and adapting views of the PCRC domains in a changing culture influence its predictive role and its conceptualization.

The results of the present study contribute to the conceptual and empirical field of cultural responsivity by elucidating the measurement of youth-reported perceived culturally responsive climate, as well as its role in predicting academic outcomes for African American adolescents. The results stand in accordance with the literature outlining the vital aspects of both culturally responsive teaching practices and racial climate (Byrd, 2017; Griffin et al., 2017; Ladson-Billings, 1995; Mattison & Aber, 2007; Watson & Aber, 2009). Therefore, this study suggests some potential domains of practice in which schools might take action to better their cultural responsivity and their capability to address the needs of their African American students.

Though there have been a great variety of studies aiming to measure culturally responsive school practices and racial climate, there remains a gap in how these ideas come together to more accurately depict the whole student experience. Additionally, there are only two measures evaluating culturally responsive teaching practices from the perspective of the students themselves (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016). Though there have been calls for the inclusion of student voice in educational research (Howard, 2001; Waxman & Hung, 1997), those calls have not been answered with regard to African American adolescent students' views of their schools' use of the culturally responsive pedagogy and climate. The present PCRC measure offers a more holistic understanding of African American students' school experiences through interpersonal and perceived classroom-level and system-level items, while providing the potential for those students to use their unique

perspectives to promote change. Student voice does not have the opportunity to promote systemic and class-level change unless schools are interested. Given the current (and historical) violence against African Americans (Hadden, Tolliver, Snowden, & Brown-Manning, 2016), school-to-prison pipeline (Grace & Nelson, 2019), racial climate in schools (Voight et al., 2015), and society as a whole, it is imperative that schools are proactive in addressing their cultural responsivity and climate, among other areas to close the opportunity gap and promote Black wellness (Howard, 2011; Love & Muhammad, 2017; Ladson-Billings, 1995). The current measure may allow for schools to better evaluate their use of culturally responsive practices, while also providing teachers and administrators the ability to obtain direct feedback. For school psychologists, this measure may afford a means of providing systems-level and culturally responsive consultation services within the schools (Hoffman et al., 2006).

The current study makes a contribution of developing a measure that gives voice to African American students and provides a broader view of their school experiences as well as information concerning the ways in which those culturally responsive experiences may impact their academic achievement. This measure of perceived culturally responsive school climate has demonstrated predictive validity with later math and non-math subjects academic self-concept for African American adolescents and may serve as an important tool in schools taking steps to improve their culturally responsive practices. In conclusion, the present study relies on fundamental aspects of critical race theory and contributes to the culturally responsive pedagogy literature, by giving voice to African American students on areas of needed

school improvement to potentially give feedback to those individuals and systems

upholding the opportunity gap between African American and European American

students.

Appendices

Appendix A

Table 1

Year, Grade, Measures and Number of Participants for Each Wave

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Year	1991	1992	1993	1996	1998	2000
Grade	7	7 (Summer)	8	11	1 yr. post-grad	3 yrs. Post-grad
African American N	863		533	399	243	
Meaningful and Culturally Responsive Curriculum			532	359		
High Expectations			532	367		
Teacher and Peer Discrimination			532	396		
Self-Advocacy and Autonomy			533	368		
School Social Support			524	354		
School Attachment			533			
Academic Ability Self-Concept				390		
Grade Point Average				365		

Note: The current study uses data from Waves 3 and 4.

Table 2

Sample Demographics at Wave 3

Demographic Variables	%	*N*
Adolescent Gender		
Female	49.3	263
Male	49.9	266
Missing	0.8	4
Ethnicity		
African American	100	533
Social Economic Status		
< $5,000	1.5	8
$5,000	0.9	5
$10,000 - $14,999	1.7	9
$15,000 - $19,999	2.8	15
$20,000 – $24,999	4.1	22
$25,000 – $29,999	6.6	35
$30,000 - $34,999	6.2	33
$35,000 - $39,999	5.6	30
$40,000 - $44,999	5.6	30
$45,000 - $49,999	6.4	34
$50,000 - $54,999	5.8	31
$55,000 - $59,999	6.2	33
$60,000 - $64,999	5.1	27
$65,000 - $69,999	3.0	16
$70,000 - $74,999	4.1	22
$75,000 - $79,999	4.7	25
$80,000 - $84,999	3.0	16
$85,000 - $89,999	3.2	17
$90,000 - $94,999	4.7	25
$95,000 - $99,999	2.4	13
> $100,000	3.8	20
Missing	12.6	67

Table 3

Wave 3 Intercorrelations Among Variables

Variable and Time Point	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Meaningful and CR Curriculum (Wave 3)	-	-	-	-	-	-	-	-	-	-	-
2. High Expectations (Wave 3)	0.43**	-	-	-	-	-	-	-	-	-	-
3. Teacher Discrimination (Wave 3)	-.117**	-0.34**	-	-	-	-	-	-	-	-	-
4. Self-Advocacy and Autonomy (Wave 3)	0.46**	0.39**	-0.17**	-	-	-	-	-	-	-	-
5. School Social Support (Wave 3)	0.32**	0.25**	-0.18**	0.29**	-	-	-	-	-	-	-
6. School Attachment (Wave 3)	0.51**	0.36**	-0.13**	0.33**	0.22**	-	-	-	-	-	-
7. Gender	0.00	0.12**	-0.11*	0.10*	0.15**	0.02	-	-	-	-	-
8. SES	-0.05	0.08	-0.08	-0.01	0.06	0.02	-0.04	-	-	-	-
9. Age	0.07	-0.08	0.04	-0.08	-0.12**	0.06	-0.12**	-0.19**	-	-	-
10. GPA (Wave 4)	0.06	0.09	-0.19**	0.00	0.01	0.15**	0.22**	0.11*	-0.12*	-	-
11. AASC (Wave 4)	0.17**	0.05	-0.18**	0.11*	0.09	0.21**	0.02	0.04	-0.09	0.37**	-

$*p < .05., ** p < .01., *** p < .001$
Note: Gender was coded with "1" for male and "2" for female.

Table 4

Descriptives, Cronbach's Alpha, and McDonald's Omega for Variables in Model

Variables	Mean	SD	Minimum	Maximum	Cronbach's Alpha	McDonald's Omega
PCRC (Wave 3)	3.48	0.49	1.54	4.78	0.87	0.87
Autonomy & Self-Advocacy (W3)	3.17	0.69	1.00	5.00	0.67	0.67
High Expectations (W3)	3.77	0.74	1.00	5.00	0.68	0.69
Meaningful & Culturally Responsive Curriculum (W3)	3.16	0.75	1.00	5.00	0.82	0.82
Teacher Discrimination (W3; Reverse)	4.36	0.84	1.00	5.00	0.88	0.88
School Social Support (W3)	2.92	0.69	1.00	5.00	0.68	0.68
PCRC (Wave 4)	3.52	0.43	2.14	5.00	0.83	0.83
Autonomy & Self-Advocacy (W4)	3.34	0.63	1.33	5.00	0.73	0.73
High Expectations (W4)	3.81	0.86	1.00	5.00	0.80	0.80
Meaningful & Culturally Responsive Curriculum (W4)	2.85	0.72	1.00	5.00	0.81	0.78
Teacher Discrimination (W4; Reverse)	4.63	0.63	1.00	5.00	0.87	0.88
School Social Support (W4)	2.90	0.69	1.00	4.83	0.66	0.66
Academic Ability Self-Concept (W4)	5.22	0.93	2.40	7.00	0.84	0.81
Grade Point Average (W4)	3.03	0.62	0.00	4.00	-	-
Gender (Wave 3; 1=male, 2=female)	1.5	0.5	1	2	-	-
SES (W3)	11.3	5.12	1.00	21.00	-	-

Note: Items included have been updated to reflect changes in PCRC items and subscales.

Table 5

Perceived Culturally Responsive Climate Second Order CFA (Wave 3)

Latent Variables	Items	Unstandardized Estimate (SE)	Standardized Estimate (SE)	Unstandardized Estimate (SE) *p*-value	Unstandardized Estimate (SE) Confidence Interval
Autonomy & Self-Advocacy	In your 8th grade school how often…				
	…do students get to decide where they sit? (v35103)	.24(.05)	.29(.05)	<.001	(.15, .33)
	…are students allowed to choose their partners for group work? (v35105)	.34(.05)	.46(.05)	<.001	(.24, .44)
	… do students get to participate in making school rules and policy? (v35108)	.18(.04)	.23(.05)	<.001	(.10, .26)
	…do the students get to discuss their work in class (v35102)	.37(.04)	.52(.05)	<.001	(.29, .45)
	…are students' ideas and suggestions used during classroom discussions? (v35106)	.50(.05)	.71(.04)	<.001	(.40, .59)
	… is there a lot of classroom discussion about what you are learning? (v35107)	.52(.05)	.73(.04)	<.001	(.42, .61)
High Academic Expectations	In your 8th grade school, how true is it that…				
	…everyone can get good grades if they do their very best? (v35117)	.34(.04)	.54(.05)	<.001	(.26, .42)
	…everyone is challenged to do their very best? (v35118)	.32(.04)	.45(.05)	<.001	(.23, .40)
	…teachers think how much you learn is more important than test scores or grades? (v35119)	.23(.04)	.32(.05)	<.001	(.15, .31)
	…that teachers want students to really understand their work, not just memorize it? (v35120)	.43(.05)	.68(.04)	<.001	(.34, .53)
	…trying hard counts a lot? (v35121)	.48(.06)	.74(.03)	<.001	(.37, .59)
Meaningful & CR Curriculum	Here are some questions specifically about your 8th grade social studies class. How often…				
	…do you learn about people and places that are important to you? (v35132)	.38(.06)	.58(.04)	<.001	(.27, .50)
	…do you discuss problems and issues that are meaningful to you? (v35133)	.35(.06)	.55(.05)	<.001	(.24, .46)
	…do you learn things that help you with your everyday life? (v35134)	.33(.06)	.53(.05)	<.001	(.22, .44)
	Here are some questions specifically about your 8th grade math class. How often…				
	…does your math teacher use examples that are interesting to you? (v35135)	.35(.05)	.51(.05)	<.001	(.25, .45)
	…do you learn things in math that help you with your everyday life? (v35137)	.35(.05)	.51(.05)	<.001	(.24, .45)
	Here are some questions specifically about your 8th grade English class. How often…				
	…do you read books about people of your cultural or racial group? (v35138)	.32(.06)	.48(.05)	<.001	(.21, .43)

	…do you discuss problems and issues that are meaningful to you? (v35139)	.35(.06)	.52(.05)	<.001	(.24, .46)
	… do you learn things in English that help you with your everyday life? (v35140)	.33(.05)	.50(.05)	<.001	(.23, .42)
	Here are some questions specifically about your 8th grade science class. How often…				
	…do you discuss problems and issues that are meaningful to you? (v35142)	.32(.06)	.47(.05)	<.001	(.21, .44)
	…do you learn things in science that help you with your everyday life? (v35143)	.30(.06)	.41(.05)	<.001	(.19, .40)
School Social Support	When you have a social or personal problem at school…				
	…how often can you depend on your teachers to help you out? (v33522)	.59(.05)	.63(.05)	<.001	(.49, .69)
	When you're having trouble on schoolwork…				
	…how often do you go to your teachers for help? (v33526)	.50(.06)	.56(.05)	<.001	(.39, .61)
	When you have a social or personal problem at school, how often can you depend on…				
	…your friends to help you out? (v33523)	.29(.05)	.33(.05)	<.001	(.19, .40)
	…other students aside from your friends to help you out? (v33524)	.42(.06)	.51(.06)	<.001	(.30, .54)
	When you're having trouble on schoolwork, how often do you go to…				
	…your friends for help? (v33527)	.42(.05)	.45(.05)	<.001	(.32, .52)
	…other students aside from your friends for help? (v33528)	.24(.06)	.28(.06)	<.001	(.13, .35)
Teacher Discrimination	At school, how often do you feel… [reverse]				
	…that teachers call on you less often than they call on other kids because of your race? (TD3R1) [reverse]	.63(.05)	.66(.04)	<.001	(.53, .72)
	…that teachers grade you harder than they grade other kids because of your race? (TD3R2) [reverse]	.77(.05)	.86(.02)	<.001	(.67, .86)
	…that you get disciplined more harshly by teachers than other kids do because of your race? (TD3R3) [reverse]	.79(.05)	.80(.03)	<.001	(.70, .89)
	…that teachers think you are less smart than you really are because of your race? (TD3R4) [reverse]	.73(.05)	.83(.03)	<.001	(.64, .82)
	…that teachers/counselors discourage you from taking certain classes because of your race? (TD3R5) [reverse]	.55(.05)	.68(.04)	<.001	(.45, .65)
Perceived CR Climate (PCRC W3)	Autonomy & Self-Advocacy	1.09(.15)	.74(.05)	<.001	(.80, 1.39)

High Academic Expectations	**1.34(.20)**	**.80(.04)**	**<.001**	**(.96, 1.73)**
Meaningful & CR Curriculum	**1.52(.28)**	**.84(.05)**	**<.001**	**(.98, 2.06)**
School Social Support	**.78(.11)**	**.61(.05)**	**<.001**	**(.57, .99)**
Teacher Discrimination	**.55(.09)**	**.48(.06)**	**<.001**	**(.38, .72)**

Note: Bolded are significant.

Table 6

Perceived Culturally Responsive Climate Second Order CFA (Wave 4)

Latent Variables	Items	Unstandardized Estimate (SE)	Standardized Estimate (SE)	Unstandardized Estimate (SE) *p*-value	Unstandardized Estimate (SE) Confidence Interval
Autonomy & Self-Advocacy	In your 8th grade school how often…				
	…do students get to decide where they sit? (v46233)	.24(.05)	.39(.06)	<.001	(.14, .35)
	…are students allowed to choose their partners for group work? (v46234)	.34(.04)	.52(.06)	<.001	(.21, .41)
	… do students get to participate in making school rules and policy? (v46237)	.15(.05)	.21(.06)	<.001	(.06, .24)
	…do the students get to discuss their work in class (v46232)	.34(.05)	.58(.05)	<.001	(.25, .44)
	…are students' ideas and suggestions used during classroom discussions? (v46235)	.48(.07)	.78(.06)	<.001	(.31, .65)
	… is there a lot of classroom discussion about what you are learning? (v46236)	.49(.08)	.77(.05)	<.001	(.34, .64)
High Academic Expectations	In your 8th grade school, how true is it that…				
	…everyone can get good grades if they do their very best? (v46246)	.47(.06)	.60(.05)	<.001	(.35, .59)
	…everyone is challenged to do their very best? (v46247)	.59(.07)	.70(.04)	<.001	(.46, .73)
	…that teachers want students to really understand their work, not just memorize it? (v46249)	.65(.07)	.79(.04)	<.001	(.51, .79)
	…trying hard counts a lot? (v46250)	.61(.07)	.69(.05)	<.001	(.47, .75)
Meaningful & CR Curriculum	Here are some questions specifically about your 8th grade social studies class. How often…				
	…do you learn about people and places that are important to you? (v46266)	.47(.08)	.62(.06)	<.001	(.31, .64)
	…do you discuss problems and issues that are meaningful to you? (v46267)	.53(.08)	.69(.05)	<.001	(.37, .68)
	…do you learn things that help you with your everyday life? (v46268)	.45(.08)	.59(.06)	<.001	(.30, .61)
	Here are some questions specifically about your 8th grade math class. How often…				
	…does your math teacher use examples that are interesting to you? (v46271)	.42(.08)	.50(.06)	<.001	(.27, .57)
	…do you learn things in math that help you with your everyday life? (v46273)	.31(.07)	.37(.07)	<.001	(.17, .45)
	Here are some questions specifically about your 8th grade English class. How often…				
	…do you read books about people of your cultural or racial group? (v46276)	.24(.06)	.32(.07)	<.001	(.12, .36)

	…do you discuss problems and issues that are meaningful to you? (v46277)	.35(.07)	.45(.06)	<.001	(.22, .48)
	… do you learn things in English that help you with your everyday life? (v46278)	.37(.07)	.46(.06)	<.001	(.24, .50)
	Here are some questions specifically about your 8th grade science class. How often…				
	…do you discuss problems and issues that are meaningful to you? (v46282)	.34(.07)	.42(.07)	<.001	(.21, .48)
	…do you learn things in science that help you with your everyday life? (v46283)	.29(.07)	.36(.08)	<.001	(.14, .43)
School Social Support	When you have a social or personal problem at school…				
	…how often can you depend on your teachers to help you out? (v43604)	.67(.12)	.60(.15)	<.001	(.43, .91)
	When you're having trouble on schoolwork…				
	…how often do you go to your teachers for help? (v43613)	.55(.15)	.54(.11)	<.001	(.25, .85)
	When you have a social or personal problem at school, how often can you depend on…				
	…your friends to help you out? (v43608)	.36(.12)	.34(.09)	<.001	(.12, .60)
	…other students aside from your friends to help you out? (v43609)	.43(.15)	.49(.13)	<.001	(.13, .72)
	When you're having trouble on schoolwork, how often do you go to…				
	…your friends for help? (v43614)	.37(.17)	.35(.13)	.03	(.05, .70)
	…other students aside from your friends for help? (v43615)	.27(.12)	.27(.10)	.02	(.04, .51)
Teacher Discrimination	At school, how often do you feel… [reverse]				
	…that teachers call on you less often than they call on other kids because of your race? (TD4R1) [reverse]	.49(.07)	.65(.06)	<.001	(.35, .62)
	…that teachers grade you harder than they grade other kids because of your race? (TD4R2) [reverse]	.65(.06)	.86(.03)	<.001	(.54, .77)
	…that you get disciplined more harshly by teachers than other kids do because of your race? (TD4R3) [reverse]	.70(.06)	.87(.04)	<.001	(.58, .82)
	…that teachers think you are less smart than you really are because of your race? (TD4R4) [reverse]	.59(.06)	.82(.05)	<.001	(.48, .71)
	…that teachers/counselors discourage you from taking certain classes because of your race? (TD4R5) [reverse]	.39(.07)	.60(.07)	<.001	(.27, .52)
Perceived CR Climate (PCRC W4)	Autonomy & Self-Advocacy	1.18(.26)	.76(.07)	<.001	(.68, 1.68)
	High Academic Expectations	.82(.16)	.64(.08)	<.001	(.50, 1.14)

Meaningful & CR Curriculum	**1.13(.26)**	**.75(.08)**	**<.001**	**(.61, 1.64)**
School Social Support	**.45(.22)**	**.41(.17)**	**.04**	**(.01, .88)**
Teacher Discrimination	**.32(.08)**	**.31(07)**	**<.001**	**(.17, .48)**

Note: Bolded are significant.

Table 7

Path Estimates of Latent PCRC Predicting Latent Academic Ability Self-Concept and

Observed GPA

Outcomes:	Math Academic Ability Self Concept			
Predictor	**Unstand. Estimate (SE)**	**Standard. Estimate (SE)**	**Unstand. Estimate (SE) *p*-value**	**Unstand. Estimate (SE) CI**
PCRC	**.21(.10)**	**.14(.07)**	**.03**	**(.02, .40)**
Controls				
SES	.00(.02)	.01(.05)	.88	(-.03, .03)
Gender	-.30(.17)	-.10(.06)	.07	(-.63, .02)
Age	-.21(.17)	-.07(.05)	.21	(-.55, .12)

Outcomes:	Other Subject Academic Ability Self-Concept			
Predictor	**Unstand. Estimate (SE)**	**Standard. Estimate (SE)**	**Unstand. Estimate (SE) *p*-value**	**Unstand. Estimate (SE) CI**
PCRC	**.15(.06)**	**.17(.07)**	**.01**	**(.04, .26)**
Controls				
SES	.01(.01)	.03(.06)	.60	(-.02, .03)
Gender	**.22(.10)**	**.13(.06)**	**.03**	**(.02, .42)**
Age	-.13(.10)	-.07(.05)	.21	(-.32, .07)

Outcomes:	Grade Point Average (GPA)			
Predictor	**Unstand. Estimate (SE)**	**Standard. Estimate (SE)**	**Unstand. Estimate (SE) *p*-value**	**Unstand. Estimate (SE) CI**
PCRC	.07(.04)	.12(.07)	.09	(-.01, .15)
Controls				
SES	.01(.01)	.10(.05)	.07	(.00, .02)
Gender	**.25(.06)**	**.20(.05)**	**.00**	**(.12, .37)**
Age	-.11(.07)	-.08(.05)	.12	(-.25, .03)

Note: Bolded rows are significant.

Table 8

List of and Rationale for Item-level Correlations included in Second Order CFA,

Path Analysis, and Convergent Validity Models, as Suggested by Modification Indices

to Improve Fit.

Second Order CFA Correlations		
Variable 1	**Subsequent Variables**	**Rationale for Overlap between the Two Items**
(V35103) Autonomy Item #1	(V35105) Autonomy Item #2	Concerned with students' ability to make decisions, specifically
(V35103) Autonomy Item #1	(V35108) Autonomy Item #3	Concerned with students' ability to make decisions, specifically
(V35117) High Expectations Item #1	(V35118) High Expectations Item #2	Determine extent directly challenged by teachers and outcome
(V35132) Curriculum Item #1	(V35133, V35134) Curriculum Items #2 & #3	Subject-specific items (i.e., Social studies items)
(V35133) Curriculum Item #2	(V35134) Curriculum Item #3	Subject-specific items (i.e., Social studies items)
(V35135) Curriculum Item #4	(V35137) Curriculum Item #5	Subject-specific items (i.e., Math items)
(V35138) Curriculum Item #6	(V35139, V35140) Curriculum Items #7 & #8	Subject-specific items (i.e., English items)
(V35139) Curriculum Item #7	(V35140) Curriculum Item #8	Subject-specific items (i.e., English items)
(V35142) Curriculum Item #9	(V35143) Curriculum Item #10	Subject-specific items (i.e., Science items)
(V35137) Curriculum Item #5	(V35140, V35143) Curriculum Items #8 & #10	Same wording, concerning learning things to help in everyday life
(V35140) Curriculum Item #8	(V35143) Curriculum Item #10	Same wording, concerning learning things to help in everyday life
(V33523) Support Item #3	(V33527) Support Item #5	Concerning support from friends
(V33524) Support Item #4	(V33528) Support item #6	Concerning support from peers
(V33523) Support Item #3	(V33524) Support Item #4	Same wording (i.e., "count on x to help you out…")
(V33527) Support Item #5	(V33528) Support Item #6	Same wording (i.e., "…trouble with schoolwork…")
(V33524) Support Item #4	(V33526) Support Item #2	Concerning depending on those other than peers
(TDIS) Teacher Discrimination Scale	(CURR) Curriculum Scale	One factor may depend on the other because teachers who demonstrate discrimination are not likely to utilize CR curricula
Path Analysis Correlations, in addition to CFA Added Correlations		
(V46041) Academic Ability Self-Concept Item #3	(V46042) Academic Ability Self-Concept Item #4	Comparing your self-concept to other students
(V46049) Academic Ability Self-Concept Item #5	(V46050) Academic Ability Self-Concept Item #6	Academic expectations
(Math) Math Ability Self-Concept	(Subject, GPA) Other Subject Self-Concept & GPA	Outcome variables
(Subject) Other Subject Self-Concept	(GPA)	Outcome variables
(PCRCWave3) PCRC Scale Wave 3	(SES, Sex, Age)	Predictor variables
(SES)	(Sex, Age)	Predictor variables
(Sex)	(Age)	Predictor variables
Convergent Validity Correlations, in addition to CFA and Path Added Correlations		
(PCRCWave3) PCRC Scale Wave 3	(SES, Sex, Age, LATTACH) SES, Sex, Age & Attachment	Predictor variables and comparison predictor
(SES)	(Sex, Age, LATTACH) Sex, Age & Attachment	Predictor variables and comparison predictor
(Sex)	(Age, LATTACH) Age & Attachment	Predictor variables and comparison predictor
(Age)	(LATTACH) Attachment	Predictor variables and comparison predictor
Domain-Level CFA Item Removal For Fit		
(V35114) Social Support Item #7	N/A	First of two items which are the only in the scale to not directly ask about those who provides the student with help
(V35115) Social Support Item #8	N/A	Second of two items which are the only in the scale to not directly ask about those who provides the student with help

Note: Information in third column specifies the theoretical reasoning for the correlations added to each model. Also, the values in parentheses represent the item/domain names.
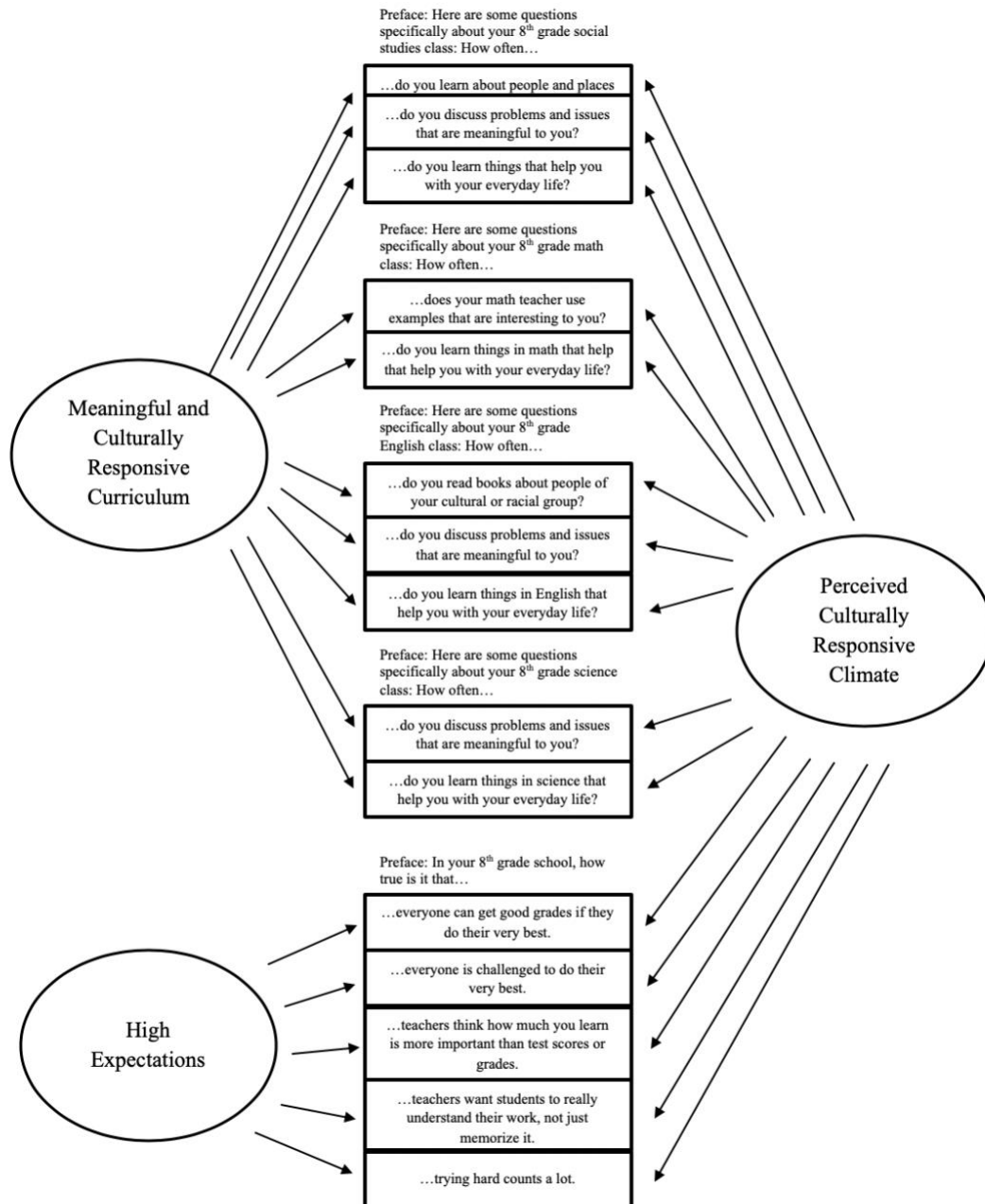
Figure 1. Hypothesized bifactor structure of proposed measure of perceived culturally responsive climate (PCRC). Part 1 of 3.
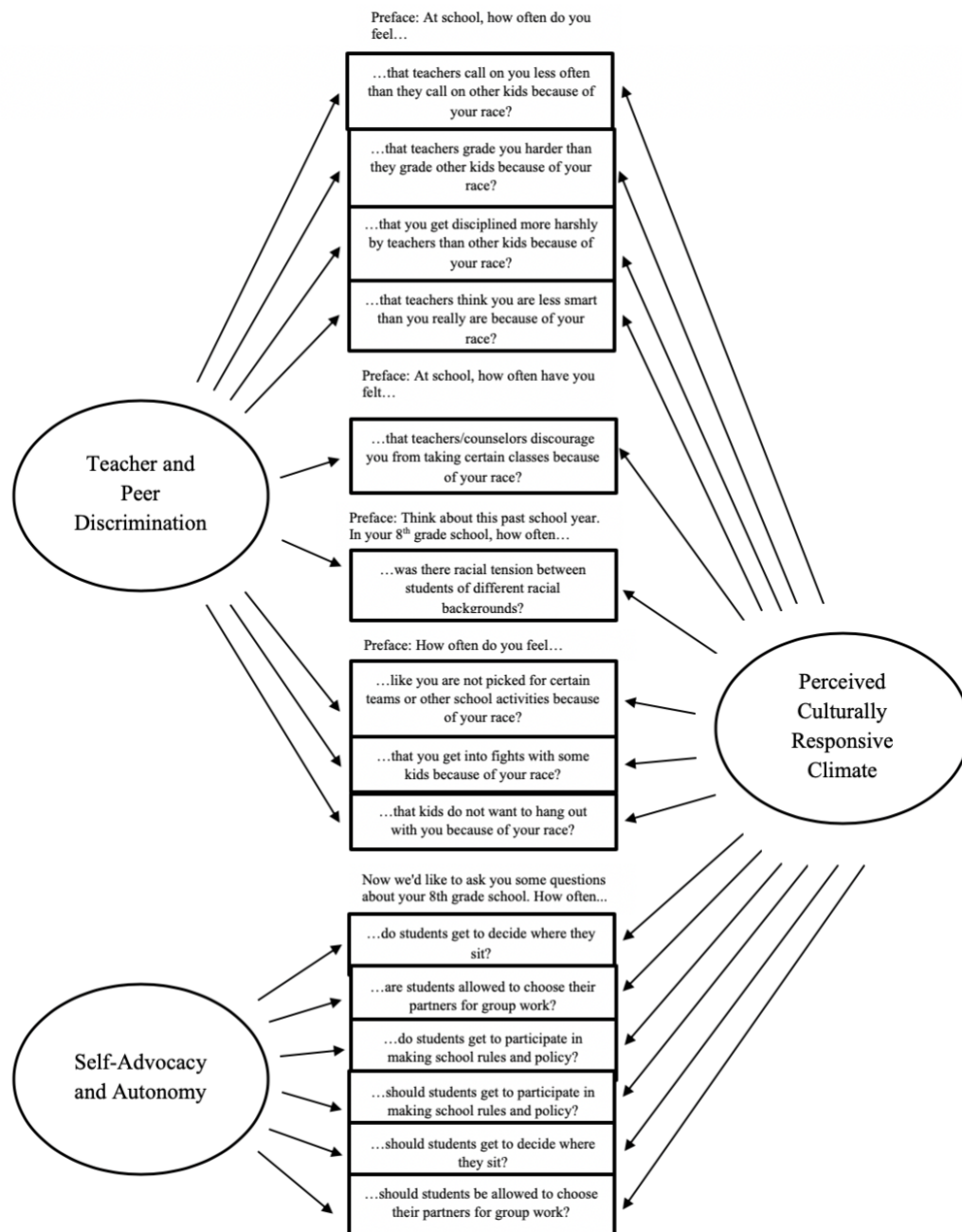
Figure 2. Hypothesized bifactor structure of proposed measure of perceived culturally responsive climate (PCRC). Part 2 of 3.
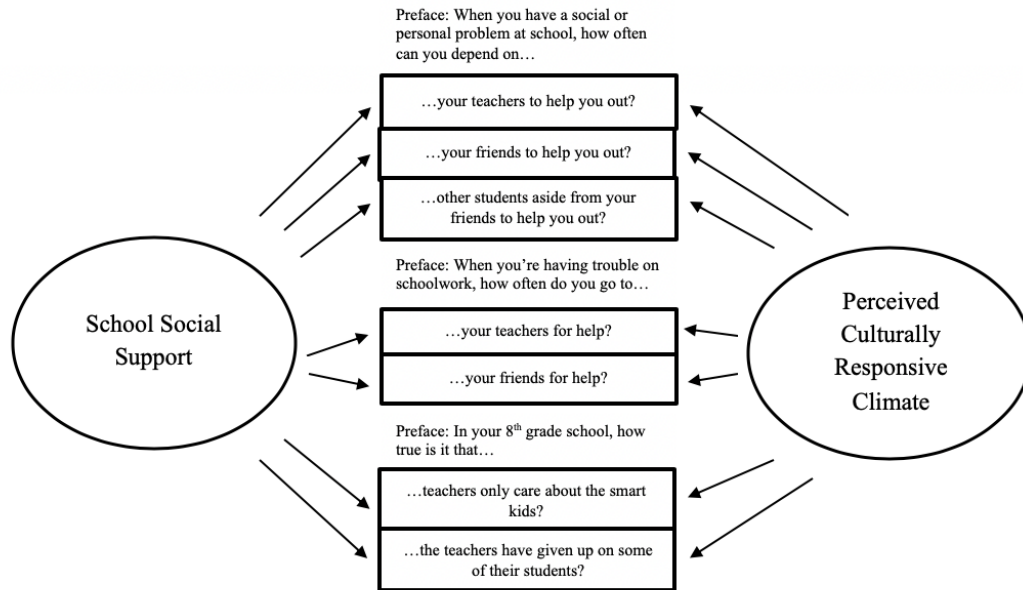
Figure 3. Hypothesized bifactor structure of proposed measure of perceived culturally responsive climate (PCRC). Part 3 of 3.

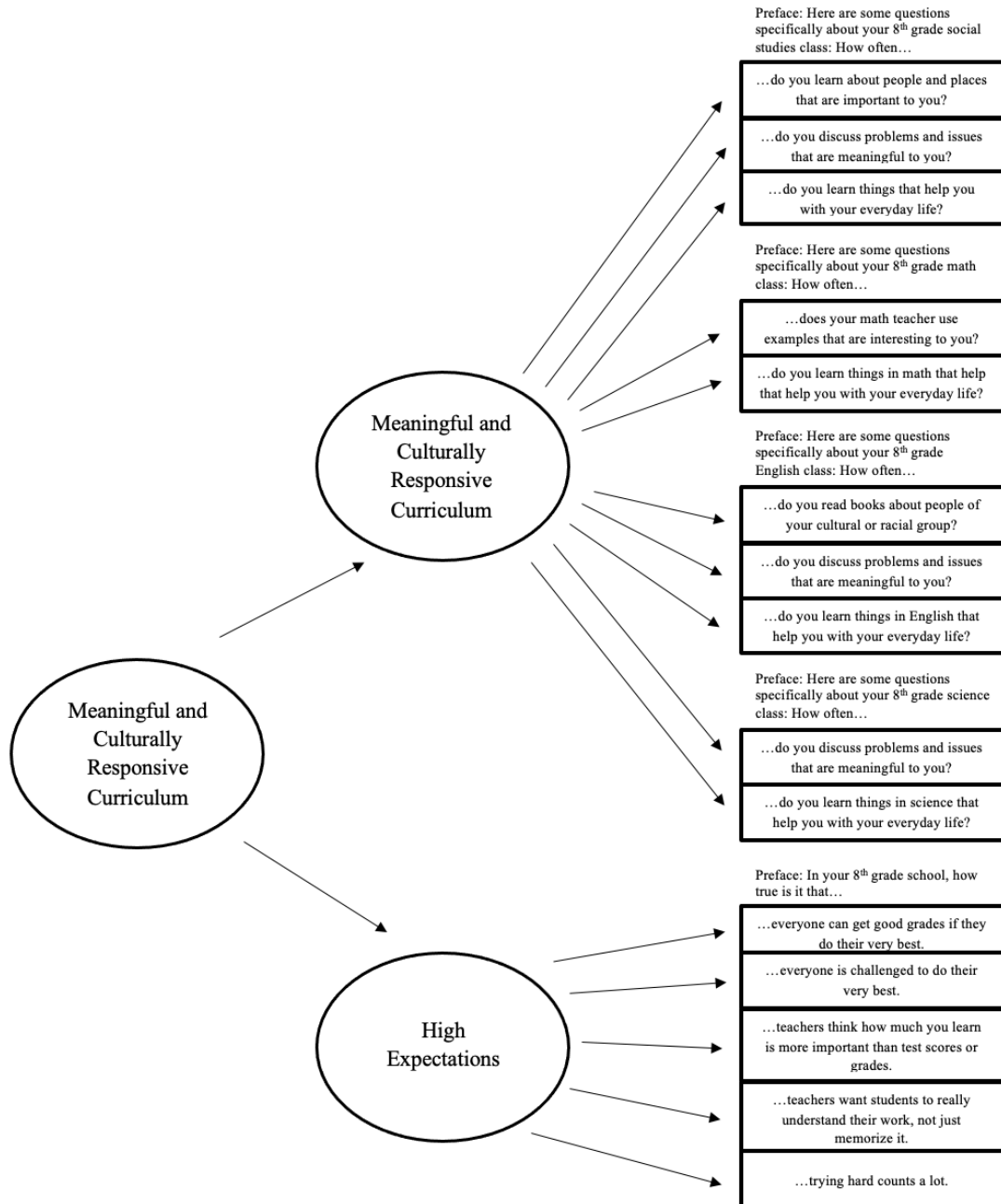*Figure 4.* Final second order factor structure of perceived culturally responsive climate (PCRC). Part 1 of 3 in this figure.
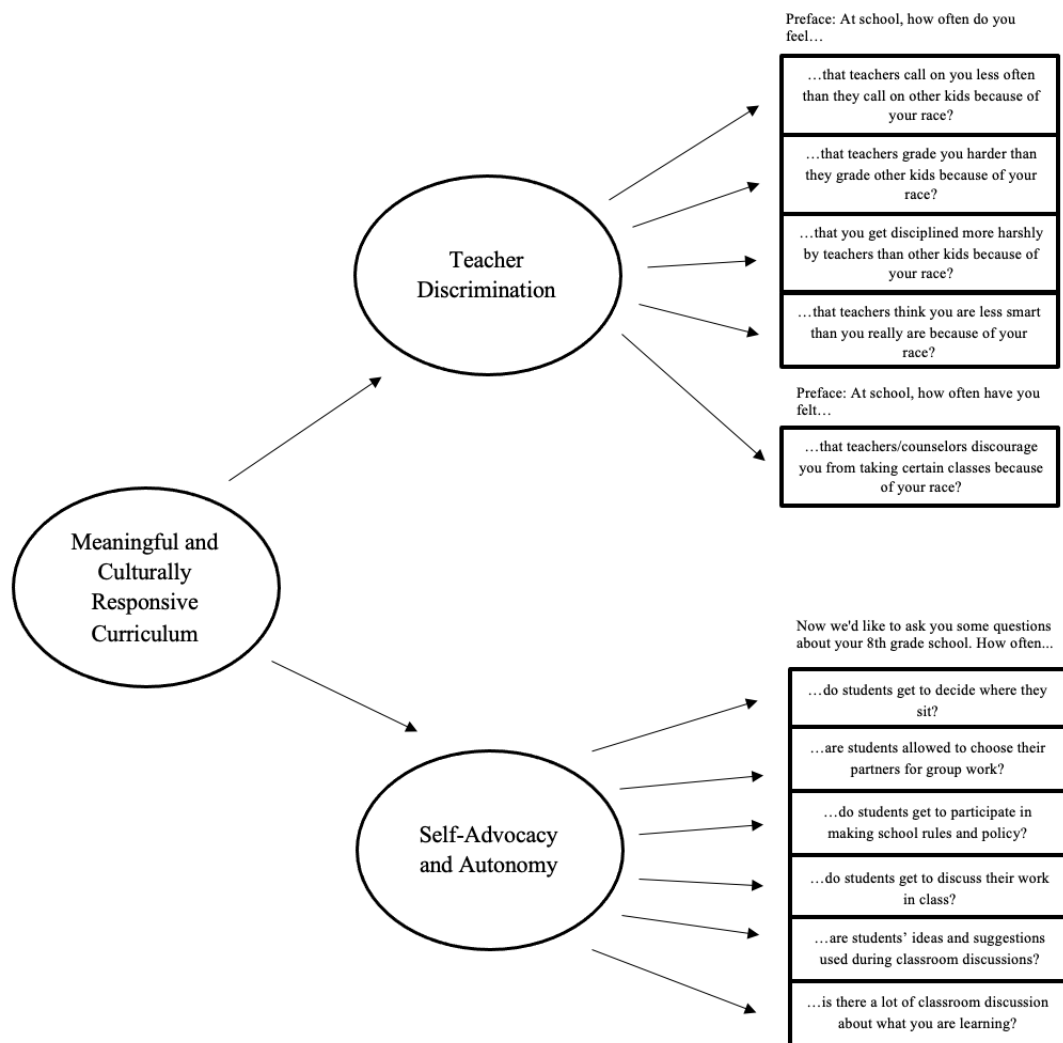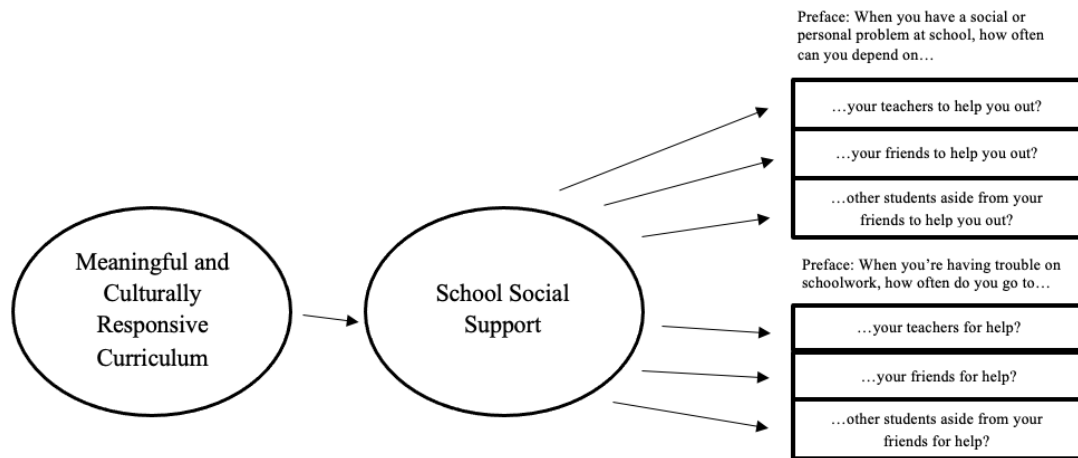
Figure 5. Final second order factor structure of perceived culturally responsive climate (PCRC). Part 2 of 3.

Figure 6. Final second order factor structure of perceived culturally responsive climate (PCRC). Part 3 of 3.

Appendix B

Measures

Please note that items removed, replaced, or added to the PCRC measure are provided

in brackets below.

Meaningful and Culturally Responsive Curriculum

Here are some questions specifically about your 8ᵗʰ grade social studies class. How
often…

1. …do you learn about people and places that are important to you?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

2. …do you discuss problems and issues that are meaningful to you?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

3. …do you learn things that help you with your everyday life?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

Here are some questions specifically about your 8ᵗʰ grade math class. How often…

4. …does your math teacher use examples that are interesting to you?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

5. …do you learn things in math that help you with your everyday life?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

Here are some questions specifically about your 8ᵗʰ grade English class. How often…

6. …do you read books about people of your cultural or racial group?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

7. …do you discuss problems and issues that are meaningful to you?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

8. ...do you learn things in English that help you with your everyday life?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

Here are some questions specifically about your 8th grade science class. How often…

9. …do you discuss problems and issues that are meaningful to you?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

10. …do you learn things in science that help you with your everyday life?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

High Expectations

In your 8ᵗʰ grade school, how true is it that…

    1. …everyone can get good grades if they do their very best.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

    2. …everyone is challenged to do their very best.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

    3. …teachers think how much you learn is more important than test scores or grades.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

    4. …teachers want students to really understand their work, not just memorize it.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

    5. …trying hard counts a lot.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

Teacher Discrimination

At school, how often do you feel…

1. …that teachers call on you less often than they call on other kids because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

2. …that teacher grade you harder than they grade other kids because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

3. …that you get disciplined more harshly by teachers than other kids do because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

4. …that teachers think you are less smart than you really are because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

How often have you felt…

5. …that teachers/counselors discourage you from taking certain classes because of your race?

1 = never, 2 = once or twice, 3 = three or four times, 4 = five or six times, 5 = more than six times

Peer Discrimination [REMOVED]

Think about this past school year. In your 8ᵗʰ grade school, how often…

1. …was there racial tension between students of different racial backgrounds?

1 = almost never, 2 = occasionally, 3 = sometimes, 4 = usually, 5 = almost always

How often do you feel…

2. …like you are not picked for certain teams or other school activities because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

3. …that you get in fights with some kids because of your race?

1 = never, 2 = a couple times each year, 3 = a couple times each month, 4 = once or twice each week, 5 = every day

4. …that kids do not want to hang out with you because of your race?

Self-Advocacy and Autonomy

In your 8ᵗʰ grade school, how often…

1. …do students get to decide where they sit?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

2. …are students allowed to choose their partners for group work?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

3. …do students get to participate in making school rules and policy?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

[REPLACED; previously item 4]…should students get to participate in making school rules and policy?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

[REPLACED; previously item 5]…should students get to decide where they sit?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

[REPLACED; previously item 6]…should students be allowed to choose their partners for group work?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

4. [NEW item 4]…do students get to discuss their work in class?

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

5. [NEW item 5]…are students' ideas and suggestions used during classroom discussions

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

6. [NEW item 6]…is there a lot of classroom discussion about what you are learning

1 = almost never, 2 = once in a while, 3 = sometimes, 4 = often, 5 = almost always

School Social Support

When you have a social or personal problem at school…

    1. …how often can you depend on your teachers to help you out?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

When you're having trouble on schoolwork…

    2. …how often do you go to your teachers for help?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

When you have a social or personal problem at school, how often can you depend on…

    3. …your friends to help you out?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

    4. …other students aside from your friends to help you out?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

When you're having trouble on schoolwork, how often do you go to…

    5. …your friends for help?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

    6. …other students aside from your friends for help?

1 = almost never, 2 = not too often, 3 = about half the time, 4 = fairly often, 5 = almost always

In your 8th grade school, how true is it that… [Reverse Coded]

    7. [REMOVED]…teachers only care about the smart kids.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

    8. [REMOVED]…teachers have given up on some of their students.

1 = not at all true at your school, 2 = a little true, 3 = somewhat true, 4 = quite true, 5 = very, very true

Grade Point Average (GPA)

On your 1ˢᵗ semester report card from 11ᵗʰ grade…

1. How many A's did you get?

2. How many B's did you get?

3. How many C's did you get?

4. How many D's did you get?

5. How many F's did you get?

Academic Ability Self-Concept

How good are you in…

    1. …math?

1= not good at all, 2, 3, 4, 5, 6, 7 = very good

    2. …other subjects?

1= not good at all, 2, 3, 4, 5, 6, 7 = very good

Compared to other kids your age…

    3. …how well do you do in math?

1 = much worse than other kids, 2, 3, 4, 5, 6, 7 = much better than other kids

    4. …how well do you do in other subjects?

1 = much worse than other kids, 2, 3, 4, 5, 6, 7 = much better than other kids

    5. …how well do you expect to do next year in math?

1 = much worse than other kids, 2, 3, 4, 5, 6, 7 = much better than other kids

    6. …how well do you expect to do next year in other school subjects?

1 = much worse than other kids, 2, 3, 4, 5, 6, 7 = much better than other kids

School Attachment

I like school because…

1. …I enjoy my classes.

1 = not an important reason, 2, 3, 4, 5, 6, 7 = a very important reason

2. …I like what I am learning.

1 = not an important reason, 2, 3, 4, 5, 6, 7 = a very important reason

3. …it makes me feel smart.

1 = not an important reason, 2, 3, 4, 5, 6, 7 = a very important reason

Appendix C: Comprehensive Introduction and Literature Review

Culturally Responsive Pedagogy and The Opportunity Gap

Discrepancies in academic achievement between European American students and ethnic minority students have remained a considerable cause of concern for educators for several decades. This gap in achievement is evident as African American students have lower standardized test scores, receive lower grades than their European American counterparts, and are far more likely to drop out of high school (Jencks & Phillips, 1998; Planty et al., 2009). The National Center for Education Statistics states that the gap has decreased over time and is smaller when accounting for socioeconomic status (Bohrnstedt et al., 2015; Chubb & Loveless, 2002). Though this is the case, the gap still persists, and African American students generally score lower than European American students on standardized tests (Bohrnstedt et al., 2015). Recent research has been clear that the gap is not a student problem; in fact, it is a system-level problem (Arnett, 2019). That is, the gap in achievement is not necessarily reflective of the students impacted and their abilities to learn, rather it is a direct reflection of the education system, biases therein, as well as an of the adults who have been entrusted to provide a quality education to African American students (Arnett, 2019). For this reason, researchers should advocate for referring to this gap in achievement, as the opportunity gap rather than the achievement gap (Khalifa, 2020; Khalifa, Gooden & Davis, 2016).

Researchers have proposed many possible contributors to the gap in achievement including factors like parent involvement (Jeynes, 2003), teacher training (Johnson, 2009), issues of access and opportunity to an equitable education in

today's standardized system of education (Hunter & Bartee, 2003), racist schooling practices, structural inequities, and low teacher expectations (Spring, 2007). The opportunity gap has a lasting impact as it can be present as early as kindergarten and continue into adulthood (Jencks & Phillips, 1998). To combat the progression of opportunity gap and mitigate its lasting impact, research within this area has focused on varying interventions and protective factors against the gap in achievement between African American students and their peers. These include but are not limited to affirmation interventions for students of color (Cohen & Sherman, 2014), increases in gifted program access for African American students (Olszewski-Kubilius et al., 2004), increased access to quality physical education programs (Basch, 2011), efforts to integrate schools with families and communities (Trusty et al., 2008) multicultural student education and curricula (Okoye-Johnson, 2011), as well as improved school racial climates (Mattison & Aber, 2007). With regard to teaching practices specifically, researchers have found the following strategies beneficial in mitigating the gap in achievement (McKinley, 2010): constructive teacher attitudes, positive teacher-student interpersonal relationships, social activist approaches to teaching, establishment of a cultural context to learning based on the students' backgrounds, and the effective use of culturally responsive instruction and assessment. Two prominent areas of study aimed at improving teaching and school practices for African American students, are culturally responsive teaching practices and school racial climate. To better understand contributors to African American adolescent academic success, the present study aims to establish and validate a measure of

perceived culturally responsive climate and evaluate perceived culturally responsive climate as a contributor to academic achievement.

Research has consistently emphasized the use of cultural responsiveness within the school setting in an attempt to improve behavioral (Cramer & Bennett, 2015; Schellenberg & Grothaus, 2011), social-emotional (Cholewa, Goodman, West-Olatunji, & Amatea, 2014), and academic outcomes for African American students (Ford et al., 2014). Most existing measures of cultural responsiveness focus on culturally responsive teaching competency and self-efficacy from the perspectives of teachers (Siwatu, 2007; Siwatu et al., 2017; Spanierman et al., 2011). In measuring cultural responsiveness in this way, student voice is lost. Racial climate measures have also been used to gain insight into African American students' perspectives regarding their school experiences. However, those measures tend to focus primarily on experiences of racism and discrimination (Watkins & Aber, 2009) rather than examining the curriculum-specific or systems-level school policy issues that combine to impact African American students' overall school experience. The present study aims to measure key aspects of culturally responsive school practices and racial climate from the perspective of students in order to develop a measure for a more holistic understanding of African American students' school experiences, termed perceived culturally responsive climate. The use of culturally responsive theories and practices in schools advances the racial climate literature in that it not only addresses intergroup interactions and school racial socialization - but it also speaks to system change needed in school curriculum and teaching student self-advocacy. As such, the present study takes a student-oriented perspective on school cultural responsiveness.

The current measure of perceived culturally responsive climate includes aspects of racial climate and culturally responsive practices and proposes a more holistic facture structure including: meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, the promotion of student self-advocacy and autonomy, and school social support. As the opportunity gap between African American students and their peers is a pervasive issue within U.S. school systems, it is imperative that researchers and educators develop anti-racist African American student-focused measures of cultural responsiveness and climate while identifying classroom, overall perceived climate, and perceptions of systems-level factors that bolster the academic achievement and success of African American students.

Literature Review

Culturally Responsive Pedagogy

The concept of culturally responsive pedagogy has garnered increased attention in the educational literature, as educators rethink ways to develop and utilize instructional strategies to improve academic performance for African American, Latinx, Asian American and Native American students (Gay, 2018). The culturally responsive pedagogy was first theorized by Ladson-Billings (1995) in response to the influx of literature written on the academic failure of African American students and the reasons therein. At the time of the theory's development, little research had been conducted on the academic successes of African American students and the school's role in facilitating it (Ladson-Billings, 1995). This African American deficit approach adopted by researchers and educators to account for differences in student success, is

87

seen as a large contribution to the opportunity gap (Rahman & Turner, 2019). Deficit-based models of achievement typically focus on assumed African American cultural deficiencies such as students having parents who lack concern for academic achievement (Brandon & Brown, 2009), students having an oppositional culture seen by educators and school personnel as a liability (Brandon & Brown, 2009), and students having a culture that is not aligned with academic success (Cochran-Smit, 1997; Cooper, 2003). These negative assumptions about African American culture, lead to discrepancies in teachers' instructional strategies and the ways in which they treat their students (Cochran-Smith, 1997; Cooper, 2003).

Culturally responsive pedagogy is more than a simple way of teaching, or practices that can be incorporated into previously developed lessons (Gay, 2018). The culturally responsive pedagogy involves a set of political, professional, cultural, and ideological foundations that go beyond teaching acts and focuses on underlying beliefs and commitment to seeing student success become a reality (Howard & Terry, 2011). Practicing with the culturally responsive pedagogy in mind, means that one is recognizing students' cultural wealth or skills and developing dynamic teaching practices and views of teaching aimed at nurturing students' academic, social-emotional, cultural, and psychological well-being (Howard & Terry, 2011).

Prior to the currently known conceptualization of culturally responsive pedagogy, research aimed at changing the ways in which schools provided instruction, focused on the goal of training minority students in skills, "needed to succeed," in mainstream society (Ladson-Billings, 1995). Prior research focuses like those on, "cultural compatibility," (Jordan, 1985) for example, connotes a mismatch

between minority students' cultures and their academic needs. Theories like this insist that students must change what they learn to fit the larger mainstream culture - instead of schools changing their own approaches to education to meet the needs of a changing U.S. student population (Ladson-Billings, 1995). Ladson-Billings (1995) describes a key range of teaching behaviors that combine to differentiate culturally responsive teaching (Ladson-Billings, 1995). These include conceptions of the self and others held by culturally relevant teachers, the manner in which social relations are structured by culturally relevant teachers, and the conceptions of knowledge held by culturally relevant teachers (Ladson-Billings, 1995).

Concerning teachers' conceptions of the self and others, Ladson-Billings (1995) observed that teachers practicing in a culturally responsive manner believed that all students were capable of academic success, saw their pedagogy implementation as an evolving art, saw teaching as a way to give back to the community, and saw teaching as a way of pulling out knowledge from students who have rich cultural resources (Ladson-Billings, 1995). Teachers with awareness of social relations maintain fluid teacher-student relationships, connect with all students, develop a community of learners, and encourage students to be responsible for one another while working collaboratively (Ladson-Billings, 1995). Culturally responsive teachers' conceptions of knowledge maintain that knowledge is not static and must be viewed critically, that knowledge is something to be passionate about, that building knowledge means building bridges for students, and that the assessment of knowledge must be multifaceted (Ladson-Billings, 1995). Ladson-Billings (1995) identified three major domains in which educators can work toward culturally responsive practices -

which are a focus on students' academic success, developing a sociopolitical consciousness for themselves and their students, and working toward their own cultural competence (Ladson-Billings, 2014).

Utilizing a culturally responsive pedagogy in the schools offers best practices in working with diverse learners as it approaches education through looking at the whole child and maintains that students are empowered intellectually, emotionally, socially and politically (Ford et al., 2014; Ladson-Billings, 2009). By educating through this evolving lens, schools enhance the learning experiences of their culturally diverse learners through focusing on their own cultural knowledge, life experiences, performance styles and frames of reference (Ford et al., 2014). It is designed to engage culturally diverse students in meaningful learning activities, foster their sense of school belonging, and help students connect with teachers and each other (Brown, 2007; Dickson et al., 2016). As research has pointed to school cultural responsiveness as related to student behavior (Cramer & Bennett, 2015; Schellenberg & Grothaus, 2011), social-emotional outcomes (Cholewa et al., 2014), and academic outcomes (Ford et al., 2014), its use and measurement within the schools is essential. The use of a culturally responsive school lens has provided benefit to students from many different cultures, ethnic backgrounds and linguistic backgrounds (Brown, 2007; Dickson et al., 2016). As the African American student population is vulnerable to the negative educational and societal impacts of the opportunity gap, specialized research into culturally responsive measures from the perspective of African American students is especially vital.

Culturally Responsive Pedagogy for African American Students

90

Howard and Terry (2011) examined the culturally responsive pedagogy literature in order to summarize main tenants, as well as to provide additional insights into ways in which the theory can expand to better suit the needs of African American students. Key principles and recurring themes in the culturally responsive pedagogy literature include (Howard & Terry, 2011): (a) the eradication of deficit-focused ideologies; (b) challenging the idea that Eurocentric forms of discourse, language, and culture are the norm; (c) teachers and students working toward a critical consciousness and sociopolitical awareness to work toward challenging injustice; (d) teachers developing a genuine and culturally-informed care for students; and (e) understanding the complexity of culture and encouraging the enrichment of students' cultures through education (Gay, 2018; Howard & Terry, 2011). To these principles, Howard and Terry (2011) add the importance of academic rigor and maintaining a working and evolving understanding of topics and ways of teaching that are of cultural relevance.

African American students have their own evolving perceptions about teachers and curricula that strive toward cultural responsiveness. In 2001, Howard conducted interviews with African American elementary school students from several classrooms with teachers who were identified as practicing in a culturally responsive manner with African American students. This study serves as one of the few that directly asks for the perspectives of African American students, concerning what they believe constitutes culturally responsive teaching. Most students placed particular importance on genuine care shown from their teachers (Howard, 2001). Care in teaching includes clearly showing nurturing behaviors toward students, and it can

91

positively influence a student's desire to learn (Platt, 2020). Within Howard's (2001) study, teacher care was exhibited through warm pats on the back to encourage effort, verbally expressing high expectations, direct statements about how the teacher felt about each student, showing genuine emotion about education related - and non-education related topics, and displaying a passion for their students' learning. Another theme addressed by students, was the importance for teachers to structure their classrooms in a manner that values the students' homes and communities (Howard, 2001). An example of this shared by one of the students, was their classrooms' implementation of morning circle, in which students were given an opportunity to share events, issues, and people in their lives with their teacher and the rest of the class (Howard, 2001). Lastly, African American students showed importance for their teachers making learning a creative and exciting process, while using their imagination to increase excitement, engagement, and connection to the curriculum (Howard, 2001). Not only do African American students show great value for teachers and schools that engage in culturally responsive practices, but their use has also been related to positive outcomes for students (Gay, 2018; Ladson-Billings, 1995, Lopez, 2016; Terry, 2010).

Empirical Support for the Use of Culturally Responsive Pedagogy

There are a number of reasons why educators and schools are moving toward the implementation of a culturally responsive pedagogy. Some of these reasons include the fact that culturally responsive teaching for African American students is accepted as validating, comprehensive, inclusive, multidimensional, empowering, transformative, emancipatory, humanistic, and ethical (Gay, 2018). Additionally, the

use of the culturally responsive pedagogy has been related to student engagement

(Hill, 2009; Rodriguez et al., 2004). In addition to culturally responsive practices

being seen as best practice when teaching students from culturally diverse

backgrounds for its ethical benefits, it has also garnered support for its relation to

achievement outcomes, discussed in greater detail below (Ladson-Billings, 1995,

Lopez, 2016; Rodriguez et al., 2004; Terry, 2010).

To contribute to the body of work linking culturally responsive teaching to

student achievement outcomes, Lopez (2016) conducted a study examining the extent

to which teacher-reported culturally responsive teacher beliefs and behaviors were

associated with Latinx elementary student achievement, during which student

achievement was measured four times throughout the school year. After evaluating

the teachers' culturally responsive beliefs and behaviors, Lopez (2016) found that

teachers' positive beliefs about the role and use of Spanish in instruction, about

accessing students' prior cultural knowledge, and their critical awareness were all

positively related to student reading outcomes after controlling for prior achievement.

Additionally, teachers' use of Spanish to facilitate learning and engagement, as well

as their cultural knowledge were also positively related to reading outcomes after

controlling for prior achievement (Lopez, 2016). Though this study contributes

fundamental information into the correlational link between culturally responsive

teaching practices and achievement, its lack of experimental design does not point to

culturally responsive practices directly increasing achievement. Ladson-Billings

(1995) conducted one of the foundational qualitative/mixed method studies linking

culturally responsive teaching and literacy outcomes. Ladson-Billings (1995)

observed elementary teachers of predominantly African American students who were nominated by community members as outstanding teachers and who were seen as practicing with the culturally responsive pedagogy in mind. Despite the school district's low academic ranking, their elementary students performed higher than their peers on standardized tests (Ladson-Billings, 1995). In addition, more students in their classes performed at or above grade level on standardized achievement tests, compared to other students in the school district (Ladson-Billings, 1995).

Culturally responsive teaching practices have shown links to achievement inside and outside of the K-12 classroom setting. Rodriguez and colleagues (2004) describe a federally funded summer outreach program held by San Diego State University aimed at improving high school students' science and mathematics competency and promote students' academic and cultural identity development through culturally responsive teaching practices. Adolescents taking part in the summer program self-identified as Mexican American/Latino, African American, Native Hawaiian/Pacific Islander, and Native American (Rodriguez et al., 2004). Following the program, each cohort showed significant increases in science and mathematics assessment scores (Rodriguez et al., 2004). Focus groups with the adolescents indicated that students appreciated the program's focus on cultural affirmation and taking part in learning activities centered within a sociocultural context (Rodriguez et al., 2004). This study builds upon others by obtaining student voice in order to gain their perspectives concerning aspects of culturally responsive practices that they found most beneficial. Though this study also links culturally responsive teaching practices to academic achievement, it does not directly conclude

that culturally responsive teaching itself improves performance as the science and mathematics aspects of the program may have also contributed to further achievement scores.

With regard to math achievement specifically, Terry (2010) examined the role of community-based knowledge, inquiry, and interests in African American male academic outcomes. Through the study, African American male high school students took part in an after-school participatory action research (PAR) apprenticeship focused on: (1) developing critical consciousness through discussions with one another and focused on relevant texts (2) developing the knowledge and skills to participate in a community action research project, and (3) moving toward more active participation within a variety of communities of mathematics practice (Terry, 2010). As the majority of the young men taking part in the apprenticeship struggled with mathematics, many saw it as an opportunity to improve their understanding and engage in research (Terry, 2010). The students conducted research to empirically verify and qualitatively explore community narratives concerning incarceration and university enrollment (Terry, 2010). The student-centered and culturally relevant nature of the PAR activity represented a level of, "educator care," unlike simply altering a curriculum (Terry, 2010). It was concluded that the students' sense of mathematics as a tool that they can, "own," for themselves, was impacted by the active role they took in determining the cultural context in which it was used (Terry, 2010). Through this study, African American adolescent males who had struggled with mathematics, were able to engage in a community-based mathematics action project and utilize critical math literacy to see themselves as mathematicians (Terry,

2010). Similar to results found by Rodriguez and colleagues (2004; discussed above), it provided more individualized and intensive mathematics training than would have been received in schools, which could have also contributed to increases in participant achievement.

Though there are several studies quantitatively examining the culturally responsive pedagogy's impact on achievement, much of the literature investigates its use in the classroom and what it looks like through case studies including interviews with students and teachers, as well as direct observation (Sleeter, 2012). Though the literature thoroughly examines culturally responsive pedagogy from a theoretical standpoint, more evidence-based research is needed to document the connections between culturally responsive pedagogy and student outcomes like academic achievement (Lopez, 2016; Sleeter, 2012).

Sleeter (2012) proposes reasons that qualitative research on the culturally responsive pedagogy has been marginalized. The first reason for its marginalization is the use of overly simplistic definitions of culturally responsive pedagogy in schools and research (Sleeter, 2012). Many view culturally responsive practices as merely a cultural celebration and view learning about cultures in the classroom as an end in itself (Sleeter, 2012). This definition largely ignores lower academic expectations, and the students' lived culture in the classroom and the school as a whole (Sleeter, 2012). This conceptualization of culturally responsive practices reduces culturally responsive pedagogy to a checklist rather than a paradigm for teaching including culturally cooperative learning, lessons that are relevant to the students, and teachers shaping their pedagogy around their relationships with their students (Sleeter, 2012).

96

The present perceived culturally responsive climate scale will measure student experience through their view of meaningful curriculum, their relationships with teachers and peers, as well as insight into the lived culture within the school. Sleeter's (2012) proposed second reason for the marginalization of the culturally responsive pedagogy, is the idea that there is too little research directly connecting it with student learning. Several small-scales studies connect culturally responsive pedagogy with engagement, under the assumption that academic learning follows engagement (Hill, 2009; Thomas & Williams, 2008). The few studies that draw a direct connection between culturally responsive pedagogy and student learning are often small-scale case studies (Hernández Sheets, 1995; Lipka et al., 2005), and research on the preparation of teachers for culturally responsive pedagogy is also sparse (Sleeter, 2012). The present study aims to add to the research linking the culturally responsive pedagogy with academic outcomes for African American students. Sleeter's (2012) final proposed reason for the marginalization of the culturally responsive pedagogy, is the idea that there is an elite, White fear of losing national and global hegemony. The present scale measuring perceived culturally responsive climate, was developed from a lens of critical race theory and aims to provide context for African American students' culturally responsive school experiences.

Racial Climate vs. Perceived Culturally Responsive Climate

To better understand the similarities and differences between racial climate and perceived culturally responsive climate, convergences and background on climate and culturally responsive pedagogy will be discussed in further detail below. According to the National School Climate Center (2016), school climate refers to the,

97

"quality and character of school life as it relates to norms and values, interpersonal relations and social interactions, and organized processes and structures." Specific dimensions of school climate were identified through a survey of California middle school students, and includes the students' perceptions of safety and connectedness, adult and student relationships, and opportunities for meaningful student participation (Hanson & Voight, 2014). A positive overall school climate is one in which the students feel emotionally and physically safe, feel part of the larger school community, perceive respect from adults in the school, feel cared about by adults in the school, perceive that adults in the school have high expectations for their success and well-being, and students are given opportunities to provide input in how the school functions (Voight et al., 2015). Similar yet distinct from school climate, racial climate refers to a school settings' norms and values around race, as well as interracial interactions (Chavous, 2005; Green et al., 1988). The various dimensions of racial climate have varied throughout the years. For example, initial school racial climate surveys relied on the factors of equal status, interdependence and working together, racially supportive school norms, association between groups, (Green et al., 1988) and personal association with other groups (Chavous, 2005). Recently developed surveys have focused on time spent with people of other racial groups, intergroup respect, equal respect exhibited by teachers, frequency of racial tension (Byrd & Chavous, 2011), while some measures of racial climate more simply ask students about their schools' racial fairness and racial discrimination (Griffin et al., 2017). Common themes in the measurement of school racial climate appear to center

on equality of student treatment by adults in the schools, as well as support and respect in interpersonal/intergroup relationships.

Similar to the use of a culturally responsive pedagogy in the schools, a school's positive racial climate has been positively linked to academic outcomes for African American students (Griffin et al., 2017). That is, positive school racial climates have been linked to higher educational aspirations and grades (Griffin et al., 2017), while negative school racial climates via discrimination in the school, have been associated with lower grades, fewer educational aspirations (Eccles et al., 2006; Griffin et al., 2017), lower academic self-concept (Eccles et al., 2006), and less academic curiosity and persistence (Butler-Barnes, Chavous, Hurd, & Varner, 2013) among African American students.

While positive outcomes for African American students provide a convergence between racial climate and the culturally responsive pedagogy, there are differences between their conceptualizations. While school racial climate speaks to students' perceptions of equal treatment, support, and intergroup interactions, the culturally responsive pedagogy, on the other hand, theoretically addresses the need for system change in school curriculum, encouraging student self-advocacy, and high expectations for students (Howard, 2001; Ladson-Billings, 1995). In addition, racial climate measures survey the students' current perceptions of school climate, while the culturally responsive pedagogy aims to understand schools' continuous commitments to bettering the curricula for all students (Howard & Terry, 2011). The present study will validate a measure that speaks to African American adolescent students' perceptions of their schools' use of the culturally responsive practices and perceptions

99

concerning their schools' racial climate, through developing a perceived culturally responsive climate measure including the following domains: meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, promoting student self-advocacy and autonomy, and school social support. While the domains of meaningful and culturally responsive curriculum and high teacher expectations speak to the classroom aspects of culturally responsive teaching practices, school discrimination, social support, and the promotion of autonomy aim to understand the students' perspectives on the culturally responsive school-level. The present study aims to examine perceived multi-level aspects of the African American student experience incorporating racial climate and culturally responsive theories that converge to develop a more holistic understanding of those experiences that go beyond measures of the two individually. Though the current study does not aim to create a measure for every theorized aspect of culturally responsive teaching and school racial climate, it attempts to measure those aspects of culturally responsive teaching, school racial climate, and school-wide system-level dimensions that can be measured from the perspectives of African American adolescent students.

Theoretical Framework

The present study will be conducted within the framework of critical race theory, current conceptualizations of Ladson-Billings (1995) culturally responsive pedagogy, Howard's (2010) aspects of education African American students view as culturally responsive, and Hanson and Voight's (2014) framework for students' perspectives of school climate. This study relies on these four frameworks because

they challenge Eurocentric and deficit-based forms of educational oppression, advocate for the inclusion of African American student voices in education, and place emphasis on the importance of climate and its multi-level role in school experiences.

Critical race theory gained prominence in the 1970s and remains an interpretive model that examines the appearance and outcomes of racism across its dominant modes of expression (Dixon & Rousseau, 2005; Terry, 2010). This framework was first outlined in legal studies and provides guidance from which educational scholars can critique schools as institutions that develop and maintain structural inequality in American society (Dixon & Rousseau, 2005; Terry, 2010). For this reason, critical race theory stands as Ladson-Billings and Tates' (1995) call for the use of a critical race theory perspective in schools and serves as Ladson-Billings (1995) framework for the culturally responsive pedagogy (1995). Ladson-Billings and Tates' work (1995) urging schools and school systems to evaluate their schools through the lens of critical race theory, came from the fact that at the time African American and Latinx students continued to be failed by the American education system. Critical race theory has six major tenants (Dixson & Rousseau; 2005; Matsuda, 1995): (1) it recognizes that racism is endemic and ingrained into American life (2) it voices skepticism toward the dominant societal claims of neutrality, objectivity, colorblindness and that America is a meritocratic society (3) it challenges ahistoricism and challenges researchers to take a contextual and historical analysis of the law, and hold a stance that presumes that racism has contributed to all current manifestations of group privilege and disadvantage (4) it insists on the recognition of the experience and knowledge of people of color when analyzing societal inequity (5)

it is interdisciplinary and (6) it works toward eliminating racial oppression, and the broader goal of ending all forms of oppression. The present study assumes that reasons for the gap in achievement between African American students and their peers, stems from deeply rooted systemic racism and inequity. In educators and school systems maintaining and teaching a Eurocentric vision of history and ignoring the voices of people of color, gaps in achievement can be maintained (Ladson-Billings, 1995). The present measure of perceived culturally responsive climate places value on the voices of African American adolescent students, while gaining insight into their perspectives on the curriculum and the fairness of treatment they experience in their schools.

Ladson-Billings (1995) created the framework for culturally responsive pedagogy known today, and has recently evolved the pedagogy into the, "culturally relevant pedagogy 2.0," (2014). Through an updated view of the evolving culturally responsive pedagogy literature, Ladson-Billings suggested changes to the ways in which culturally responsive pedagogy is implemented in schools (2014). Though many of the aims of culturally responsive practices remain such as incorporating culture into the curriculum and educators refraining from a deficit-perspective when working with students, Ladson-Billings' updated framework suggests allowing for the fluidity of cultural expression and the heterogeneity of cultural experiences (Ladson-Billings, 2014). In addition, Ladson-Billings (2014) urges educators to understand that culture is not a static concept, and that instead of relying on a superficial understanding of culture, educators should facilitate a more meaningful incorporation of culture into the classroom. Under this updated conceptualization of culturally

102

responsive practices, educators must also push and educate students to consider critical perspectives and practices that could have a direct impact on their lives (Ladson-Billings, 2014). Within the present measure of perceived culturally responsive climate, several domains speak to this updated conceptualization of culturally responsive practices such as, meaningful and culturally responsive curriculum, high expectations, and the promotion of student autonomy and self-advocacy in order to ensure that student voices are heard.

An additional framework from which the current measure of perceived culturally responsive climate was developed, is Howard's (2001) study concerning the aspects of teaching that African American elementary students perceive as culturally responsive. African American students found that culturally responsive teachers displayed caring bonds and attitudes toward them, established a classroom community or a family-like atmosphere, and made learning entertaining (Howard, 2001). These aspects of culturally responsive teaching perceived and valued by African American students, are incorporated into the current measure of perceived culturally responsive climate. The current measure takes into consideration those aspects that African American students valued and then some, given aspects of the meaningful and culturally responsive curriculum domain, as well as the remaining four hypothesized domains of the perceived culturally responsive climate measure. Howard's (2001) study was successful in understanding African American elementary students' perspectives on culturally responsive teaching, and the present study aims to build on this by giving voice to African American adolescents through the development of a perceived culturally responsive climate measure.

Lastly, the present study relies on Hanson and Voight's (2014) framework for understanding adolescent students' perspectives on school climate. Through their study with middle school students, they found that students conceptualized climate as connectedness, positive adult-student relationships, and meaningful student participation (Hanson & Voight, 2014). Through a synthesis of the school climate research (Cohen et al., 2009; Hanson & Voight, 2014; Voight et al., 2015), they define positive school climate as characterized by students feeling physically and emotionally safe, part of the school community, that adults in the school respect them, care about them, have high expectations for their well-being and success, and students are given the opportunity to provide input into how things work in the school. While incorporating means of measuring racial climate like discrimination that students experience from teachers and peers, the present study aims to measure those aspects of school climate seen as important to adolescent students. The current measure of perceived culturally responsive climate includes domains of meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, promoting student self-advocacy and autonomy, and school social support.

Perceived Culturally Responsive Climate Domains

The present perceived culturally responsive climate measure's domains have been developed through examination of the culturally responsive literature and the racial climate literature, through the lens of the theories and frameworks previously described. The domains included in the current measure incorporate student voice and rely upon student perception of multi-level school experiences, rather than direct

examinations of the multi-level aspects of culturally responsive climate (e.g., analysis of the students' curriculums, school documented reports of discrimination etc.). The PCRC measure relies on African American student perception as it is an essential aspect of critical race theory, racial climate, and it gives voice to the students themselves, rather than relying on researchers' judgements. Specifically, a researcher analyzing a school curriculum for its emphasis on culturally responsive pedagogy, may not be useful if the African American students do not perceive themselves as learning anything relevant to their daily lives and culture. Additionally, conceptualizations of racial climate place importance on the voices, experiences, and perceptions of marginalized communities (Hope, Skoog, & Jagers, 2015). Racial climate is often defined by and measured through perceptions of the individuals experiencing, interacting, and engaging with the climate (Hope, Skoog, & Jagers, 2015; Mattison & Aber, 2007). One of the main tenets of critical race theory states that the framework insists on the recognition of the experiences of people of color when analyzing inequity (Dixson & Rousseau; 2005; Matsuda, 1995). For these reasons, the current measure aims to measure student perception of multi-level school experiences, rather than examine them directly. The domains of the PCRC measure examine domains through the perceptions and voices of African American students themselves. Operationalizations, background information, and reasons for inclusion in the PCRC measure, will be discussed in more depth below for all domains.

Meaningful and Culturally Responsive Curriculum

The present study operationalizes a students' perception of meaningful and culturally responsive curriculum as classroom discussions about topics and issues

important to the students, reading literature about people of the students' ethnic and racial group, learning things that are helpful in their daily lives, learning about people important to the students, and teachers using examples that are interesting to the students. Culturally responsive teaching practices include but is not limited to the following characteristics (Gay, 2000; Griner & Stewart, 2012): (a) They acknowledge the legitimacy of the cultural heritages of the students as legacies that impact the students' beliefs, attitudes, and approaches to learning, and as worthy content to be taught in the classroom; (b) practices build bridges of meaningfulness between home and school experiences, as well as between academic topics and the students' sociocultural realities; (c) they use a wide variety of teaching strategies connected to differing learning styles; (d) they teach students to know and praise their own cultural heritages, as well as those of other students; and (e) culturally responsive teaching practices incorporate multicultural information, resources, and materials in all subjects taught in schools. Through culturally responsive curricula, students are able to learn from a familiar cultural base, from which they can connect new knowledge to their own experiences (Menchaca, 2001). As the current measure of culturally responsive curriculum is from the perspective and perceptions of the students themselves, items address whether their curricula are meaningful and draw connections to their cultural realities. Additionally, the current measure includes items examining student perceptions of culturally responsive practices during their instruction in English, Social Studies, Math, and Science classes, and for that reason examples of culturally responsive teaching practices within each subject area will be discussed.

English and reading instruction provide a foundation for school development in many other subjects, and for this reason it is critical that educators utilize culturally responsive practices to address the unique needs of their students (Nichols et al., 2000). Though there are many proposed strategies to provide culturally responsive literacy instruction, two prominent strategies are creating an alignment between culture and content, as well as helping students apply culturally prominent problem-solving strategies and techniques in the classroom for a generalization of skill (Nichols et al., 2000). For example, if there is a lack of alignment between a student's cultural experience and the content they are expected to learn, key information may be lost to the reader. By providing students with material aligned with their cultural experiences, they can help students identify their own cultural individualism as the students develop their literacy skills (Nichols et al., 2000). Additionally, by facilitating the use of reading and learning strategies used in their homes and cultural contexts, students can generalize the skills they have already developed (Nichols et al., 2000). During social studies and history instruction, culturally responsive teaching can be described as facilitating student critiques on an author's political or social perspective, providing texts from historians and researchers with varying viewpoints, making the connection between events in the past and events impacting students in the present, and actively encouraging students to present their own opinions from their personal or cultural perspectives (McKinley, 2010). Engaging students through culturally responsive science instruction can include encouraging students the develop individual curiosities, providing students with options for evaluation methods (e.g., test, oral presentation, group project etc.), relating science and its impact to the

students' daily lives, and providing the student opportunities to work in collaborative problem-solving groups aimed at individual inquiry-based investigations (McKinley, 2010). Providing culturally responsive math instruction includes providing information into how math presents itself in the students' daily lives, teaching ways in which math has been instrumental in art and providing instruction into the contributions that differing cultures have made to the study of mathematics (McKindley, 2010). Providing links between a student's cultural experiences and their curriculum, not only provides opportunities for engagement, but it has also positively impacted students' academic outcomes (Howard & Terry, 2011). As the present study examines the relation between the measure of perceived culturally responsive climate and academic outcomes, the relation between meaningful curricula and academic outcomes for African American students is addressed.

To evaluate the effectiveness of meaningful and culturally responsive curricula, Peterson conducted a study comparing two approaches aimed at improving literacy rates for students in a high poverty, diverse urban high school, with a majority sample of African American students (2014). The first approach called, "Striving Readers," involved a prescribed course of study for students along with schoolwide strategies to help students reading below grade level. The other approach called, "Deep Roots: Civil Rights," is a culturally responsive literacy curriculum which includes deep culturally responsive discussions, inclusive poetry slams, African American history immersion, and visits to historically relevant sites (Peterson, 2014). While the Striving Readers approach did not improve the targeted students' reading scores or motivation to read, the Deep Roots curriculum

108

significantly improved African American students' grades, attendance, disciplinary records, and improved the students' overall understanding of racism in America (Peterson, 2014). Many other studies have examined other curricula and their impacts on African American adolescent students' academic outcomes (Cherfas, Casciano, & Wiggins, 2018; Howard & Terry, 2011). For example, Cherfas and colleagues (2018) used the Fresh Prep curriculum with African American and Hispanic high school students identified as at-risk for not graduating. The Fresh Prep curriculum is a culturally responsive curriculum aimed at helping high school students access and respond to knowledge needed to pass high school exit exams (Cherfas et al., 2018). The program places teaching assistants in high school classrooms to co-teach a student-centered and arts-integrated curriculum that engages students to help them learn the content and test-taking skills that are needed during the exit exams (Cherfas et al., 2018). The program also employs original hip-hop lyrics as a pedagogical tool that draws on the mechanisms of hip-hop culture and the properties of music to connect with students in order to help them pass the tests (Cherfas et al., 2018). Overall, the students who took part in and received the Fresh Prep curriculum earned higher scores and pass rates on the state English Language Arts and history exams compared to students in a matched comparison group (Cherfas et al., 2018). As meaningful and culturally responsive curricula are important aspects for teaching African American adolescents, this aspect of the culturally responsive pedagogy has been included within the development of the current measure of perceived culturally responsive climate.

The domain of culturally responsive curriculum has been included in the current measure of perceived culturally responsive climate, as culturally responsive curriculum is one of the most fundamental aspects of practice throughout the culturally responsive teaching literature (Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017). Many of the items within the Siwatu's (2007) foundational measures of culturally responsive teaching, the Culturally Responsive Teacher Self-Efficacy Scale (CTSE), specifically speak to the teacher's ability and willingness to adapt instruction and curriculum to meet the needs of the student (Ponterotto et al., 1998; Siwatu, 2007; Siwatu, Putman, Starker-Glass, & Lewis, 2017). This is demonstrated through items and domains examining a teacher's confidence in altering the curriculum to meet the needs of students (Siwatu, 2007; Spanierman et al., 2011), as well as adapting teaching methods to meet the needs of students (Ponterotto et al., 2007). As the importance of culturally responsive curriculum has been included in foundational measures of culturally responsive teaching practices, it will serve as a domain within the current measure of perceived culturally responsive climate.

High Expectations

One commonality throughout all theorized components of the culturally responsive pedagogy is the idea that teachers should have high expectations for all students (Brown, 2017; Cantrell et al., 2014; Cholewa, 2014; Powell & Rightmyer, 2011). The present study operationalizes high academic expectations as students believing that they are challenged to do their best by teachers, believing it is possible to get good grades if they do their best, teachers placing importance on learning and not only on grades, teachers wanting students to understand their work instead of

memorize it, and students believing that their hard work counts. Having high academic expectations for all students is a clear component of culturally responsive teaching practices as data from the U.S. Department of Education's National Center for Education Statistics, indicates large disparities in the expectations that teachers have for their students based on race (Gershenson & Papageorge, 2018). Specifically, high school teachers expect 58% of White students to one day obtain a four-year college degree (or more) yet anticipate the same for only 37% of Black students (Gershenson & Papageorge, 2018). In addition, non-Black teachers of Black students have significantly lower expectations than do Black teachers (Gershenson, Holt, & Papageorge, 2016). Low teacher expectations based on race and ethnicity is related to the deficit model of thinking wherein students from culturally and linguistically diverse backgrounds are held to lower standards not related to their cognitive abilities, but to their cultural and racial differences (Ford et al., 2014). Discrimination via low expectations can come in the form of blatantly biased beliefs about academic ability, as well as, "deal-making," with Black students in order to increase a teacher's own classroom comfort, or, "maintain harmony," (Khalifa, 2011). One study found that White high school teachers are more likely than Black high school teachers to engage in, "deal-making," with their Black students, allowing them to academically and socially disengage (Khalifa, 2011). They also found that low academic expectations for ethnically and linguistically diverse high school learners not only predicts student achievement outcomes, but those low expectations for Black students can have a negative impact on academic outcomes by creating a self-fulfilling

111

prophecy - thus contributing to the gap in achievement between Black students and their peers (Gershenson & Papageorge, 2018).

Teacher expectations more generally, have significant impacts on students' achievement. A study conducted in Germany by Gentrup and colleagues (2020) with primary school teachers and students, indicate that teachers' academic expectations for their students are often inaccurate, and that inaccuracy in expectation significantly predicts the students' end-of-year achievement after controlling for prior achievement and motivation. Specifically, higher teacher expectations were associated with greater achievement in reading and math, while lower expectations were associated with lower student achievement in reading (Gentrup et al., 2020). As racial bias can lead to decreases in teacher expectations (NPBEA, 2015), African American students can be negatively impacted by low teacher expectations. In a 2008 study, McKown and Weinstein found that within elementary classrooms with high reports of perceived teacher differential treatment, teacher expectations of European American and Asian American students were between 0.75 and 1 standard deviations higher than expectations of African American and Latino students with similar records of achievement (McKown & Weinstein, 2008). In high-bias classrooms, teacher expectations accounted for an average of 0.29 and up to 0.38 standard deviations of the year-end ethnic gap in achievement between African American and Latinx children compared to their European American and Asian American peers (McKown & Weinstein, 2008). As teacher expectations hold such an impact over African American achievement, and because it is a vital aspect of the culturally responsive pedagogy, the measure of high teacher expectations is included in the present

112

measure of perceived culturally responsive climate for African American adolescents.

The inclusion of the high expectations domain to the current measure of perceived culturally responsive climate, stems from its inclusion as a key feature in many measures of culturally responsive pedagogy. (Boon & Lewthwaite, 2015; Guyton & Wesche, 2005; Hershfeldt, Sechrest, Pell, Rosenberg, Bradshaw, & Leaf, 2009; Siwatu, Putman, Starker-Glass, & Lewis, 2017). For example, Boon and Lewthwaite's (2015) measure of culturally responsive pedagogy for teachers includes items like, "I communicate high academic expectations for students," and, "I communicate high behavioral expectations for students." As teacher expectations have such a large impact on student outcomes, and it serves as a key aspect of culturally responsive pedagogy measures, it will serve as a vital domain within the current measure of perceived culturally responsive climate.

Teacher and Peer Discrimination

African American students are at risk of experiencing racial discrimination both inside and outside of the school setting. Within the present study, peer racial discrimination is operationalized as the frequency of racial tension between peers, being left out of teams and activities because of one's race, getting into fights with peers because of race, and students not wanting to socialize with students of other races. Teacher discrimination is operationalized as teachers calling on students less often because of their race, teachers grading certain students harder than others, harsher discipline because of race, whether teachers think African American students are less smart compared to others, and teachers discouraging students from taking

113

certain classes because of their race. Experiencing racial discrimination at school can create a hostile learning environment for African American adolescents, which can negatively impact their academic achievement and mental health (Eccles et al., 2006). Most incidents of discrimination that African American students experience in the schools, are committed by their teachers and peers (Eccles et al., 2006; Fisher, Wallace, & Fenton, 2000; Rosenbloom & Way, 2004).

School-based discrimination disproportionately impacts students of color, and African American students especially. Qualitative studies have shed more light on the negative experiences students of color have endured within the school setting. In a qualitative study of 55 students from ethnically diverse urban high schools, one third of students reported experiences of discrimination within school which included racist comments, verbal or physical assaults, and implicit messages excluding them from participation in activities and access to resources (Phelan, Yu, & Davidson, 1994). More recent qualitative studies have shown similar results with regard to the discriminatory experiences African American students have had within the school setting. In a 2004 qualitative study including interviews with 60 students from minority groups attending a New York public high school (20 African American, 20 Latinx, 20 Asian American), Latinx and African American students described teacher discrimination in the form of low academic expectations and teachers endorsing the stereotype that they are, "bad kids," (Rosenbloom & Way, 2004). An Asian American student also described an experience during which he heard a teacher express discriminatory and racist language toward African American culture (Rosenbloom &

114

Way, 2004). Studies like these give voice to students and the especially

discriminatory experiences that African American students face within their schools.

In a study conducted by Fisher and colleagues (2000) high school students of

color (i.e., African American, Hispanic, East Asian, South Asian) reported high levels

of distress from experiences of racial discrimination within the school setting. These

students reported being called racial slurs from peers, as well as being left out of

school activities because of their race (Fisher et al., 2000). Students of color also

reported teachers discouraging them from joining advanced classes, with African

American students specifically reporting racial discrimination contributing to

experiences of wrongful discipline (Fisher et al., 2000). These experiences of

discrimination serve as trends in the literature and in the real-world experiences of

African American students. For this reason, the present measure of perceived

culturally responsive climate includes items that capture these specific experiences

from African American adolescent students.

The domains of teacher discrimination and peer discrimination have been

incorporated to the current measure of perceived culturally responsive climate, as

existing measures of school racial climate have predominantly measured students'

perceptions racial treatment, racial fairness, and experiences of racism in the schools

(Griffin et al., 2017; Watkins & Aber, 2009). Teacher discrimination and peer

discrimination serves as a fundamental component of what African American

students experience not only in schools, but in society more broadly. As teacher and

peer discrimination has a negative impact on African American student achievement

and mental health (Eccles et al., 2006), and because it is a fundamental aspect of

existing racial climate measures, it will be included in the current measure of perceived culturally responsive climate (Griffin et al., 2017; Watkins & Aber, 2009).

Promoting Student Self-Advocacy and Autonomy

Promoting self-advocacy and autonomy is a key component in culturally responsive school practices (Cantrell et al., 2014). Researchers make the case that culturally responsive instruction includes involving students in community- and school-related issues, while allowing them agency to take part in addressing those issues (Brown, 2017; Cantrell et al., 2014). The present study operationalizes student self-advocacy and autonomy as students being able to choose where they sit, choosing their partners for group work, and active participation in making school rules and school policy. African American students taking part in sociopolitical self-advocacy is a fundamental aspect of culturally responsive practices (Howard & Terry, 2011) and the current study views active student participation in determining school policy and rules, as a large component of that work. The promotion of, or hindrance of student autonomy and self-advocacy can have negative or positive implications for student academic outcomes.

Self-silencing, or the act of suppressing one's self-expression, beliefs, and ideas, is related to negative outcomes for students (Patrick, Stockbridge, Roosa, & Edelson, 2019). Patrick and colleagues (2019) conducted a study to examine how self-silencing impacted both college students and 4th grade students. In both samples, the act of self-silencing in school was related to negative academic outcomes like low behavioral engagement, negative emotions like sadness, anxiety and anger, maladaptive coping strategies, and feelings of disconnection from teachers (Patrick et

116

al., 2019). Researchers conclude that self-silencing relates to negative academic outcomes through its association with poor teacher-student relationship quality and reduced student autonomy (Patrick et al., 2019). Though this study provides important information into the negative impact of education without self-advocacy practices, it was not conducted with African American students specifically. The present study aims to give voice to African American students with regard to their schools' promotion of autonomy and self-advocacy.

African American students perform better on academic tasks within academic settings wherein they are given feelings of choice and empathy (Nadler & Komarraju, 2016). In a 2016 study, researchers found that African American college students performed better on tests in an environment that facilitated autonomy support (Nadler & Komarraju, 2016). According to self-determination theory (Niemeic & Ryan, 2009), learning environments that support autonomy are essential to maintaining students' motivation to learn. Specifically, the theory suggests that teachers' support of students' basic psychological needs for autonomy facilitates students' self-regulation for learning, academic performance, and well-being (Niemeic & Ryan, 2009). As autonomy is a vital aspect of facilitating learning, as well as a component of culturally responsive teaching practices, items relating to the promotion of student autonomy are included in the current measure of perceived culturally responsive climate. These items also correspond to the overall school climate theories more generally, as items place emphasis on students' inclusion in the creation of school rules and policy.

The domain of student-self advocacy and autonomy has been incorporated into the present measure of perceived culturally responsive climate, as existing measures of culturally responsive pedagogy have items aimed at measuring similar concepts. For example, culturally responsive pedagogy measures ask teachers whether their students are given choices about their work (Boon & Lewthwaite, 2015), whether students are given time to conduct self-assessments to individually analyze their growth (Boon & Lewthwaite, 2015), as well as whether teachers emphasize and facilitate resiliency, choice, and an internal locus of control for their students (Herschfelt et al., 2009). As many existing measures of culturally responsive pedagogy incorporate items aimed at measuring a student's autonomy and choice (Boon & Lewthwaite, 2015; Herschfelt et al., 2009), and because African American students perform better on tasks within academic settings wherein they are given feelings of choice and empathy, the domain of student self-advocacy and autonomy was included in the current measure.

School Social Support

Students feeling a strong sense of teacher and peer social support, is an essential aspect of culturally responsive teaching practices (Cantrell et al., 2014; Ladson-Billings, 1995), positive racial climates, and positive school climates more generally (Voight et al., 2015). The present study operationalizes school social support through that exhibited by teachers, and the social support exhibited by peers. Teacher school social support is operationalized as teachers caring about all students, whether teachers have given up on some students, students going to their teachers for help with schoolwork, and how often students can depend on their teachers to help

118

them with social or personal challenges. Peer school social support is operationalized as how often students can depend on friends to help them with school and personal challenges, how often they can depend on peers other than their friends to help them with school and personal challenges. School social support from teachers and peers is important to consider when measuring perceived culturally responsive climate, as students may perceive support differently depending on their ethnicity and cultural group (Voight et al., 2015).

In a study conducted in 2015 using data from over 400 middle schools in California, researchers examined gaps in perception of racial climate by student ethnic identification (Voight et al., 2015). The study found that on average Black and Hispanic middle school students have less favorable experiences of school safety, connectedness and relationships with adults, and opportunities to participate compared to European American students (Voight et al., 2015). They also found that these findings correspond to academic outcomes, as those middle schools with a larger gap in racial climate perception, also had a larger racial gap in achievement (Voight et al., 2015).

Other studies have specifically focused on the academic impacts of school social support for students (Cole, Matheson, & Anisman, 2007; Syed, Azmitia, & Cooper, 2011). In a review of the literature, Syed and colleagues (2011) found that there is a significant positive relationship between perceptions of social support and student academic achievement. In a 2007 study conducted with ethnic minority and European American college students, aimed to explore the role of social support in moderating the impact of factors that emanate from stereotype threat (i.e., depressive

and anxiety symptoms) can have on academic performance (Cole et al., 2007). Depressive and anxiety symptoms were tracked for all students through their first year of university (Cole et al., 2007). Though the students' symptoms did not differ at the start of the year, higher symptoms became evident for ethnic minority students at midyear, and those were associated with poorer final grades (Cole et al., 2007). Social support from peers and fewer unsupportive interactions predicted greater academic success for the ethnic minority students (Cole et al., 2007). In addition, though both groups found benefit from academic support, that support was perceived by the ethnic minority students as less available in the school setting (Cole et al., 2007). As social support from peers and teachers play an important role in the overall school climate for African American students, and because social support plays such a large role in their academic success, the previously described measure of social support will be included in the overall measure of perceived culturally responsive climate.

The domain of school social support is included in the current measure of perceived culturally responsive climate, as most measures of culturally responsive pedagogy include similar domains as fundamental features to the measurement of the construct (Boon & Lewthwaite, 2015; Dickson, Chun, & Fernandez, 2016; Herschfelt et al., 2009). This may include teachers forming authentic relationships with students (Herschfelt et al., 2009), treating students like they are important members of the classroom (Dickson, Chun, & Fernandez, 2016), caring about student interests (Dickson, Chun, & Fernandez, 2016), and developing strong supportive relationships with students and their families (Spanierman et al., 2011). As the development of school social support is seen as an important factor within the culturally responsive

pedagogy construct, and because it has been linked to academic outcomes for students (Syed et al., 2011), it is included as a domain in the present measure of perceived culturally responsive climate.

Existing Measures of Cultural Responsiveness and Racial Climate

To better understand how the current study created the measure of perceived culturally responsive climate, previously developed measures of culturally responsive teaching practices and racial climate will be explored in more detail below. The present study utilizes aspects of both cultural responsiveness measures and racial climate measures to develop a measure more expansive and representative of holistic perceptions of curriculum-specific and systems-level experiences that African American students have within the school setting.

Cultural Responsiveness Measures

Measures aimed at identifying culturally responsive practices, can be put into three categories. The first type of measure of culturally responsive practices, primarily measures the construct from the teachers' perspectives. These measures largely focus on a teacher's reported self-efficacy and attitudes for practicing in a culturally responsive manner (Guyton & Wesche, 2005; Hershfeldt et al., 2009; Natesan et al., 2011; Ponterotto et al., 1998; Siwatu, 2007; Siwatu et al., 2017; Spanierman et al., 2011). The second type offers more objective means of measuring culturally responsive practices, as direct observation of teaching practices (Debnam et al., 2015). The final culturally responsive measurement type is student-report (Boon & Lewthwaite, 2015; Dickson et al., 2016). Though there are existing measures of cultural responsiveness from direct observation or from the perspective of students,

they are limited (i.e., one known direct observation study; two known measures from students' perspectives) and specific to groups other than African American adolescents. Background information concerning all three types of cultural responsiveness measures will be discussed in more detail below.

Teachers' reports of self-efficacy and attitudes. The most greatly measured area of the culturally responsive pedagogy is teacher self-efficacy as well as their attitudes around the use of culturally responsive practices and multiculturalism in education more broadly. Though not all measures of culturally responsive teacher self-efficacy and attitudes will be addressed within the present literature review, many of the most prominent scale development studies will be discussed.

Siwatu (2007) developed the Culturally Responsive Teaching Self-Efficacy Scale (CTSE) as well as the Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE) and utilized a sample of midwestern pre-service teachers. When developing the items, Siwatu (2007) used two foundational ideas: (a) culturally responsive teachers understand and value the cultural contributions of the cultures of those within the classroom; and (2) culturally responsive teachers acknowledge that there is a possible discontinuity between students' home culture and the school culture, and they understand the consequences of the cultural mismatch. Though a one-factor solution was utilized in the development of both scales, the items were developed based on four culturally responsive teaching competencies: curriculum and instruction, classroom management, student assessment, and cultural enrichment (Siwatu, 2007). Similarly, the Multicultural Efficacy Scale (MES), aimed to measure teacher self-efficacy through the subscales of teachers' experiences, their attitudes,

and their perceived ability to practice in a culturally responsive manner (Guyton &
Wesche, 2005). The Multicultural Teaching Competency Scale (MTCS) similarly
measures teacher self-report of culturally responsive efficacy with the domains of
multicultural teaching skill and multicultural knowledge, but adds to the literature
with an emphasis on teacher reflection (Spanierman et al., 2011). Through this
measure, teaching with multicultural competency means that teachers continuously
explore their own attitudes and beliefs about multicultural issues, increase their
understanding of specific populations, and examine the impact that this awareness has
on the ways in which they teach, and interact with students and their families
(Spanierman et al., 2011).

Siwatu and colleagues (2017) expanded their research into measures of
teachers' culturally responsive self-efficacy through developing the Culturally
Responsive Classroom Management Self-Efficacy Scale (CRCMSE). This scale
represents the importance for teachers to understand not only how their teaching and
curricula impact students, but also how their awareness of classroom management
techniques impacts students (Siwatu et al., 2017). The development of the one-factor
scale was largely based on themes in the culturally responsive classroom management
literature, which communicate the importance of maintaining caring relationships
with students, creating a safe classroom atmosphere, understanding that student
behavior is a reflection of cultural norms, knowing how to communicate with
families, and setting clear and high behavioral expectations for students (Siwatu et al.,
2017).

Distinct from teachers' perceptions of self-efficacy and ability to put practices into place, many scales aim to measure teachers' attitudes toward multicultural education and the use of culturally responsive practices in the classroom (Natesan et al., 2011; Ponterotto et al., 1998). The single factor structured Teacher Multicultural Attitude Survey (TMAS) was developed to evaluate teachers' self-reported multicultural education awareness and appreciation (Ponterotto et al., 1998). More specific to African American students, Natesan and colleagues (2011) developed the Cultural Awareness and Beliefs Inventory for Urban Teachers (CABI). This measure for teachers of African American youth, surveyed teachers' perceptions within the domains of teacher beliefs, school climate, culturally responsive classroom management, use of home and community support, cultural awareness, curriculum and instruction, cultural sensitivity, and their self-efficacy (Natesan et al., 2011). The development of this measure is particularly innovative, as it evaluates teacher beliefs across systems through items examining personal, instructional, and institutional culturally responsive practices (Natesan et al., 2011).

In addition to measures aimed at understanding teacher beliefs with regard to cultural responsiveness, a teacher-report model for culturally responsive self-assessment has been developed. Hershfeldt and colleagues (2009) created a teacher self-assessment tool to monitor their own culturally responsive practices called the Double-Check Model. Though this model is not multi-system like the CABI, it provided a system to teachers that serves as a more concrete framework with which they can self-monitor their teaching practices (Hershfeldt et al., 2009). The five domains of the Double-Check model are, reflective thinking about students and group

124

membership, authentic relationships between teachers and students, helping students develop a connection to the curriculum, and developing a sensitivity to cultural and situational messages (Hershfeldt et al., 2009).

Teacher-report measures of cultural responsiveness have provided information into their perceptions of self-efficacy (Siwatu, 2007; Siwatu et al., 2017), competence (Spanierman et al., 2011), the importance and aspects of multicultural education education (Ponterotto et al., 1998), systems-level attitudes (Natesan et al., 2011), awareness of multicultural issues (Spanierman et al., 2011), and means for teachers to self-assess their own skills (Hershfeldt et al., 2009). What these measures and most measures of cultural responsiveness do not include, is the perspective of the students, and information into how teachers' culturally responsive practices impact them. The present study aims to shed light on how students perceive their teachers' and schools' use of culturally responsive practices.

Direct observation. An innovative study conducted by Debnam and colleagues in 2015, measured teachers' use of culturally responsive practices via teacher-report and direct observation methods. Elementary and middle school teachers from a Maryland school district completed self-report surveys measuring their own culturally responsive teaching practices and attitudes (i.e., Double-Check Self-Reflection Tool, the Multicultural Efficacy Scale, and the Culturally Responsive Teaching Self-Efficacy Scale) (Debnam et al., 2015). Trained observers rated those teachers' classroom practices using the ASSIST observational measure (Assessing School Settings: Interactions of Students and Teachers) (Debnam et al., 2015). The ASSIST direct observation measure was developed by Ruby and colleagues in 2001,

and included the following subscales: teacher control of the classroom, teacher anticipation and responsiveness, teacher monitoring, teacher proactive behavior management, teacher and student meaningful participation, and culturally responsive teaching strategies (e.g., connecting lessons to real world examples, engaging in storytelling and sharing, positive humor to engage or diffuse problems, integrating cultural artifacts relative to students' interests into learning activities). Monitored teaching behaviors included teachers connecting the lesson to real world examples, engaging in storytelling and sharing, using positive humor to engage students or diffuse problems, and incorporating cultural artifacts reflective of the students' interests into the learning activities (e.g., music, artwork, local landmarks etc.) (Debnam et al., 2015). Though measures of teachers' culturally responsive practices have historically relied on teachers' self-report, Debnam and colleagues (2015) found that teachers tended to self-report higher levels of culturally responsive teaching practices than were directly observed with the ASSIST observation measure. Given the finding of teachers over-reporting their own use of culturally responsive practices, the present measure offers a more objective measure of teachers' culturally responsive practices by gaining insight and perspective from the students themselves.

Student report. At the present, there are two known measures of cultural responsiveness from the perspective of students (Boon & Lewthwaite, 2015; Dickson et al., 2016). Though Dickson and colleagues (2016) describe their measure as the, "first quantitative measure of students' perceptions of culturally responsive teaching," (p. 151) in actuality it was the first quantitative measure of students' perceptions of culturally responsive teaching in the United States. In 2015, Boon and Lewthwaite

created the first measure of culturally responsive pedagogy based on interviews with Australian Indigenous students and their families. The interviews aimed at better understanding which aspects of the culturally responsive pedagogy resonated with Aboriginal students and their families. In 2016, researchers validated their measure of unidimensional culturally responsive pedagogy with primary and secondary teachers in Australia. The measure includes the seven subscales of Indigenous cultural value, explicit learning objectives, ethic of care, literacy teaching, behavior support, and pedagogical expertise (Boon & Lewthwaite, 2016). The measure allows teachers of Australian Indigenous students to reflect on ways in which their teaching can be improved to better serve their students and their families (Boon & Lewthwaite, 2016).

In 2016, Dickson and colleagues developed a student measure of teachers' culturally responsive pedagogy with items originally modified from Siwatu's (2007) Culturally Responsive Self-Efficacy Scale. Data from middle school students (64% Latinx) were used to conduct exploratory and confirmatory factor analyses which yielded a three-factor structure: diverse teaching practices, cultural engagement, and diverse language affirmation. A concluded limitation was the fact that they did not include all aspects of culturally responsive practices proposed by Siwatu (2007).

The development of both measures of student-reported culturally responsive teaching practices has been an important addition to the culturally responsive pedagogy literature. Though both studies utilized adolescent samples, neither one had a specific focus on the perspectives of African American or Black youth. The present study aims to further this work by contributing a measure of student-reported

127

culturally responsive teaching from the perspective of African American adolescent students.

Racial Climate Measures

Racial climate measures have predominantly measured students' perceptions of race relations, racial treatment, racial fairness, and experiences of racism in the schools (Watkins & Aber, 2009). Much of the research on racial climate has focused on the perceptions of college students concerning their campus' racial climate (Ancis et al., 2000; Chavous, 2005; Watkins & Aber, 2009). Conclusions drawn from these studies suggest that students of different racial backgrounds perceive their college campuses in different ways. Studies that have measured racial climate within elementary or secondary schools are limited in quantity (Watkins & Aber, 2009). Of those, most measures have factors focused on discrimination and fairness exhibited in the schools (Byrd, 2017; Griffin et al., 2017; Mattison & Aber, 2007; Watson & Aber, 2009).

One racial climate study also relies on the MADICS dataset's teacher and peer discrimination scales to measure racial climate (Griffin et al., 2017). Specifically, their measure of racial climate for African American high school students included the six-item Racial Fairness subscale of the Racial Climate Survey-High School Version (Mattison & Aber, 2007), as well as the teacher and peer discrimination scale from the MADICS study (i.e., also used in the current study; Griffin et al., 2017). Items aimed at understanding school racial fairness focused on fair school disciplinary practices and overall fair treatment of Black students. The discrimination subsection utilizing the MADICS discrimination scales, asked students about

128

incidents of race-based teacher discrimination in the classroom, being picked on by peers, and lack of inclusivity from peers (Griffin et al., 2017). This study highlights reasons that the current study relies on the MADICS teacher and peer discrimination as a subscale of the overall measure of perceived culturally responsive climate for African American adolescents. As a published study (Griffin et al., 2017) found these scales to be a reliable component of an overall measure of racial climate, it is reasonable to expect it to be a component of a broader measure of perceived culturally responsive climate.

As the previously reviewed racial climate study relied on items from the Racial Climate Survey-High School, that measure will be reviewed as well (Mattison & Aber, 2007). This measure includes a Racial Fairness subscale described above, an Experiences of Racism subscale examining students' perceptions of how often they experience racism in school, and the Need for Change subscale examining student perceptions of systemic change needed within their schools (Mattison & Aber, 2007). Shortly after developing the Racial Climate Survey-High School measure, Watkins and Aber (2009) developed the Racial Climate Survey-Middle School Version utilizing the same subscales of Racial Fairness, Experiences of Racism, and Need for Change. The Racial Climate Survey-High School and Middle School, distinguish themselves from the scale developed by Griffin and colleagues (2017) by including items aimed at exploring students' perceptions of school-wide racial inequities that should be addressed. The current study includes items aimed at understanding students' own autonomy voice in school-wide rules and policy, while still including

those items regarding discrimination from peers and teachers which are essential to measures of racial climate.

Another measure of racial climate for high school students expands on previous studies by including additional subscales, while still under the larger domains of intergroup interactions and racial socialization (Byrd, 2017). The intergroup interactions domain includes the subscales of frequency of interaction, quality of interactions, equal status (or fairness in interaction), support for positive interactions, and stereotyping within the interaction (Byrd, 2017). The domain of racial socialization includes the subscales of cultural and mainstream socialization, promotion of cultural competence, colorblind socialization, and critical consciousness socialization (Byrd, 2017). Though the measure expands on other measures of school racial climate in a more detailed manner, the trends of discrimination and fairness in interaction and socialization, remain a constant in racial climate measurement. The present study expands on developed scales by including constructs aimed at understanding the students' perceptions of treatment in and outside of the classroom, as well as perceived system-level experiences (e.g., promotion of autonomy and self-advocacy etc.) and how that translates to their curriculum and teacher expectations. Though climate is not always measured through the personal perceptions of a singular group as representative of an entire system (Stapleton et al., 2016), the current measure aims to draw on student perception as their experiences have been underrepresented in the culturally responsive pedagogy literature.

Gaps in the Literature

Though there has been a great deal of measurement into culturally responsive school practices and racial climate, there has remained a gap in how these ideas come together to reflect the whole student experience. In addition, the number of measures examining culturally responsive teaching and school practices from the perspective of the students themselves, are incredibly limited in quantity (Howard, 2001). In a research review on successful instructional practices with African American students, Waxman and Hung (1997) make a call for increased student voice in educational research, as the students' perspectives may be different from the intended pedagogy (Howard, 2001). Though there have been calls for the inclusion of increased student voice in educational research, those calls have not necessarily been answered with regard to African American students' views of culturally responsive pedagogy implementation. The present study fills this gap in the literature by giving voice to the perceptions of African American adolescent students, concerning their experiences in and outside of the classroom.

With regard to gaps in measurement, measures of culturally responsive teaching practices have primarily focused on teachers' self-efficacy as opposed to more objective forms of measurement (Siwatu, 2007). Measures from the students' perspectives have not previously been conducted with a primarily African American sample and for that reason, the present study captures their experiences through the development of a perceived culturally responsive climate measure. Racial climate measures have primarily highlighted the students' perceptions of race relations, racial treatment, racial fairness, and experiences of racism in the schools (Watkins & Aber, 2009). Though these have embodied key components of the African American

students' experiences in school, they do not take into consideration ways in which the students have been given agency (i.e., student autonomy and self-advocacy), nor do they capture the impact of the curriculum and classroom-specific aspects of the overall climate. The current measure of perceived culturally responsive climate examines a more holistic understanding of African American students' school experiences through interpersonal, perceived classroom-level and system-level items in order to determine how a perceived culturally responsive climate impacts their academic achievement.

Summary

The present study makes a contribution by developing a measure that provides a more holistic view of African American students' experiences in school with regard to their perceptions of racial climate and culturally responsive practices. Previous studies concerning culturally responsive practices have primarily focused on the teacher's perspective and their view of their own abilities (Guyton & Wesche, 2005; Hershfeldt et al., 2009; Natesan et al., 2011; Ponterotto et al., 1998; Siwatu, 2007; Siwatu et al., 2017; Spanierman et al., 2011), while previous racial climate measures have primarily focused solely on racism and discrimination within the school setting (Watkins & Aber, 2009). The present study includes key aspects of both to better understand how they combine to represent a more holistic view of African American student school experiences and understand how they impact students' academic achievement. The hypothesized factor structure of perceived culturally responsive climate includes meaningful and culturally responsive curriculum, high expectations, teacher discrimination, peer discrimination, the promotion of student self-advocacy

132

and autonomy, and school social support. All of these components have been linked to student academic outcomes (Gentrup et al., 2020; Niemeic & Ryan, 2009; Peterson, 2014; Phelan et al., 1994; Voight et al., 2015), and may provide a deeper understanding of African American adolescent students' school experiences. For these reasons, the present measure will evaluate how these components are perceived by students, and how they are related to academic achievement outcomes.

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135

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