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The complexity of school racial climate: Reliability and validity of a new measure for secondary students

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Background. The conceptualization of the role of race and culture in students' experience of school has been limited. This study presents a more comprehensive and multidimensional framework than previously conceptualized and includes the two domains of (1) intergroup interactions (frequency of interaction, quality of interaction, equal status, and support for positive interaction) and (2) school racial socialization (cultural socialization, mainstream socialization, promotion of cultural competence, colourblind socialization, critical consciousness socialization, and stereotyping) (Byrd, 2015, *Journal of Educational Research*, 108, 10).

Aims. The scale presents a measure of school racial climate for middle and high school students and tests for evidence of reliability and validity in two independent, nationwide samples.

Sample and method. Participants were 819 children aged 12–18 (M = 15.27, SD = 1.58) who completed the School Climate for Diversity – Secondary Scale and a number of validating measures: general school climate, perceived discrimination, culturally responsive teaching, grades, and academic motivation.

Results and conclusions. Confirmatory factor analyses and reliability analyses showed support for the 10-factor structure of the scale, and the subscales were associated with the validating measures in expected ways.

Although there has been an increasing focus on the role of race and culture in students' school experiences, conceptualizations of how race and culture matter are generally limited to a focus on overt racial discrimination (e.g., Alfaro, Umaña-Taylor, Gonzales-Backen, Bámaca, & Zeiders, 2009) or culturally relevant teaching (e.g., Bennett, 2001). The goal of the current study was to present a more comprehensive and nuanced framework of US school racial climate, along with evidence for the reliability and validity of an associated measure. *School racial climate* refers to perceptions of interracial interactions and the socialization around race and culture in a school. There is a long history of examining the role of interracial interactions for the psychological well-being and academic outcomes of students (e.g., Aronson & Others, 1978; Green, Adams, & Turner, 1988; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998). Unfortunately, however, this work has tended to conflate perceptions of discrimination with perceptions

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of school racial climate (Byrd, 2015), and much of this work is with college students rather than a wider range of school levels (Mattison & Aber, 2007). Additionally, by focusing on the role of race in interactions, researchers have ignored the degree to which race and culture are also infused into school curricula and socialization messages. In the educational literature, work has addressed issues of the development and implementation of multicultural education but generally disregards individual differences (e.g., Howard, 2001; Sleeter, 2012; Sleeter & Grant, 2011). Furthermore, there are few frameworks or measures that consider school racial climate as multidimensional. The current study draws on both psychological and educational literatures to develop a comprehensive, multidimensional framework and an associated scale to measure school interracial interactions and school racial socialization. This measure is explored in two studies with identical aims: (1) to examine the factor structure of the scale, (2) to examine the internal consistency of the subscales, (3) to explore the correlations between the subscales and validating measures, and (4) to explore correlations between the subscales and academic outcomes.

Need for a comprehensive framework and measure

The existing literature on school racial climate for secondary students is limited in several ways. First, the research is primarily concerned with (un)fair treatment, and racial discrimination in particular. Discrimination refers to individual perceptions of being treated unfairly due to one's race (Kessler, Mickelson, & Williams, 1999). Perceptions of discrimination are not necessarily synonymous with perceptions of unfair treatment in the school context – that is, students may perceive themselves as being discriminated against but may feel that the school is generally fair. Nevertheless, many researchers report on individual experiences with discrimination as indicators of the school racial climate (e.g., Dotterer, McHale, & Crouter, 2009; Kotori & Malaney, 2003; Mattison & Aber, 2007). Therefore, there is a need to distinguish between the two constructs. The current framework conceptualizes perceptions of unfair treatment (equal status) as perceptions of the context, not individual experiences.

A second limitation is that, although there is a great deal of literature on school racial composition, students' *perceptions* of the formal curriculum and informal socialization have largely been ignored. Furthermore, although racial socialization researchers acknowledge the presence of messages within schools (Hughes, McGill, Ford, & Tubbs, 2011; Walton *et al.*, 2014), very few studies have examined students' perceptions of these messages. By examining students' phenomenological experiences, the current framework can better account for how students in the same classroom understand the same content differently based on their individual experiences and attitudes. Similarly, the literature on multicultural education and culturally relevant teaching has been concerned with classrooms and activities that are already identified as culturally relevant rather than examining variation in students' perceptions in typical classrooms and schools (Howard, 2001).

A third limitation is that school racial climate has been treated as a unidimensional construct (e.g., Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Chang & Le, 2010; Simmons, Wittig, & Grant, 2010). Yet different aspects of racial climate may affect students in different ways. For example, a negative quality of interaction is likely to have a stronger effect on feelings of belonging because youth will find it difficult to make friends at school. However, cultural socialization might have a stronger effect on student's identification with their ethnic–racial group because

they have more opportunity to learn about their group's culture and history. A multidimensional approach also moves away from simply labelling climate as 'positive' or 'negative' and is more appropriate from a phenomenological perspective because different features of the environment may be more salient to individuals depending on their characteristics. Further, the associated scale is also multidimensional and includes separate factors with no overarching factor.

Finally, it is important to note that the primary goal of the current research programme is to outline a comprehensive framework of school racial climate, with a secondary goal of providing a valid and reliable scale. Measures exist of some of the constructs explained below, including equal status and quality of interaction. However, some existing measures conflate constructs that are distinguished in the current framework. Of greater importance is that most of the constructs outlined below do not have validated measures associated with them.

A framework of students' perceptions of school racial climate

The framework has ten dimensions grouped into two domains: intergroup interactions and school racial socialization. As the framework is concerned with perceptions of school racial climate, it does not include objective school features such as racial composition. The first domain draws on the intergroup relations literature (Allport, 1954; Chavous, 2005; Pettigrew, 2008) and considers the nature of interactions across racial and cultural groups within a school. Interactions can be described in terms of how frequently they occur (*frequency of interaction*) and by how meaningful or positive/negative those interactions are (*quality of interaction*). An additional dimension is *equal status*, which refers to how fairly different groups are treated and whether students from different groups have similar opportunities for recognition and participation. Although individuals' perceptions of fair treatment at school can be informed by their own experiences of discrimination, it is important to distinguish between the two constructs. For example, a Black student may recognize that other Black students at their school are punished more frequently than White students, even though the student has never been a target of such punishment. Thus, equal status is more general than perceived discrimination.

Next, *support for positive interaction* describes the norms that govern intergroup interactions. Intergroup contact theory highlights the importance of authority support for contact (Allport, 1954; Pettigrew, 2008), and other work in psychology also highlights the nature of school norms that can promote segregation (Tyson, Darity, & Castellino, 2005). Schools can convey support for positive interaction in formal and informal ways, from schoolwide Mix It Up days (Southern Poverty Law Center, 2010), which have students sitting with new classmates at lunch, to teachers who use active learning practices that group students in different ways, such as the jigsaw classroom Aronson & Patnoe (2011).

The final dimension in this domain is *stereotyping*, or perceptions that one's group is thought of or represented in stereotypical ways. Stereotyping is distinct from quality of interaction or equal status in that it assesses perceptions of prejudicial thoughts and not behaviours. Additionally, stereotyping includes stereotypical representations in the school curriculum and materials. Both positive and negative stereotypes can be harmful to student success as they limit the degree to which a student is seen as an individual and can unconsciously impair performance (e.g., Steele, 1997).

School racial socialization

School racial socialization is messages about race and culture communicated at school (Aldana & Byrd, 2015; Byrd, 2015). This area draws on the parental racial socialization and multicultural education literatures (e.g., Bennett, 2001; Hughes *et al.*, 2006) to focus on what students learn about their own and other groups in the formal curriculum as well as informal messages. Many of these dimensions have been found to be associated with the outcomes of African American youth in particular (Aldana & Byrd, 2015) but have less often been studied for youth of different racial backgrounds.

The first dimension is *cultural socialization*, that is, what youth learn about their own racial and cultural background. Theories of culturally relevant teaching (Aronson & Laughter, 2016; e.g., Ladson-Billings, 1995; Morrison, Robbins, & Rose, 2008) and home–school dissonance (Arunkumar, Midgley, & Urdan, 1999; Tyler *et al.*, 2008; Warzon & Ginsburg-Block, 2008) emphasize the importance of students' cultures being acknowledged and used as resources in classrooms. Similarly, Afrocentric education and other forms of ethnic studies intentionally provide youth with opportunities to learn about their groups' traditions and histories (e.g., Asante, 1991; Godina, 2003).

The alternative to cultural socialization is *mainstream socialization*, which refers to learning about mainstream US norms, values, and traditions. This dimension also draws on home–school dissonance frameworks (Arunkumar *et al.*, 1999; Tyler *et al.*, 2008) that highlight Western/US values of individualism and competition, which sometimes clash with values of minority groups such as communalism and familism (Schwartz *et al.*, 2010). Mainstream norms are observable in schools (e.g., Perry, 2001); however, no studies of school racial climate have measured the extent to which students perceive mainstream values, as existing home–school dissonance research rarely measures the two conflicting cultures directly.

The third is *promotion of cultural competence*: learning about the histories and traditions of other groups. Cultural competence includes skills such as comfort with outgroup members, knowledge about outgroups, and an ability to interact positively with a wide range of people (Chang, 2002; Ponterotto, 2010). Learning about different racial and cultural groups can range from limited exposure during multicultural fairs and holidays to in-depth study of particular groups.

Fourth, *colourblind socialization* refers to messages that encourage youth to ignore the importance of race. Educational researchers have long recognized the dangers of overlooking the real-life significance of racial group difference in favour of minimizing race or pretending that group-based inequalities do not exist (Apfelbaum, Pauker, Sommers, & Ambady, 2010; Pollock, 2005). Colourblindness is associated with alienation and lower engagement for people of colour whose colour is 'not seen' (Plaut, Thomas, & Goren, 2009) and can be counterproductive in school settings, for instance, by increasing White students' bias and limiting their ability to understand racial inequality (Apfelbaum *et al.*, 2010; Hughes, Bigler, & Levy, 2007; Richeson & Nussbaum, 2004; Schofield, 2006). Nevertheless, few studies have measured students' perceptions of the degree to which those around them and the curriculum have colourblind views.

Finally, as opposed to colourblind socialization, *critical consciousness socialization* teaches youth to recognize and address differences between racial groups in power and privilege. Such teaching is less common in mainstream schools but is a foundation for social justice pedagogy and prejudice reduction work (Aldana & Byrd, 2015; Aldana, Rowley, Checkoway, & Richards-Schuster, 2012). This dimension is referred to as 'preparation for bias' in the parental racial socialization literature (Hughes *et al.*, 2006).

Research questions and hypothesis justification

This study uses two independent, nationwide samples to test a scale, the School Climate for Diversity – Secondary (SCD-S) Scale, that measures the dimensions described above. The research questions for this study were: (1) Does the factor structure of the scale correspond to the theoretical framework? (2) Do the factors of the scale show good reliability? (3) Are the factors of school racial climate associated with general school climate, perceived discrimination, and culturally relevant teaching in expected ways? and (4) Are the factors associated with academic outcomes in expected ways?

The first research question will determine whether the survey measure corresponds to the dimensions outlined above. A confirmatory factor analysis is expected to result in ten factors with excellent fit, as measured by a CFI > .90 and a RMSEA < .05 (Browne & Cudeck, 1993; Hu & Bentler, 1995). Second, I expected each subscale to have a Cronbach's α equal to or above .70.

The third question concerns relations between the factors and three validating measures. School racial climate should have close associations with other aspects of the school environment, such as general school climate, perceived discrimination, and culturally relevant teaching:

General school climate

Existing frameworks of general school climate address racial climate in varying ways. Some consider racial climate an aspect of general relationships and engagement (e.g., Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013; US Department of Education, Office of Safe and Healthy Students, 2016). Others do not consider aspects of diversity, including race and culture, at all (e.g., Zullig, Koopman, Patton, & Ubbes, 2010). The current framework conceptualizes school racial climate more broadly in that it both mirrors aspects of general school climate with a racial dimension and introduces new ones. For example, the quality of intergroup interaction can be considered a more specific version of the more general quality of interpersonal interactions at a school. That is, interactions across racial groups would be heavily influenced by the overall tone of respectfulness and caring. However, racial socialization dimensions such as critical consciousness socialization and colourblind socialization have no direct correspondence to other school climate domains. For example, teaching and learning practices is a dimension of several major models (e.g., Thapa *et al.*, 2013), and it is possible but not necessarily the case that race-aware racial socialization is more frequent in schools where teachers use more innovative practices. Nevertheless, they are not synonymous. Racial socialization is also likely more frequent in schools that are more comfortable addressing other areas of diversity, such as disability and sexual orientation; however, these areas are usually not included in models of general school climate. Therefore, there is no reason to expect significant correlations between general school climate and the dimensions of school racial socialization.

Expectations about correlations between the dimensions of school racial climate and the dimensions of general school climate are as follows: Moderate correlations are expected between the intergroup interactions dimensions and general school climate dimensions relating to interactions and relationships, but low or non-significant correlations are expected between dimensions of school racial socialization and general school climate. The general school climate measure in this study is the Inventory of School Climate – Student (ISC-S) (Brand *et al.*, 2003); thus, specifically, negative peer interactions and positive peer interactions will be strongly associated with quality of interaction (inversely and directly, respectively). Furthermore, consistency and clarity of rules and

disciplinary harshness will be moderately associated with equal status (directly and inversely, respectively).

The ISC-S is one measure of general school climate that does include a subscale relating to school racial climate. However, subscales such as these tend to combine multiple aspects of racial climate. For example, the support for cultural pluralism scale of the ISC-S includes four items relating to positive interaction across race, fair treatment, and learning about other cultures. Given that subscales such as these tap into a common feature of all of the dimensions of school racial climate (i.e., race and culture), moderate-to-high correlations between the factors of school racial climate and support for cultural pluralism are expected.

Perceived discrimination

As noted, quality of intergroup interactions is often measured as perceived discrimination. Therefore, the second validating measure is a discrimination measure. The next hypothesis is the expectation of moderate negative correlations with quality of interaction and equal status, and a moderate positive correlation with stereotyping, which will provide evidence that individuals' experiences being treated unfairly themselves inform their perceptions of the context. Nevertheless, those experiences are not the only determining factor, so strong correlations are not expected. Additionally, discrimination will have low correlations with the racial socialization dimensions, demonstrating discriminant validity.

Culturally relevant teaching

Third, culturally relevant teaching (CRT) aims to bring students' culture and background into the classroom, promote critical consciousness, and set high expectations (Ladson-Billings, 1995). The racial climate dimensions of cultural socialization and critical consciousness socialization are most similar to culturally relevant teaching. First, CRT is similar to cultural socialization because CRT intentionally draws on students' culture, which may teach them about their culture and encourage them to learn more about it. Second, the critical consciousness goals of CRT are directly aligned with the racial climate dimension of critical consciousness socialization. Therefore, I expected moderate-to-high correlations between cultural socialization and critical consciousness socialization and a measure of culturally relevant teaching.

The final research question will demonstrate predictive validity by showing that a positive school racial climate is associated with positive academic outcomes, as predicted by existing research and theory (for reviews, see Aronson & Laughter, 2016; Bennett, 2001; Byrd, 2015; and Thapa *et al.*, 2013). For example, lack of racial tension is associated with greater feelings of belonging (Byrd & Chavous, 2011; Dotterer *et al.*, 2009), and equal status is associated with higher grades (Mattison & Aber, 2007). Additionally, cultural socialization at school is associated with greater interest in school and higher motivation (Aldana & Byrd, 2015). Finally, both quantitative research and qualitative research suggest that stereotypes can negatively influence academic self-concepts (Dotterer *et al.*, 2009; Rivas-Drake, 2011; Teranishi, 2002). The specific outcomes evaluated in the current study are a range of achievement and motivational outcomes, in particular grades, academic aspirations, interest in school, feelings of belonging, utility value, importance of school, and academic self-concept. These outcomes were chosen because they have validated scales associated with them and are easily measured.

STUDY 1
Method
Participants

Participants were 315 6th- to 12th-grade students recruited through nationwide panels by Qualtrics, an online survey company (M_{age} = 15.34, SD = 1.75). The sample was 62% female, 25% White, 25% Latino, 25% African American, and 25% Asian. Chi-square tests indicated that gender was not balanced by race, as there were more Asian American (72%) and African American (68%) girls than expected, χ^2 (df = 3, N = 315) 10.76, p = .013.

Procedure

Procedures were approved by the Institutional Review Board at the principal investigator's institution. The survey was delivered to adolescents on select Qualtrics panels online based on random assignment and the likelihood that they would meet the eligibility criteria. The first page of the survey described the survey and asked participants to obtain parent consent before continuing. Participants then completed the demographic block of questions. Those who were between the ages of 12 and 18, who were in 6th to 12th grade, and who identified as White, African American, Asian American, or Latino were allowed to continue; the rest were directed to the end of the survey. Participant data were excluded if they further completed the survey in < 5 min or failed two attention checks. Participants were allowed to complete the survey until the quotas for their racial group were fulfilled.

Demographics were in the first survey section, followed by outcomes, racial climate, general school climate and discrimination, and finally culturally relevant teaching. Items were randomized within section. Participants were compensated in credit worth approximately $1.40 to $1.60.

Measures

The SCD-S was initially developed for dissertation research in 2012 based on existing measures of school climate and related constructs. The measure was reviewed by experts in the field and school officials for face validity. Some evidence of factor structure and reliability was shown in a small, homogenous sample of middle and high school students (Byrd, 2015). Development continued with a college version that was validated in three samples (see Byrd, under review). That scale was then modified to be appropriate for secondary students, including the simplification of wording and removing an item about institutional racism. The institutional racism item was removed due to concerns that adolescents would be unfamiliar with the term.

Participants self-reported their age, gender, grade, and race. Academic aspirations was measured with one item asking how often participants wanted to go in school, from 1 ('some high school') to 6 ('get a graduate degree (master's, PhD)'). Participants also indicated the grades they usually get in school with a single-item question ranging from 1 ('all or mostly A's') to 6 ('mostly F's').

Motivation was measured using three scales from Eccles and Wigfield (1995; Wigfield *et al.*, 1997), all on a response scale from 1 (*not at all true*) to 5 (*completely true*). First, interest included three items about enjoying school (α_{Study1} = .88, α_{Study2} = .94). An example was 'I find school interesting'. Second, utility value consisted of three items about how useful what was learned in school was for the future and daily life

(α_{Study1} = .86, α_{Study2} = .88). An example item was 'What I learn in school is useful for the future'. Third, importance consisted of three items about how important being a good student and getting good grades was to them (α_{Study1} = .85, α_{Study2} = .90). An example item was 'Being a good student is important to me'.

School belonging (α_{Study1} = .85, α_{Study2} = .83) was measured with the relatedness subscale of the Basic Needs Satisfaction Scale adapted for school (Deci & Ryan, 2000). The scale includes eight items asking youth how much they like people at the school and how much others at the school like them, and it was measured on a 1 (*not at all true*)-to-5 (*completely true*) scale. An example item was 'I really like the people at my school'.

Adolescents' perceptions of their academic competence were assessed with an academic self-concept scale (α_{Study1} = .87, α_{Study2} = .90) based on a measure by Nicholls (1978). The scale included eight items asking youth to rate themselves on a 1 (*below average*)-to-5 (*above average*) scale in several academic subjects, grades, and overall intelligence.

General school climate was measured using items from the Inventory of School Climate – Student (ISC-S) (Brand *et al.*, 2003). The scale has been validated in a large sample and is commonly used in school climate research. All were on a scale of 1 (*never*) to 5 (*always*). Support for cultural pluralism consisted of four items (α_{Study1} = .74, α_{Study2} = .79). Teacher support (α_{Study1} = .84, α_{Study2} = .87) included six items about how much teachers were willing to help students. Consistency and clarity of rules and expectations (α_{Study1} = .76, α_{Study2} = .82) consisted of five items measuring the extent to which students perceive that expectations are clear and enforced consistently. Student commitment/achievement orientation (α_{Study1} = .85, α_{Study2} = .89) consisted of five items measuring perceptions of how hard students worked to get good grades. Negative peer interactions (α_{Study1} = .87, α_{Study2} = .88) consisted of five items asking how much students in the school had trouble getting along. Positive peer interactions (α_{Study1} = .84, α_{Study2} = .87) consisted of five items measuring how well students got to know each other and enjoyed participating in activities together. Disciplinary harshness (α_{Study1} = .77, α_{Study2} = .69) consisted of five items concerning perceptions that rules are too strict and that it is easy to get in trouble. Student involvement in decision-making (α_{Study1} = .86, α_{Study2} = .87) was measured with five items indicating how much students are able to decide how things work in the classroom and school as a whole. Instructional innovation/ relevance (α_{Study1} = .77, α_{Study2} = .78) included four items asking about teachers trying new and unusual ways of teaching. Finally, Safety Problems measured how often youth were afraid of being a victim of violence or theft with six items (α_{Study1} = .88, α_{Study2} = .89).

Perceived discrimination was measured using the educational subscale of the Adolescent Discrimination Distress Index (ADDI) (Fisher, Wallace, & Fenton, 2000). It consists of four items (α_{Study1} = .80, α_{Study2} = .85), such as 'Because of your race/ ethnicity, you were given a lower grade than you deserved'. The response scale was 1 (*never*) to 5 (*always*).

Finally, the Student Measure of Culturally Responsive Teaching (Dickson, Chun, & Fernandez, 2015) contained two subscales: (1) diverse teaching practice: the degree to which teachers use diverse methods and establish a respectful climate (11 items, α_{Study1} = .92, α_{Study2} = .92); and (2) cultural engagement: the degree to which teachers bring students' culture and home life into the classroom (seven items, α_{Study1} = .91, α_{Study2} = .90). Items were on a scale of 1 (*never*) to 5 (*always*).

Results

Question 1

First, I explored the factor structure of the SCD-S scale using confirmatory factor analysis in MPlus 6.1. Each subscale was specified as a latent variable defined by its component items. All of the latent variables were correlated, and individual items were allowed to correlate if they were within the same subscale and the correlation improved model fit. Two items were removed from the critical consciousness scale for low loadings (<.3).

The hypothesis of excellent fit was confirmed: χ^2 ($df = 656$, $N = 309$) = 941.961, $p < .001$, CFI = .95, RMSEA = .038, SRMR = .050, TLI = .95. Table 1 shows the standardized factor loadings, which ranged from .459 to .852. I conducted a post-hoc power analysis for the CFA using a method based on RMSEA (MacCallum, Browne, & Sugawara, 1996) and an online calculator (Preacher & Coffman, 2006) with a null hypothesis of .05 and an alternative hypothesis of .038. The analysis indicated that the observed power was .99.

Question 2

To answer the second research question, I examined Cronbach's alpha for each subscale, with the expectation that they would be above .70. The alphas are given in Table 1. The hypothesis was confirmed: All were equal to or above .70.

Question 3

Next, I examined bivariate correlations between the subscales and the validating measures. Each subscale was computed as the average of the items from the factor analysis. The correlations are shown in Table 2a. For the purpose of this study, low correlations were defined as below .2, moderate were .2 to .5, and high were above .5. Although my hypotheses were primarily concerned with the strength of the correlations, the significance level was set at .05.

General school climate

The first hypothesis was that negative peer interactions would be strongly negatively associated with quality of interaction and positive peer interactions would be strongly positively associated with quality of interaction. This hypothesis was partially confirmed: The correlation with negative peer interaction was moderate ($r = -.296$, $p < .001$), but the correlation with positive peer interaction was strong ($r = .624$, $p < .001$).

Second, I hypothesized that equal status would be moderately positively associated with consistency and clarity of rules, and moderately negatively with disciplinary harshness. The hypothesis was confirmed, as the correlation with rules clarity and discipline was moderate ($r = .410$, $p < .001$; $r = -.236$, $p < .001$, respectively).

Third, I proposed moderate-to-high correlations between each of the school racial climate subscales and support for cultural pluralism. With the exception of stereotyping ($r = -.150$, $p = .008$), all of the correlations were above .420.

Table 1. Standardized factor loadings and Cronbach's alphas

Subscale and items	Study 1		Study 2	
	Estimate	SE	Estimate	SE
Quality of Interaction ($\alpha_{Study1} = .80, \alpha_{Study2} = .80$)				
Students of different races/ethnicities trust each other	.763	.029	.749	.022
Students here like to have friends of different races/ethnicities	.721	.032	.773	.021
People of different races/ethnicities get along well	.789	.028	.745	.023
Frequency of Interaction ($\alpha_{Study1} = .81, \alpha_{Study2} = .84$)				
Students of different races/ethnicities study together	.759	.029	.823	.018
Students of different races/ethnicities hang out together	.797	.027	.752	.023
Students of different races/ethnicities work together in class	.750	.030	.813	.019
Equal Status ($\alpha_{Study1} = .86, \alpha_{Study2} = .87$)				
Students of all races/ethnicities are treated equally at your school	.824	.023	.836	.017
The principals treat students of all races/ethnicities fairly	.801	.025	.807	.019
At your school, teachers are fair to students of all races/ethnicities	.850	.021	.845	.017
Stereotyping ($\alpha_{Study1} = .82, \alpha_{Study2} = .84$)				
Your racial or ethnic group is seen in stereotypical ways here	.622	.042	.702	.028
Students here have a lot of stereotypes about your racial or ethnic group	.546	.046	.650	.032
Teachers and principals believe negative stereotypes about your racial/ethnic group	.774	.031	.764	.025
Teachers are prejudiced against certain racial/ethnic groups	.801	.030	.761	.025
Your racial or cultural group is represented in stereotypical ways in textbooks and class materials	.611	.042	.648	.031
Support for Positive Interaction ($\alpha_{Study1} = .77, \alpha_{Study2} = .85$)				
Teachers encourage students to make friends with students of different races/ethnicities	.736	.031	.792	.020
The principals like for students to have friends of different races/ethnicities	.675	.036	.804	.019
Students here think it's good to study with people of different races/ethnicities	.737	.031	.781	.020
Teachers and principals say it's good to be a diverse school	.525	.045	.690	.026
Promotion of Cultural Competence ($\alpha_{Study1} = .89, \alpha_{Study2} = .91$)				
Your classes teach you about diverse cultures and traditions	.852	.018	.841	.015

Continued

Table 1. (*Continued*)

Subscale and items	Study 1		Study 2	
	Estimate	SE	Estimate	SE
You have learned about new cultures and traditions at school	.822	.021	.795	.018
You have the chance to learn about the culture of others	.802	.023	.827	.016
In school you get to do things that help you learn about people of different races and cultures	.804	.023	.818	.016
Your textbooks show people of many different races/ethnicities	.550	.042	.687	.025
At your school, they encourage you to learn about different cultures	.777	.025	.819	.016
Cultural Socialization (α_{Study1} = .81, α_{Study2} = .84)				
In your classes you've learned new things about your culture	.838	.025	.837	.018
At your school, you have chances to learn about the history and traditions of your culture	.743	.032	.771	.022
At your school, you have participated in activities that teach you more about your cultural background	.723	.033	.793	.020
Critical Consciousness Socialization (α_{Study1} = .72, α_{Study2} = .73)				
Your teachers encourage awareness of social issues affecting your culture	.774	.032	.738	.023
Teachers teach about racial inequality in the United States	.646	.040	.685	.026
In your classes you have learned about how race/ethnicity plays a role in who is successful	.482	.051	.508	.037
You have opportunities to learn about social justice	.672	.038	.752	.023
Mainstream Socialization (α_{Study1} = .79, α_{Study2} = .86)				
At school you learn what it means to be an American	.712	.036	.827	.018
Your school teaches you core American values	.710	.036	.813	.019
At your school, they encourage you to be proud of what people in the U.S. have accomplished	.644	.041	.731	.024
Your classes have taught you about what makes the United States unique from other countries in the world.	.719	.036	.728	.024
Colourblind Socialization (α_{Study1} = .70, α_{Study2} = .70)				
At your school, people think race/ethnicity is not an important factor in how people are treated	.707	.040	.627	.036
People here think it's better to not pay attention to race/ethnicity	.712	.040	.567	.039
Your school has a colourblind perspective	.565	.048	.626	.035
Your school encourages you to ignore racial/ethnic difference	.459	.053	.589	.037

Note. All *p*s < .001.

Table 2. Subscale correlations validating measures (a) (Study 1); (b) (Study 2)

Variable	Teacher support	Consistency and clarity of Rules	Student commitment	Negative peer interactions	Positive peer interaction	Disciplinary harshness	Student involvement in decision-making	Instructional innovation	Support for cultural pluralism	Safety problems	Perceived discrimination	CRT: Diverse teaching practices	CRT: Cultural engagement
(a)													
Quality of interaction													
r	.504	.365	.505	−.296	.624	−.089	.342	.431	.625	−.124	−.129	.522	.325
p	<.001	<.001	<.001	<.001	<.001	.115	<.001	<.001	<.001	.028	.022	<.001	<.001
Frequency of interaction													
r	.425	.334	.449	−.207	.541	−.046	.298	.406	.610	−.137	−.129	.505	.303
p	<.001	<.001	<.001	<.001	<.001	.420	<.001	<.001	<.001	.015	.022	<.001	<.001
Equal status													
r	.532	.410	.394	−.367	.513	−.236	.333	.442	.557	−.197	−.284	.520	.326
p	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Stereotyping													
r	−.165	−.193	−.048	.542	−.162	.393	.153	.049	−.150	.581	.683	−.168	.111
p	.003	.001	.395	<.001	.004	<.001	.006	.388	.008	<.001	<.001	.003	.051
Support for positive interaction													
r	.540	.398	.472	−.187	.611	−.057	.410	.568	.661	−.047	.023	.577	.513
p	<.001	<.001	<.001	.001	<.001	.313	<.001	<.001	<.001	.406	.681	<.001	<.001
Promotion of cultural competence													
r	.519	.389	.463	−.135	.599	−.017	.448	.603	.646	.007	.017	.585	.645
p	<.001	<.001	<.001	.017	<.001	.761	<.001	<.001	<.001	.897	.768	<.001	<.001
Cultural socialization													
r	.402	.306	.382	−.006	.438	.072	.401	.478	.461	.128	.152	.405	.606
p	<.001	<.001	<.001	.910	<.001	.202	<.001	<.001	<.001	.023	.007	<.001	<.001

Table 2. (*Continued*)

Variable	Teacher support	Consistency and clarity of Rules	Student commitment	Negative peer interactions	Positive peer interaction	Disciplinary harshness	Student involvement in decision-making	Instructional innovation	Support for cultural pluralism	Safety problems	Perceived discrimination	CRT: Diverse teaching practices	CRT: Cultural engagement
Critical consciousness													
r	.355	.213	.295	.084	.371	.088	.415	.536	.420	.196	.264	.425	.583
p	<.001	<.001	<.001	.138	<.001	.121	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Mainstream socialization													
r	.469	.361	.393	−.062	.473	.032	.397	.503	.465	.048	.053	.475	.512
p	<.001	<.001	<.001	.276	<.001	.566	<.001	<.001	<.001	.393	.346	<.001	<.001
Colourblind socialization													
r	.393	.264	.276	−.145	.416	.024	.356	.367	.416	.028	.051	.353	.303
p	<.001	<.001	<.001	.010	<.001	.677	<.001	<.001	<.001	.627	.369	<.001	<.001
(b)													
Quality of interaction													
r	.563	.446	.536	−.169	.656	.024	.371	.565	.638	−.012	−.040	.514	.410
p	<.001	<.001	<.001	<.001	<.001	.596	<.001	<.001	<.001	.782	.373	<.001	<.001
Frequency of interaction													
r	.494	.410	.494	−.148	.594	.035	.285	.508	.619	−.057	−.076	.488	.340
p	<.001	<.001	<.001	.001	<.001	.433	<.001	<.001	<.001	.200	.087	<.001	<.001
Equal status													
r	.581	.507	.494	−.276	.569	−.121	.318	.471	.527	−.145	−.239	.554	.364
p	<.001	<.001	<.001	<.001	<.001	.006	<.001	<.001	<.001	.001	<.001	<.001	<.001

Table 2. (*Continued*)

Variable	Teacher support	Consistency and clarity of Rules	Student commitment	Negative peer interactions	Positive peer interaction	Disciplinary harshness	Student involvement in decision-making	Instructional innovation	Support for cultural pluralism	Safety problems	Perceived discrimination	CRT: Diverse teaching practices	CRT: Cultural engagement
Stereotyping													
r	−.032	−.170	−.061	.631	−.081	.465	.314	.117	−.038	.676	.728	−.069	.214
p	.474	<.001	.175	<.001	.069	<.001	<.001	.009	.397	<.001	<.001	.121	<.001
Support for positive interaction													
r	.612	.491	.544	−.100	.644	.101	.456	.624	.702	.047	.040	.598	.543
p	<.001	<.001	<.001	.025	<.001	.023	<.001	<.001	<.001	.288	.371	<.001	<.001
Promotion of cultural competence													
r	.633	.484	.526	−.058	.648	.088	.483	.666	.695	.093	.062	.622	.632
p	<.001	<.001	<.001	.196	<.001	.048	<.001	<.001	<.001	.038	.165	<.001	<.001
Cultural socialization													
r	.517	.327	.421	.074	.501	.181	.499	.606	.564	.233	.219	.487	.670
p	<.001	<.001	<.001	.095	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Critical consciousness													
r	.537	.340	.422	.130	.508	.220	.543	.634	.560	.256	.253	.534	.659
p	<.001	<.001	<.001	.004	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Mainstream socialization													
r	.596	.479	.514	−.032	.603	.144	.438	.619	.610	.088	.077	.602	.556
p	<.001	<.001	<.001	.476	<.001	.001	<.001	<.001	<.001	.048	.086	<.001	<.001
Colourblind socialization													
r	.379	.254	.265	.029	.373	.062	.415	.388	.355	.166	.112	.343	.347
p	<.001	<.001	<.001	.520	<.001	.168	<.001	<.001	<.001	<.001	.012	<.001	<.001

Note. CRT = culturally relevant teaching.

Perceived discrimination

I expected perceived discrimination to be moderately negatively correlated with quality of interaction and equal status, and positively with stereotyping. These hypotheses were partially confirmed: The correlation with quality of interaction was low ($r = -.129$, $p = .022$), with equal status was moderate ($r = -.284$, $p < .001$), and with stereotyping was high ($r = .683$, $p < .001$). The next hypothesis was that perceived discrimination would have low correlations with the racial socialization dimensions, and this was for the most part confirmed (rs $< .27$).

Culturally relevant teaching

The final hypothesis about the validating measures was the expectation of moderate-to-high correlations between CRT and cultural socialization and critical consciousness socialization. This hypothesis was confirmed: The correlations with cultural socialization were .405 ($p < .001$) and .606 ($p < .001$) for diverse teaching practices and cultural engagement, respectively. For critical consciousness socialization, the correlations were .425 ($p < .001$) and .583 ($p < .001$), respectively.

Question 4

To determine how the dimensions of school racial climate were associated with academic outcomes, I examined bivariate correlations between the subscales and good grades, academic aspirations, interest, feelings of belonging, utility value, importance of education, and academic self-concept. The correlations are shown in Table 3a. I expected indicators of a positive racial climate to be associated with more positive outcomes, and this was generally true. Most of the correlations were in the expected directions and were statistically significant ($p < .05$). Notably, however, colourblind socialization was positively associated with interest, belonging, utility value, importance, and academic self-concept, and stereotyping was positively associated with academic self-concept.

Discussion

The evidence from Study 1 supported the fit of the data with the theoretical framework and strong reliability of the subscales. I also found expected correlations between the subscales and measures of general school climate, perceived discrimination, culturally relevant teaching, and academic outcomes. A second study was undertaken to replicate the findings in an independent sample.

STUDY 2

Method

Participants were 504 6th- to 12th-grade students recruited by Qualtrics ($M_{age} = 15.23$, $SD = 1.46$). For this data collection, quotas were set for race and gender such that the sample was evenly balanced across both categories, such that there were 63 White boys, White girls, Black boys, Black girls, Latino boys, Latina girls, Asian American boys, and Asian American girls. The procedures, measures, and analyses were identical to Study 1, except that participants were between the ages of 13 and 18. This change was made because Qualtrics indicated that it was more difficult to recruit 12-year-old participants and obtain a balanced sample. The research questions and analyses were identical to Study 1.

Table 3. Subscale correlations with academic outcomes (a) (Study 1); (b) (Study 2)

Subscale	Grades	Aspirations	Interest	Belonging	Utility value	Importance	Academic self-concept
(a)							
Quality of interaction							
r	.188	.128	.241	.305	.259	.291	.223
p	.001	.023	<.001	<.001	<.001	<.001	<.001
Frequency of interaction							
r	.207	.120	.233	.252	.235	.351	.185
p	<.001	.033	<.001	<.001	<.001	<.001	.001
Equal status							
r	.171	.081	.304	.353	.304	.284	.170
p	.002	.153	<.001	<.001	<.001	<.001	.002
Stereotyping							
r	.017	.067	.048	−.261	.044	.067	.124
p	.761	.235	.396	<.001	.435	.238	.027
Support for positive interaction							
r	.169	.129	.303	.258	.349	.332	.204
p	.003	.022	<.001	<.001	<.001	<.001	<.001
Promotion of cultural competence							
r	.164	.136	.392	.326	.460	.380	.203
p	.004	.015	<.001	<.001	<.001	<.001	<.001
Cultural socialization							
r	.101	.099	.337	.252	.374	.290	.176
p	.074	.080	<.001	<.001	<.001	<.001	.002
Critical consciousness							
r	.119	.136	.280	.103	.331	.282	.174
p	.035	.016	<.001	.068	<.001	<.001	.002
Mainstream socialization							
r	.059	.141	.363	.265	.405	.331	.181
p	.292	.012	<.001	<.001	<.001	<.001	.001
Colourblind socialization							
r	.134	.045	.206	.214	.198	.126	.177
p	.017	.428	<.001	<.001	<.001	.026	.002
(b)							
Quality of interaction							
r	.217	.052	.439	.413	.384	.316	.291
p	<.001	.248	<.001	<.001	<.001	<.001	<.001
Frequency of interaction							
r	.157	.069	.415	.376	.374	.322	.286
p	<.001	.124	<.001	<.001	<.001	<.001	<.001
Equal status							
r	.143	.048	.354	.367	.342	.306	.186
p	.001	.285	<.001	<.001	<.001	<.001	<.001
Stereotyping							
r	.039	−.096	.158	−.117	.138	.045	.103
p	.380	.032	<.001	.009	.002	.317	.021
Support for positive interaction							
r	.162	.059	.476	.397	.475	.346	.285
p	<.001	.185	<.001	<.001	<.001	<.001	<.001

Table 3. (*Continued*)

Subscale	Grades	Aspirations	Interest	Belonging	Utility value	Importance	Academic self-concept
Promotion of cultural competence							
r	.212	.028	.466	.418	.471	.308	.311
p	<.001	.530	<.001	<.001	<.001	<.001	<.001
Cultural socialization							
r	.110	−.033	.460	.315	.474	.244	.254
p	.014	.454	<.001	<.001	<.001	<.001	<.001
Critical consciousness							
r	.159	−.022	.438	.318	.423	.253	.281
p	<.001	.616	<.001	<.001	<.001	<.001	<.001
Mainstream socialization							
r	.186	.050	.454	.413	.493	.368	.298
p	<.001	.262	<.001	<.001	<.001	<.001	<.001
Colourblind socialization							
r	.185	−.076	.360	.228	.302	.213	.213
p	<.001	.089	<.001	<.001	<.001	<.001	<.001

Results

Questions 1 and 2

The confirmatory factor analysis revealed excellent fit: χ^2 (df = 655, N = 504) = 1138.394, p < .001, CFI = .96, RMSEA = .038, SRMR = .055, TLI = .95. Table 1 shows the standardized factor loadings, which ranged from .508 to .845. Observed power was again .99. Cronbach's alphas for each subscale were again all equal to or above .70, as shown in Table 1.

Question 3

General school climate

Bivariate correlations for this question are shown in Table 2b. The first hypothesis was that negative peer interactions and positive peer interactions would be strongly associated with quality of interaction. This hypothesis was partially confirmed: The correlation with negative peer interaction was low (r = −.169, p < .001), but the correlation with positive peer interaction was strong (r = .656, p < .001). I also hypothesized that equal status would be moderately positively associated with consistency and clarity of rules, and moderately negatively with disciplinary harshness. The hypothesis was not confirmed: The correlation with rules clarity was strong (r = .507, p < .001) and disciplinary harshness, weak (r = −.121, p = .006). Last, I proposed moderate-to-high correlations between each of the school racial climate subscales and support for cultural pluralism. This hypothesis was again confirmed for all except stereotyping (r = −.038, p = .397).

Perceived discrimination

I expected perceived discrimination to be moderately correlated with quality of interaction, equal status, and stereotyping. This hypothesis was only partially confirmed. Perceived discrimination had a strong correlation with stereotyping (r = .728, p < .001)

and a moderate correlation with equal status ($r = -.239$, $p < .001$) and was not significantly associated with quality of interaction ($r = -.040$, $p = .373$). These findings are similar to Study 1. The next hypothesis was that perceived discrimination would have low correlations with the racial socialization dimensions, and this was again confirmed (rs $< .25$).

Culturally relevant teaching

Finally, I expected moderate-to-high correlations between CRT and cultural socialization and critical consciousness socialization. This was confirmed as all four correlations were above .49.

Question 4

The fourth research question concerned predictive validity, and the bivariate correlations are shown in Table 3b. The hypothesis was mostly confirmed, as most of the correlations were in the expected directions. Again, however, colourblind socialization was positively associated with most of the outcomes.

GENERAL DISCUSSION

The goal of the current study was to provide evidence of the reliability and validity of the School Climate for Diversity – Secondary Scale. A strength of this study was that the participants were drawn from four racial groups from diverse settings and regions across the United States. Thus, the findings are highly generalizable. A second strength was that the findings were replicated in two independent samples.

The SCD-S showed concordance with existing measures of general school climate, school racial climate, and culturally relevant teaching. The scale also showed expected positive correlations with academic outcomes. However, the scale did not show all expected associations. First, a surprising finding was that quality of interaction was not as strongly related to negative peer interactions and perceived discrimination as expected. However, it was strongly related to positive peer interactions. Although the subscale is intended to tap into both positive and negative interactions, all of the items are positively worded, so there is a limitation to the subscale. At the same time, however, the equal status subscale also had all positively worded items and yet had stronger correlations with negative peer interactions and perceived discrimination. Second, although research has hypothesized negative outcomes due to colourblind socialization, the vast majority of existing research is qualitative and based on researcher evaluations of colourblindness. Few studies have examined adolescents' perceptions of colourblind messages. Therefore, further research is needed to explore the role of the messages for youths' outcomes. It may be that White youth and youth of colour interpret these messages differently, or the meaning of such messages depends on the racial composition of the school. The findings also revealed significant positive correlations between mainstream socialization and most academic outcomes. Given the lack of literature on students' perceptions of these messages, the implications of these findings are unclear, but they do highlight the need for future study of messages about American values as an aspect of racial climate.

Some limitations of the study were that it is not known how many participants attended the same schools. Names of schools were not collected to protect participant privacy – future research could collect more specific information to conduct hierarchical analyses or to examine variation in perceptions of school racial climate by school and community demographics. Future work should also explore measurement invariance by race and gender and include students from other racial groups.

Implications

The primary implication of the current work is that educators now have a framework and a tool to understand the particular ways that race and culture are perceived in secondary schools. As existing measures and research treat climate in a broad manner (e.g., Brand *et al.*, 2003), schools can only describe their climates as positive or negative. However, schools with a high number of colourblind messages will require different interventions than schools with poor quality of interactions, for example. Thus, acknowledging the multidimensionality of racial climate in conceptualization and measurement will improve research and intervention.

Conclusion

This study has contributed to the literature in educational psychology by recognizing both intergroup interactions and the curriculum as components of school racial climate, by disentangling the relationship between racial climate and perceived discrimination, and by taking a phenomenological and individual differences viewpoint. School racial climate is a complex and multidimensional construct, and the School Climate for Diversity – Secondary Scale is a reliable and valid measure of it.

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