Inequality in Black and White High School Students' Perceptions of School Support: An Examination of Race in Context

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Abstract

Supportive relationships with adults at school are critical to student engagement in adolescence. Additional research is needed to understand how students' racial backgrounds interact with the school context to shape their perceptions of school support. This study employed multilevel, latent variable methods with a sample of Black and White students (*N* = 19,726, 35.8% Black, 49.9% male, mean age = 15.9) in 58 high schools to explore variation in perceived caring, equity, and high expectations by student race, school diversity, and socioeconomic context. The results indicated that Black students perceived less caring and equity relative to White students overall, and that equity and high expectations were lower in diverse schools for both Black and White students. Nonetheless, racial disparities were attenuated in more diverse schools. The findings point to the need for intervention to improve perceptions of school support for Black youth and for all students in lower income and more diverse schools.

Keywords: school climate, engagement, racial disparities, school diversity, social support

Introduction

Racial disparities between Black students and their White peers in academic and disciplinary outcomes are among the most pressing concerns facing U.S. schools (Aud et al., 2012; Gregory, Skiba, & Noguera, 2010) and are drawing increasing policy and research attention (Advancement Project, 2010; Fabelo et al., 2011). Supportive relationships at school are linked consistently to more positive academic and behavioral outcomes (Eccles & Roeser, 2011) and thus present a promising avenue of research to better understand racial gaps in achievement and school discipline exposure. Although some studies suggest that Black students perceive less support than White students (Hughes & Kwok, 2007), additional research is needed to examine disparate perceptions of school support with attention to variation by school context (e.g., the diversity of the school) and to other aspects of students' backgrounds (e.g., socioeconomic status). This study explored how students' race interacted with the diversity and socioeconomic context of the school to shape perceptions of school support in three dimensions (caring, equity, and high expectations).

School Support

School support is an emerging construct theorized to fulfill youth needs for belonging, competence, and autonomy (Hanson & Kim, 2007; Skinner & Pitzer, 2012) and conceptualized as an aspect of school climate shaped by students' relationships with adults at school. Research indicates that supportive relationships with adults at school predict students' academic engagement and social-emotional well-being (Roeser, Eccles, & Sameroff, 2000), particularly for behaviorally at-risk Black youth (Decker, Dona, & Christenson, 2007). Several conceptual models, such as the dynamic model of motivational development of engagement (Skinner & Pitzer, 2012) and the youth development and resiliency models (Benard, 2004; Hanson & Kim, 2007) provide a theoretical framework of the dimensions of school support that motivate student engagement and promote positive student outcomes. Two dimensions of school support—*caring* and *high expectations*—are consistently regarded as essential to youth social-emotional and school outcomes (Baker, Grant, & Morlock, 2008; Benard, 2004; Furrer & Skinner, 2003; Gregory & Weinstein, 2008; Hanson & Kim, 2007; Hughes, Luo, Kwok, & Lloyd, 2008). *Caring* refers to warmth and regard for students as individuals, and is theorized to promote students' sense of belonging at school. The dimension of *high expectations* refers to support for students' ability to meet a high standard of academic effort, and is theorized to promote academic competence. Theory suggests that supportive school contexts encourage engagement motivation by fulfilling students' psychological needs (Skinner & Pitzer, 2012). Unfortunately, efforts to identify

threats to student engagement have relied too heavily on student risk factors and tended to overlook the important role of school context (Finn & Zimmer, 2012) and person-context fit (Byrd & Chavous, 2011). Furthermore, although these dimensions are well supported by research, theoretical models tend to neglect the role of race and racial inequity in schools, influences that have potential to explain disparate school outcomes among Black and White youth. More inclusive models addressing the intersections of race and social context are necessary to further our understanding of the development of young people of color (García Coll et al., 1996).

Equity as a dimension of school support. Students' perceptions of differential treatment, exclusion, and discrimination by teachers and other adults in school appear to play a role in poor outcomes among youth of color in school. For example, perceived discrimination has been linked with mental health problems, including antisocial behavior (Bogart et al., 2013), depression, and low self-esteem (Zeiders, Umaña-Taylor, & Derlan, 2012). Among Black students, perceived discrimination is inversely associated with valuing of education and academic persistence (e.g., Dotterer et al., 2009; Smalls, White, Chavous, & Sellers, 2007; Wong, Eccles, & Sameroff, 2003). Conversely, research on school climate suggests that perceived school equity, which includes dimensions of fairness and inclusiveness (Organization for Economic Cooperation and Development [OECD], 2008), may positively influence students' sense of connectedness and academic motivation in school (Debnam, Lindstrom Johnson, Waasdorp, & Bradshaw, 2014). Adolescents' perceptions of fairness in the school environment can enhance both students' sense of competence (Elliot & Dweck, 2005) and connectedness (Lowman, 1984). Existing conceptualizations of school support such as the dynamic model of motivational development (Skinner & Pitzer, 2012) and the youth development and resiliency model (Hanson & Kim, 2007) have not included dimensions reflecting students' perceptions of equity. Thus, there has been limited research exploring fairness and inclusion as a component of school support.

Racial disparities in school support. Although school support is linked with positive outcomes across diverse racial and ethnic groups (e.g., García-Reid, Reid & Peterson, 2005; Tyler & Boelter, 2008), educators have theorized that Black students in particular may benefit from teacher support to help navigate sociocultural boundaries between school, home, and neighborhood and to cope with experiences of discrimination at school (Gay, 2002). Research demonstrates the particular salience of supportive teacher relationships relative to other social factors for Black youth (Decker et al., 2007; Meehan, Hughes, & Cavell, 2003), yet also suggests that Black students experience less supportive relationships with their teachers and less school connectedness relative to their White

peers (Hamre & Pianta, 2001; Hughes & Kwok, 2007; Furlong, O'Brennan, & You, 2011). Because race and socioeconomic status (SES) can be conflated, some research is beginning to assess whether racial gaps persist even when controlling for students' socioeconomic status (SES; Bottiani, Bradshaw, & Mendelson, 2014; Voight, Hanson, O'Malley, & Adekanye, 2015); however, most studies that have demonstrated racial gaps in perceived support, climate, and connectedness have done so with limited or no accounting for effects associated with SES.

The role of school context. Racial gaps in perceived support may play an important role in the observed poorer academic, disciplinary, and mental health outcomes among Black adolescents, yet we know relatively little about their root causes. School racial and ethnic diversity and SES are important aspects of the school social context that may differentially shape adolescent perceptions of support by race. Although research examining the role of school diversity in inequalities in Black boys' report of school support is scant overall, a handful of studies suggest that youth of color perceive poorer racial climate and greater discrimination in more racially/ethnically heterogeneous schools (Benner & Graham, 2013; Seaton &Yip, 2009), whereas youth of color fare better in schools with a critical mass of same-ethnicity peers (Benner & Graham, 2009, 2013). These studies examined climate perceptions among students of color, but did not explicitly attend to racial disparities in students' perceptions of school support. In addition, the studies were conducted in urban schools on the west coast, whereas relatively little research has explored how school diversity influences student perceptions of school in Mid-Atlantic/Southern region of the U.S., or in suburban and rural areas, which may have larger Black populations and lower levels of diversity overall. Importantly, to our knowledge, no studies have examined how school SES and school diversity interact to exacerbate or mitigate racial disparities in students' perceptions of school support. Black and Latino youth are more likely to attend high-poverty schools, and high-poverty schools in turn are associated with lower levels of teacher educational attainment and higher rates of social disorder (National Center for Education Statistics, 2010). In schools marked by higher percentage of students on free and reduced price meals and higher concentration of Black youth, staff burnout and stress levels are likely elevated (Bottiani et al., 2014; Collie, Shapka, & Perry, 2012); stress, in turn, has been linked to expression of implicit prejudicial biases (Kang, Gray, & Dovidio, 2013). Therefore, it is plausible that student report of equity may be lower overall in these schools and that disparities in students' report of school support might be larger in such school settings.

The Present Study

To advance our knowledge of whether racial disparities in students' perceptions of school support are influenced by the racial and ethnic diversity and socioeconomic status of the school, this study employed multi-level and multiple group latent variable approaches to model school equity, caring, and high expectations as a 3-dimensional model of school support. We then examined variation in racial differences in perceived support by school context of racial and ethnic diversity and school SES utilizing cross-sectional, self-report data from 19,726 students in 58 Maryland high schools. We tested three central hypotheses. First, to ascertain whether racial gaps persisted when accounting for student SES, we tested the hypothesis that Black students would demonstrate significantly lower mean scores relative to White students on perceived caring, high expectations, and equity (Hughes & Kwok, 2007; Furlong et al., 2011), even after accounting for maternal educational status (as a proxy for SES). Second, we anticipated that, in more diverse and lower SES schools, teachers and school staff would have higher levels of stress and burnout (Bottiani et al., 2014), which would adversely affect their capacity to promote an equitable, emotionally supportive climate (Jennings & Greenberg, 2009). Thus, we hypothesized that, for both Black and White students, all three dimensions of school support would be perceived less favorably in more diverse and lower SES schools. Third, in schools with more racial and ethnic diversity and lower SES, we anticipated that the distinctions between the numeric majority and minority student racial, ethnic, and class groups may be tempered. Thus, we hypothesized that racial gaps in students' perceptions of support would be attenuated in more diverse and lower SES schools. Together, these findings have the potential to motivate and inform practices used by schools and districts to promote more equitable developmental outcomes for Black youth.

Method

Sample

Data for this study come from students attending 58 high schools participating in the Maryland Safe and Supportive Schools Project (MDS3), a statewide initiative focused on promoting school climate, student engagement, and school safety launched in 2012. Cross-sectional data were collected from adolescents in grades 9-12 via a web-based survey administered in spring 2013. The analysis sample was limited to Black (n = 7,062) and White (n = 12,662) adolescents only, totaling 19,726 students who were 49.9% male, with mean age = 15.89 (SD=1.27). Maternal education was less than high school graduation for 8.3% of students; 42.3% reported that their mothers graduated from college. Student demographics and school characteristics are presented in Table 1.

Procedure

High schools were invited to participate in the MDS3 initiative on a voluntary basis. Twelve of the state's 24 districts were approached by the Maryland State Department of Education. Half of the schools were randomly assigned to receive training in positive behavior supports, and the other half were randomized to a "business as usual condition". The data for the present study were collected early in the implementation of the initiative, and thus intervention effects were not expected. Furthermore, our analyses did not reveal intervention effects on the study variables. Nevertheless, a school-level intervention condition variable was included as a control variable in the models. Anonymous data were collected via a waiver of active parental consent and a youth assent process. All student participation was voluntary. The MDS3 School Climate Survey was administered online in language arts classrooms to approximately 25 classrooms per school, with an approximate distribution as follows: seven 9th grade classrooms and six each of 10th, 11th, and 12th grade classrooms. School staff administered the survey following a written protocol. The researchers' Institutional Review Board approved analysis of these data. For additional information on the project, see Bradshaw, Debnam et al. (2014).

Measures

The constructs described below were measured using items from the MDS3 Student Survey. A collaborative led by the Johns Hopkins Center for Youth Violence Prevention developed the survey; for additional details, see Bradshaw, Waasdorp, Debnam, and Lindstrom Johnson (2014). Cronbach's alphas (α) were calculated to assess the internal consistency reliability of key constructs in the study.

Student demographic characteristics. Participants responded to a series of questions regarding sociodemographic characteristics, including gender, maternal education, grade-level (9-12), and race/ethnicity. For race/ethnicity, participants were asked to self-identify as either Asian/Pacific Islander, Black/African American, Hispanic/Latino, Native American/American Indian, Native Hawaiian, White/Caucasian, or Other (Ensminger et al., 2000).

School support. Twelve survey items using a four-point Likert scale were selected from the California Healthy Kids Survey (2010; Hanson & Kim, 2007) and the School Development School Climate Survey (Haynes et al., 2001) to assess school support. An exploratory factor analysis (EFA) in *Stata* using principal axis factoring (PAF) with oblique rotation of twelve items employing a separate sample (schools from the Year 1 survey administration, N = 21,824 students, J = 52) retained a three-factor solution (based upon examination of the scree plot, eigenvalues > 1, and parallel analysis). The three factors were *caring* (4 items, α = .85; items: "My teachers

care about me", "My teachers listen when I have something to say", "Students trust the teachers", "Teachers respect the students"), *high expectations* (4 items, α = .84; items: "My teachers encourage me to work hard in my classes", "My teachers believe that I can do well in school", "My teachers always want me to do my best", "Teachers believe all students can do well if they try"), and *equity* (4 items, α = .83; items: "The school provides instructional materials that reflect my culture" and "At this school, students of all races [whether boys or girls, whether parents are rich or poor] are treated the same").

School racial and ethnic diversity. Racial/ethnic diversity of each school was characterized using a normalized generalized variance (NGV) statistic (Budescu & Budescu, 2012; Simpson, 1949), which can be interpreted as the probability of randomly selecting two individuals from a given population that belong to different subgroups (Budescu & Budescu, 2012), wherein the higher the value, the higher the diversity of the population. The statistic was standardized ("normalized") to create a relative measure of diversity allowing for direct comparisons across groups (bounded ratio $0 \leq GV \leq 1$). Groups included in the calculation of the statistic for all schools were school-level percentage Black, White, Latino, American Indian/Alaska Native, Asian, and multi-ethnic/ multiracial, as reported in concurrent school enrollment records.

School SES. School SES was based upon the percentage of students receiving free or reduced price meals (FARMs), such that a higher FARMs rate indicated a higher concentration of low SES students. Receipt of FARMs has been shown to be valid indicator of low household income (Ensminger et al., 2000).

Analyses

We used a multilevel approach to examine our three hypotheses. A multi-level approach was selected because it allowed us to test our hypothesis of school-level moderation of racial inequalities by examining cross-level interactions of school diversity and SES on the association between race and student report of school support dimensions, while accounting for other within-level fixed and random effects. Moreover, because the data (from students nested within schools) were hierarchical in nature, individuals from the same schools likely have correlated errors, and a basic assumption of multivariate regression would otherwise be violated (Luke, 2004). Multilevel modeling allows for correlated error structures. Prior to testing our three hypotheses, we conducted preliminary analyses to assess the measurement model, measurement invariance, and missing data.

Measurement model. We used the current study's sample to run a confirmatory factor analysis (CFA) in M*plus* utilizing MLR estimation and sample weights. Degree of model fit was gauged by the chi-square statistic

(χ2), comparative fit index (CFI; Bentler, 1990), non-normed fit index (NNFI, also known as the Tucker-Lewis Index [TLI]; Bentler & Bonett, 1980), and the root-mean-square error of approximation (RMSEA) with 90% confidence interval (RMSEA; Steiger & Lind, 1980). Adequate model fit of the measurement models were determined by chi-square test insignificance > .05, CFI > .95, TLI > .95, and RMSEA < .05. We found that a three-factor model of school support provided excellent fit to the data χ^2 (51) = 1083.09, p < .001, CFI = .98, TLI = .98, RMSEA = .03 (.032-.035). With large sample sizes, the chi-square test is known to be sensitive (Marsh, Balla, & McDonald, 1988). Alternative fit indices based on principals of parsimony (i.e., RMSEA) were therefore referenced to make decisions regarding model fit (Browne & Cudeck, 1992).

Measurement invariance. We examined measurement invariance in the factor structure of the caring, equity, and high expectations model between the Black and White student groups through a series of configural, metric, and scalar models (Meredith, 1993), fit through multiple group CFA in M*plus* with MLR estimation. In testing metric invariance, we constrained factor loadings to be equal across groups. Scale factors were fixed at one in one group and free in the other group. Factor variances were free to vary across groups, and factor means were fixed at zero in one group and free in the other group. In testing scalar invariance, we constrained factor loadings and thresholds to be equal across groups. Scale factors were fixed at one in one group and free in the other group, and factor means were fixed at zero in one group and free in the other group. Factor variances were free to vary across groups. Consistent with Cheung and Rensvold (2002), measurement invariance was found through the multi-group model demonstrating adequate fit to the data, with the difference in CFI between models at less than .01. When comparing metric against configural models, χ^2 = 33.48 (df = 9), p < .001, ΔCFI = -.001, ΔTLI = .001, and ΔRMSEA = -.001. When comparing scalar against configural models, χ^2 = 227.74 (df = 18), p < .001, ΔCFI = -.003, ΔTLI = .000, and ΔRMSEA = .001. When comparing scalar against the constrained metric model, χ^2 = 189.26 (df = 9), p < .001, ΔCFI = -.002, ΔTLI = -.001, and ΔRMSEA = .002. These findings supported the assumption of measurement invariance by race.

Missing data. After limiting the student sample to those who provided adequate initial demographic information (race, age, and gender), descriptive analyses found very little missing data (< 1% of students were missing items). Our analyses assumed that data were missing at random (MAR; Arbuckle & Wothke, 1999). Although the amount of missing data in the study was negligible, analyses did suggest that Black relative to White race was associated with missing items for the equity and caring scales. However, the association of these variables

with missingness was quite small (estimates ranged from .001 - .004). M*plus* software adjusts for missingness using full-information maximum-likelihood (FIML) estimation, which is widely recognized as an appropriate means of handling missing data assumed to be MAR (Schafer & Graham, 2002). The sample was weighted to represent the school-wide population using the raking method (Battaglia, Izreal, Hoaglin, & Frankel, 2004; see Bradshaw et al., 2014). Sample weights were utilized in all models.

Multilevel analyses. To examine our central research questions, we estimated two-level models using M*plus* 7.11. A stepwise approach to model building was taken, such that the multilevel models were built one variable and one level at a time in order to be sensitive to the stability of findings with and without nonsignificant effects (Raudenbush & Bryk, 2002). For all outcome variables, we fit linear multilevel models. We generated standardized coefficients as an effect size to allow readers to assess the strength of the associations identified and their practical meaning (Nieminen, Lehtiniemi, Vähäkangas, Huusko, & Rautio, 2013). The overall fit of the models was assessed using Akaike and Bayesian information criteria (Akaike, 1974; Raudenbush & Bryk, 2002).

The three outcome variables caring, equity, and high expectations were modeled as latent variables using items measured at the student level (level 1). Factor loadings of the latent variables in the between (level 2) model were constrained to be equal to the level 1 factor loadings to permit assessment of cross-level interactions (school-level moderation). Predictors included at level 1 were grade-level, gender, maternal education, and race (dummy coded Black relative to White). Continuous level 1 covariates were group-mean centered to allow for assessment of between-group differences and cross-level interactions (Croninger, 2013). At level 2, we included the percentage of students receiving FARMs, the NGV school diversity statistic, and MDS3 intervention condition. All continuous level 2 variables were grand-mean centered. To examine whether school diversity moderated discrepancies between Black and White students' perceptions of caring, equity, and high expectations, we tested cross-level effects of the hypothesized school-level predictors (i.e., school diversity and SES) at level 2 with the level 1 effects of school support on race. The model included the level 1 and level 2 predictor variables' main effects and corresponding cross-level effects on racial differences.

Post-hoc multiple group CFA. To further explore and illustrate identified cross-level interactions following the multi-level analyses, a post-hoc analysis was conducted. The post-hoc analysis was designed to be exploratory in nature, to help understand the main results, and was necessary for two reasons. First, the diversity statistic is informative only to a certain extent. Specifically, an estimate of .29 could reflect either a primarily

homogenous Black school or a primarily homogenous White school. In order to avoid conflating patterns in primarily Black and White schools, schools in the upper range of the grand mean diversity statistic (i.e., greater than or equal to the mean NGV .57) were categorized as "diverse", whereas those in the lower range (i.e., <.57 NGV) were broken out as either majority White or majority Black schools; this categorization was done to permit exploration of patterns of disparity in the resulting three different types of schools that we refer to as Primarily White, Primarily Black, and Racially Diverse. A second reason for our post-hoc analysis was to allow us to understand how school racial/ethnic composition potentially intersected with school SES. The primary analysis only yielded information on how school SES functioned in isolation. We therefore further assigned each of the three types of schools (Primarily White, Primarily Black, and Racially Diverse) to either the upper or lower range of the grand mean percentage of enrollment on free and reduced price meals (FARMS, M = .38), resulting in a total of six mutually exclusive groups, which we call: (1) Primarily White, Upper SES; (2) Primarily White, Lower SES; (3) Primarily Black, Upper SES; (4) Primarily Black, Lower SES; (5) Racially Diverse, Upper SES; and (6) Racially Diverse, Lower SES. Descriptives for each of the six resulting school groups, including the number of schools in each group, is provided at the bottom of Table 1. Using these six groups, we then conducted a multiple-group CFA with Black race as a covariate, which provided adequate fit to the data, $\chi^2(450) = 2826.75$, $p < .001$, CFI = .98, TLI = .98, and RMSEA =.04 (95% CI: .039-.042). To permit comparisons across the six school groups, measurement invariance was tested and we found the assumption of measurement invariance held. When comparing metric against configural models, $\chi^2 = 144.77$ (df = 45), $p < .001$, ΔCFI = -.001, ΔTLI = .001, and ΔRMSEA = -.002. When comparing scalar against configural models, $\chi^2 = 560.80$ (df = 90), $p < .001$, ΔCFI = -.005, ΔTLI = .000, and ΔRMSEA = .000. When comparing scalar against the constrained metric model, $\chi^2 = 416.03$ (df = 45), $p < .001$, ΔCFI = -.004, ΔTLI = -.001, and ΔRMSEA = .002.

Results

Figure 1 depicts the two-level latent variable model of caring, equity, and high expectations with coefficients for level 1 and 2 predictors and cross-level interactions labeled. Table 2 summarizes these findings in tabular form. As hypothesized, Black race was significantly negatively associated with the latent variables caring (γ = -.14, $p < .001$) and equity (γ= -.10, $p < .001$), even when accounting for maternal education, a proxy for student-level SES. Contrary to our hypothesis, no significant differences by race were found in latent high expectations (γ = .01, *n.s.*). We also observed a statistically significant positive association between maternal education level and

perceptions of school support across all three latent variables (γ ranged from .03 to .05, all $p < .001$). Being male was significantly positively associated with perceived caring and equity (γ = .05 for both, with both coefficients' $p < .001$), but was negatively associated with high expectations (γ = -.03, $p = .02$). Interestingly, we found no linear association between grade level (9-12) and perceived caring or equity, but we observed a negative association with high expectations such that as grade level increased, latent perceived high expectations decreased (γ = -.04, $p < .001$). Overall, these standardized associations by gender, grade level, and maternal education were relatively smaller than associations found by race for caring and equity.

Our second hypothesis was that, for both Black and White students, all three dimensions of school support would be perceived less favorably in more diverse and lower SES schools. Examining the level 2 main effects reflecting the three dimensions regressed on NGV (diversity) and FARMs (low SES), significant associations were found in the predicted direction for both Black and White students on equity (NGV γ = -.16, $p < .001$ and FARMs γ = -.21, $p < .001$). In addition, the hypothesized negative association between school diversity and high expectations was found to be significant (γ = -.08, $p = .02$). The hypothesized associations when regressing latent caring on school diversity and FARMs were non-significant, although they trended in the predicted direction. There was no significant association found between FARMs and high expectations.

Our third hypothesis was that racial gaps in students' perceptions of support would be attenuated in more diverse and lower SES schools. We found significant moderation of Black-White gaps in the predicted direction by school NGV (γ = .11, $p < .001$) and FARMs (γ = .10, $p < .001$) for equity only. As shown in Figure 2, although student perceptions of equity are lower overall for both Black and White students in lower SES schools, the gap between Black and White students is larger in higher SES schools. Similarly, in more racially and ethnically homogenous schools, the gap in perceived equity between Black and White students was larger than in schools with high diversity (although more diversity was associated overall with lower levels of perceived equity).

Our post-hoc multiple group analysis suggested the importance of examining racial differences in student perceptions of school equity in the context of school diversity, predominant race, and school SES. As we note in the Methods section, low-diversity schools were categorized as either "primarily White" or "primarily Black", whereas schools with NGVs higher than the mean were classified as "racially diverse", creating three school types. When further broken down by either upper or lower SES, six mutually exclusive groups were created. Due to the correlation between SES and racial composition of schools (i.e., primarily Black and more racially diverse schools

tend to be lower SES), there were fewer schools in the "Primarily Black, Upper SES" and the "Primarily White, Lower SES" groups, whereas there were many more schools in the "Racially Diverse, Low SES" group and the "Primarily White, Upper SES" group. Because of the low number of schools in some of the groups, we caution that the results of the post-hoc analysis are intended only to further clarify trends identified in the main findings, due to limitations of the NGV statistic. As shown in Figure 3, a pattern consistent with the cross-level interactions described above was found; however, disparities by race in latent perceptions of equity were magnified across school types. Specifically, in schools characterized as primarily White *and* upper SES, Black students' perceptions of equity were nearly a half a standard deviation lower than White students', on average ($\beta = -.49$, $p < .001$). The Black-White gap was significantly larger in this school type than in all other school types, except the White lower SES type (Wald χ^2s ranged from 19.43 to 51.54, $p < .001$ for each of the four significant comparisons). It is important to note that Black students' perceptions of equity were nonetheless higher in majority White, upper SES schools relative to all other school groups. Black students' report of equity was lowest in schools that were majority Black and in the lower SES range. Notably, report of equity among Black students in diverse, upper SES range schools was higher relative to homogenous White, lower SES schools *and* homogenous Black, lower and upper SES schools. As a result, disparities between Black and White students were significantly smaller in diverse, upper SES schools relative to homogenous White, lower SES schools (Wald $\chi^2 = 17.97$, $p < .001$) and homogenous Black, lower and upper SES schools (Wald χ^2 s ranged from 4.41 to 5.33, $p < .01$ for both).

Discussion

Supportive school contexts in which adults are caring, fair, and set high expectations have been recognized as essential to adolescents' healthy cognitive, social, and emotional development (Eccles & Roeser, 2011). Persistent racial disparities in students' school outcomes (e.g., academic performance, school discipline; Aud et al., 2012; Skiba et al., 2011) mirror the available research on youth perceptions of school support by race, which show that Black youth perceive lower levels of supportive relationships with adults and connectedness at school relative to their White peers (Furlong et al., 2011; Hamre & Pianta, 2001; Hughes & Kwok, 2007). Yet, there is limited research accounting for student SES to demonstrate that racial gaps in perceived climate are not conflated with socioeconomic differences (Bottiani et al., 2014), and there is even less research investigating the role of the school contexts in which race interacts to shape student perceptions of school support. Given prior research showing that students report more positive racial climate in schools with a critical mass of same-race peers (Benner & Graham,

2013), it is possible that students perceive some enculturative benefit from being a student of the school's majority group; or, it is also possible that Black and White students may become more aware of differential treatment within schools in which they have more exposure to students with backgrounds that differ from their own. These considerations of race-in-context are critical to improving our understanding of the processes that contribute to racial disparities in school outcomes.

This study explored racial gaps in students' perceptions of caring, equity, and high expectations at school using a multi-level latent variable modeling approach. Across three theorized dimensions of school support, we were interested to learn whether racial gaps persisted when accounting for student SES, whether school diversity and school SES influenced students' perceptions of support overall, and whether students' perceptions varied differentially by race according to the schools' diversity and SES. Our findings demonstrated that racial disparities were present in Black and White students' perceptions of caring, such that Black students perceived significantly lower caring relative to their White peers. This gap did not vary significantly by the diversity of their peers or school socioeconomic context. In contrast, no racial differences in students' report of teacher high expectations were identified; however, we did find that this dimension of support decreased for both Black and White youth as the diversity of the student body in their school increased. Consistent with our hypotheses, we found lower levels of perceived equity among both Black and White students in more racially and ethnically diverse schools. Similarly, perceived equity was lower for both groups in lower SES schools. With regard to racial differences, we found that Black students had lower scores on the equity measure on average relative to their White peers, but these gaps were moderated by school contextual variables. Specifically, White students' perceptions of equity were significantly lower relative to those of Black students at schools with more diversity and low-income representation of the student body. Conversely, Black students' perceptions of equity were significantly lower than White students' perceptions in schools that were primarily White and upper SES. These findings highlight the importance of examining person-context congruence as it relates to students' perceptions of school support and raise new questions about the benefits and challenges presented by the increasing racial and ethnic diversity of our schools.

Caring. The significant finding of lower perceived teacher caring among Black students is noteworthy in this study because it was found even when accounting for maternal education (a proxy for socioeconomic status) and regardless of changes in school socioeconomic context or diversity, suggesting further exploration of potential contributing factors is merited. The finding that perceived caring was lower for Black students and not malleable to

changes in context of school diversity or school SES suggests that perceived caring may not vary in reference to the perceived treatment of peers, but that the student-teacher relationship itself may be a more apt target for further research and reform. The finding adds to continued concerns regarding the overarching differential effectiveness of schools in educating Black as compared with White students (Bingham & Okagaki, 2012; KewalRamani, Gilbertson, Fox, & Provasnik, 2007). The latent variable caring included aspects related to perceived trust, which has been linked to defiance and behavior problems in the classroom (Gregory & Ripski, 2008; Gregory & Weinstein, 2008). Lower levels of perceived caring are also worrisome as poorer quality relationships with teachers are associated with a lower sense of belonging (Crouch, Keys, & McMahon, 2014), which in turn is linked to a host of negative academic, social-emotional, and behavioral outcomes (Hughes & Kwok, 2007; Resnick et al., 1998). A recent comprehensive review of the school as a developmental context during adolescence highlighted that "a sense of belonging may be especially critical for young people who must traverse significant ethnic and racial, socioeconomic, and sociolinguistic borders to feel fully a part of a school in which middle-class, majority cultural norms often predominate" (Eccles & Roeser, 2011, p. 229). Thus, Black students may benefit especially from approaches that enhance the quality of their relationships with their teachers and increase their sense of belonging and connection at school.

High expectations. Contrary to our hypothesis, Black and White youth perceived similar levels of success expectancies from their teachers. This finding is inconsistent with literature highlighting the problem of lowered expectations and *deficit thinking* among some educators towards students of color (Guerra & Garcia, 2004; McKenzie & Scheurich, 2004). Deficit thinking refers to some educators' presumption that within-student "deficiencies" (e.g., family dysfunction, lack of valuing education, linguistic inferiority) among students of color and low-income students are the cause of poorer achievement among these populations. Deficit thinking stands in contrast to strengths-based and culturally responsive practices, which emphasize student assets and deliberately maintain high expectations for success. Research on deficit-thinking suggests its salience as a barrier to supportive and positive relationships between White teachers and students of color, and particularly students from low-income families or identified within disability categories (Trent, Artiles, & Englert, 1998). However, it is possible that student-reports of teacher expectations are less informative in addressing research questions on deficit thinking relative to teacher-reports or observational measures, as teachers' success expectancies may be less easily discerned by students (which could explain why we found gaps for caring and equity, but not high expectations). It may also

be helpful to interpret this null finding in light of research documenting the "engagement-achievement paradox" (Shernoff & Schmidt, 2008), a pattern found in multiple studies in which Black students reported higher levels of academic success expectancies relative to peers, despite demonstrating lower levels of academic achievement (Dotterer et al., 2009; Shernoff & Schmidt, 2008). Although there is no consensus on the mechanisms explaining the paradox, it is nonetheless plausible to consider that, if they report inflated success expectancies relative to their peers and relative to their academic performance, Black students also may report inflated perceptions of their teachers' academic expectations of them. Thus, additional research exploring concordance in teachers' and students' report of academic expectations may be informative to advance our understanding of possible bias in teachers' academic expectations of students of color. Another possible explanation of the engagement-achievement paradox is that perceived discrimination may moderate the association between students' perceptions of teachers' success expectancies and academic outcomes, as perceived discrimination may cause students to mistrust the academic performance assessment process. Future research directly examining these plausible mechanisms is needed. With regard to our finding of poorer perceived expectations in more racially and ethnically diverse schools, the association held even when accounting for the school's percentage of students receiving FARMs. This finding was consistent with our hypothesis, and aligns with the deficit thinking and lowered expectations literature (Ferguson, 2003).

Equity. Our findings indicated that students' racial position within the school racial/ethnic context was significantly associated with their perceptions of school equity. As with perceived teacher caring, we found that Black students reported significantly lower equity on average as compared with White students and furthermore observed that the Black-White gap was most discordant in schools that were majority White or majority Black (i.e., the most racially and ethnically homogenous schools), however, the disparity reversed depending on the majority race of the school. Specifically, Black students had less favorable perceptions of equity in majority White schools relative to White students, whereas White students had less favorable perceptions of equity in majority Black schools relative to Black students.

Over the past several decades, research has established the importance of the interaction of students with school contexts as a determinant of adolescent developmental outcomes (Eccles & Roeser, 2011). In applying this person-context perspective to understand racial differences in adolescents' perceptions of school equity, it is necessary to consider race and socioeconomic status as social position variables whose implications vary in relation

to the broader socioeconomic and racial context in which young people find themselves (García Coll et al., 1996). Bandura (1999) theorized that people differentially evoke responses from their social environment by their socially conferred status, which is informed in large part by a person's race and class in relation to the majority group. So, if there is no majority group, it seems plausible that clearly discerned hierarchies influencing differential treatment could break down.

Yet, this does not fully explain the findings evident in Figure 3 (post-hoc analysis), which showed that, although gaps in perceived equity narrowed (fitting with the above), overall perceptions of equity were still lower in more heterogeneous schools. Another plausible explanation is that being a student in a more diverse school setting could raise White students' awareness of and sensitivity to inequitable treatment when it is present. Although in our sample there were a number of schools with a highly diverse student enrollment, the vast majority of the sample schools' teachers were White, which highlights another possible source of students' socially conferred status, other than their peers. Specifically, a recent report by the Maryland State Department of Education (MSDE) indicated that district-level percentages of White teachers ranged from 85.1 to 97.4 for the 12 districts represented in this study (MSDE, 2012). In short, it is plausible that, in more diverse schools, there is quantitatively more inequity experienced by students of color in their interactions with a relatively homogenous White staff. White students' awareness of this inequity may be increased as a result of greater exposure to inequity, and possibly also result from increased cross-racial/ethnic peer relationships. These potential mechanisms merit exploration to improve our understanding of the patterns observed in students' perceptions of equity.

Limitations and Strengths

A few limitations should be considered when interpreting the results of this study. We relied on cross-sectional data, which precluded our ability to examine links between disparate school support and subsequent student disparities. However, we did take advantage of the large sample size and nested structure of the data to address important and relevant contextual factors that shape differential perceptions of school support. Future research employing longitudinal data should examine how differential perceptions of school support can be linked to subsequent gaps in student outcomes. An additional limitation is our reliance on student self-report data. It is often preferable to utilize multiple informants' report to strengthen validity and causal hypotheses. Nonetheless, it is a strength of this study to have insights into students' perceptions, because such perceptions are themselves predictive of developmental outcomes, and may be key to understanding racial disparities. Faculty diversity in our sample

limited our ability to examine the role of staff racial/ethnic composition. The faculty in these schools were overwhelmingly White, with the overall sample of teachers being 84% White and less than 10% Black, with little substantive variation in teacher diversity by school. Based on prior research suggesting that students' perceptions of discrimination are mitigated in schools with greater school faculty diversity (Benner & Graham, 2011; Seaton & Yip, 2009), future research should examine the interaction of faculty and student diversity as contextual influences on racial differences in student perceptions of school support and school equity in particular.

Another limitation of this study was the way in which equity was operationalized. Although the results suggest that racial bias may be a source of the disparities between White and Black students' perceptions of fair treatment, the measure does not exclusively focus on culture, race, and ethnicity; it also includes items related to gender and socioeconomic status. This broader conceptualization of equity might have weakened our findings on gaps in perceived equity if the source of the disparity had to do with students' perceptions of racial bias. Furthermore, the measure does not ask which students they feel were unfairly treated (i.e., boys or girls? Black students or White students?). This may seem obvious, but when looking at lower levels of White students' perceived equity in predominantly Black, low SES schools in Figure 2, for example, it is unclear whether White students feel more unfairly treated themselves, whether they perceive less fair treatment of their Black peers, or whether unfair treatment by gender or SES should be attributed. However, our purpose in this study was to understand disparities in Black and White students' perceptions of fair treatment more broadly as an indicator of discordance in the social environment in the school, not to assess studentcaliperiences of discrimination per se. There are measures of discrimination that look into these questions (unfair treatment by whom, for what reason, e.g., see Children of Immigrants Study, Rumbaut & Portes, 2006), which we may adopt in future research to further understand the mechanisms contributing to our findings in this study.

Implications for Practice

Regardless of the diversity of the school context, we found a significant, negative linear association for low-income schools on both Black and White students' perceptions of equity. There may be factors within low-income schools that lead to either higher sensitivity among students of unfair treatment (possibly due to socialization), or it may be that demonstrably less fair treatment by teachers is occurring in these contexts (possibly triggered by stress). Although further research is needed to inform our knowledge of the mechanisms underlying this finding, investment in approaches that facilitate student voice in school reform processes may be a constructive local

strategy to uncover the sources of (and remedy) perceived inequities. For example, in the Culturally-Responsive Positive Behavioral Interventions and Supports model (Bal, Thorius, & Kozleski, 2012), school leadership employs "learning labs" to engage students' and families' involvement and empowerment as key stakeholders in school-wide systemic change process to promote more positive school climate. Studies assessing the effects of this approach are in progress.

The findings regarding perceived caring suggest that intervention to improve Black students' perceptions of teacher caring may be needed and that such intervention may do better to focus on the student-teacher relationship itself, rather than targeting the broader social environment or sociopolitical context of the school for reform. Given racial and ethnic differences between a majority White teaching workforce (Zumwalt & Craig, 2005) and a majority Black and Latino urban student population (Sable, Plotts, & Mitchell, 2010), school staff in diverse schools may benefit from on-the-job training to recognize and bridge cultural and ecological gaps in their relationships with students whose backgrounds differ from their own (Delpit, 2006; Gay, 2010; Ladson-Billings, 2009) in order to help promote improvements in Black students' perceptions of caring. One approach that shows promise is the Double Check model (Bottiani et al., 2012; Bradshaw & Rosenberg, in press; Hershfeldt et al., 2009), which uses a CARES framework to focus on concrete skills teachers can practice to enhance cultural Connections to curricula, Authentic relationships, Reflective thinking, Effective communication, and Sensitivity to student culture. Although preliminary research suggests the potential of this intervention (Bradshaw et al., 2015; Bradshaw & Rosenberg, in press), more work is needed to establish its effectiveness and to determine effective dissemination strategies in partnership with schools.

Conclusion

Understanding factors that contribute to disparities in perceived supportive relationships is an important research agenda within our broader efforts to identify and ultimately eliminate disparities in schools. In this study, we found that students' perceptions of caring and equitable treatment were more negative for Black students relative to their white peers, even when accounting for student SES, and that students' perceptions of equity and high expectations overall were more negative in more diverse, lower income schools. Although perceived equity was better overall for both Black and White students in primarily White, upper SES schools, racial gaps in perceived equity were also more salient in these contexts. The findings suggest that it is necessary to examine person-context fit when exploring racial disparities in perceived school support and point to the need for intervention to improve

perceptions of school support for Black youth and for all students in lower income, diverse schools. Negative interactions with adults at school can lead to increased exposure to exclusionary school discipline (Griffiths et al., 2012), which in turn can have a chain of detrimental effects on developmental outcomes (APA, 2008). Interventions to engage student voice in problem-solving, broach the topic of race (Day-Vines et al., 2007), and enhance the quality of Black students' relationships with their teachers have potential to shift these dynamics to more positive trajectories.

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Table 1

Demographic Characteristics

Student Characteristics (N = 19,726 students)	N (%)
Gender	
Male	9,842 (49.9)
Female	9,884 (50.1)
Race/Ethnicity	
Black	7,064 (35.8)
White	12,662 (64.2)
Maternal Education	
Less than High School	1,636 (8.3)
Graduated from High School	5,617 (28.5)
Attended Some College	4,094 (20.8)
Graduated from College	8,379 (42.5)
Grade	
Grade 9	5,666 (28.7)
Grade 10	4,933 (25.0)
Grade 11	4,750 (24.1)
Grade 12	4,377 (22.2)
Age	15.89 (1.27)
School Characteristics (J = 58 Schools)	**M (SD)**
Total Enrollment	1262.9 (462.9)
Percentage Black	33.7 (24.4)
Percentage White	53.2 (25.1)
Normalized Generalized Variance (NGV)	57.0 (20.2)
Percentage of Students Receiving Free and Reduced Price Meals (FARMS)	37.5 (17.8)

School Categories	Sch (#)	Stud (#)	Enrollment M (SD)	% White M (SD)	% Black M (SD)	% NGV	% FARMS
Primarily White, Upper SES	13	5386	1274.49 (343.82)	85.4 (4.4)	5.7 (3.5)	31.4 (8.5)	17.8 (10.1)
Primarily White, Lower SES	2	583	874.6 (183.5)	76.2 (0.3)	13.4 (1.3)	47.6 (1.0)	44.5 (2.9)
Primarily Black, Upper SES	2	561	1218.6 (288.2)	10.7 (1.1)	75.0 (2.5)	50.0 (3.7)	30.6 (1.3)
Primarily Black, Lower SES	4	1268	1165.0 (239.9)	2.2 (1.3)	90.4 (3.0)	21.4 (6.2)	58.3 (6.1)
Racially Diverse, Upper SES	16	6188	1609.4 (460.5)	47.7 (14.8)	37.0 (15.4)	69.9 (5.7)	23.7 (7.3)
Racially Diverse, Lower SES	21	5740	1202.5 (500.4)	49.4 (136)	35.6 (11.9)	70.5 (7.1)	53.4 (8.7)

Table 2

Two-level models examining school context of diversity and socioeconomic status and student-reported caring, equity, and high expectations

	Caring				Equity				High Expectations			
Student-level Variables	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*
Black Race	-0.14	***	.02	-6.83	-0.10	***	.03	-3.61	0.01	*ns*	.02	0.28
Maternal Education	0.05	***	.01	6.81	0.03	***	.01	4.26	0.05	***	.01	6.30
Grade Level	0.01	*ns*	.01	1.21	0.00	*ns*	.01	-0.29	-0.04	***	.01	-4.20
Male Gender	0.05	***	.02	3.44	0.05	***	.01	3.29	-0.03	**	.01	-2.42
School-level Variables	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*
NGV	-0.07	*ns*	.04	-1.85	-0.16	***	.05	-3.63	-0.08	*	.04	-2.28
FARMs	-0.03	*ns*	.03	-1.06	-0.21	***	.04	-5.13	-0.01	*ns*	.03	-0.54
Condition	-0.03	*ns*	.03	-0.89	0.01	*ns*	.04	0.32	-0.04	*ns*	.03	-1.65
Cross-level Interactions	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*	*γ*	*p*	*SE*	*t*
NGV x Black	0.03	*ns*	.02	1.30	0.11	***	.03	3.25	0.05	*ns*	.03	1.80
FARMs x Black	0.00	*ns*	.02	-0.19	-0.10	***	.02	3.97	0.01	*ns*	.02	0.56

% Between-school Variance Explained	Caring	Fair Treatment/Inclusion	High Expectations
Within & Between	36.4%	39.8%	13.8%
Within, Between, & Cross-Level	48.8%	46.6%	11.5%

	AIC	BIC	Sample Size-Adjusted BIC
No Covariates	547834.00	548189.04	548046.03
Within & Between	547349.47	547870.19	547660.44
Within, Between, & Cross-Level	547275.15	547866.88	547628.53

Note. Coefficients are standardized. *N*=19,726 students, *J*=58 schools. Unadjusted ICCs, Caring = .03, Equity = .04, High Expectations = .01. Correlation of caring and equity = .36; correlation of equity and high expectations = .30; correlation of caring and high expectations = .47. Correlation of FARMs and NGV = .28.
*$p < .05$, **$p < .01$, ***$p < .001$, *ns* = non-significant.

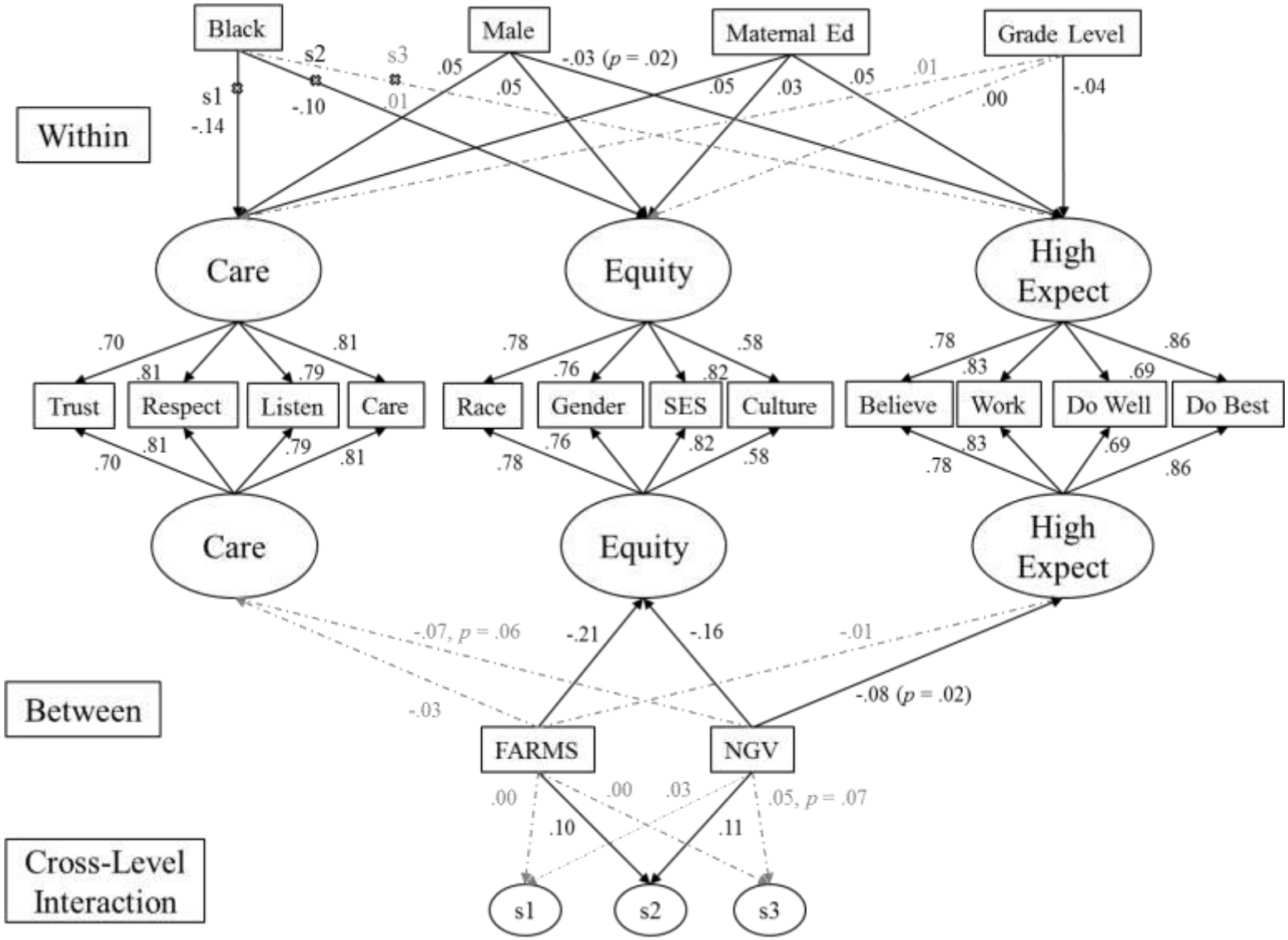

Figure 1. Dashed paths indicate non-significant *p*-values. Except where indicated, for all other significant paths, $p < .001$. Error terms and correlations between latent variables are not depicted. Care = Caring, High Expect = High Expectations.

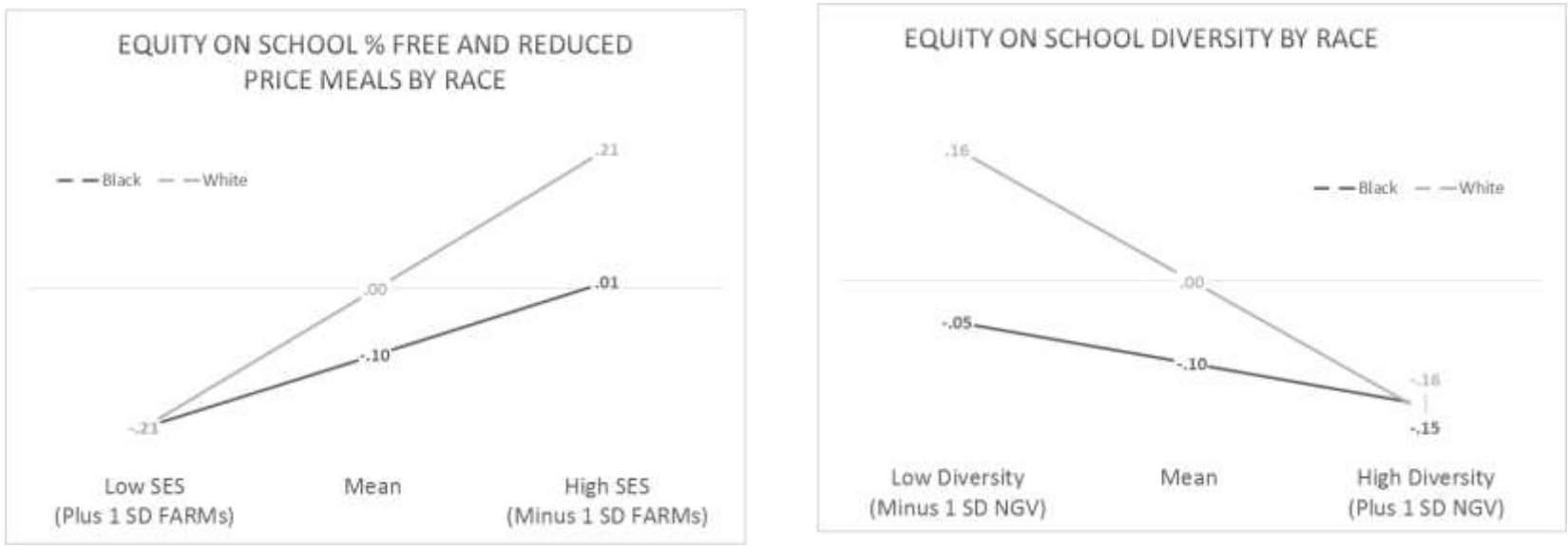

Figure 2. Plots of the cross-level interactions of racial differences in student report of school equity at the mean, one standard deviation (SD) below the mean, and one SD above the mean school percentage free and reduced price meals (left) and school heterogeneity diversity (right).

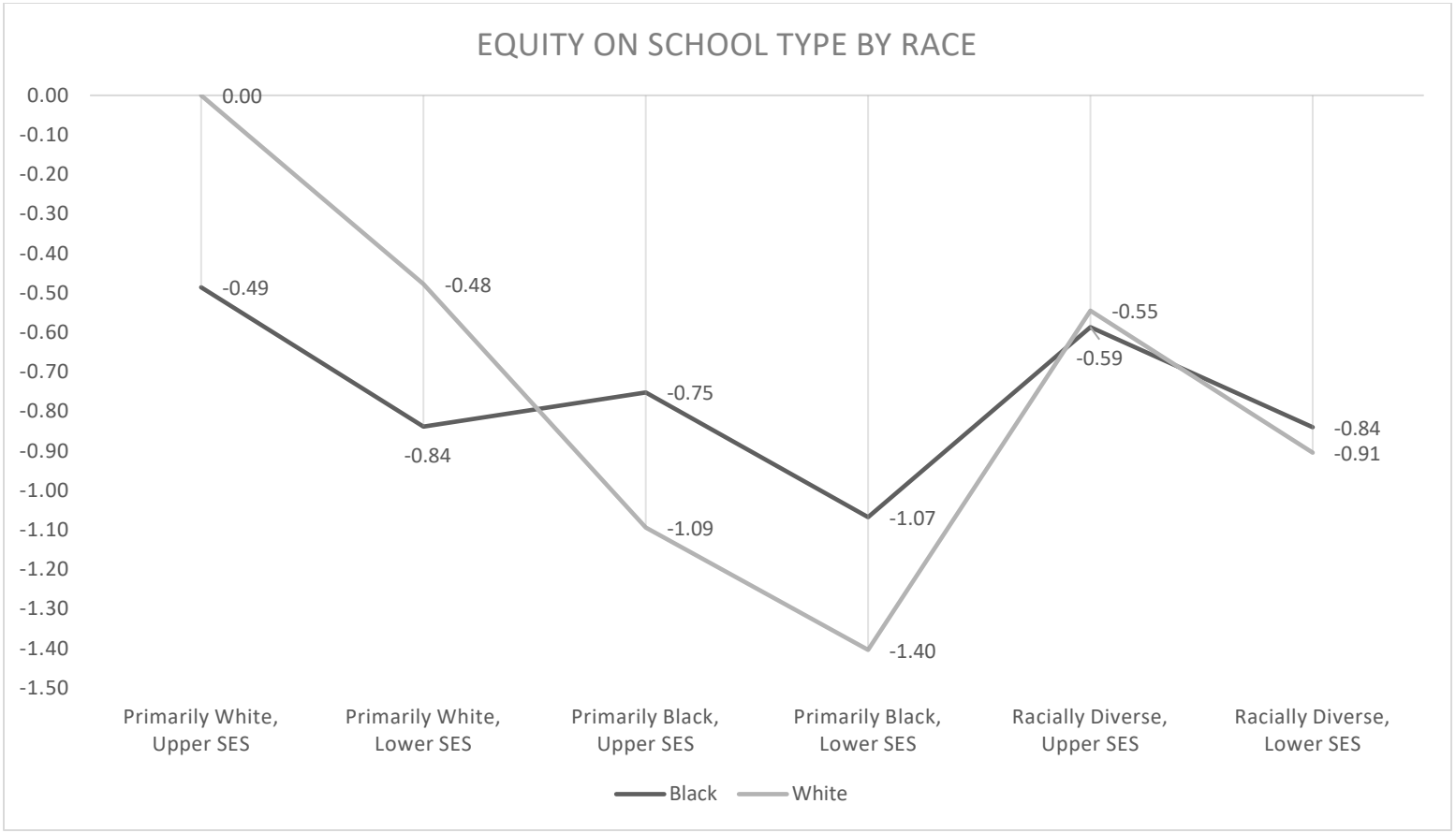

Figure 3. Estimates of equity on school type by race from a multiple group confirmatory factor analysis, which provided adequate fit to the data, χ^2 (450) = 2826.75, p < .001, CFI = .98, TLI = .98, and RMSEA = .04 (95% CI: .039 - .042). Tests of moderation indicated that disparity estimates in student report of school equity among Black and White high school students significantly differed by school type. School type is a grouping indicator that reflects both percentage of student enrollment on FARMS and racial/ethnic composition of student enrollment. School racial composition categories were created by assigning schools within the upper and lower ranges of the grand mean diversity statistic (normalized generalized variance [NGV] mean = .57). Schools with low diversity (i.e., <.57 NGV), were further classified as either majority White or majority Black schools, resulting in three school types: Primarily White, Primarily Black, and Racially Diverse. Then the three school types were further classified as either upper or lower SES using the free and reduced price meals mean .38 as the threshold. The process resulted in six mutually exclusive groups. Detailed information on each of the six school categories is provided at the bottom of Table 1.