

Teacher-Student Racial Congruence, Teacher Perceptions, and Test Performance*

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Objective. This research explores the seldom-addressed question of whether teacher-student racial congruence conditions the impact of teacher perceptions on performance. *Methods.* Multipopulation LISREL models (utilizing data from the NELS) compare the effect of white teachers' perceptions on African-American standardized test performance to the corresponding effect among white students. Parallel models compare the impact of African-American teacher perceptions across races. Preliminary models gauge whether the match/mismatch of teacher's and student's race shapes teacher perceptions of African-American and white students. *Results.* The impact of teachers' perceptions on test performance shows signs of being especially pronounced in the racially dissonant white teacher-black student context—the very context where teacher perceptions seem especially likely to be unfavorable. *Conclusions.* This research provides new insight on the relevance of teacher perceptions to the black-white performance gap. Racial congruence seems primarily consequential to African-American test performance—shaping both teacher perceptions and (somewhat less so) the impact of such perceptions on performance.

A substantial body of research indicates that positive dispositions of teachers toward students elevate scholastic performance—though the independent effects are sometimes modest (see Alexander, Entwisle, and Thompson, 1987; Ferguson, 1998a, 1998b; Jussim, Eccles, and Madon, 1996; Oakes, 1982; Roscigno and Ainsworth-Darnell, 1999). More unsettled is the question of whether teacher perceptions factor significantly in the tendency for African-American students to be outperformed by their white counterparts. For one thing, the evidence is mixed as to whether teachers' attitudes are shaped by anti-black bias.¹ Teacher perceptions,

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¹Ferguson (1998a), for example, appears markedly tepid toward this notion after reviewing research that observes the critical “race neutrality conditioned on observables” standard (i.e., that adjusts for prior performance and other factors demonstrably relevant to teachers' perceptions). There are, however, some notable omissions in this review—all observing the conditioned race neutrality standard and uncovering evidence of anti-black bias. Alexander, Entwisle, and Thompson (1987) find that negative expectations (and, ultimately, depressed performance) are more likely to ensue where “high social distance”—epitomized by the pairing of a lower class African-American student and upper-class white teacher—separates

however, may facilitate perpetuation of the black-white gap *even if* they arise from a process that is largely race neutral. Jussim, Eccles, and Madon (1996) observe an intriguing tendency for teachers' subjective assessments to exert stronger effects on subsequent grades and standardized mathematics test scores of African-American (vis-à-vis white) students.² Thus, unfavorable teacher perceptions, even if justified by prior performance and other relevant information, may more strongly undermine the performance of African-American students. I explore this question of race-based dissimilarity in the impact of teachers' perceptions on performance further—by assessing whether, among African-American and white students, the effect of teacher perceptions hinges on the match between teacher's and student's race.

Racially incongruous teacher-student pairings have (as noted earlier) been shown to depress teachers' subjective assessments of African-American students (Alexander, Entwisle, and Thompson, 1987; Ehrenberg, Goldhaber, and Brewer, 1995). This pattern seemingly affirms Rosenberg's contention that "consonance," that is, similarity in attributes that may shape attitudes toward others (e.g., race, ethnicity, socioeconomic status, and gender), fosters "congenial communications" environments that protect the individual from negative subjective appraisals and other forms of prejudice pervading the wider society (Rosenberg 1979:99–127). This "consonance" thesis, it should be noted, is put forth in the context of a theory of self-concept formation. Racial consonance, however, is probably primarily relevant to teachers' perceptions of African-American (rather than white) students. It is *African-American* students, after all, who tend to be the enigmas in American schools—the group about which widespread notions of academic inferiority and lax diligence prevail (see Ainsworth-Darnell and Downey, 1998; Bowen and Bok, 1998; Jencks and Phillips, 1998; McWhorter, 2000; Neisser, 1998; Ogbu, 1991; Steele, 1997; Tuch and Martin, 1997). This may help explain the absence of evidence indicating that perceptions of *white* students are influenced by teacher's race.

In the present context of course, the primary theoretical question is why the racial "consonance" or "dissonance" of teacher-student combinations possibly conditions the impact of teachers' perceptions on performance. Although dissonance probably depresses teachers' opinions of African-American students especially, it might also temper the degree to which these opinions *matter*. Self-concept theory grants primacy to opinions of *similar* others in the minds of attitude objects—a presumption not unrelated to the tendency for these opinions to be more favorable (Rosenberg, 1979).³

teacher from student. Ehrenberg, Goldhaber, and Brewer (1995) observe a salutary effect of the match of teacher's and student's race on "subjective evaluations" of African-American students. Muller (1998) observes a similar effect of socioeconomic status on teacher's expectations, which implies at least an indirect negative effect of blackness on teacher-perceptions.

²These same data, obtained from a probability sample of Michigan elementary students, reveal no pattern of anti-black bias in teachers' perceptions.

Impelling this opportunistic weighting of significant others' opinions is the "self-esteem motive" (Kaplan, 1975; Rosenberg, 1979): the inclination of individuals to feel as positively about themselves as they can. Self-concept theory thus underlies the presumption that racial incongruity depresses the relevance of teachers' perceptions to scholastic performance. In the present schema (where African-American and white students are the focus), examples of congruent patterns would be (1) opinions of white teachers proving less consequential to the performance of African-American students (*vis-à-vis* white students), and somewhat less so, (2) opinions of African-American teachers proving less consequential to the performance of white (*vis-à-vis* African-American) students.⁴

The potential for teachers' perceptions to influence academic performance, however, is not purely contingent on the self-interested weighting of cognitions that students might perform. Teacher perceptions independently influence performance via *self-fulfilling prophecies* and *perceptual biases* (Jussim, Eccles, and Madon, 1996; Jussim, Madon, and Chatman, 1994). Both mechanisms involve substantial *teacher* input. Self-fulfilling prophecies occur when students perform in a manner that validates erroneous teacher perceptions. Teacher perceptions are "erroneous" to the extent that they are not thoroughly justified by past performance and other relevant information (e.g., signs that students value education and have good work habits). By extension, teacher perceptions are "accurate" to the degree that they *are* justified by observable evidence (Ferguson, 1998a; Jussim, Eccles, and Madon, 1996; Jussim, Madon, and Chatman, 1994). Since accuracy is far and away the primary reason why teachers' perceptions tend to be confirmed (Jussim, Eccles, and Madon, 1996; Jussim, Madon, and Chatman, 1994), empirical models gauging the "independent" effects of teacher perceptions ought to vigorously control for factors that inform these opinions.

Self-fulfilling prophesies may occur, for example, if teachers are more pleasant to students they view favorably and provide them with more effective instruction, or if students (as a consequence of favorable/unfavorable teacher perceptions) develop good/poor problem-solving skills and work habits. Perceptual biases stem principally from dialogues occurring "in the mind of the teacher." They involve teachers evaluating students'

³Bobo and Zubrinsky (1996) observe clear evidence of "in-group preference" among whites, African Americans, Hispanics, and Asian Americans, with assessments of in-groups typically being the highest absolute ratings given by members of each group.

⁴Pattern (1) arguably has more bearing on the present extension of self-concept theory than (2). Given that empirical evidence specifically indicates openness to the view of *African-American* students as academically inferior and disengaged, there is little basis for presupposing negative "African-American teacher" effects on perceptions of white students. White students' fundamental incentive to "tune out" opinions of African-American teachers (relative to African-American students with white teachers) is thus diminished. Evidence that African-American teachers' perceptions significantly influence the performance of white students would therefore not belie the present self-concept theory-derived thesis as strongly as evidence that *white* teachers' perceptions actually affect *African-American* students' performance.

work in a manner consistent with their preconceptions. Perceptual biases may thus lead teachers to evaluate students more (un)favorably than is warranted (Jussim, Eccles, and Madon, 1996; Jussim, Madon, and Chatman, 1994).

If racial incongruity renders perceptions of *African-American* students especially vulnerable to “error” (as hinted at by the findings of Alexander, Entwisle, and Thompson, 1987; and Ehrenberg, Goldhaber, and Brewer, 1995), more opportunity exists for self-fulfilling prophecies and perceptual biases to occur when African-American students are paired with white teachers than in consonant contexts. This is somewhat at odds with the presumption, derived from self-concept theory, that teacher perceptions are less consequential to performance in dissonant contexts.

The combination of a tendency for perceptions of African-American students to be negative in racially dissonant African-American student-white teacher contexts, and for white teachers’ perceptions to be especially consequential to African Americans’ performance, would foster *perpetuation* of the black-white scholastic performance gap. This impact could, however, be offset if teacher perceptions in consonant African-American teacher-black student contexts show no inclination toward negativity, and if African-American teachers’ perceptions matter more to the performance of African-American students than to whites. The models that are specified shed light on whether these patterns obtain.

Modeling the Ramifications of Racial Congruence for the Impact of Teachers’ Perceptions on Performance

Multipopulation models are formulated to assess whether, among African-American and white students, the impact of teacher’s perceptions on performance hinges on whether the teacher is white or African American. The question of how the match of teacher’s and student’s race shapes teacher perceptions is also addressed in preliminary models—in light of its obvious theoretical bearing and the still very limited empirical attention that the issue has received.

Data

National Educational Longitudinal Study (NELS) of 1988 data are utilized (U.S. Department of Education—NCES, 1994). NELS is a nationally representative survey with student, parent, teacher, and principal/counselor components. The initial student component is a multistage cluster sample of 24,599 eighth graders. The present analysis centers mainly on the educational process unfolding between Grades 10 and 12—the second (1990) and third (1992) waves. Estimates addressing the primary question

(i.e., implications of racial congruence for the effect of teacher perceptions on performance) are based on the 836 African-American and 7,249 white students for whom 10th- and 12th-grade standardized test data and 10th-grade teacher-perception data are available. This restriction yields subsamples of 670 African-American students with perception data obtained from white teachers, 166 African-American students with perception data from African-American teachers, 7,094 white students with perception data from white teachers, and 155 white students with perception data from African-American teachers. Variation in the impact of perceptions of teachers of other races is not assessed because there are only 12 African-American students (and 125 whites) with such teachers. Opinions of teachers of all races (represented in the NELS) are assessed in the preliminary models assessing the implications of racial congruence for teachers' perceptions of African-American and white students. This specification yields samples of 848 African-American and 7,374 white students. Data for both sets of analyses are weighted to adjust for differential probabilities of selection into the 10th-grade wave. Supplementary data are obtained from parents at Wave 1 and school officials at Wave 2.

Variables

Favorable *teacher perception* takes center stage in these analyses. This "second-order" construct combines teachers' expectations and assessments of students' diligence and is the dependent variable in the preliminary models gauging whether (dis)similarity in teacher's and student's race influences teacher perceptions, and the primary independent variable in the models predicting subsequent performance. Second-order factors are latent (multi-indicator) variables whose indicators include at least one latent variable (see Kohn and Schooler, 1983:332–36).

Expectations and diligence appraisals are typically the focus in "teacher perception" research. The teacher expectations item taps whether the teacher believes the student will "probably go to college" (no = 1, don't know = 2, and yes = 3). The latent perceived diligence variable is derived from the teacher's appraisal of the frequency with which the student completes homework, is absent, is tardy, is attentive, and is disruptive (1 = never . . . 5 = all the time for all five indicators). These assessments are provided by 10th-grade teachers of either English, history/social studies, mathematics, or science. The first sequentially occurring assessment is used in instances where two teacher assessments are available. Results are essentially unchanged when the second sequentially occurring assessment is used. *Teacher's race* is represented by *African-American teacher* (vs. nonblack teacher) and *white teacher* (vs. nonwhite teacher) dichotomous variables.

Standardized test performance at the 12th grade—the average of scores on Item Response Theory (IRT) tests of reading, mathematics, history/

citizenship/geography, and science—is the outcome of ultimate interest. Standardized test performance represents the aspect of achievement that best epitomizes the “black-white” scholastic performance gap (Jencks and Phillips, 1998). Additionally, the salience of standardized test performance within education policy initiatives has risen substantially in recent decades. Earlier (eighth/tenth grade) standardized test score and class grades (GPA) are included among the predictors of 10th-grade teacher perceptions and 12th-grade test performance. Eighth-grade GPA is a composite calculated by the NCES. Tenth-grade GPA is the mean of student-reported grades (1 = mostly below D . . . 8 = mostly As) in mathematics, English, history, and science. There is no NCES-constructed 10th-grade GPA variable.

Socioeconomic status and *advanced track* placement may enhance both teacher perceptions and performance (Alexander, Entwisle, and Thompson, 1987; Ehrenberg, Goldhaber, and Brewer, 1995; Farkas et al., 1990; Ferguson, 1998a, 1998b; Oakes, 1982). The latent socioeconomic status variable is gauged by parent-reported “yearly family income” at the base year (none = 1 . . . \$200,000 or more = 15), and parent- or student-reported “highest level of education attained by either of the parents of the student” (1 = did not finish high school . . . 6 = Ph.D., M.D., or other.) NCES constructs the parental education variable principally from responses of parents at Wave 1, but substitutes (Wave 1 or 2) student data where parental data are missing. Advanced track placement distinguishes between transcript-indicated enrollment in advanced placement or college-preparatory (1) and other (0) high school programs. *Gender* (females coded 1) may influence both performance and teacher perceptions (Blair, Legapazpi-Blair, and Madamba, 1999; Farkas et al., 1990; Muller, 1998; Winston et al., 1997).

Academic engagement, denoting habits and attitudes that are ostensibly congruent with solid performance, may significantly enhance both teachers’ perceptions and performance (Ainsworth-Darnell and Downey, 1998; Cook and Ludwig, 1998; McWhorter, 2000; Ogbu, 1991; Winston et al., 1997). This second-order factor combines three indicators gauged at Grade 10: pro-school values, hours spent on homework, and educational expectations. The latent pro-school values measure is derived from responses to (Likert-scaled) questions assessing students’ perceptions of (1) the importance of “good grades,” (2) whether “education is important to getting a good job later on,” and whether it is (*not*) OK to (3) “be late for school,” (4) “skip school a whole day,” and (5) “cut a couple of classes.” Hours spent on homework is the sum of the actual number of hours spent on homework “in school” and “out of school” each week. The student expectations measure gauges “how far in school” the student thinks he or she will get (1 = less than high school graduation . . . 9 = Ph.D., M.D.). Cook and Ludwig (1998:382) make a solid (implicit) case for using educational expectations as an academic engagement indicator—asserting that anticipation of multiple years of education is incongruous with an antagonistic stance toward school.

The fundamental quality of educational settings, symbolized in the standardized test equations by an *academic emphasis* variable, could obviously affect scholastic performance (see Ferguson, 1998b; Gamoran, 1996; Kozol, 1992; Lee and Bryk, 1989). This latent measure is derived from eight indicators: the school principal's/counselor's report of (1) the number of advanced placement courses offered in the school, (2) the percentage of 10th-grade students in "college prep., academic, or specialized" programs, (3) the percentage of graduates from the preceding academic year enrolled in a four-year college, and whether the school is one in which (4) "teachers press students to achieve," (5) "students are expected to do homework," and (6) "students place a high priority on learning." A five-category Likert scale ranging from "not accurate" to "very accurate" accompanies indicators 4, 5, and 6. Class size (7) is the quotient of the principal-/counselor-reported "total student enrollment" and "number of full time regular teachers." The academic emphasis index is rounded out by (8), the 10th-grade teacher's assessment of the degree to which the following indicators of turmoil are a problem for the school: "absenteeism," "class cutting," "physical conflicts," "gang activities," "robbery or theft," "vandalism," "use of alcohol," "use of illegal drugs," and "possession of weapons" (Likert scale = 1: not a problem . . . 4: serious problem). Responses to these indicators are summed to create indicator Number 7. Safe, orderly environments in which discipline problems are minimal constitute a "necessary condition" for the routine pursuit of academic work (Lee and Bryk, 1989).

The Models

In the preliminary models predicting favorable (10th-grade) teacher perceptions, the independent variables are socioeconomic status, gender (female), prior (eighth-grade) GPA and standardized test score, current (10th-grade) track level, academic engagement, and teacher's race. Twelfth-grade standardized test performance is predicted by socioeconomic status, gender, and prior (10th-grade) track level, GPA, test performance, academic engagement, and teacher perceptions. All models are estimated using the multipopulation feature of LISREL8 (Joreskog and Sorbom, 1993), with estimates based on covariance matrixes generated by PRELIS (Joreskog and Sorbom, 1996).

The main objective in the preliminary models is to determine whether teachers' perceptions of African-American and white students hinge on whether teacher-student combinations are racially consonant. As such, the effects of the white teacher (vs. teachers of other races) and African-American teacher (vs. teachers of other races) dichotomous variables on the favorable teacher-perception construct are alternately specified as similar (i.e., "fixed") and dissimilar ("freed") across the African-American and

white subsamples. An unchanged model chi-square (i.e., a difference that falls short of the 0.05 significance threshold of 3.84) indicates that the hypothesis of a similar effect (of teacher's race on perceptions) across races cannot be ruled out. Applying Ferguson's "race neutrality conditioned on observables" standard (Ferguson, 1998a), bias among African-American or white teachers against students of either race can be inferred if the dichotomous African-American teacher/white teacher variable unduly depresses teacher perceptions. A within-race effect is deemed "unduly" negative/positive if it differs significantly from the corresponding causal path in the comparison group. Two sets of multipopulation models predicting teacher perceptions are actually estimated in this (preliminary) phase. The impact of the white teacher dichotomy on perceptions is alternately fixed and freed across African-American and white subsamples in one set, and the impact of the African-American teacher dichotomy is similarly manipulated in the other set.

The models predicting 12th-grade standardized test performance address the primary research question: whether the impact of teachers' perceptions on the performance of African-American and white students hinges on whether the teacher is of the same race. To address this question, the effect of African-American teachers' perceptions on the test performance of African-American students is compared to the corresponding effect on white students' performance. Similarly, the effect of white teachers' perceptions on the test performance of white students is compared to the corresponding effect among African-American students. Dissimilar effects of black/white teacher perceptions among African-American and white students are presumed where changes in chi-square (associated with freeing of the causal path) meet the 0.05 significance threshold of 3.84. As with the teacher-perception models, two pairs of multipopulation models predicting performance are estimated. One pair assesses variation (in the impact of favorable teacher perceptions) among African-American and white students taught by white teachers, and the other assesses variation among African-American and white students taught by African-American teachers. In each set of performance models, the impact of teacher perceptions is alternately fixed and freed across the African-American and white subsamples. LISREL factor loadings for indicators of all multi-item latent variables included in the analyses (i.e., parental socioeconomic status, favorable teacher perception, academic engagement, and academic emphasis) are presented in the Appendix.

A two-step procedure, akin to that followed by Schooler, Mulatu, and Oates (1999), is used to generate the input-covariance matrixes for the multipopulation models (estimates presented later in Tables 1 and 2). In Step 1, covariances among all single-indicator constructs and indicators of first-order latent constructs (socioeconomic status, pro-school values, teacher-perceived diligence, and academic emphasis) are analyzed; and loadings for the latter category of indicators are fixed at values obtained from

a combined sample of African-American and white students. The covariances among single-indicator and first-order latent constructs then become the input matrixes in the second phase, where the second-order constructs (academic engagement and favorable teacher perceptions) and structural equation or “causal” parameters are estimated. LISREL could not successfully estimate these complex second-order factor multigroup models in a single step.

Results

The preliminary models predicting favorable teacher perceptions reveal evidence of anti-black bias among white teachers, and race neutrality among African-American teachers. The combination of this pattern and evidence that (1) white teachers’ perceptions border on being significantly more consequential to the performance of African-American students (*vis-à-vis* whites), and (2) the impact of African-American teachers’ (essentially race neutral) perceptions on performance does not differ significantly across races, implies that teacher perceptions altogether foster perpetuation of the black-white scholastic performance gap.

Coefficients from the multipopulation models assessing variation in the impact of teacher’s race on perceptions of African-American and white students are presented in Table 1. African-American students appear especially vulnerable to negative perceptions when taught by whites (vs. teachers of other races). The “white teacher” effect on the favorable teacher perception construct is negative among African-American students ($-0.062/p < 0.05$), but trivial among whites (-0.012 ns). Specification of this path as dissimilar across races reduces chi-square by 6.5—which exceeds the 0.05 significance threshold of 3.84. This relatively negative disposition of white teachers toward African-American students contrasts notably with African-American teachers’ essentially neutral stance toward students of both races. The “African-American teacher” effect on teacher perceptions—net of other factors that inform such perceptions—is nonsignificant within races and stable across races. African-American students thus appear to be “shielded” from negative perceptions by their disproportionate tendency to be paired with African-American rather than white teachers.⁵ Patterns in Table 1 substantially mirror prior research suggesting that racially incongruous teacher-student pairings depress teachers’ perceptions of African-American

⁵The African-American student dichotomous variable is correlated 0.244 with the African-American teacher dichotomy, versus -0.393 with the white teacher measure. Supplementary analysis also suggests race neutrality among teachers of other races (vs. African-American and white teachers combined). The “other race” effect on teachers’ perceptions is nonsignificant within each race (0.041 and 0.001 among African-American and white students, respectively), and the effects do not differ significantly across races. Constraining the paths to be the same changes chi-square by 1. In this model, chi-square is 3223 (89 *df*) and the GFI is 0.797.

TABLE 1

Completely Standardized Coefficients from Multipopulation Models Assessing (Dis)Similarity in the Impact of Teacher's Race on Perceptions of African-American and White High School Students, NELS^{a,b}

Independent Variables	(Favorable) Teacher Perception
White teacher (vs. other races)	-0.012 (white students) -0.062* (African-American students) χ^2 change = 6.5
African-American teacher (vs. other races)	0.022 (white students) 0.044 (African-American students) χ^2 change = 1.9
8th-grade GPA	0.123***
8th-grade test score	0.104***
Socioeconomic background	0.135***
Female student	0.021*
Advanced track	0.047***
Academic engagement	0.604***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

^aEffects of the white/black teacher dichotomous variables on teacher perceptions are estimated in *separate* pairs of models. Coefficients presented are from the models in which the paths are individually freed to differ across races. All remaining causal paths are fixed across races (and are the same across the models in which the paths from teacher's race are individually fixed/freed).

^b" χ^2 change" values represent changes in model chi-squares linked to freeing of each specific path. Changes > 3.84 indicate that paths differ significantly ($p < 0.05$) among African-American and white students. For the model with the impact of white teacher effect on perceptions freed across races, chi-square = 3781 (89 *df*), and goodness-of-fit index (GFI) = 0.719. For the model with the African-American teacher effect freed, $\chi^2 = 6071$ (89 *df*) and GFI = 0.518.

students (Alexander, Entwisle, and Thompson, 1987; Ehrenberg, Goldhaber, and Brewer, 1995).

Coefficients from the multipopulation models assessing variation in the impact of African-American and white teachers' perceptions on the test performance of African-American and white students are presented in Table 2. Given the evidence (in Table 1) of an anti-black slant to white teachers' perceptions, a tendency for the performance of African-American students to be more strongly affected by white teachers' perceptions would be consistent with perpetuation, rather than closure, of the black-white test score gap. There is marginal evidence of precisely this pattern in Table 2. Favorable white teacher perceptions significantly elevate the standardized test performance of both races, but the effect among African Americans ($0.076/p < 0.001$) falls just shy of being "significantly" larger than the impact among whites ($0.043/p < 0.05$). Specification of this path as dissimilar across race lowers chi-square by 3.8 units—a smidgen below the 0.05 significance threshold of 3.84.

A tendency for perceptions of African-American teachers to influence African-American students' test performance more strongly than whites' would likely undermine the black-white gap. African-American students are more likely than whites to be paired with African-American teachers, and African-American teachers' perceptions (unlike white teachers') show no hint of anti-black bias. Evidence of such a pattern, however, is equivocal at best. Although the absolute value of the impact of African-American teacher perceptions is higher among African-American than among white students (0.057 vs. 0.012 in Table 2), neither coefficient is statistically significant. Furthermore, the within-race effects do not differ significantly from each other—chi-square rising by a single unit when the paths are modeled as similar.⁶

Estimates in the foregoing teacher-perception and test performance models are *all* solidly within the range of plausibility. Substantially less impressive, however, are the fit statistics yielded by the models (see Tables 1 and 2, note b). The ratio of the chi-square statistic (χ^2) to degrees of freedom (*df*) gauges similarity between the covariance matrix fitted by each model and the observed matrix, with fits becoming progressively worse the farther the ratios from 1. The goodness-of-fit index (GFI) signifies how much better the model fits than no model at all, with 1 (the maximum possible value) signifying perfection (Bollen and Long, 1993; Joreskog and Sorbom, 1993). Except for the model gauging the impact of African-American teacher perceptions on test performance (which yields a chi-square to degrees of freedom ratio of 3.5 and a GFI of 0.865), the fit estimates fall substantially outside the "satisfactory" range.

Modification indexes estimate the decline in chi-square associated with freeing of each constrained parameter (Joreskog and Sorbom, 1993). The indexes generated by the teacher-perception and test performance models (Tables 1 and 2) suggest that the poor fits stem principally from two of the models' attributes: (1) measurement parameters (i.e., loadings and error variances and covariances), fixed at 0, that LISREL interprets as more appropriately freed, and (2) other parameters that are inappropriately specified as similar across races. The first category of adjustments is not feasible, as illogical assumptions about which indicators tap specific constructs are typically involved. Parameters in the second category are obviously unique to multipopulation designs (employed here of necessity). In these complex models based on samples that differ significantly on some

⁶The nonsignificance of the impact of African-American teacher perceptions on African-American students' test performance (and the fewer number of significant coefficients generally) is probably linked to the low absolute and relative number of students with perception data furnished by African-American teachers—166 African-American students and 155 white students, compared to 670 African Americans and 7,094 whites in the "white teacher" models. These low sample sizes in the "African-American teacher" models likely render estimates obtained from them less reliable than those obtained from the white teacher models.

TABLE 2

Completely Standardized Coefficients from Multipopulation Models Assessing (Dis)Similarity in the Impact of White/Black Teachers' Perceptions on Standardized Test Scores of African-American and White High School Students, NELS^{a,b}

Independent Variables	12th-Grade Standardized Test Score	
	Model with Perception Data from White Teachers	Model with Perception Data from African-American Teachers
(Favorable) teacher perception	0.043* (white students) 0.076** (African-American students) χ^2 change = 3.8	0.012 (white students) 0.057 (African-American students) χ^2 change = 1
10th-grade GPA	0.038***	0.077*
10th-grade test score	0.809***	0.875***
Socioeconomic background	0.068***	0.028
Female student	-0.027***	0.008
Academic engagement	0.025	-0.115
Advanced track	0.023***	0.034
(School evinces) academic emphasis	-0.011	0.100**

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

^aEffects of teachers' perceptions are from the models in which paths are (individually) freed to differ across the African-American and white subsamples whose perception data come from black/white teachers. All remaining coefficients are constrained to be equal across races (and are stable across the models in which the teacher-perception paths are individually fixed/freed).

^b" χ^2 change" values represent changes in the model chi-squares linked to freeing the specific path. Changes > 3.84 indicate that paths differ significantly ($p < 0.05$) among African-American and white students in the "African-American teacher" and "white teacher" models. For the model with the impact of white teacher perceptions freed across races, chi-square is 4398 (121 *df*), and the goodness-of-fit index (GFI) is 0.699. For the model with African-American teacher perceptions freed, $\chi^2 = 425$ (121 *df*) and GFI = 0.865.

attributes, each of the *multiple* parameters represents a potentially significant between-group difference. That said, with one exception, the dominant patterns in the teacher-perception and test performance models *remain* when theoretically permissible adjustments suggested by modification indexes are made.⁷

The lone exception is the model gauging variation in the African-American teacher effect on perceptions of African-American and white students—where specification of the variance of the African-American

⁷This supplementary analysis is performed only on the four (sets of) models that fit poorly, that is, the teacher-perception models that alternately assess between-race variation in the effect of African-American teacher, white teacher, and other race teacher dichotomous variables, and the test performance models assessing variation in the impact of white teachers' perceptions.

teacher dichotomy as dissimilar across races is the primary adjustment suggested by the modification indexes. With that change, the chi-square per degree of freedom ratio declines to 32 (from 68 in the initial model in Table 1) and the GFI becomes 0.834 (up from 0.518). Though the African-American teacher effect on perceptions of white students remains trivial (at 0.023, vs. 0.022 in Table 1), the effect among white students becomes significantly positive ($0.269/t < 0.001$, vs. 0.044 *ns* in Table 1). Additionally, the difference in chi-square associated with specification of this path as dissimilar across races rises (from 1.9) to a significant 7 units. This adjustment thus portrays African-American teachers (vs. teachers of other races) as pro-black student in disposition—a shift from their uniformly race neutral profile in Table 1. However, bearing in mind that African-American teacher perceptions do not appear significantly more consequential to African-American versus white test performance (Table 2), the potential of such perceptions to foster reduction of the black-white gap still seems limited. Substantial goodness-of-fit improvements are also obtained for the other models that are reestimated (see previous footnote). As noted above, however, critical patterns in these models are not altered.

Discussion

This research provides new insight into how teachers' attitudes factor in the black-white scholastic performance gap. The (mis)match between teacher's and student's race seems primarily consequential to the standardized test performance of African-American students—shaping both the way teachers feel about students, and (to a lesser degree) the extent to which these perceptions ultimately matter. Confidence in these results is enhanced by the significant range of plausible predictors of teacher perceptions and test performance that are adjusted for, and by the longitudinal nature and national scope of the data.

The evidence of anti-black bias among white teachers and the absence of such sentiment among African-American teachers affirms the presumption of self-concept theory regarding the potentially harmful implications of racial dissonance (Rosenberg, 1979:99–125). The concurrence between this pattern and prior research (Alexander, Entwisle, and Thompson, 1987; Ehrenberg, Goldhaber, and Brewer, 1995; Muller, 1998) is also noteworthy. White teachers' relatively unfavorable impression of African-American students also squares with national survey evidence of substantial receptiveness among whites to "symbolic racist" sentiment—the view of African Americans as insufficiently industrious and self-reliant (Tuch and Martin, 1997). Anti-black bias among white teachers may also signal

openness toward the “stereotype” that Steele (1997) deems a “threat” to the scholastic performance of African-Americans.⁸ Perception of a bond—presumably rooted in the shared experience of subordination—probably renders African-American teachers resistant toward stereotypical notions of African-American slothfulness and intellectual inferiority (see Bobo and Zubrinsky, 1996; Steele, 1997; Tuch and Martin, 1997). This would explain the absence of a negative “African-American teacher” effect on perceptions of African-American students. That African-American and white teachers fail to part company on perceptions of *white* students is not surprising. Notions of white slothfulness and academic inferiority are not widespread (Bobo and Zubrinsky, 1996; Steele, 1997; Tuch and Martin, 1997).

Whereas the self-concept theory-derived presumption that “dissonance” sullies teacher perceptions is substantially supported, the affiliate notion—that concerns about self-esteem preservation motivate students to “tune out” negative teacher perceptions—does not square nearly as amicably with the findings. Teachers’ perceptions show signs (albeit only borderline significant) of being especially influential in the context where they are *most* likely to be unfavorable—the dissonant white teacher-black context. That said, the self-concept theory-derived thesis is belied specifically because (relatively anti-black) white teacher perceptions do not prove *less* consequential to African-American performance than (more favorable) African-American teacher perceptions. The possibility remains that, *but* for a “tempering” process induced by the self-esteem motive, the impact of white teachers’ perceptions on African-American test performance would be even stronger, and the discrepancy in their effects across races more pronounced. Findings from the performance models are more amenable to an explanation stressing the view of “erroneous” teacher perceptions as potent. Of the two candidates suggested by Jussim and colleagues (Jussim, Eccles, and Madon, 1996; Jussim, Madon, and Chatman, 1994), “self-fulfilling prophecy” seems far more viable.

The focus on standardized test performance rules out the possibility of scores being manipulated to fit teachers’ preconceptions—the essence of “perceptual bias.” That the outcome measure is gauged approximately two years after teacher perceptions are obtained, and based on performance at a range of subjects (rather than the subject taught by the specific teacher)

⁸Although it could be solidly argued that *both* components of the teacher-perception construct speak to symbolic racist sentiment, the “diligence” indicator seems especially evocative in this regard. This indicator is substantially correlated with overall teacher perceptions (note the 0.55 loading in the Appendix). By contrast, notions of African-American intellectual inferiority addressed by the stereotype threat thesis are arguably evoked by the “expectations” indicator especially. As the measurement model indicates, expectations epitomize favorable teacher perceptions even more substantially than diligence assessments (note the 0.85 loading in the Appendix).

further forestalls the possibility of perceptual bias. None of the features of the performance models, however, preclude self-fulfilling-prophecy-fostering mechanisms. Pleasant/unpleasant interaction with a particular 10th-grade teacher, receipt/nonreceipt of positive attention and effective instruction from him or her, and concomitant honing/blunting of problem-solving skills could all redound to better/worse performance at a range of standardized tests by the 12th grade. Indeed, the case for self-fulfilling prophecies forged (slightly more so) by the white teacher-black student findings could well be *understated*—given the focus on “average” (rather than subject-specific) test performance and two-year lag between the measurement of teachers’ perceptions and standardized test attainment.

These findings portray teacher perceptions—particularly *white* teacher perceptions—as integral to the question of how reduction of the black-white gap in scholastic performance can be accomplished. Anti-black sentiment is most pervasive in dissonant white teacher-black student contexts—precisely where African-American students are likelier to find themselves.⁹ Marginally exacerbating things, teacher perceptions in these same dissonant contexts border on being significantly more consequential to African-American performance. Reduction of the black-white gap would thus likely be facilitated by initiatives that advance race neutrality in white teachers’ perceptions.¹⁰ Given the backdrop of still prevalent symbolic racist sentiment and openness to the view of African-American students as less capable, reversal of unduly negative (and demonstrably harmful) white teacher perceptions of African-American students will likely prove formidable. That said, the “heightened” state of consciousness among educators of the potentially damaging consequences of anti-black perceptions (Rothstein, 1993) is an encouraging sign. Further elevation of that consciousness may be fostered by research such as this.

⁹Recall that for the vast majority of African-American students, teacher-perception data come from whites. That dissonant white teacher contexts are apparently the modal experience for African-American students *does not* contradict the earlier observation that African-American students are “disproportionately” likely to have African-American teachers. The prior observation uses teacher-race distributions among white students as the baseline.

¹⁰Regarding the delicate question of whether (all other things being equal) African-American performance would also be enhanced if “consonant” African-American teacher-student settings became more widespread, the findings are less than conclusive. Although increased “consonance” would likely shield African Americans from unduly negative teacher perceptions, whether this would redound to better test performance is unclear. The nonsignificance of the modestly positive impact of African-American teacher perceptions on African-American performance—though probably attributable to the low sample size in question—precludes a confident “yes” response.

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Appendix: Completely Standardized LISREL Factor Loadings for Multi-Indicator Latent Variables: African-American and White High School Students, NELS

	LISREL Loading ^a
<i>Latent Variable</i>	
Socioeconomic status	
Family income	0.742
Educational level of parent with higher level of education	0.798
<i>(Student's) Academic Engagement</i>	
Pro-school values	0.255
# hours spent on homework	0.374
Educational expectations	0.759
<i>Pro-School Values</i>	
Importance of good grades	0.398
Importance of education for getting a good job	0.232
It is (not) OK to . . . be late for school	0.581
. . . skip school for a whole day	0.645
. . . cut a couple of classes	0.748
<i>(Favorable) Teacher Perception</i>	
Teacher's perception of student's diligence	0.556
Teacher's expectations	0.852
<i>Teacher's Perception of Student's Diligence</i>	
How often student . . . completes homework	0.745
. . . is absent	-0.403
. . . is tardy	-0.463
. . . is attentive	0.804
. . . is disruptive	-0.562
<i>Academic Emphasis</i>	
# of advanced placement courses offered	0.438
% of 10th graders in coll. prep., acad., or specialized programs	0.875
% of graduates in 4-year college	0.961
Teachers press students to achieve	0.540
Students are expected to do homework	0.624
Students place a high priority on learning	0.645
School is plagued by (different forms) of turmoil	-0.528
Class size	-0.393

^aLoadings presented are obtained from a combined sample of African-American and white students, and are all statistically significant ($p < 0.001$). Loadings are constrained to be the same among African Americans and whites in all models, as there is no evidence of significant between-race differences.

