Beyond the Laboratory: Evaluating the Survey Evidence for the Disidentification Explanation of Black-White Differences in Achievement

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The black-white gap in achievement, as measured by performance on standardized tests, has received considerable attention from researchers in the past five years. Claude Steele's stereotype threat and disidentification mechanism is perhaps the most heralded of the new explanations for residual racial differences that persist after adjustments for social background are performed. Analyzing data from the National Education Longitudinal Study, we found qualified support for portions of the disidentification explanation. Black students' academic self-evaluations are more weakly associated with their measured academic performances, a difference that could stem from stereotype threat or a belief that the evaluations are racially biased. But this discounting of performance evaluations does not seem to provoke a more complete disidentification with the schooling process or with academic achievement in general. The findings suggest that there is no clear path from being stereotyped to disidentifying, and in conclusion we discuss alternative explanations for why it may be so.

As is best exemplified by the widely read volume *The Black-White Test Score Gap,* edited by Jencks and Phillips (1998), sociologists have recently focused attention on differences in test scores as an important source of racial inequality in educational attainment and earnings. While racial differences in test scores have narrowed substantially over the past few decades, a sizable gap remains (Hedges and Nowell 1998), even after adjustments for family background are made. Recent attempts to explain this gap have focused on racial differences in parenting practices (Phillips et al. 1998), teachers' expectations (Ferguson 1998), oppositional culture (Ogbu 1978, 2003, but see Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1997; Ferguson 2001), and the structural characteristics of schools and school systems (see Hallinan 2001 for a review). None of these explanations has proved sufficient for explaining the racial gap in achievement, particularly among students of middle and upper socioeconomic status (SES) who are not afflicted with the multiple disadvantages that affect many poor urban minority youths (Wilson 1987, 1995).

Into this knowledge vacuum has stepped a psychologist, Claude Steele, who has offered what is perhaps the most prominent new

explanation for the racial gap that persists after family background adjustments are made. Supported, in part, by results from a series of compelling laboratory experiments, Steele (1992, 1997) argued that the relatively poor test performance of black adolescents is partly a subconscious response to groundless but pervasive stereotypes of inherent black inferiority. Labeled "stereotype threat," this mechanism has found support in the experimental work of other psychologists (see Steele, Spencer, and Aronson 2002 for citations; see also Stricker 1998; Stricker and Bejar 1999; Stricker and Ward 1998). Steele (1992, 1997) then contended that the piecemeal effects induced by stereotype threat are steadily amplified by black students' *disidentification* with educational success, a protective process through which the motivation to achieve declines because conceptions of overall self-worth are gradually separated from performance in school.

In this article, we conditionally accept the psychological evidence on stereotype threat and instead focus our empirical examination on the disidentification portion of the explanation. The disidentification process unfolds over time, is not subject to a laboratory test, and is ripe for investigation with available national survey data. Moreover, the concept of disidentification has substantial theoretical utility for sociologists, since it parsimoniously links possible racial differences in achievement orientations to typically unobserved courses of individual behavior via a set of well-defined social psychological constructs with accepted measurement protocols. For both these reasons, the disidentification explanation deserves careful evaluation with the available survey data.

The article proceeds as follows. After we introduce the origins and details of the disidentification explanation, we derive three implications of the framework and evaluate them in an analysis of the National Education Longitudinal Study (NELS, 1988 to 1994). The results we offer provide mixed support for the disidentification explanation, and we discuss alternative interpretations in the Conclusion.

THE DISIDENTIFICATION EXPLANATION

As initially delineated by Steele and his colleagues (Steele 1992, 1997; Steele and Aronson 1995), the disidentification explanation of racial differences in achievement is an extension of past research in social psychology on black-white differences in the relationship between self-esteem and educational achievement (Demo and Parker 1987; Porter and Washington 1979, 1993; Rosenberg 1979). These earlier studies showed that (1) self-esteem and academic achievement are correlated among white students and among black students and (2) black students have levels of self-esteem that are at least as high as those of white students, even though black students, on average, do not perform as well in school. In an attempt to explain this apparent paradox, Rosenberg (1979:267) drew on William James's principle of selective valuation and asserted that "we not only seek to excel in those areas on which we have staked ourselves but we tend to stake ourselves on those areas in which we excel." According to this line of thinking, black students are able to maintain self-esteem, in spite of lower educational achievement, by selectively valuing performance in nonacademic domains (see also Hare and Castenell 1985).

The disidentification explanation is another variant of James's principle of selective valuation, but one that is grounded on a more specific generative process. According to the core tenets of the explanation, black students from all levels of the socioeconomic spectrum are haunted by the specter of confirming stereotypes of inherent black inferiority. These threatening stereotypes interfere with their everyday educational performance in school, especially on important tests, because black students try too hard to avoid the low performance that "makes the stereotype more plausible as a self-characterization in the eyes of others, and perhaps even in [their] own eyes" (Steele and Aronson 1995:797). Stereotype-threatened test takers spend "more time doing fewer items more inaccurately—probably as a result of alternating their attention between trying to answer the items and trying to assess the self-significance of their frus-

tration" (Steele and Aronson 1995:808). Stereotypes do not directly lower the motivation or performance expectations of test takers. Instead, they activate a subconscious mechanism wherein stereotype anxiety, which is manifest in self-evaluative pressure, impairs test-taking efficiency.

Over time, black students adapt to their predicament, and this adaptation results in disidentification. To maintain positive self-images, they innoculate their global self-esteem against performance evaluations in schooling. In so doing, they disidentify with educational achievement in general to claim a psychic victory that preserves self-worth. Unfortunately, however, disidentification does not offer a costless victory because it undermines the motivation and commitment that are necessary for continued educational achievement. Thus, unlike stereotype threat, disidentification directly lowers motivation and an individual's own performance expectations, further depressing future achievement.

What is the mechanism that links poor performance on tests (perhaps in response to stereotype threat) to full-blown disidentification with schooling? In reviewing the literature on stereotypes and social stigma, Crocker, Major, and Steele (1998) suggested that an intermediate psychological state develops in which students adopt coping strategies to reconcile their disappointment with their performance with their valuation of schooling. They stated:

> [One] way the stigmatized may deal with threats to personal and collective self-esteem posed by their predicaments is to psychologically disengage their self-esteem from their outcomes in a particular domain or context. When one disengages one's self-evaluation in a domain from one's outcomes in the domain, those outcomes become less relevant to one's self-esteem. We use the term disengagement to refer to the initial disconnecting of one's self-esteem from one's outcomes in a particular stigma-threatening situation—the first reaction. And we use the term disidentification to refer to the more chronic adaptation—in response to the chronic threat of stigmatization in a domain—of dropping, or not taking on the domain as a personal identity, as a long-term basis of self-esteem. (p. 528)

In this characterization, disengagement[1] from performance evaluations is an intermediate stage through which students pass on their way to full-blown disidentification.[2]

Testable Implications of the Explanation

Unfortunately, no agreed-upon measure of disidentification exists in any national panel data, and hence a direct evaluation of the disidentification explanation in a real-world setting is not feasible.[3] Nonetheless, testable implications can be derived and evaluated with existing survey data, and there are precedents in the sociological literature for evaluating similar conjectures about racial differences (see Alexander, Entwisle, and Bedinger 1994; Pallas et al. 1990).

In the analysis reported later, we consider three implications of the disidentification explanation that can be effectively evaluated with the available survey data. Although the idea of stereotype threat leading to full-blown disidentification was developed first (Steele 1992), with the intermediate disengagement stage introduced later on (Crocker et al. 1998), we evaluate the explanation as students may experience it—first assessing racial differences narrowly with regard to the relationship between external performance evaluations and self-evaluations of academic ability and then moving on to a more comprehensive assessment of the selective valuation hypothesis.

Accordingly, we first evaluate whether or not black students are more likely to discount the relevance of performance evaluations. Crocker et al. (1998) suggested that after stigmatized students experience declines in achievement in response to stereotype threat, they disconnect their self-evaluations in the stigmatized domain from external performance evaluations. Using a measure of academic self-concept (see Marsh 1993) as an indicator for self-evaluation in the achievement domain and scores on achievement tests and grades received in school as external performance evaluations, we first assess the following implication:

Implication 1. The relationship between acade-

mic self-concept and academic achievement should be weaker for blacks than for whites.

After we evaluate this implication, we turn to the selective-valuation component of the disidentification explanation.

If, in accordance with Implication 1, black students discount external performance evaluations, then if such discounting necessarily leads to disidentification, black students should also, at some point in high school, begin selectively to devalue achievement in general. In particular, if black students have passed irretrievably beyond the intermediate state that Crocker et al. (1998) labeled disengagement, their overall sense of self will become less dependent on their academic sense of self, as in Implication 2:

Implication 2. The relationship between global self-esteem and academic self-concept should be weaker for blacks than for whites.

Moreover, if black students are solidly disidentified with schooling, intermediate beliefs about academic self-concept should be ignorable, as in Implication 3:

Implication 3. The relationship between global self-esteem and academic achievement should be weaker for blacks than for whites, and if disidentification mounts throughout high school, the relationship should weaken over time.

As we show later in the Results section, the survey evidence for these three implications is mixed, which suggests a variety of alternative characterizations of the tenability of the disidentification explanation that we discuss in the Conclusion.

Past Attempts to Evaluate the Disidentification Explanation

Major et al. (1998) attempted, with some success, to mount experimental evaluations of the effects of differential test performance on the self-esteem of college students. Although their findings are supportive of Implications 2 and 3, they are based on results from convenience samples of college students. The key questions for our purposes are whether these results can be replicated in the more natural social settings that are claimed to generate the disidentification mechanism and whether the results from past convenience samples of relatively high-achieving college students are similar to those from a national sample of middle school and high school students.[4]

Osborne (1995, 1997), however, did use a national sample of adolescents, indeed the same data that we analyze later. He claimed that the family background-adjusted correlation between achievement and global self-esteem decreases with age relatively more for black males than for black females and all whites. Thus, his results support the third implication that we derived earlier, although only for black males. Our results, using the same data, ultimately do not support this implication, and we offer some methodological reasons why our analysis may be more reliable when we discuss the results. Nonetheless, Osborne did not model the intervening discounting process specified earlier in Implications 1 and 2, and thus, as far as we know, our study is the first attempt to evaluate both the discounting and selective-valuation components of the disidentification explanation with a nationally representative sample of adolescents.

Disidentification and Oppositional Culture

Our evaluation of the disidentification explanation is relevant to the sociological debate on the tenability of the oppositional-culture explanation of Ogbu (1978, 2003; see also Fordham 1996; Fordham and Ogbu 1986). On the basis of ethnographic research, Ogbu posited that black students who strive for achievement in schooling are accused of acting white. These threatening social sanctions, which originate in a generalized rejection of white domination, paired with a survivalist reaffirmation of loyalty to one's marginalized group, constitute an oppositional culture that compels a disproportionate share of talented black youths to disavow performance in schooling.

As explanations for the black-white gap in achievement, the disidentification and oppositional-culture explanations identify some common proximate causes. For both, a general devaluation of achievement among black

students results in decreased motivation. Where the perspectives differ is in the mechanism that generates this tendency toward devaluation. Steele and his colleagues argue that generalized stereotypes function as threats "in the air" that work their way into individuals' behavior through a mostly subconscious process; thus, devaluation emerges in the aggregate as a series of individual responses to pervasive stereotypes. In contrast, for Ogbu and his colleagues, the threats are genuine social sanctions that emerge in everyday interaction, and the responses among black students are self-consciously behavioral.

Empirical support for Implications 2 and 3, which suggest that black students devalue achievement, could be regarded as support for the oppositional-culture explanation, as well as for the disidentification explanation. However, support for Implication 1 would not necessarily strengthen the case for the oppositional-culture explanation. An oppositional culture need not entail the discounting of performance evaluations, since the sanctions against acting white are driven by loyalty to one's marginalized group, rather than a rejection of performance evaluations as inherently unfair. Indeed, one could argue that such a pattern of evidence—in support of Implications 2 and 3 but against Implication 1—would favor the oppositional-culture explanation at the expense of the disidentification explanation, since devaluation without discounting is inconsistent with the disidentification explanation but not necessarily with the oppositional-culture explanation.

METHODOLOGY

Data

The data for our analyses were drawn from the 1988–94 waves of the NELS, a two-stage stratified random sample of students nested within schools (U.S. Department of Education 1996). We selected white and black respondents who participated in all four waves of the study. These students were in the 8th grade in 1988 and if they stayed on track, would all have been in the 10th and 12th grades for the first and second follow-ups in 1990 and 1992. Because we chose not to include "freshened students"—additional respondents who were randomly selected from NELS schools in both 1990 and 1992 to allow for analyses of nationally representative cross-sectional samples of 10th graders in 1990 and 12th graders in 1992—our findings can be generalized only to the population of middle school students who were in the 8th grade in the continental United States in 1988. Including freshened students would have forsaken the panel nature of the sample, limiting the possibilities for longitudinal analyses.

Variables

Table 1 presents the means and standard deviations of the variables used in the subsequent empirical analysis. For *test scores*, we used the base-year, first follow-up, and second follow-up item-response theory (IRT) estimated number-right scores for mathematics and reading (see Rock and Pollack 1995 for details of the IRT scaling). We combined the two tests by first rescaling the reading tests in each year using the 1988 mean and standard deviation of the mathematics test. We then took the average within year of the two component mathematics and reading tests (while imputing one from the other in the few cases in which only one score was available).

For *grade point average* (GPA), we used the base-year and first follow-up self-reported grades. For the base-year self-reports, we took the mean response to four separate prompts for grades in English, mathematics, science, and social studies after we rescaled the response categories to a standard four-point GPA scale. For students who remained in school for the first follow-up, we used the same procedure to construct the 1990 grades. However, for students who took the dropout questionnaire for the first follow-up, only one question on grades was available (i.e., one covering all subjects), which presumably refers to grades they obtained just before they dropped out. The responses to this omnibus self-report of grades were likewise recoded to a standard four-point scale.

Table 1. Means and Standard Deviations of the Variables

Variables	Mean	Standard Deviation
Achievement		
Mathematics and reading test score 1988	35.016	10.211
Mathematics and reading test score 1990	41.200	12.224
Mathematics and reading test score 1992	44.851	12.561
Self-reported GPA in 1988	2.877	.736
Self-reported GPA in 1990	2.768	.757
Global Self-esteem		
Standardized self-esteem 1988	-.005	.986
Standardized self-esteem 1990	.021	.980
Standardized self-esteem 1992	-.014	.999
Self-concept in 1990		
Standardized academic self-concept	-.057	1.786
Standardized peer relations self-concept	-.039	1.777
Standardized parental relations self-concept	.079	1.685
Race-sex Indicator Variables		
Black male	.074	
Black female	.081	
White female	.415	
SES		
Mother's education (years)	12.962	2.064
Father's education (years)	13.320	2.563
SEI score of mother's occupation (GSS 1989 coding)	43.239	11.776
SEI score of father's occupation (GSS 1989 coding)	44.233	11.034
Family income (natural logarithm)	10.243	.975
Off Track		
Off track by 1990 (experienced at least one dropout spell or was held back a grade by 1990)	.063	
Off track by 1992 (experienced at least one dropout spell or was held back a grade by 1992)	.114	

Note: The data were weighted with F3PNLWT, multiplied by the probability of having missing data. The number of respondents was 6,326 for the means and standard deviations of this table but 9,954 for the first-stage logit model from which the probability of having missing data was estimated.

Source: National Education Longitudinal Study, base year through the third follow-up survey.

Finally, no self-reported grades were available for the second follow-up.[5]

Self-esteem is a standardized composite of responses (on four-point scales of agreement–disagreement, which were reverse coded when necessary) to the statements: "I feel good about myself"; "I feel I am a person of worth, the equal of other people"; "I am able to do things as well as most other people"; "On the whole, I am satisfied with

myself"; "I feel useless at times"; "At times I think I am no good at all"; and "I feel I do not have much to be proud of."[6]

We used three underlying dimensions of the hierarchical self-concept construct, developed by Marsh (1988; see also Marsh 1993), available only for the 1990 survey year of the NELS. *Academic self-concept* is a standardized factor composite of responses (on four-point scales of agreement–disagreement, which were reverse coded when necessary) to the statements: "I learn things quickly in English classes," "Mathematics is one of my best subjects," "English is one of my best subjects," "I get good marks in English," "I have always done well in mathematics," "I'm hopeless in English classes," "I get good marks in mathematics," and "I do badly in tests of mathematics."[7]

Peer relations self-concept is a standardized factor composite of responses (on four-point scales of agreement–disagreement, which were reverse coded when necessary) to the statements: "I have good friends who are members of my own sex," "I get a lot of attention from members of the opposite sex," "I make friends easily with girls," "I make friends easily with boys," "I do not get along very well with girls," "I do not get along very well with boys," "It is difficult to make friends with members of my own sex," and "I'm not very popular with members of the opposite sex."

Parental relations self-concept is a standardized factor composite of responses (on four-point scales of agreement–disagreement, which were reverse coded when necessary) to the statements: "My parents treat me fairly," "I do not like my parents very much," "I get along well with my parents," "My parents are usually unhappy or disappointed with what I do," and "My parents treat me unfairly."

For SES, we used five separate variables: *mother's education, father's education, mother's occupational prestige* (1989 GSS scale; see Nakao and Treas 1992), *father's occupational prestige* (1989 GSS scale), and the natural logarithm of *family income*.[8] For all these variables, we used data from the 1988 parent survey, supplemented, when data were missing, with responses to the 1988 student survey (including a set of best-subset regression imputations of family income from the roster of household possessions reported by the students). For all SES variables, we then used best-subset regression imputation of missing values before we entered them in the regression models.

Two *off-track* dummy variables were used that indicate whether or not, by 1990 and 1992, respectively, the respondents had fallen off the most common high school sequence of remaining in school and in the proper grade. All students who experienced at least one drop-out spell or who were held back a grade by 1990 received a 1 for the 1990 off-track variable and likewise for the 1992 off-track variable. By definition, any student who had gone off-track by 1990 was also coded as off-track in 1992, regardless of whether he or she was back on track.

Analytic Procedures

Since the NELS is a complex longitudinal study, some care must be taken in defining the sample, modeling missing data patterns, and estimating standard errors. We provide a sketch of our methodological decisions in this section. Further details are available from us on request.

Missing Data and Sample Attrition We did not impute missing data for any of the variables that were central to our analysis—global self-esteem and the three dimensions of self-concept—since these variables often served as the dependent variables for our models. Likewise, we did not impute missing values for scores on the 1990 and 1992 achievement tests and GPA, since these are the crucial measures of achievement. Instead, we attempted explicitly to adjust for the unknown missing data mechanism, simultaneously modeling the more general sample attrition that masquerades as progressive rates of missing data for self-esteem and test scores in 1990 and 1992.

To model the missing data mechanism, we took the 9,954 black and white respondents who were in the panel data set from the 1988–94 NELS and for whom we had data on race, sex, and scores on achievement tests from the 8th grade in 1988. For this full base-

line sample, we then imputed family background variables with best-subset regression, as we discussed earlier in the Variables section. We then determined that of these 9,954 respondents, only 6,326 had nonmissing values for global self-esteem, self-concept, achievement tests, and GPA across all waves. We then estimated a logit model for inclusion in the subsample of 6,326, using baseline data on all 9,954 respondents, where the model included main effects for race-sex, the five SES variables, and the composite test score variable in 1988. Along with interactions between race-sex and all other variables, the model had 28 estimated parameters.

All results in Tables 1–4 were then estimated for the 6,326 cases, which we hereafter label the analysis sample. The models were weighted by the third follow-up panel weight (f3pnlwt, which adjusts for random subsampling across waves), multiplied by the estimated probability of being in the baseline sample but not in the analysis sample (which represents how we adjusted for sample attrition and missing data patterns). This procedure is thus an implementation of inverse-probability weighting with propensity scores, where individuals in the baseline sample who are the least likely to have been retained in the data are given proportionately more weight in the analysis sample on which the regression models are based.

We chose this analytic strategy for two main reasons. First, it allowed us to estimate models across a consistent set of respondents, enabling easy comparisons across time with cross-sectional models. Second, adjusting for attrition bias must be accomplished within an estimated model, and we chose to do so uniformly across a closely related class of models, relying on the reweighting justification of propensity scores. As a final check, we determined, through an analysis of broader samples (generally a higher number of respondents by 15 percent to 30 percent, depending on the year and on how item-specific missing data were or were not imputed), that the qualitative conclusions we derived in evaluating the three implications are unrelated to this analytic decision.

Standard Errors To account for the design features of the clustered sample, all reported standard errors in Tables 2–4 are robust Taylor series standard errors, further adjusted for clustering within schools. The resulting standard errors are similar to what would be obtained if the models had been estimated with hierarchical modeling software, but the Taylor series standard errors have a more general claim to consistency in the presence of all forms of heteroskedasticity.

RESULTS

In evaluating the three implications specified in the introduction, we are constrained by the availability of measures in the NELS data. Most important, the crucial self-concept scale is available only in 1990, which was typically the 10th grade for most NELS respondents. Accordingly, we first evaluate Implications 1 and 2 using only the 1990 data, assessing whether or not there are cross-sectional racial differences in the associations among academic achievement, academic self-concept, and global self-esteem. Fortunately, scores on global self-esteem and achievement tests are available in 1988, 1990, and 1992, and GPA is available in 1988 and 1990. Accordingly, we evaluate Implication 3 by assessing whether or not there are cross-sectional racial differences in the association between global self-esteem and academic achievement over all three waves.

Discounting Performance Evaluations

We first evaluate Implication 1 of the disidentification explanation. In Table 2, we present models that test for racial differences in the net linear relationship between academic self-concept and academic achievement. For three separate specifications of covariates, academic self-concept is regressed, successively, on standardized tests and then on cumulative GPA by 1990.

Consider the coefficients reported in the first column. For this model, academic self-concept in 1990 was regressed on (1) three dummy variables for race-sex group (one for white females, one for black males, and one

Table 2. OLS Regression Estimates of Black-White Differences in the Association Between Achievement and Academic Self-Concept in 1990

	Dependent Variable: Academic Self-Concept Achievement Predictor: Standardized Tests			Dependent Variable: Academic Self-Concept Achievement Predictor: Self-Reported GPA		
	1	2	3	1	2	3
Achievement	.629	.656	.661	1.295	1.375	1.434
	(.040)	(.037)	(.037)	(.102)	(.059)	(.056)
x White female	.046	.057	.059	.181	.182	.174
	(.055)	(.056)	(.055)	(.117)	(.088)	(.083)
x Black male	-.220	-.171	-.213	-.358	-.327	-.424
	(.117)	(.131)	(.134)	(.170)	(.182)	(.191)
x Black female	-.249	-.140	-.160	-.310	-.244	-.310
	(.104)	(.109)	(.011)	(.161)	(.173)	(.179)
Covariates						
Family background x race-sex	✓	✓	✓	✓	✓	✓
School fixed effects		✓	✓		✓	✓
Off-track x race-sex			✓			✓
R^2	.177	.367	.457	.322	.479	.485
Statistical Test						
$[s_{bm} + (s_{bf} - s_{wf})]/2$	-.257	-.184	-.216	-.425	-.376	-.454
	(.080)	(.089)	(.092)	(.111)	(.129)	(.136)
p-value	.001	.038	.018	<.001	.004	.001

Note: Coefficients for the test scores were multiplied by 10. Standard errors are in parentheses and were calculated with a modified Huber-White sandwich variance estimator, further adjusted for the clustered nature of the NELS sample. The data were weighted with F3PNLWT, multiplied by the probability of having missing data on the dependent variable (and selected other variables that were not imputed with best-subset regression). The number of respondents is 6,326 for the models in this table and 9,954 for the first-stage missing data logit model.

Source: National Education Longitudinal Study, base year through the third follow-up survey.

for black females), (2) the composite standardized test score (along with its interactions with the three race-sex dummy variables), and (3) the five SES variables (along with their interactions with the three race-sex dummy variables). The main effect for achievement, .629, suggests that for the reference category of white males, a difference of 1 standard deviation in achievement in 1990 is associated with a .43 standard deviation increase in

academic self-concept (i.e., 12.224 x .0629 / 1.786).

As shown by the estimated coefficients for the interactions between achievement and the three dummy variables for race-sex, there is evidence, however, that this relatively strong cross-sectional association varies by race and sex. The relationship is still substantially positive for black males, but it is weaker at .409 (i.e., .629 - .220). An even more pronounced difference is found for females. For white females, the net linear relationship is .675 (i.e., .629 + .046), whereas for black females, it is .380 (i.e., .629 - .249). Apparently, either black students who perform relatively poorly in school are less likely to see their performance as a strong indication that they are less competent than their peers, or black students who perform relatively well in school are less likely to see their performance as a strong indication that they are more competent than their peers.

For a formal statistical test of these apparent racial differences, and hence for a direct evaluation of Implication 1, we constructed a linear composite of coefficients and tested the linear composite against a null hypothesis of a joint sex-specific uniformity across race. To be precise, the model estimated in the first column of Table 2 can be written as follows:

$$CONCEPT_i = d_{wm}+d_{wf}(WF_i)+d_{bm}(BM_i)+d_{bf}(BF_i) +s_{wm}(ACH_i)+s_{wf}(ACH_i)(WF_i)+s_{bm}(ACH_i)(BM_i)+s_{bf}(ACH_i)(BF_i) +\mathbf{b}'_{wm}\mathbf{X}_i+\mathbf{b}'_{wf}\mathbf{X}_i(WF_i)+\mathbf{b}'_{bm}\mathbf{X}_i(BM_i)+\mathbf{b}'_{bf}\mathbf{X}_i(BF_i)+e_i$$

where the covariate vector $\mathbf{X}_i$ includes all five SES variables listed in Table 1. The linear combination of coefficients that represents the statistical test is $[s_{bm}+(s_{bf}-s_{wf})]/2$, and the null hypothesis is that this average racial difference is equal to zero. The last two rows of Table 2 report the value of this linear combination of coefficients, along with an associated *p*-value for a two-tailed *t* test. For the model reported in the first column, the average racial difference in the linear relationship is -.257 and the *p*-value is .001, suggesting that the null hypothesis of no racial difference is easily rejected at conventional alpha levels.

This basic pattern, which supports Implication 1, is robust to various model specifications and across both measures of achievement, as shown in the remaining columns of Table 2. For the model reported in the second column, fixed effects for each NELS school are included (which is operationally equivalent to including a dummy variable for all but one NELS school in the model written as Equation 1). The coefficients for achievement now represent the average within-school relationships between academic self-concept and achievement. For the model reported in the third column, a dummy variable for ever having gone off-track (i.e., experienced a dropout spell or held back a grade) is added to the covariate vector. Finally, these same three models are then reestimated in the second panel, substituting a cumulative GPA by 1990 for the results of standardized tests as the measure of achievement.

All six models reported in Table 2 reveal the same empirical pattern. Across students who are equivalent in family background, school-specific factors, and on-track status, there is a consistent racial difference in the estimated net linear relationship between academic self-concept and achievement. On average, this relationship is 30 percent to 40 percent weaker for black students. It may be surprising that there is little difference across the two measures of achievement, since students are presumably more aware of their relative GPA than of their relative scores on achievement tests. The simplest interpretation of this commonality of results is that both measures tap the same relative achievement ranking, which is plausible because the tests are designed to capture aptitude and learning in specific subject areas.[9]

Taken together, the findings presented in Table 2 suggest to us that blacks discount, relative to whites, the relevance of past and present academic performance when they formulate beliefs about their own academic competence.[10] Accordingly, we conclude that Implication 1 of the disidentification explanation is supported by the NELS data.

No Difference in Components of Self-esteem

Does the apparent discounting of performance evaluations, revealed in the previous

section, imply that blacks are substantially more disidentified with achievement than are whites? According to Crocker et al. (1998), the discounting of performance evaluations should undermine black students' motivation to achieve by weakening the tie between academic and overall sense of self. If this conjecture is true, after having concluded that performance evaluations are unreliable (if not blatantly and systematically unfair), black students should shift their overall self-esteem away from their own academic self-concept and ground it more solidly in other domains, such as personal relationships with peers or parents.

To evaluate this conjecture, specified earlier as Implication 2, we regressed global self-esteem in 1990 on the same measure of academic self-concept that served as the dependent variable for the models reported in Table 2. As is shown in the first column of Table 3, after a covariance adjustment for differences in family background is made, there are no statistically significant racial differences in the substantial relationship between academic self-concept and global self-esteem. And as is shown in the second column, the addition of school-level fixed effects as proxies for all omitted school-level variables does not change the coefficients to any substantial degree. These basic patterns suggest that black students who have a relatively high regard for their own academic competence are no less likely than are white students to feel good, in general, about their overall sense of self. Likewise, black students who have a relatively low regard for their own academic competence are no less likely than are white students to feel bad, in general, about their overall sense of self.

When peer and parental relations self-concepts are added to the covariate vector, as for the model reported in the third column, there is still no racial difference in the relationship between academic self-concept and self-esteem. Apparently, black students are no more likely than are white students to stake their self-esteem on their ability to make friends or to relate well to their parents. This finding stands in opposition to Rosenberg's theory of selective valuation as an explanation for how black students maintain self-esteem in spite of their relatively low school performance (see, e.g., Hare and Castenell 1985; Rosenberg 1979).

For the model reported in the fourth column, achievement tests, GPA, and an off-track dummy variable are added to the covariate vector. The results are unchanged. And when prior self-esteem in the eighth grade is further adjusted for in the fifth column, no otherwise suppressed racial difference is revealed.

Thus, under the five different specifications reported in Table 3, the results suggest that although there is a moderately strong positive association between academic self-concept and global self-esteem, there is no evidence that this relationship varies by race. If anything, the point estimates imply that the relationship between academic self-concept and global self-esteem is stronger for blacks than for whites, even though the *p*-values of the statistical test indicate that the null hypothesis of no racial difference cannot be rejected.[11]

No Selective Valuation

We evaluate Implication 3 in the models reported in Table 4, offering estimates of racial differences in the net linear relationship between achievement and global self-esteem over the first three waves of the NELS. Separately for the years 1988, 1990, and 1992, we regressed global self-esteem on the composite score for mathematics and reading tests available in 1988, 1990, and 1992. We then regressed global self-esteem on the alternative measure of achievement, the self-reported GPA that was available in 1988 and 1990 but not in 1992. The results are reported as 13 separate models in Table 4.

The models reported in the first column of each panel include family background variables as covariates, and the models reported in the second column of each panel are estimated with school-level fixed effects. Across these models, there is little or no evidence in support of the selective-valuation mechanism, as specified in Implication 3. The average racial difference is conventionally significant for only one model, in 1992, when school-level fixed effects are present. Yet, in

Table 3. OLS Regression Estimates of Black-White Differences in the Association Between Self-Esteem and Academic Self-concept in 1990

	Dependent Variable: Global Self-Esteem				
	1	2	3	4	5
Academic Self-concept	.151	.141	.072	.035	.027
	(.013)	(.014)	(.014)	(.018)	(.016)
x White female	.025	.039	.039	.050	.048
	(.020)	(.024)	(.020)	(.026)	(.024)
x Black male	.047	.089	.063	.104	.069
	(.035)	(.038)	(.041)	(.045)	(.042)
x Black female	.045	-.001	-.010	.021	-.005
	(.043)	(.044)	(.035)	(.038)	(.034)
Covariates					
Family background x race-sex	✓	✓	✓	✓	✓
School fixed effects		✓	✓	✓	✓
Other dimensions of self-concept x race-sex			✓	✓	✓
Tests, grades, and off-track x race-sex				✓	✓
Lagged self-esteem x race-sex					✓
R^2	.141	.327	.435	.442	.519
Statistical Test					
$[s_{bm} + (s_{bf} - s_{wf})]/2$	.034	.024	.007	.037	.008
	(.028)	(.030)	(.028)	(.031)	(.027)
p-value	.222	.429	.795	.230	.781

Note: See the note to Table 2.

this case, the measured association between global self-esteem and achievement is greater for blacks than for whites.

For the 1990 and 1992 waves, one can include additional variables to characterize individuals' prior levels of self-esteem. The models in the third columns of the panels for 1990 and 1992 reestimate the same net linear associations between global self-esteem and achievement; they include within the covariate vector the self-esteem variable from the immediately prior wave, along with dummy variables for ever having gone off track. Although these variables explain a good deal of the variance in self-esteem (i.e., raising the percentage of variance explained by 47 percent to 70 percent and substantially reducing the current-year coefficient esti-

Table 4. OLS Regression Estimates of Black-White Differences in the Association between Academic Achievement and Self-Esteem

	Dependent Variable: Global Self-esteem Achievement Predictor: Standardized Tests								Dependent Variable: Global Self-esteem Achievement Predictor: Self-Reported GPA				
	1988		1990			1992			1988		1990		
	1	2	1	2	3	1	2	3	1	2	1	2	3
Achievement	.114	.113	.125	.131	.089	.141	.128	.080	.331	.292	.307	.317	.228
	(.033)	(.025)	(.022)	(.021)	(.020)	(.027)	(.022)	(.021)	(.043)	(.043)	(.029)	(.032)	(.032)
x White female	.045	.050	.010	.020	.0004	.018	.027	-.002	.010	.068	.021	.045	.028
	(.043)	(.036)	(.031)	(.031)	(.029)	(.036)	(.033)	(.028)	(.081)	(.065)	(.047)	(.050)	(.046)
x Black male	.026	.062	.024	.072	.041	.127	.217	.109	-.233	-.034	.005	-.031	-.008
	(.094)	(.108)	(.060)	(.074)	(.065)	(.058)	(.070)	(.064)	(.110)	(.125)	(.081)	(.102)	(.092)
x Black female	-.0003	.058	.004	.003	-.052	-.018	.023	-.025	.090	.037	-.134	-.114	-.130
	(.087)	(.097)	(.050)	(.069)	(.062)	(.061)	(.068)	(.058)	(.104)	(.114)	(.100)	(.112)	(.090)
Covariates													
Family background x race-sex	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
School fixed effects		✓		✓	✓		✓	✓		✓		✓	✓
Lagged self-esteem x race-sex					✓			✓					✓
Off Track x race-sex					✓			✓					✓
R^2	.083	.291	.071	.278	.430	.071	.269	.458	.122	.314	.102	.300	.442
Statistical Test													
$[s_{bm} + (s_{bf} - s_{wf})]/2$	-.010	.035	.009	.028	-.006	.045	.106	.043	-.077	-.032	-.075	-.095	-.083
	(.067)	(.081)	(.040)	(.055)	(.045)	(.042)	(.053)	(.042)	(.082)	(.085)	(.061)	(.073)	(.064)
p-value	.885	.666	.817	.618	.902	.280	.045	.305	.352	.705	.216	.196	.193

Note: See the note to Table 2.

mates of the effect of achievement on global self-esteem), they again do not reveal an otherwise suppressed racial difference.

Thus, none of the patterns reported in Table 4 provides support for Implication 3 of the disidentification explanation. There is no evidence that the association between global self-esteem and achievement varies meaningfully over race, over sex, or between the 8th and 12th grades. A few of the coefficients approach conventional levels of statistical significance, but, in general, there is no discernible pattern to the variation in the point estimates. As a consequence, none of the *t*-tests indicates significant racial differences in support of implication 3.[12]

Given the care with which we handled the data and the robustness of these findings to a variety of specifications, we are confident that the NELS data do not support the selective-valuation component of the disidentification thesis, contra the results of Osborne (1995, 1997). As we mentioned earlier in the description of our variables, Osborne misrepresented his measure of GPA (see note 5) and used a weak adjustment for family background (see note 7).[13] However, even when one takes the most charitable reading of Osborne's results, the racial difference, which Steele (1997:623) cited as supportive of the disidentification explanation, is present only for males.

In sum, we have presented three main empirical results in this section. First, when black students formulate self-evaluations of their own academic competence, they are less sensitive to external performance evaluations. Second, however, when black students select levels of global self-esteem, they are as likely as are white students to rely on their own evaluations of their academic competence. Third, when black students select levels of global self-esteem, they are as likely as whites to rely on their own academic performance. These findings support Implication 1 and contradict Implications 2 and 3 of the disidentification explanation.

DISCUSSION

Stereotype threat and disidentification provide an important new entry into the long-running debate over the causes of racial differences in achievement. Our findings suggest that there is support for a limited form of disidentification; across black students, there is a weaker relationship between academic self-concept and academic achievement. We interpret this weaker relationship as a sign that black students discount performance evaluations more than do their white peers. Although it is important to stress that this relationship is still positive for black students, it is about 30 percent to 40 percent weaker. Thus, while blacks do not completely reject the evaluations they receive, our models suggest that, on average, they are less likely to believe that these evaluations provide accurate information about their abilities. We cannot say exactly why this is so from our survey data. It is consistent with the claim that black students believe that the tests themselves are culturally biased (Chan 1997; Chan et al. 1997). It is also consistent with the claim that black students feel stereotype anxiety when they take the tests and then intuit that the tests are poor measures of their own capacities (Steele 1997).

However, as best as we can tell, this discounting is not the first step down a slippery slope. White and black students similarly ground their overall self-esteem on academic performance at the three different points at which the NELS data enabled us to measure the relationship. Black students remain as fully identified with schooling as do white students, a finding that stands in clear opposition to the selective-valuation component of the disidentification explanation. And, as we discuss later, this finding is also consistent with other assessments of national survey data that have shown that the behavior of black students in school (i.e., absenteeism, homework time, and so on) is similar to that of white students after family background is adjusted for (Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1997).

Why might black students discount performance evaluations but remain identified with achievement in school? One possibility is that the discounting of performance evaluations aids in the process of remaining identified with achievement, providing a buffer against the internalization of depressed achievement results. In this way, instead of allowing lower

performance on tests to undermine the motivation to succeed, as disidentification theorists have suggested, the discounting of performance evaluations may provide a way to maintain motivation in the face of discouraging results.

Another (not mutually exclusive) possibility is that despite their wariness about performance evaluations, black students do not disidentify with schooling because of the variety of external reinforcements that make doing well in school important in both the present and future. Despite the fact that being overly academic has never been cool among any group of American students (Coleman 1961), survey data have revealed that black and white high achievers are often well regarded by their classmates (Cook and Ludwig 1997), not to mention strongly prized by parents and teachers. School achievement is also the primary ticket to the educational credentialing that is needed for success in the postindustrial economy, and it may be that these realities press students to remain identified with academic achievement, even though they regard that achievement as a relatively poor indicator of their true capacities.

In either case, our results suggest that one should be cautious about extrapolating laboratory results about stereotype threat into a real-world argument about disidentification. Some students who experience stereotype threat may redouble their efforts on everyday schoolwork; others may turn away from schooling entirely. These reactions are conditional on a variety of external factors, such as the salience of achievement to an individual's other goals and societal expectations and requirements about performance in school. Without a more thorough understanding of these other factors, it would be naive to suggest that stereotype-threatened students necessarily move seamlessly into disidentification; our evidence suggests that, at least for black students in the academic domain, disidentification is not the likely outcome.

Implications of the Findings: The Oppositional Culture?

The sociological literature is divided on whether there is substantial supporting evidence for the oppositional-culture explanation. We suspect that Ogbu's (2003) claims have not yet been fully digested and, hence, that a new wave of debate is forthcoming. To the extent that our findings are relevant to such a debate, they support the position of Cook and Ludwig (1997), Ainsworth-Darnell and Downey (1998), and Ferguson (2001), since they suggest that racial differences in orientations toward schooling are not as substantial as Ogbu and others have alleged, once family background is taken into account.[14]

Although we do not wish to claim that our results are anything more than complementary to these more direct tests, our results do have one advantage. Studies that evaluate the oppositional-culture explanation by attempting to model comprehensively the relationships between achievement and antischool behavior are vulnerable to the criticism that the available surveys simply do not adequately capture genuine antischool behavior. After all, the most truly creative and hence particularly effective antischool behavior is, almost by definition, impossible for academic researchers to know in advance when they design survey instruments. The appeal of the disidentification explanation is that the relationship between global self-esteem and achievement should reflect the devaluing that these hard-to-measure antischool behaviors would more directly demarcate. Our negative judgment, at least on the selective-valuation component of the disidentification explanation, could be seen as yet more support for the case against the oppositional-culture explanation.

Again, however, discounting the relevance of performance evaluations may nonetheless represent, in the aggregate, a generic type of oppositional culture—one that takes the form of resistance to the school as an institution and yet does not break black students' beliefs in the importance of achievement or the desirability of pursuing schoolwork. Since this type of oppositional culture does not necessarily generate social sanctions against students who strive for academic achievement, it may serve as a buffer against the development of an even more destructive oppositional culture along the lines that Ogbu and others have argued already exists.

The reality of racial inequality in America, especially if Steele is correct that blacks are haunted daily by stereotypes, is that blacks face a stark choice. They can accept relatively depressed achievement results and conclude that their shortfalls in achievement are valid indicators that they are not cut out for postsecondary schooling. Or they can reject tests and grades, maintaining that their performance results do not reflect their true academic abilities. In this latter frame of mind, black students may remain disappointed by the shortfalls in their performance, even as they reject the evaluative criteria that delineate their underperformance. More important, however, they can remain committed to the pursuit of postsecondary education, with the hope that their true potential will be recognized in the future.

NOTES

1. For sociologists, Crocker et al.'s (1998) usage of the term *disengagement* may be confusing because it refers to a social psychological state of mind—the dissociation of one's self-evaluations in a domain from external performance evaluations. Academic disengagement in the sociological literature is a behavioral concept that refers to the withdrawal of commitment to schooling (i.e., doing homework, being attentive, and coming to school; see Johnson, Crosnoe, and Elder 2001). Except when we explicitly present Steele's ideas, we adopt the phrase "discounting of performance evaluations" instead of disengagement.

2. In more recent work, Steele et al. (2002) revised their earlier emphasis on the inevitability of disidentification as a consequence of stereotype threat, taking note of an emerging psychological literature that suggests a variety of responses to stereotype threat (see also Major and Schmader 1998; Schmader, Major, and Gramzow 2001). However, these studies have similarly been restricted to laboratory conditions, and no work that we know of has examined how these processes play out in the real world over time.

3. Psychologists have recently created such measures, in studies of laboratory samples of college students, but the measures have not yet been incorporated into national panel data (see Major and Schmader 1998).

4. More generally, the non-survey-based research on racial differences in self-esteem has been contradictory (see Gray-Little and Hafdahl 2000 for a meta-analysis). Crocker and Wolfe (2001) and Schmader et al. (2001) reported survey results on these same basic relationships, again for convenience samples of college students.

5. Osborne (1997) reported a crucial set of models that were based on an analysis of 1992 grades (which he compared to similar models analyzing 1988 and 1990 grades). He mistakenly claimed that this measure of 1992 GPA is a measure of senior-year grades. The 1992 GPA variable is a transcript-derived GPA for the entire high school career, which was made available as part of the second follow-up data. Since there is no straightforward way to compare this measure to the year-specific self-reported grades reported in 1988 and 1990 (which we analyze as well), there is no evidence for Osborne's claim that there is a much smaller relationship between self-esteem and GPA for blacks in the senior year of high school.

6. Our separate composite measures are rescaled versions of the NELS variables BYCNCPT2, F1CNCPT2, and F2CNCPT2.

7. One reviewer noted that the statements "Mathematics is one of my best subjects" and "English is one of my best subjects" are not good measures of academic self-concept because they measure how well a student feels about his or her performance implicitly in comparison with other subjects. However, because the correlation between our eight-item scale and the six-item scale suggested by the reviewer is .977, the results are nearly identical, regardless of which scale we used. Thus, although we accept the reviewer's point, we decided to use Marsh's eight-item scale so that our results will be directly comparable to those of others in the literature.

8. Whereas we used a disaggregated measure of SES that was based on five separate dimensions, Osborne (1995, 1997) used the base-year composite of these five dimensions (BYSES) provided by the data distributors.

There are two problems with Osborne's measure of SES: (1) the sociological literature has conclusively shown that, when possible, it is preferable to use disaggregated measures of SES (see Hauser 1972, Hauser, Tsai, and Sewell 1983), and (2) the parents' occupational prestige scores on which BYSES is based are out-of-date (1960) scores on the Duncan Socioeconomic Index (SEI), rather than the more appropriate 1989 GSS SEI scores that we used for our measures of occupational prestige (see Hauser and Warren 1997).

9. It is also possible that the weaker association between academic self-concept and achievement measures for blacks is generated by some other mechanism than the conscious discounting of performance evaluations. There is simply no way to know for sure, given the limited measures in the survey data. But there is support for the idea of racial differences in the discounting of performance evaluations in the psychological literature (Schmader et al. 2001). Schmader et al. assessed discounting through level of agreement (on a 4-point scale) with the statement "I feel that standardized tests are definitively biased against me."

10. These results are consistent with psychologists' experimental findings in laboratory settings with small samples of college students that have suggested that black students perceive cognitive ability tests to be less valid than do white students (e.g., Chan 1997; Chan et al. 1997).

11. These results are consistent with the large literature in the social psychology of education (see, e.g., Marsh 1993; Marsh, Byrne, and Shavelson 1992; Rosenberg et al. 1995) that has argued that academic self-concept is a relatively stable component of the broad construct of global self-esteem. They are also consistent with Pallas et al.'s (1990) findings of few racial differences in five dimensions of self-concept. However, our work differs from Pallas et al.'s in that our population consisted of high school students, not elementary school students, and we measured whether there are racial differences in the relationship between specific components of self-concept and overall self-esteem as opposed to mean racial differences in these dimensions of self-esteem.

12. As can be seen simply by comparing differences in the sizes of coefficients to their standard errors, there are no statistically significant declines in the net linear association between academic achievement and global self-esteem and, hence, by direct implication, no greater relative decline for blacks than for whites. We do not report the results of such over-time hypothesis tests for racial differences, since they are implied by the lack of any statistically significant racial difference in the relationship at any single point in time. To convince ourselves further that no important trends lurked within the data, we also estimated an exploratory two-way, fixed-effect model over all three waves of data (with global self-esteem as the time-varying dependent variable and achievement test scores and off track as the time-varying independent variables) with the same 6,326 respondents. The point estimates suggested that the year-to-year fluctuations in the achievement produced slightly larger fluctuations in self-esteem for black males (in comparison with white males) and slightly smaller fluctuations in self-esteem for black females (in comparison with white females). Yet, as often happens for such fixed-effects models with only a few points in time, none of the point estimates for any of the four groups was statistically significant, and likewise, no racial differences in these point estimates were statistically significant.

13. We attempted to replicate Osborne's results directly, but we could not reproduce models that matched his, even on such simple dimensions as the reported number of respondents for each model. In a personal communication, Osborne indicated to us that he no longer had the computer code that would be needed to allow us to determine exactly how he had obtained his results and, in particular, how he had handled cases he regarded as outliers. In our results, we did not remove cases on suspicion that they were unduly influential.

14. Note that even in Ogbu (2003), the implication of the substantial difference in the average family background of whites and blacks is largely unexplored. In dismissing the alternative "social class status" explanation (see Ogbu 2003:34–36), Ogbu wrote that

"the discrepancy between class status and academic performance of Black students is evident in Shaker Heights. As we noted in the preface, in this relatively affluent suburb White and Black social classes are not too dissimilar." The reference is to Ogbu's earlier claim that "according to the 1990 census, about 32.6% of the Black households in Shaker Heights and 58% of White households, had an average family income of $50,000 to over $100,000" (p. xii). We regard a 25.4% difference as indicating a dissimilarity of class distribution across race, one that is easily recognized by anyone who has spent substantial time in Shaker Heights.

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