

# The Black-White-Other Achievement Gap: Testing Theories of Academic Performance Among Multiracial and Monoracial Adolescents

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The study presented here tested three theories of racial differences in academic performance among monoracial and multiracial high school students. These theories (status attainment, oppositional culture, and educational attitudes) were developed to explain differences in achievement among monoracial groups, but the study tested how the theories apply to a multiracial sample. The results show that ethnic identity and experiences of ethnic discrimination are not strong factors in explaining academic performance among multiracial *or* monoracial students. Instead, the grades of multiracial students are related to their concrete beliefs about the consequences of school failure, the educational values of their peers, and the racial composition of their neighborhoods and schools. Additional descriptive statistics found that multiracial students who self-identify as black or Hispanic achieve lower grades than do those who self-identify as white or Asian. The author suggests a transracial theory of academic performance that considers the effects of contexts.

In the 1970s, several years after the U.S. Supreme Court ruled against state antimiscegenation laws (*Loving v. Virginia* 1967), 1 in 100 children born in the United States had parents who were not of the same race. In the decades since, that ratio has changed to 1 in 19 (National Center for Health Statistics 1999). Increasingly, multiracial and multiethnic[1] people and their racial/ethnic identities have fascinated the media, the public, and academics in fields ranging from psychology to demography. Yet while the recognition of multiracial people has increased, so, too, has the recognition of individual and institutional racial discrimination against them (Feagin and McKinney 2003). Multiracial adolescents must manage racism from all sides while negotiating a healthy identity and developing the skills needed to succeed in the adult world. Recognizing the impact of multiracial status on developmental outcomes can help researchers better understand the life-course trajectories of a fast-growing segment of the American population.

Although research on multiracial identity is gaining popularity across multiple fields, studies of developmental outcomes for multiracial adolescents have focused mostly on mental health outcomes, with less attention paid to such outcomes as achievement, deviance, and peer relations (for a review, see Shih and Sanchez 2005). Researchers who have examined race with respect to these latter outcomes have focused on cultural and environmental factors that are associated with *monoracial*, not multiracial, groups. For example, sociologists of education have documented consistent racial differences in acad-

emic performance: On average, Asians and Asian Americans achieve the highest grades and test scores, followed by non-Hispanic whites, Hispanics, and African Americans (Hallinan 1988; Jencks and Phillips 1998; Lee 1996). These differences in achievement remain significant even when controlling for the quality and funding of the school; family socioeconomic status (SES); and neighborhood, family, and peer group influences (Jencks and Phillips 1998).

As educators and public policy makers have struggled with issues of gaps in test scores among monoracial groups, they have used a select group of theories to guide their research and practices. These theories have included status attainment theory (Blau and Duncan 1967; Howell and Frese 1979; Kerckhoff and Campbell 1977a, 1977b; Porter 1974; Portes and Wilson 1976), expectation states theory (Cohen 2000; Cohen and Roper 1972), and oppositional culture theory (Fordham and Ogbu 1986; Ogbu and Davis 2003; Ogbu and Simons 1998). Scholars have also examined theories of parenting style (Dornbusch et al. 1987; Spera 2006; Steinberg, Dornbusch, and Brown 1992), racial ethnic schema (Oyserman 2008; Oyserman et al. 2003), stereotype threat (McGlone and Aronson 2006; Steele and Aronson 1998), and attitudes toward education (Mickelson 1990). These theories of racial variation represent the current range of thinking on differences in achievement, taking into account such factors as background, environment, culture, and cognitive processes.

Despite their breadth, none of these theories adequately addresses the complexities of differences in achievement among America's growing number of multiracial students because the theories each assume that a monoracial cultural style is driving the achievement behavior of each racial group. In this article, I describe the academic performance patterns of monoracial and multiracial students and examine how their achievement pattern fits several of the aforementioned theories. I chose status attainment theory for its longevity in the sociology of education, oppositional culture theory for its prominence in current scholarly debates, and educational values theory for its parsimony. Finally, I present a racial context theory that I think explains the academic performance of students of all racial backgrounds, including those who are multiracial.

## THEORIES OF THE MONORACIAL ACHIEVEMENT GAP

### *Genetics*

Much of the work on ethnic differences in academic achievement has focused on African Americans and non-Hispanic whites (for simplicity, I refer to these groups as blacks and whites; see Jencks and Phillips 1998 for a review of the research in this area) and has generally shown that the environment plays an important and well-documented role in creating differences in achievement between these racial groups. Hernstein and Murray's (1994) work was one of the few to argue for the effects of genetics, but a mountain of evidence opposes this view. For example, black and multiracial children who are raised in adoptive white homes have higher test scores than do those who are raised in adoptive black homes (Nisbett 1998), demonstrating the impact of family environment. Since the 1930s, when IQ tests were first administered, scores have risen for all ethnic groups (Flynn 1987; Neisser 1998), most likely the result of environmental effects, such as better nutrition and more universal schooling. The gap between the IQ scores of blacks and whites has decreased over the past century (Grissmer, Flanagan, and Williamson 1998; Hedges and Nowell 1998), which means either that black genes have developed at a faster rate than white ones or that the environmental differences affecting the achievement of blacks and whites have decreased over time. The fact that the test scores of blacks who are raised in adoptive white families decrease relative to those of white students during adolescence (Nisbett 1998) demonstrates the influence of the family and peer group contexts.

### *Environment*

There are two types of environmental explanations for the gap in test scores: structural

and cultural. Structural explanations focus on relatively immutable demographic characteristics of a student's environments. For example, the status attainment literature has shown that family SES, ability, prior achievement, aspirations, and role models are the most significant predictors of educational and occupational attainment (Blau and Duncan 1967; Haller and Portes 1973). Although Blau and Duncan's original research was done on middle- and working-class white Midwestern boys, more recent research has suggested that the impact of these variables on attainment is different for other racial and gender groups (Burke and Hoelter 1988; Howell and Frese 1979; Kerkhoff 1976; Kerkhoff and Campbell 1977a, 1977b). For example, Kerkhoff has shown that SES has far less significance for the educational attainment of blacks than of whites. Furstenberg et al. (1999) showed how neighborhood resources, not included in the original Blau and Duncan models, play a significant role in achievement outcomes for minority (and white) students.

Cultural explanations include ethnic differences in family socialization toward achievement in school (Chao 1994, 2001), ethnic differences in the cultural values placed on education (Ogbu and Davis 2003; Spera 2006), perceived or real ethnic discrimination in school by teachers (Baron, Tom, and Cooper 1985; Carew and Lightfoot 1979), expectations of discrimination in the labor market (Mickelson 1990; Mickelson and Greene 2006), and stereotype threat (McGlone and Aronson 2006). Cross-cultural explanations have pointed to how assimilation in American culture and school norms affect the achievement of immigrant students of Asian and Hispanic descent (Chao 2006; Lee 1996; Stanton-Salazar 2001; Suarez-Orozco and Suarez-Orozco 2001).

Of the cultural explanations, Ogbu's theory has gained the most attention in the past decade because of his contention that members of certain involuntary minority groups, who perceive limited returns to education and racist educational/occupational opportunity structures, have developed social norms that oppose white middle-class cultural dominance. According to this theory, involuntary minority students (such as African Americans, Hispanics, Native Americans, and Asian refugees) develop resistance to school and to the white middle-class cultural achievement standards they perceive to be controlling the educational system. The result is a peer group that imposes negative sanctions for behaviors that lead to success in school, such as doing homework, participating eagerly in class, and speaking standard English, all of which lead to depressed grades for involuntary minority-group students (Ogbu 2004).

Although scholars have been debating Ogbu's theory since it was published, little attention has been paid to its assumption that the experiences of racial groups are *culturally specific, identifiable, and different*. Ogbu argued that the factors that deter black students from achieving academically are rooted in African American history, which has generated an ecological culture that rejects mainstream white middle-class culture. Similarly, he contended that the factors deterring Hispanic students' achievement are rooted in the Latino culture and the history of *its* relationship to white culture, that Native American culture and the history of *its* relationship to white culture affect the ability of Native Americans to excel in school, and so forth. Ogbu's theory further assumes that race is an unambiguous status characteristic that predisposes an individual to embrace a given oppositional culture. Thus, the theory was not designed to explain the experiences of mixed-race individuals, nor it does readily suggest such an explanation. Scholars who are looking for a more parsimonious and scope-free theory are left to develop a hypothesis that would address this theoretical gap.

O'Connor (2001) maintained that theories like Ogbu's fail to account for within-group variation in identity (and, by extension, achievement) because they are rendered as if class or race unilaterally positions a person in the social world. Thus, she argued, oppositional culture theory ignores the complexities of racial identities. Minority students' interpretations of racial identity are not uniform; since some minority students reject their racial group's oppositional culture, researchers must seek to explain differences in achievement more broadly by accounting for

the contextual differences across schools, ability groups, class, gender, and families (O'Connor 2001).

Mickelson (1990; Mickelson and Greene 2006) also attempted to smooth the gap between Ogbu's theory and the empirical reality that not all minority students exhibit oppositional culture. Her theory of concrete and abstract beliefs shows that the academic performance of involuntary minorities can be explained by differences in concrete beliefs regarding the chances for educational and occupational success. Although nearly all students hold the abstract belief that achievement in school is important to success in life, Mickelson showed that black students are much more likely than are white students to have pessimistic concrete beliefs about their own abilities to attain the economic benefits of increased education because of discriminatory hiring. Thus, Mickelson found that a good proportion of the gap in test scores is due to blacks' and whites' different concrete beliefs about the value of education. Her findings have been replicated with other monoracial samples (Dillingham 1980; Mickelson and Greene 2006; Steinberg et al. 1992).

Unlike the culturally specific theories just described, Oyserman et al.'s (2003; Oyserman 2008) theory of racial/ethnic self-schemas argues that minority students' achievement is based, in part, on the way these students identify ethnically. Oysterman made the case that those who downplay race as a significant factor in their lives (called aschematics) tend to do poorly in school because they have no explanation for the inevitable racism they experience. Similarly, those who hold a minority-only identity achieve less because they tacitly accept the stereotype that positive attributes like school success belong only to majority-group members. In contrast, the academically successful minority students are those who hold a dual identity, allowing them to dismiss negative stereotypes because they are members of the larger society (to whom the stereotype does not apply) as well as members of the minority group. Because Oyserman's theory is not culturally or racially specific, it could easily be applied to multiracial students, although to date, Oyserman has not done so. Multiracial students who self-identify as multiracial may naturally fit into the dual-identity category and have correspondingly strong achievement, while those who maintain a single racial identity may fit more into the aschematic or monoracial-only identities.

Steele and Aronson's (1998; McGlone and Aronson 2006) theory of stereotype threat argues that minority students are especially vulnerable to negative stereotypes about their group's academic performance. When the stereotype is activated, students who are afraid of living down to negative stereotypes do poorly on tests. Although Aronson and Steele did not test their theory on multiracial students, it is applicable to them to the extent that they identify as minorities, are aware of these stereotypes, and believe that the stereotypes apply to them.

## Multiracial Achievement

The little research that has been conducted on the achievement outcomes of multiracial students has focused on testing an 80-year-old theory developed by sociologists Park (1928) and Stonequist (1935). This "marginal man" theory suggests that mixed-race people are more prone to low self-esteem and its attendant problems because they are marginalized and isolated from *both* monoracial groups. Park presented ethnographic evidence of this isolation and showed how it affects occupational attainment, and Stonequist theorized about the consequences of divided loyalty for a person of "mixed blood":

> His racial status is continually called in question; naturally his attention is turned upon himself to an excessive degree: thus increased sensitiveness, self-consciousness, and race-consciousness, an indefinable malaise, inferiority, and various compensatory mechanisms, are common traits in the marginal person. (Stonequist 1935:6)

Some developmental psychologists who have examined self-esteem among multiracial people have reported that multiracial people are troubled and marginalized (Berzon 1978; Gibbs 1987, 1998; Nakashima 1992), while others have found that there is no psychological disadvantage associated with a multiracial background (Bracey, Bamaca, and Umana-

Taylor 2004; Grove 1991; Phinney and Alipuria 1996, Shih and Sanchez 2005). However, there is little support for the idea that biracial adolescents fit the marginal man theory with regard to social distancing and its effect on achievement. Kao (1999) found that social distance between groups does not cause low self-esteem among students who are biracial, nor are these students marginalized in school or among their peers. Shih and Sanchez's (2005) review of the evidence on multiracial adolescents found lower school performance only in studies that sampled clinical populations.

A different argument from the marginal man theory claims that achievement is related to racial categorization by others, which is guided by social norms about race. The norms are activated, in large part, by perceptions of physiognomy—particularly for multiracial people. The system of hypodescent, also known as the one-drop rule, developed in the South during the era of slavery. It requires that "a mixed-race person is assigned to the group with the lowest social value" among the racial groups that are represented by his or her ancestry (Root 1998:143). Current social norms governing racial and ethnic relations indicate that African Americans fall at the bottom of the social hierarchy, followed by Hispanics and Asians, with non-Hispanic northern Europeans at the top. Thus, one can logically hypothesize that mixed-race people, especially to the extent that they have any black ancestors, will (1) fall toward the bottom of the social hierarchy, (2) experience similar treatment as monoracial blacks, (3) develop identities similar to those of monoracial blacks, and (4) achieve in the same measure as the average black person. This hypothesis would be consistent with Ogbu's theory except that most biracial children are not raised in monoracial black families or communities (Holloway et al. 2005). Thus, a theory is needed that considers both varied environments and varied identities to explain the achievement of multiracial students.

Varied environments and the way one is treated in them have an important impact on self-identification in the sense that if one is perceived as black, she or he is treated as black and is likely to self-identify as black (Herman 2004, 2008). Among mixed-race adolescents, those with some black or Hispanic ancestry are far more likely to report being black or Hispanic than those with some Asian ancestry are to report being Asian or those with some white ancestry are to report being white. Thus, to the extent that students with some black or Hispanic *ancestry* are treated as black or Hispanic, they may develop a racial *identification* and achievement orientation that is similar to those of monoracial black and Hispanic students. If membership in a lower-status racial group is related to lower school performance for monoracial black and monoracial Hispanic students, it is logical to question whether the same achievement relationship is found among multiracial students who hold these ancestries or these identifications.

*Hypothesis 1*: Multiracial students with some black or Hispanic *ancestry* have lower grades than do multiracial students with no black or Hispanic ancestry.

*Hypothesis 2:* Among multiracial students with some black or Hispanic ancestry, those who *self-identify* as black or Hispanic have lower grades than do those who self-identify as white or Asian.

The oppositional culture theory suggests that having a strong ethnic identification with an involuntary minority group would depress academic performance, while identifying with a voluntary minority group or the white group would improve performance (Ogbu and Davis 2003). In contrast, the work of Oyserman et al. (2003) suggests that having a strong ethnic identity is a protective factor for minority students who hold certain racial ethnic schemas. Thus, I derived my third hypothesis with the valence of the associations purposely ambiguous.

*Hypothesis 3*: A positive ethnic identity and a strong connection to one's ethnic group are significantly associated with academic performance.

The achievement of a multiracial student

may be similar to that of the racial group with which the student most identifies and/or it may be similar to the achievement of the racial group of which others perceive him or her to be, but even these straightforward hypotheses may not be true under all circumstances. The salience of racial identity as a determinant of achievement may vary according to the racial context. For example, being black in an Advanced Placement class at a private school is different from being black at a low-performing public school, and being black at a symphony is different from being black at a basketball game. For multiracial adolescents, these contextual changes in identity are even more complex. Because the meaning of race changes with context, both in the way one is treated and in how one self-identifies, race on its own is too simplistic an indicator of achievement (Rockquemore and Brunsma 2002). Thus, the interaction of race and racial context may be a better tool for explaining achievement, particularly among multiracial students. However, the valence of this association is also varied. Being in whiter neighborhoods and schools (or classes within schools) is likely to be associated with higher academic performance, while the racial makeup of one's network of friends is more likely to be improved by minority racial solidarity. Thus, again, the valence of the association between whiteness of context and academic performance is deliberately left ambiguous in the following hypothesis:

> *Hypothesis 4*: Racial context is a strong factor in explaining growth in grades, particularly among multiracial students.

One issue with developing and testing hypotheses like these is the methodological question of a logical comparison group. In traditional monoracial research, white is typically the omitted category. In multiracial research, there are many possible comparisons: (1) all multiracials to all monoracials, (2) all multiracials to each monoracial group, (3) each multiracial group to its component monoracial groups, (4) each multiracial subgroup group to each other, or (5) each multiracial subgroup to each monoracial group. The first comparison is not fine-grained enough to allow meaningful conclusions. The second comparison suffers from the same issue, although less so. The third through fifth comparisons struggle with a different issue: While biracial people have two ancestries, multiracial people have three or more. Although it would be ideal to compare each possible mix of racial ancestries to the various monoracial groups or to each other, doing so requires creating dummy variables for each possible multiracial category, such as black-white, black-white-Asian, and black-white-Asian-Hispanic. Thus, including all the possible multiracial categories could result in more than 50 different multiracial dummy variables in the model—plus the monoracial dummy variables. Researchers who solve this problem by aggregating each *multiracial* respondent's ancestries into the two "most important" *biracial* categories are deleting information arbitrarily. Because of this complication, one is left with two choices: to compare multiracials en masse to monoracials or to compare only multiracial respondents to each other using dummy variables for ancestry (such as black parent) or forced-choice racial identification. Including monoracial respondents in such models would mask the impact of particular identifications or ancestries. I use both types of models to show differences between multiracial and monoracial students and between students with different multiracial ancestries.

## DATA

### *Sample*

The survey population I used in this study consisted of all students in seven public high schools in northern California and Wisconsin. The survey was administered annually between 1988 and 1990. The schools in the sample were selected to produce a diverse sample in terms of ethnicity, family structure, SES, and type of community (rural, suburban, and urban). The schools varied in racial makeup, ranging from 39 percent to 66 percent white, and in resident parents' education, ranging from an average of "some college" in the lowest SES school to "college degree or

more" in the highest SES school. These figures are not surprising, considering that the parents of students in these schools live in counties where 63 percent of the adults have some college education and 31 percent have bachelor's degrees (U.S. Census Bureau 1990). Details on school differences in race, parental education, and grades are presented in Table 1. Aside from the level of parental education, which was higher among the survey respondents than in the adult U.S. population, the demographic characteristics of the sample are roughly comparable to those of persons in the urban and suburban United States. It is difficult to compare racial statistics because the census codes Hispanic as an ethnic group separately from race, whereas my data set included Hispanic as one of the racial categories. As Campbell and Rogalin (2006) pointed out, there is a wide variation in multiracial status depending on how questions are asked and coded: Although 29.8 percent of U.S. children were born to one Hispanic and one non-Hispanic parent, only 1.7 percent of the children in the supplement to the Current Population Survey (CPS) were coded as multiracial when Hispanic was not offered as a racial category.

Thus, there were a greater percentage of multiracial individuals in my sample (15.3 percent) than in the entire non-Hispanic U.S. population (2.4 percent), in the non-Hispanic U.S. population younger than age 18 (4 percent), or even in the non-Hispanic population younger than age 18 in California (7.25 percent). However, including multiracial Hispanics raises the national census figure for multiracial youth (under age 18) to 13.6 percent. This latter figure is somewhat comparable to the 10.4 percent found in a nationally representative sample that included Hispanic as a racial category (Brunsma 2005) or 9 percent in the CPS supplement (Campbell and Rogalin 2006). Furthermore, my sample was all gathered from urban and suburban areas of each state, so the greater proportion of the multiracial respondents in my sample than in the statewide census estimates is not surprising.

Surveys were administered in classroom groups, although the specifics varied from school to school. In some schools, the survey was administered during the same subject area (e.g., English), while in others, it was administered during the same class period (e.g., second period). The research staff administered the surveys while the classroom teachers were present. The survey administration was repeated each year for three years, once during the fall and once during the

**Table 1. Means and Standard Deviations of Grade Point Average and Race, by School**

| Grades and Race | School 1 | School 2 | School 3 | School 4 | School 5 | School 6 | School 7 |
|---|---|---|---|---|---|---|---|
| Grades in Year 2 | 2.730 | 3.156 | 3.049 | 2.673 | 2.848 | 3.011 | 2.750 |
| | (.034) | (.028) | (.032) | (.038) | (.027) | (.029) | (.032) |
| Black | .027 | .047 | .113 | .022 | .063 | .024 | .432 |
| | (.007) | (.009) | (.014) | (.007) | (.009) | (.006) | (.022) |
| White | .551 | .622 | .664 | .567 | .390 | .588 | .392 |
| | (.023) | (.020) | (.021) | (.024) | (.017) | (.018) | (.021) |
| Biracial | .175 | .138 | .117 | .228 | .208 | .148 | .172 |
| | (.017) | (.014) | (.014) | (.021) | (.014) | (.013) | (.017) |
| Hispanic | .310 | .072 | .115 | .215 | .142 | .098 | .099 |
| | (.021) | (.011) | (.014) | (.020) | (.012) | (.011) | (.013) |
| Other | .021 | .028 | .015 | .027 | .019 | .025 | .025 |
| | (.007) | (.007) | (.005) | (.008) | (.005) | (.006) | (.007) |
| Asian | .089 | .221 | .079 | .070 | .335 | .230 | .050 |
| | (.013) | (.017) | (.012) | (.013) | (.017) | (.016) | (.010) |
| Parental education | 3.022 | 3.339 | 3.232 | 2.963 | 3.049 | 3.305 | 3.163 |
| | (.859) | (.801) | (.877) | (.732) | (.744) | (.585) | (.615) |

spring semester. There was some attrition in the sample because of graduation, dropping out, transferring, and nonresponse.

Usable questionnaires were obtained from approximately 80 percent of the potential respondents. Of the 5,117 respondents who completed two years of the survey (a total of four surveys), 781 (15.3 percent) were designated as biracial on the basis of the reports of their parents' race or races. Of the mixed-race respondents, 79 percent were biracial, and the remainder was multiracial. Respondents who failed to complete the race questions were slightly more likely to be male, to have less educated parents, and to earn lower grades.

Table 2 shows the distribution of racial ancestry by racial identification. The *ancestry* measure was derived from responses to the question that asked the respondents to "check all that apply for each of your biological parents," while the *identification* measure was derived from responses to the forced-choice race question, "Which race best describes you?" Racial identification was fairly stable over time: 71 percent of the multiracial respondents who provided all three waves of data gave the same identification in all three years, and 79 percent gave the same identification over two years. These findings are similar to those of Hitlin, Brown, and Elder (2006).[3]

## Measures

I tested several of the theories described earlier using a multilevel model predicting achievement over time. The status attainment theory model includes measures of student-reported mean years of resident parents' education (SES), academic orientation of peers, educational aspirations, fatalism, school deviance, and prior academic performance (grade point average, GPA). (See Appendixes A and B for descriptions and descriptive statistics for all the variables used in the study.) The oppositional culture theory was more challenging to measure using survey data because the concepts that are associated with the hypothesis are based on Ogbu's ethnographic work. However, the variables in my model of oppositional culture capture many of Ogbu's central concepts. These concepts include educational expectations and school engagement—both of which should be associated with higher grades—along with perceptions of ethnic discrimination by peers, teachers, and other adults; minority peer-group membership; and positivity of feelings about ethnic identity—all of which should be associated with lower grades according to Ogbu's theory.

The theory of educational attitudes (Mickelson 1990; Mickelson and Greene 2006) demonstrates the negative effects of pessimistic concrete beliefs on *black* students' achievement (and on some white students' as well). Mickelson's work suggested a test among *multiracial* students: Do multiracial students who have some black ancestry (relative to those with no black ancestry) have more pessimistic concrete beliefs about their own personal chances to succeed, given a good education? Mickelson's concepts of abstract and concrete beliefs mapped onto my study's data using a question about the difference between worrying about the occupational consequences of personally failing to get a good education (concrete belief, focused on the individual) and being convinced that getting a good education will help one secure a good occupation (abstract belief, true for everyone). In addition to concrete and abstract beliefs, this model includes variables that measure SES, effort in school, and peers' academic values. I expect that these variables, along with having positive concrete beliefs, are associated with higher grades.

Last, I propose a model that reflects the unique situation of biracial adolescents. Because they have no single racial identity, biracial students may be less focused on their racial category as an indicator of their own and others' expectations for their academic performance.[4] Instead, I argue that they react to others' perceptions and categorizations of them, to the ethnic peer culture they choose (as opposed to the single ethnic peer culture that monoracial adolescents are assumed to experience), and to their unique perceptions of their potential to achieve in the wider social structure. I assembled these variables into a model of contextual effects that is loosely based on

## Table 2. Number of Respondents Who Selected Each Racial Category

| Respondent's Ancestry (self-reported biological parents' races)[a] | Respondent's Racial Identification (self-reported forced-choice race) | | | | | | | | Row Totals | % of Full Sample | % of Multiracial Sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Black | Native American | White | Asian | Hispanic | Middle Eastern | Pacific Islander | Missing Own Race | | | |
| Black only | 263 | | | | | | | | 263 | 5.1 | |
| Native only | | 23 | | | | | | | 23 | .4 | |
| White only | | | 1,875 | | | | | | 1,875 | 36.7 | |
| Asian or Pacific Islander only | | | | 609 | | | 67 | | 676 | 13.2 | |
| Hispanic only | | | | | 376 | | | | 376 | 7.4 | |
| Middle Eastern only | | | | | | 16 | | | 16 | .3 | |
| Black-White | 39 | | 6 | | | | | | 45 | .9 | 5.8 |
| Black-Asian | 5 | | | 3 | | | 1 | | 9 | .2 | 1.2 |
| Black-Hispanic | 8 | | | | 4 | | | | 12 | .2 | 1.5 |
| Native-White | | 38 | 135 | | | | | 1 | 174 | 3.4 | 22.3 |
| Native-Asian | | 4 | | 9 | | | 3 | | 16 | .3 | 2.0 |
| Native-Hispanic | | 5 | | | 18 | | | | 23 | .4 | 2.9 |
| White-Asian | | | 44 | 81 | | | 6 | 1 | 132 | 2.6 | 16.9 |
| White-Hispanic | | | 74 | | 111 | | | | 185 | 3.6 | 23.7 |
| Asian-Hispanic | | | | 12 | 11 | | 1 | | 24 | .5 | 3.1 |
| Black-Native-White | 58 | 1 | 8 | | | | | | 67 | 1.3 | 8.6 |
| Black-Native-Asian | 1 | | | | | | 1 | | 2 | .0 | .3 |
| Black-Native-Hispanic | 1 | 1 | | | 2 | | | | 4 | .1 | .5 |
| Black-White-Asian | 1 | | 1 | | | | | | 2 | .0 | .3 |
| Black-White-Hispanic | 2 | | | | 1 | | | | 3 | .1 | .4 |
| Black-Asian-Hispanic | 2 | | | | | | | | 2 | .0 | .3 |
| Native-White-Asian | | 2 | 2 | 6 | | | 5 | | 15 | .3 | 1.9 |
| Native-White-Hispanic | | 2 | 15 | | 10 | | | | 27 | .5 | 3.5 |
| Native-Asian-Hispanic | | 1 | | 3 | 3 | | 2 | | 9 | .2 | 1.2 |
| White-Asian-Hispanic | | | 6 | 2 | 6 | | | | 14 | .3 | 1.8 |
| Black-Native-White-Asian | | | 1 | | | | | | 1 | .0 | .1 |
| Black-Native-White-Hispanic | 2 | | | | | | | | 2 | .0 | .3 |
| Black-White-Asian-Hispanic | 3 | | 2 | | 1 | | 1 | | 7 | .1 | .9 |
| Native-White-Asian-Hispanic | | 1 | 2 | | 3 | | | | 6 | .1 | .8 |
| Missing one or both parents' races | 90 | 18 | 490 | 190 | 206 | 13 | 23 | 74 | 1,104 | 21.6 | |
| Column totals | 475 | 96 | 2,661 | 915 | 752 | 29 | 110 | 76 | 5,114 | 100.0 | 100.0 |

[a] Note: Combinations of racial groups that had zero respondents are not listed.

work that has found that the quality of the home, school, neighborhood, and peer-group contexts is associated with achievement among adolescents (Cook et al. 2002). However, Cook et al.'s model focused on the *quality* of contexts, whereas my study focused on the *racial demographics* of each context. Thus, I calculated the percentage white in a student's academic track, peer group, and neighborhood to assess the impact of racial context on grades, expecting grades to be higher in whiter contexts.[5] See Appendix A for details on these and all other measures.

The outcome variable measuring achievement was student-reported grades. The fact that the grades are self-reported makes them slightly less reliable than transcript reports of these variables. However, separate analyses of these data (Dornbusch 1994) comparing students' reports to transcript information for a 10-percent subsample of the students showed that reports of grades by middle- and upper-ability students are mostly accurate (correlation of .76), while students with GPAs lower than 2.0 tend to inflate their grades. With a mean GPA of 2.97, this is not a major concern. The grades variable in my study was the average of four student-reported grades (social studies, English, math, and science), with *grades in the first year* of the survey as a control variable and *grades in the second year* as an outcome variable. I also used *mean grades* at Year 1 as a school-level variable.

## METHODS AND RESULTS

### *The Racial Hierarchy*

The first hypothesis was that students who have some black or Hispanic ancestry have lower grades than do those who do not. To test it, I compared the descriptive statistics for all the groups' GPAs at Year 1. Figure 1 provides some visual support for this hypothesis insofar as the raw average grades of most multiracial groups with any black and/or Hispanic ancestry were below the sample mean of 2.81 and all but two (black-Asian and Hispanic-Asian) were significantly so ($p < .01$). Furthermore, the black-Hispanic group had the lowest average grades in the sample ($m = 2.4$), and these grades were well below the averages of both the monoracial black ($m = 2.62$) and monoracial Hispanic ($m = 2.62$) groups. Black-Hispanic students may be suffering under the double burden of whatever negative effects that membership in each of these two racial groups has on academic performance.

The second hypothesis was that biracial students who *identify* as black or Hispanic have lower grades than do those who self-identify as Asian or white. Figure 2 provides some support for this hypothesis, followed up by significance tests of the mean differences. In the significance tests, I compared the grades of students in the same biracial category who self-identified differently. The comparison, in Table 3, shows that the hypothesis is supported for some of the biracial groups. These intergroup comparisons were estimated using a Bonferroni-corrected multiple analysis of variance comparison test. Table 3 shows statistically significant differences among the multiracial respondents on the basis of their forced-choice self-classification into one of the four major ethnic groups. For example, the average GPA at Year 1 (GPA1) for multiracial students who identified as black ($m = 2.54$) was .29 units lower than for those who identified as white ($m = 2.82$, $p < .05$) and .42 units lower than for those who identified as Asian ($m = 2.96$, $p < .01$). Students who reported being Hispanic had significantly lower grades ($m = 2.56$) than did those who reported being white or Asian ($p < .01$). Thus, the grades of those who identified as black were *not* significantly different from the grades of those who identified as Hispanic, but the grades of both black- and Hispanic-identifiers were significantly different from the grades of those who identified as white or Asian.

These descriptive results suggest that both having black or Hispanic ancestry *and* self-identifying as black or Hispanic are associated with decreased grades relative to not holding or self-designating these racial statuses. However, these comparisons were not adjusted for SES, school characteristics, or prior grades. In another analysis (reported later), I confirm these findings while controlling for contextual, demographic, and historical

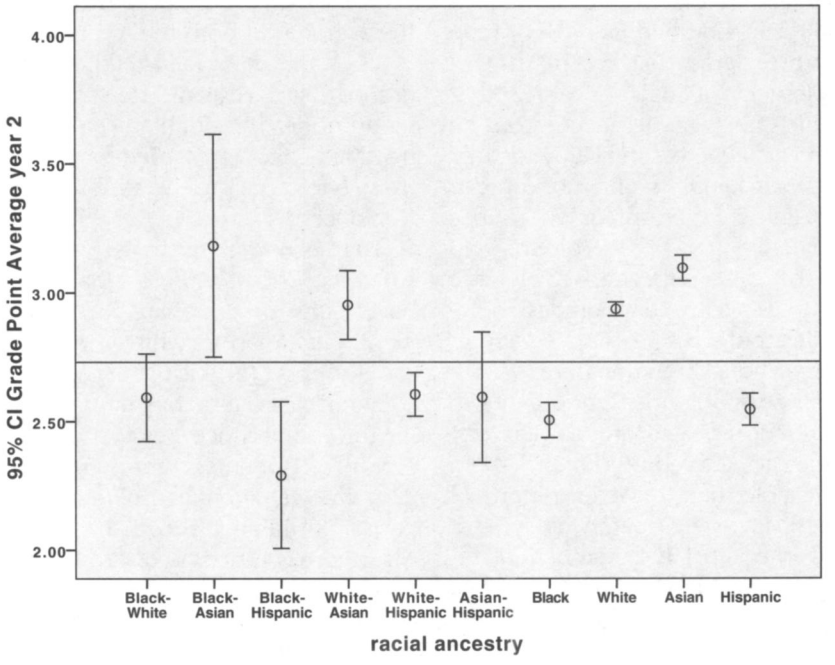


**Figure 1. Mean GPA in Year 2, by Racial Ancestry**

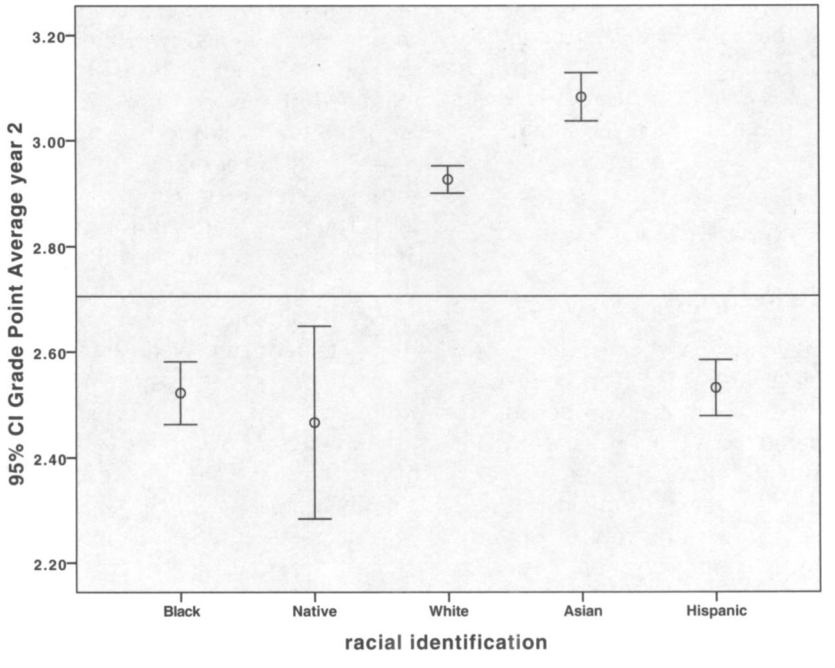


**Figure 2. Mean GPA in Year 2, by Racial Identification (multiracials only)**

**Table 3. Means, Standard Deviations, and Differences in Grade Point Average at Year 1 Among Multiracial Students, by Racial Identification**

| | Grades in Year 1 | | Parental Education | | Ethnic Discrimination | |
|---|---|---|---|---|---|---|
| *Identification* | *Mean* | *SD* | *Mean* | *SD* | *Mean* | *SD* |
| Black | 2.54 | (.65) | 3.13 | (.72) | 1.77 | (.81) |
| White | 2.82 | (.78) | 3.24 | (.72) | 1.25 | (.57) |
| Asian | 2.95 | (.65) | 3.26 | (.73) | 1.37 | (.55) |
| Hispanic | 2.56 | (.77) | 2.91 | (.84) | 1.43 | (.71) |
| *Difference* | *Difference* | *Sig.* | *Difference* | *Sig.* | *Difference* | *Sig.* |
| Black-White | -.29 | * | -.11 | | .52 | *** |
| Black-Asian | -.42 | ** | -.13 | | .40 | ** |
| Black-Hispanic | -.02 | | .22 | | .33 | ** |
| White-Asian | -.13 | | -.03 | | -.12 | |
| White-Hispanic | .27 | ** | .33 | *** | -.18 | |
| Asian-Hispanic | .40 | ** | .36 | * | -.06 | |
| | $F(6, 626) = 4.555, p < .001$ | | $F(6, 614) = 4.266, p < .001$ | | $F(6, 636) = 7.406, p < .001$ | |

* $p < .05$, ** $p < .01$, *** $p < .001$.

behavioral variables in a multilevel regression model.

In addition to differences in grades by racial identification, there were also racial differences in the educational attainment of the respondents' parents and in the respondents' experiences of ethnic discrimination. The parents of students who identified as white achieved, on average, 3.24 units of education (completed some college), while the parents of students who identified as Hispanic achieved 2.91 (finished high school) ($p > .001$). The parents of students who identified as Asian also had significantly more education ($m = 3.26$) than did the parents of students who identified as Hispanic ($p < .05$). In terms of ethnic discrimination, those who identified as black were significantly more likely to have reported that others have discriminated against them on the basis of their ethnicity ($m = 1.77$) than were those who identified as white ($m = 1.25$, $p, < .001$), Hispanic ($m = 1.43$, $p, < .01$), or Asian ($m = 1.37$, $p, < .01$). I did not find any significant differences among racial identity groups on the variables of aspirations for educational attainment, concrete beliefs about education, or peers' academic values.

## Biracial versus Monoracial Groups

The third and fourth hypotheses examined racial identification and racial context as factors that are associated with academic performance among multiracial students. In particular, I was interested in comparing the factors among multiracial versus monoracial students. To test these hypotheses, I estimated a single model for each of the theories of achievement described earlier. These models included dummy variables for each racial group, interactions of each racial group with GPA1, and main effects for each theoretical variable. The students in this sample were nested within high schools and neighborhoods. As was evident from Table 1, there was some variation across schools in grades, parental education, and racial makeup, making multilevel, autoregressive change models appropriate. Thus, the models were estimated to allow a random intercept at the school level, and controlling for grades at time 1.[6] For example, the status attainment model was estimated as follows:

Level 1: $GPA2_{ij} = \gamma_{00} + u_{0j} + \beta_{1j}(GPA1_i) + \beta_{2j}(black*GPA1_i) + \beta_{3j}(Asian*GPA1_i) + \beta_{4j}(Hispanic*GPA1_i) + \beta_{5j}(other\ race*GPA1_i) + \beta_{6j}(white*GPA1_i) + \beta_{7j}(monoracial\ black_i) +$

$\beta_{8j}$(monoracial Asian$_i$) + $\beta_{9j}$(monoracial Hispanic$_i$) + $\beta_{10j}$(monoracial other race$_i$) + $\beta_{11j}$(monoracial white$_i$) + $\beta_{12j}$(SES$_i$) + $\beta_{13j}$(peer educational values$_i$) + $\beta_{14j}$(school deviance$_i$) + $\beta_{15j}$(educational aspirations$_i$) + ,$\beta_{16j}$(fatalism$_i$) + $r_{ij}$

Level 2: $\beta_{oj} = \gamma_{001}$ (meanGPA1) + $u_0$

## Status Attainment

According to status attainment theory and its associated empirical literature, one would expect a weak but positive association between SES and academic performance, but a stronger positive association among aspirations, peer values, and educational performance or attainment (Haller and Portes 1973). Kerkhoff and Campbell (1977a) found that this original Wisconsin model did not fit a sample of black students well and that previous school achievement, fatalism, mother's education, and current disciplinary record are much more important than is father's education in predicting attainment among blacks. In my estimation of the status attainment model, I included comparable measures of all the variables added by both the Wisconsin model (aspirations and peer values) and the Kerckhoff and Campbell model (school deviance and fatalism).

The status attainment model (see Table 4) shows that Year 1 grades are significantly and positively associated with Year 2 grades because the GPA1 coefficient is .667. Since I thought there might be racial differences in the effect of GPA1, I included interaction effects of race*GPA1 in the model. To interpret the results, I focus on linear combinations because in a regression model with interactions, the marginal effects are best captured by sums of regression estimates (note that a sum is a linear combination). For example, for the monoracial black respondents, the marginal effect of GPA1 on GPA2 is the sum of the estimate of GPA1 (.667) plus the estimate of black*GPA1 (-.225). Thus, .667-.225 = .442, ($p < .001$).[7] For multiracial students (the omitted category) the marginal effect of GPA1 on GPA2, is simply the coefficient of GPA1 (.667). Comparing linear combinations of the remaining race*GPA1 interaction terms indicates that Year 1 grades have a stronger positive effect for monoracial Asians (.667 + .055 = .722) and monoracial whites (.667 + .021 = .688) than for multiracials (.667), monoracial blacks (.667-.225 = .442), or monoracial Hispanics (.667-.014 = .652) ($p < .001$ for all groups). Thus, the interaction terms indicate that there are real racial differences in the connections between early and later grades with Asians and whites benefiting more from high early grades than black, Hispanic, or multiracial students.

Other linear combinations reveal that in addition to the significant racial differences in the marginal effects of GPA1 on GPA2 (just described), there are also significant Year 1 achievement differences in the marginal effects of race on grades at Year 2. For example, monoracial black students with a GPA1 of 1.0 (1.0 * .492 -.225 = .267, $p < .01$) are significantly more able to improve their grades over time than are multiracial students with a GPA1 of 1.0.[8] In contrast, Hispanic students with low Year 1 grades are not significantly different from multiracial students (.050 -.014 = .036, $p > .10$). However, monoracial black students are significantly less able than are multiracial students to maintain a Year 1 GPA of 3.0 during the following school year (3.0 * -.225 + .492 = -.183, $p < .001$), while whites (3.0 * .021 + .004 = .067, $p < .01$) and Asians (3.0 * .055 - .090 = .073, $p < .05$) are significantly more able to do so than are multiracial students. Comparisons among the monoracial groups on the effects of early high achievement show a similar pattern: Monoracial black students are significantly less likely to maintain high grades ($p < .001$) than are monoracial Asian students, monoracial white students, or monoracial Hispanic students. There are no significant differences between monoracial Asian and monoracial white students.

In addition to race and prior grades, the status attainment model indicates the significance of all the variables suggested by previous work on this theory with the exception of fatalism (which is not significant). That is, parents' education, peers' values, and aspirations all have significant positive associations with grades at Year 2, while school deviance has a significant negative association. Although mean school GPA is not significant in this

**Table 4. Models of Achievement in Year 2**

| Variable | Status Attainment *B* | Oppositional Culture *B* | Educational Values *B* | Contexts *B* | Full Model *B* |
|---|---|---|---|---|---|
| Constant | .137 | .019 | -.078 | .182 | .027 |
| Monoracial black | .492** | .381* | .365* | .364* | .174 |
| Monoracial Asian | -.090 | -.102 | -.272* | -.276* | -.155 |
| Monoracial Hispanic | .050 | .124 | -.393** | -.286* | .151 |
| Monoracial other | .028 | -.133 | -.348 | .048 | -.128 |
| Monoracial white | .004 | -.025 | -.211* | -.122 | .061 |
| GPA1 (grades in Year 1) | .667*** | .668*** | .682*** | .695*** | .641*** |
| Monoracial Black * GPA1 | -.225*** | -.178** | -.185* | -.176** | -.103 |
| Monoracial Asian * GPA1 | .055 | .063 | .118** | .124** | .076 |
| Monoracial Hispanic * GPA1 | -.014 | -.043 | .131** | .102* | -.038 |
| Monoracial Other * GPA1 | -.063 | .014 | .084 | -.046 | -.003 |
| Monoracial White * GPA1 | .021 | .033 | .088** | .066 | .009 |
| Mean school GPA | .158 | .170* | .120 | .072 | .154 |
| Parental education | .044*** | .049*** | .042*** | .042*** | .041** |
| Educational values of peers | .051*** | .052*** | .049*** | .063*** | .035** |
| School deviance | -.081*** | | | | -.063*** |
| Educational aspirations | .039*** | | | | .036*** |
| Fatalism | -.057 | | | | -.032 |
| Cutting classes | | -.066*** | | | -.059*** |
| Importance of ethnic identity | | .005 | | | -.005 |
| Perceptions of ethnic discrimination | | -.008 | | | -.006 |
| Trying hard in school | | .036*** | .045*** | | .022 |
| Concrete beliefs | | | .048*** | | .054*** |
| Abstract beliefs | | | -.009 | | .002 |
| Percentage white in track | | | | .001* | .001* |
| Percentage white in neighborhood | | | | .004** | .003** |
| Minority peer crowd membership | | | | .011 | .032 |
| Monoracial White * Ethnic Crowd | | | | -.052 | -.113 |

**Table 4. Continued**

| Variable | Status Attainment *B* | Oppositional Culture *B* | Educational Values *B* | Contexts *B* | Full Model *B* |
|---|---|---|---|---|---|
| *N* | 3678 | 3468 | 4288 | 3896 | 2946 |
| Wald $\chi^2$ | 3857.15 | 3658.68 | 5325.00 | 4581.25 | 3205.62 |
| Log likelihood | -2832.25*** | -2659.84*** | -3199.43*** | -2934.64*** | -2193.49*** |
| Random effect parameters: school constant | .035 | .027 | .033 | .032 | .037 |
| Residual | .522 | .521 | .510 | .513 | .509 |
| $\chi^2$ | 5.630** | 2.070 | 6.750** | 6.270** | 5.110** |

* $p < .05$, ** $p < .01$, *** $p < .001$.

model, the school-effects parameters were significant, indicating that there are some differences in the way grades were distributed across the schools in the sample. The schools with negative effects on grades are at the bottom of the socioeconomic distribution relative to those with positive effects. Given the small number of schools in the study, it is difficult to make general conclusions about the nature of these differences, but having controlled for them, I am more confident that the individual-level effects are accurate.

## Oppositional Culture

Ogbu's (2004) and Fordham and Ogbu's (1986) work on oppositional culture suggests that involuntary minority students (blacks and Hispanics in this sample) have lower achievement than do whites and Asians as a result of peer values that denigrate educational achievement, advocate disengagement from school, and encourage a strong sense of identification with the ethnic group. In my quantitative model, I attempted to replicate Ogbu's ethnographic work using the following variables: peer educational values, class cutting, effort put forth in school, and importance of ethnic background. Because other theorists of race and achievement have suggested that racism is to blame (Baron et al. 1985; Carew and Lightfoot 1979), I also included a variable measuring perceived ethnic discrimination by teachers, peers, and others (the variable is called racism in the tables). If Ogbu's theory is correct, perceptions of racism, the importance of ethnic background, and class cutting should have a significant negative association with GPA, while the remaining variables should have a significant positive relationship among black and Hispanic students.

Ogbu's findings were confirmed by my work in terms of academic peer values and school disengagement: Class cutting and trying hard in school have a significant relationship with later grades. However, contrary to Obgu's contention that the grades of minority students suffer when these students place a high value on their ethnic-group membership, I found no association between this value and academic performance. As expected, cutting class is negatively related to grades ($p < .001$), and trying hard is positively associated ($p < .001$). As with the status attainment model, the association between early GPA and later GPA were significant and positive for all racial groups but stronger for some than for others. Doing poorly early on and doing well early on also had the same relationship in the oppositional culture model as they did in the status attainment model.[9] The coefficient for mean school GPA was significant in this model, indicating that students in schools with higher GPAs in Year 1 had higher GPAs in Year 2.[10]

## Educational Values

Mickelson's (1990, 2001) alternative to Ogbu's theory suggests that oppositional culture is not the reason why involuntary minority students fare worse in school than do whites. Rather, minority students believe that they face a racist job market, and this belief shapes both their academic aspirations and their achievement. The black students in Mickelson's study espoused the belief that education generally helps people to realize greater occupational returns, but they did not expect education to pay off well for them and therefore applied themselves commensurately at school. Steinberg et al. (1992) tested Mickelson's hypothesis using a variable that measures the extent to which a respondent believes that failing to get a good education will hurt his or her chances of getting a good job (concrete belief). They found that this belief was strongly associated with academic achievement, whereas believing that getting a good education will increase one's chances of getting a good job (more of an abstract, universal belief) was not significantly associated with achievement.

My model testing Mickelson's theory used the same measures of concrete and abstract beliefs as did Steinberg et al. (1992), along with the traditional demographics, peer educational values, and trying hard in school.[11] The results show that trying hard in school and worrying about the consequences of school failure were significantly and positively related to grades in Year 2 ($p < .001$). However, the abstract beliefs measure, optimism about getting a good job, was not related at all ($p = .447$). As with the prior two models, the educational values model fits well, takes into account differences by

school, and shows the same differences between racial groups on the effects of early GPA.

## A Contextual Model

Research has suggested that changing contexts and the passage of time affect the racial identification of mixed-race people (Herman 2004; Root 1997). Given the importance of ethnic identity in achievement (Wong, Eccles, and Sameroff 2003), it is logical that the ethnic composition of contexts would have an association with academic performance. Four contexts with a significant impact on adolescent development are the peer group, the school, the family, and the neighborhood (Cook et al. 2002). For neighborhoods, I used racial composition derived from block-level 1988 PUMS data. The school context variables are the percentage of whites in the student's track in school. I measured the peer-group context using membership in a minority ethnic crowd (as opposed to a reputation- or activity-based crowd), and the proportion of student's friends who were his or her same ethnicity. Whereas having minority peers may enhance a multiracial or monoracial minority student's racial solidarity, having minority peers may not operate the same way for white students. Thus, I included an interaction term for monoracial white with minority peer crowd. I attempted to include a family context variable by counting the number of white parents with whom a respondent resided, but it was too highly correlated with race.

The results show that the racial/ethnic aspects of most contexts are important factors in achievement among all adolescents. In each of these cases, the whiter the context, the better students perform at Year 2: Living in a whiter neighborhood and being in a whiter academic track are both associated with higher grades ($p < .01$ and $p < .05$, respectively).

## Disaggregating Biracial Groups

Although grouping all the multiracial respondents into one category allows one to compare monoracial to multiracial students generally, the multiracial students in this sample were quite diverse (black-white, black-Asian, Asian-Hispanic, and so forth). However, separating the biracial groups from each other resulted in such small groups that it was impossible to make any significant statements about any individual group. Instead, I estimated two multilevel models (like the ones used earlier) on only multiracial respondents. In the first model, I controlled for ancestry by including a dummy variable for each parent's racial group, with white as the omitted category. The second model used respondents' forced-choice monoracial identities in place of their ancestries, again with white as the omitted category. While these models do not allow for comparisons of particular biracial ancestry groups, such as black-Asian and white-Asian, they allow for comparisons of the impact of being part-white (the omitted category) to being part-black, part-Hispanic, or part-Asian. Also, they allow comparisons of multiracials who identify as white (the omitted category) to those who identify as black, Asian, or Hispanic.

The results in Table 5 provide additional support for Hypothesis 2 over Hypothesis 1. That is, *ancestry* is not significantly related to grades, but asserting a black *identity* has a significantly negative association with grades compared to asserting a white identity. Linear combinations revealed that part-black students who assert a black identity also have lower grades than do those who assert an Asian identity, but there are no significant differences between part-black students who identify as black versus Hispanic. This finding of lower grades holds for part-Hispanic students who identify as Hispanic relative to white or Asian and for part-Asian students who identify as white. There is no uniform effect of having some white ancestry relative to having only minority ancestry. Furthermore, there is no uniform effect of identifying as white, rather than as nonwhite. This finding is not surprising, given that most part-white adolescents identify as one of their nonwhite racial ancestries except white-Native American adolescents, who tend to identify as white. In the multiracial sample, contextual variables are not significantly related to grades; only prior grades, racial identification, and peers' academic values are.

**Table 5: Models of Grades in Year 2 for Multiracial Respondents Only**

| Ancestry | | Identification | |
|---|---|---|---|
| Variable | *B* | Variable | *B* |
| Mean school GPA | -.028 | Mean school GPA | .001 |
| Black parent | -.081 | Black self-identification | -.156* |
| Asian parent | -.092 | Asian self-identification | .009 |
| Hispanic parent | -.099 | Hispanic self-identification | -.092 |
| Other parent | -.100 | Other | -.215* |
| Parental education | .049 | Parental education | .056 |
| Educational values of peers | .092*** | Educational values of peers | .059* |
| School mobility | .008 | School mobility | .019 |
| Minority peer crowd | -.017 | Minority peer crowd | -.003 |
| Percentage white in neighborhood | .003 | Percentage white in neighborhood | .002 |
| Percentage white in track | .001 | Percentage white in track | .001 |
| GPA1 (grades in Year 1) | .677*** | GPA1 (grades in Year 1) | .682*** |
| Constant | .538 | Constant | .457 |
| *N* | 584 | *N* | 557 |
| Wald $\chi^2$ | 595.81 | Wald $\chi^2$ | 613.41 |
| Log likelihood | -457.51*** | Log likelihood | -420.23*** |
| Random effect parameters: school constant | .043 | Random effect parameters: school constant | .029 |
| Residual | .528 | Residual | .514 |
| $\chi^2$ | .82 | $\chi^2$ | .17 |

* $p < .05$ ** $p < .01$, *** $p < .001$.

## DISCUSSION

Although this study confirmed that race is an important factor that affects the academic performance of adolescents, it also questioned whether the gap in test scores can be explained using traditional ethnocultural theories. Many of the theories developed in the sociology of education have focused on monoracial groups either by making cultural arguments about differences among racial/ethnic groups or by excluding certain groups from the model. This study provided evidence that many of the traditional models and theories fit neither monoracial nor multiracial adolescents very well. Instead, prior performance, school behavior, peer values, beliefs about achievement in school, and racial context are the factors that explain academic performance across the ethnic spectrum.

Although the data used in this study were not nationally representative, the racial demographics of this sample were similar to those of urban and suburban areas in racially heterogeneous states like California, New York, and Florida. Thus, the results generalize well to such populations and help us to understand the ways in which racial and ethnic identity are associated with achievement among multiracial students. Furthermore, this study was not alone in finding little support for the oppositional culture hypothesis among monoracial students (Ainsworth-Darnell and Downey 1998; Downey and Ainsworth-Darnell 2002; Lew 2006; Tyson, Darity, and Castellino 2005). Nor was this study alone in suggesting the importance of context for understanding the development of multiracial students (Root 1998).

However, this study broke new ground by testing and demonstrating the importance of racial context in the link between identification and achievement among multiracial students. The analyses showed that whiter neighborhoods and academic tracks are associated with higher grades. Students typically have little choice over the racial makeup of their classrooms and even less choice over their residential neighborhood. Parents have some more choice in neighborhood and school, but even these choices are constrained by income and housing discrimination, among other factors. Thus, although there are undoubtedly some selection effects in my findings about peer-group context, there is probably little endogeneity associated with the neighborhood racial effect.

The finding, among multiracial students, of a differential association of identification versus ancestry on grades is significant. I discovered that a student's racial identification has a significant impact on academic performance while ancestry does not.[12] This finding indicates not only that multiracial adolescents have a choice in their racial identifications, but that this choice has significance for their academic performance. I would not advocate influencing this choice (nor is it necessarily something one *could* influence), but I think that awareness of the connection between identity and developmental outcomes is important. Although identifying as white is associated with higher achievement, this identification is not so positive for other outcomes. For example, Herman (2008) found that mental health is better and deviance is lower among those who identify as nonwhite, while this study showed that achievement is better among those who identify as Asian and white.

The implications of lower academic performance for black and Hispanic identifiers are serious. Because those with some black ancestry are more likely to identify themselves as black, and black identification is associated with lower grades, there is a seeming connection between ancestry and grades. However, this connection is actually valid only for those part-blacks who identify as black. This should not come as a surprise, given that experiences of ethnic discrimination are associated with black identification (Herman 2004) *and* lower grades. These results are also consistent with the contention of the literature on stereotype threat that students who are the subject of negative stereotypes relative to the dominant group perform worse on diagnostics tests (Aronson et al. 1999; McGlone and Aronson 2006).

If multiracial students' identities are influenced by the stereotypes and perceptions of others in their world (such as teachers, parents, and peers), as they undoubtedly are, then the ways these multiracial identities are formed are an important area for exploration. Furthermore, recent research on the

achievement gap showed that minority students work harder in school when teachers encourage them more rather than demand less from them (Ferguson 2002). Students take schoolwork more seriously when they consider evaluations of their work to be soundly based; yet the evaluations that teachers give to black and Hispanic students are far *less* soundly based than are those given to white students (Natriello and Dornbusch 1984). To the extent that teachers perceive and treat multiracial students as they do monoracial black and Hispanic students, these results clearly suggest more professional development for teachers in the area of race and achievement.

The results of this study also indicate that the research on achievement and attainment, regardless of the race or races of the students in the sample, has missed some important concepts that would explain academic performance among whites, nonwhites, and those of mixed heritage. More universal theories are needed to explain achievement among all racial groups, and adequate data sets are needed to test such theories. It is challenging to develop a theory that is simultaneously broad enough to encompass achievement across all racial groups and detailed enough to explain much of the variation. Such a global theory must begin by determining how to measure context along many different dimensions, including quality and racial makeup. Such a theory also needs to consider the longitudinal effects of multiracial identity—and how context can change racial identity. Testing such a theory will require an excellent data source.

Unfortunately, research on mixed-race adolescents has suffered from a paucity of large representative samples with good measures of racial identity and behavioral outcomes. Researchers need a sample that includes enough respondents from each biracial group to do meaningful comparisons among groups. They need surveys that explore students' racial self-identification, allowing a mixed-race option along with choosing a default single best-race category and a separate ancestry question. Such a data collection strategy would allow researchers to explore the effects, on multiracials, of holding a monoracial identity versus a multiracial identity and whether embracing one's complete ancestry is healthier or more confusing than choosing and maintaining a single identity. Ideally, such a survey would also include questions that assess the theories of differences in achievement that have been discussed in this article, along with other current theories, such as differences in achievement motivation across racial groups (Ferguson 2002). Such research, I hope, will allow for a more nuanced test of the theories as well as an expansion and test of the contextual theory proposed in this article.

Because existing theories of achievement do not fully explain the differences among monoracial groups, perhaps examining multiracial adolescents will help researchers develop other measures of racial context. Culturally specific theories explain only a small portion, if any, of the achievement gap among racial groups. Theories that consider racially varied contextual factors, such as academic track makeup and values, differential encouragement by teachers, and different evaluation styles, may be the best way to advance understanding of this crucial question of what, after typical background and environmental characteristics are controlled, explains the remaining differences in achievement across racial groups and multiracial groups.

## NOTES

1. Although race and ethnicity are different characteristics, for the purposes of this article, I use *multiracial* to refer to multiracial *and* multiethnic.

2. The figure 15.3 percent is high compared to the 7.3 percent for California youth and the 2.5 percent for Wisconsin youth in the 2000 census, partly because the census treats Hispanic as an ethnic group, whereas this survey offered it as one of the racial categories. Excluding part-Hispanic respondents from my survey reduced the percentage of multiracial respondents to 9.05 percent, which is still higher than the percentages in California and Wisconsin, but since the samples were mostly urban, rather than statewide, this proportion is not surprising.

3. I used each respondent's Year 1 responses

to determine who was multiracial and to compare racial groups.

4. Although there are gender differences in racial identification among multiracial adolescents, both which race they are more likely to identify as and whether they identify as multiracial, I found that gender was not significant in explaining grades relative to racial identification.

5. Track itself is not in the model because it is correlated .65 with percentage white in track, and my focus on racial contexts argued for the percentage white in track, rather that the academic track level.

6. I also estimated the models using random neighborhood effects, but the results were inconclusive.

7. The question of statistical significance for linear combinations requires calculating the standard error of a sum of regression estimates. This standard error depends on a covariance between regression estimates that is not apparent in a regression output table. Moreover, whether a linear combination is statistically significant is the key issue, and the linear combination can be significant even if, say, the single interaction term that is part of it is not.

8. The contrast of interest here is between the predicted value for monoracial blacks (intercept + GPA1 + black + black*GPA1) and for multiracials (intercept + GPA1). Since both sums include the (intercept + GPA1), the marginal-effect contrast is between .267 (for blacks) and 0 (for multiracials). Since the black sum is positive and the difference is statistically significant, it indicates that blacks are better able to improve on low early grades than are multiracials, in contrast to Hispanics, whose linear combination is only .036, which is not significantly different from 0.

9. I estimated all the multilevel models using only multiracial and monoracial minority respondents (no monoracial whites) to rule out the possibility that the models do not fit in my full sample because they represent theories that were developed to explain only minority achievement. However, the results of these analyses were not substantively different from those that were estimated with white students in the model.

10. However, given that the chi-square for the random school effects was not significant in this model, there seems to have been a tradeoff of one significance for the other.

11. Mickelson included all the status attainment variables in her model, along with peer educational values and hours spent on homework. I included a similar measure of peer educational values, but I chose to substitute *trying hard in school* for Mickelson's *hours spent on homework,* since trying hard is a more appropriate way to measure effort. In Mickelson's results, the number of hours spent on homework was never significant, possibly because hours spent on homework may reflect innate ability more than effort.

12. Although it would be fascinating to disentangle this finding and control for ancestry in estimating the significance of identity, the two variables are so highly correlated that it is impossible to do so.

## APPENDIX A
## *The Variables Used in The Study*

*GPA1:* the average of eight unweighted, student-reported grades (social studies, English, math, and science) over two semesters.

*GPA2*: calculated the same way as GPA1, using the second year's grades.

*Parents' education*: the average of a respondent's parents' years of education scaled as follows: 1 = some high school or less, 2 = high school degree, 3 = some college, 4 = bachelor's degree or more.

*Educational values of peers*: a response to the question, "Among your friends, how important is it to (a) finish high school, (b) get good grades, and (c) go to college?" The response categories ranged on a four-point scale from "extremely important" to "not at all important." $\alpha = .81$.

## APPENDIX A
## *Continued*

*School deviance*: the mean of three items scaled "never, once or twice, several times, or often": "In the past school year how often have you (1) copied homework or a class assignment from somebody else, (2) cheated on a class test, or (3) come to class late? $\alpha = .68$.

*Educational aspirations*: A response to the question, "What is the highest level you expect to go in school?" The response categories are quit high school, finish high school, some college, two- year degree, four-year degree, and graduate degree.

*Fatalism*: the sum of responses to items asking students whether they attributed luck, as one of many factors, to the outcome of their good or bad grades.

*School engagement variables*: (1) *Cutting class*—the mean response to "How often do you cut class?" for each of the four subjects listed earlier. Reponses were "(1) never, (2) a few times per year, (3) a few times per month, (4) a few times per week, (5) almost every day." *Trying hard in school*—the mean of answers to four items "How hard do you try in (a) math, (b) English, (c) social studies, and (d) science?" Response categories were "(1) every day, (2) a few times per week, (3) once a week, (4) very rarely, and (5) never."

*Importance of ethnic background*: measures "How important is it that others know your ethnic background?" The response categories range, on a 5-point scale, from "not at all important" to "extremely important."

*Perceptions of ethnic discrimination:* the mean of responses to the question, "How often has a (a) teacher, (b) peer, or (c) other adult been unfair to you because of your ethnicity?" Response categories were, on a 5-point scale, "almost never" to "almost always." $\alpha = .76$.

*Concrete and abstract educational beliefs:* responses to the questions: "How likely is it that you'll get the job you hope for if you don't get a good education?" and "how likely is it that you'll get the job you hope for if you do get a good education?" Response categories were, on a 4-point scale, from "very likely" to "very unlikely."

*Minority peer crowd membership*: a binary variable indicating whether the respondent would categorize himself or herself as a member of an ethnic minority crowd (Asians, Chinese, Filipinos, Mexicans, blacks, Hispanics, Latinos, Vietnamese, Pacific Islanders, and so forth) or a reputation/activity crowd (jocks, brains, populars, partyers, and the like) See Brown et al. (2008) for details.

*Percentage white in track*: coded within schools using a more refined measure of track placement that counted college prep as the high track; general as the middle track; and vocational, English as a Second Language, and business as the low track. Since the racial makeup of the schools varied, each percentage white in track was then divided by the percentage white in the school.

*Neighborhood percentage white*: block-group level data obtained from the PUMS (Public Use Microdata Sample) corresponding to students' home addresses.

## APPENDIX B

### *Means and Standard Deviations for All Variables and All Major Ethnic Groups*

| Variable | Black-White | Black-Asian | Black-Hispanic | White-Asian | White-Hispanic | Asian-Hispanic | Black | White | Asian | Hispanic | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Grades in Year 2 | 2.593 | 3.182 | 2.292 | 2.952 | 2.605 | 2.594 | 2.505 | 2.936 | 3.095 | 2.545 | 2.787 |
| | (.117) | (.292) | (.230) | (.092) | (.056) | (.171) | (.056) | (.020) | (.033) | (.056) | (.014) |
| Grades in Year 1 | 2.720 | 3.200 | 2.857 | 3.182 | 2.648 | 2.588 | 2.658 | 3.092 | 3.398 | 2.686 | 3.031 |
| | (.105) | (.300) | (.180) | (.077) | (.074) | (.188) | (.055) | (.019) | (.032) | (.050) | (.014) |
| Parental education | 3.366 | 3.000 | 3.000 | 3.392 | 3.025 | 2.882 | 3.193 | 3.482 | 3.353 | 2.510 | 3.306 |
| | (.097) | (.316) | (.378) | (.083) | (.069) | (.208) | (.054) | (.017) | (.041) | (.074) | (.014) |
| Peer academic values | 3.008 | 3.267 | 3.381 | 3.038 | 3.141 | 3.314 | 3.288 | 3.039 | 3.348 | 3.097 | 3.119 |
| | (.116) | (.323) | (.295) | (.105) | (.067) | (.163) | (.058) | (.022) | (.037) | (.058) | (.015) |
| School deviance | 2.455 | 2.733 | 2.333 | 2.284 | 2.322 | 2.373 | 2.390 | 2.397 | 2.124 | 2.338 | 2.350 |
| | (.089) | (.464) | (.325) | (.080) | (.064) | (.140) | (.049) | (.018) | (.036) | (.051) | (2.013) |
| Aspirations | 5.293 | 5.200 | 5.000 | 5.365 | 4.788 | 4.471 | 5.342 | 5.250 | 5.537 | 4.888 | 5.243 |
| | (.157) | (.374) | (.577) | (.095) | (.118) | (.412) | (.068) | (.026) | (.038) | (.085) | (.019) |
| Fatalism | .117 | .050 | .220 | .096 | .143 | .113 | .105 | .104 | .095 | .119 | .105 |
| | (.022) | (.050) | (.080) | (.015) | (.016) | (.034) | (.011) | (.004) | (.008) | (.012) | (.003) |
| Cutting classes | 1.222 | 1.200 | 1.464 | 1.309 | 1.335 | 1.426 | 1.164 | 1.234 | 1.180 | 1.410 | 1.265 |
| | (.070) | (.200) | (.253) | (.074) | (.059) | (.147) | (.043) | (.014) | (.022) | (.056) | (.011) |
| Positivity of ethnic identity | .732 | .800 | 1.143 | .595 | .610 | .588 | .944 | .704 | .660 | .750 | 2.100 |
| | (.131) | (.800) | (.404) | (.102) | (.083) | (.150) | (.078) | (.023) | (.042) | (.070) | (.021) |
| Perceptions of ethnic discrimination | 1.691 | 2.067 | 2.167 | 1.351 | 1.288 | 1.216 | 1.573 | 1.204 | 1.491 | 1.476 | 1.330 |
| | (.144) | (.741) | (.302) | (.068) | (.055) | (.085) | (.053) | (.012) | (.030) | (.048) | (.011) |
| Trying hard in school | 3.858 | 4.033 | 3.893 | 4.042 | 4.062 | 3.985 | 4.124 | 3.950 | 4.086 | 4.157 | 3.980 |
| | (.125) | (.244) | (.255) | (.090) | (.070) | (.143) | (.060) | (.023) | (.041) | (.052) | (.016) |
| Concrete beliefs | 2.854 | 3.000 | 2.714 | 2.730 | 2.534 | 2.588 | 2.807 | 2.758 | 2.829 | 2.628 | 2.718 |
| | (.096) | (.447) | (.360) | (.097) | (.074) | (.211) | (.059) | (.023) | (.040) | (.054) | (.025) |
| Abstract beliefs | 1.683 | 1.600 | 1.143 | 1.459 | 1.424 | 1.353 | 1.410 | 1.494 | 1.537 | 1.469 | 1.486 |
| | (.128) | (.245) | (.143) | (.067) | (.053) | (.119) | (.048) | (.017) | (.033) | (.048) | (.012) |
| Ethnic peer crowd | .390 | .000 | .286 | .135 | .161 | .412 | .280 | .025 | .353 | .403 | .191 |
| | (.077) | (.000) | (.184) | (.040) | (.034) | (.123) | (.035) | (.004) | (.025) | (.035) | (.006) |
| Percentage white in track | .458 | .483 | .447 | .524 | .509 | .450 | .422 | .617 | .481 | .444 | .532 |
| | (.014) | (.034) | (.025) | (.011) | (.008) | (.019) | (.006) | (.003) | (.004) | (.004) | (.280) |
| Percentage white in neighborhood | .562 | .778 | .624 | .748 | .772 | .731 | .326 | .848 | .755 | .679 | .765 |
| | (.049) | (.061) | (.098) | (.020) | (.013) | (.030) | (.024) | (.004) | (.007) | (.014) | (.004) |

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*The author thanks the following people for their comments and assistance in writing this article: Roz Mickelson, Paula England, Michael Herron, Antonia Randolph, Barbara Schneider, Bruce Spencer, Scott Richman, Susan Herman, Nicola Wells, and participants in the Sociology of Education seminar at NORC.* *Address correspondence to Melissa R. Herman, Department of Sociology, Dartmouth College, 6104 Silsby Hall, Hanover, NH 03655; e-mail: melissa.herman@dartmouth.edu.*