The Effects of School Racial and Ethnic Composition on Academic Achievement in Adolescence

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This research examines the effects of school racial and ethnic composition on students' academic achievement in the United States using the National Longitudinal Study of Adolescent Health (AddHealth) and Hierarchical Linear Models (HLM). This analysis includes Hispanics as an ethnic group, which stands apart from other research in this area that has traditionally focused on only black and white student racial composition. In addition, peer group influences are measured by utilizing the comprehensive peer network data available for all respondents in the Add Health sample. Interactions between individual race/ethnicity and school racial/ethnic composition are also tested to better understand the possible differential effects of racial/ethnic composition for each race/ethnicity. This research seeks to test if racial and ethnic inequality in academic achievement outcomes is partly explained by differences in school racial and ethnic composition.

EXTENDED ABSTRACT:
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The disparities in educational opportunities and outcomes between African American and white children in the United States have been a national concern since the *Brown v. the Board of Education* decision in 1954. It was in this famous decision, under footnote eleven of the *Brown* opinion, that the Supreme Court cited social science research to support the proposition that African American students were harmed by segregated schools [Brown v. Board of Education, 347 U.S. 483, 494 n.11 (1954)]. School desegregation was important not only because it afforded to African American students entrance into predominantly white schools with access to financial and physical resources, but also because it provided a way to make it possible for them to share in the social and social-psychological assets of white classmates (Hacker 1995).

Since this landmark decision, a considerable amount of social science research, particularly in the area of sociology, has attempted to explain why racially balanced schools, even after controlling for socioeconomic backgrounds of the students, are more beneficial to students, especially African American students, as evidenced by academic achievement (Bankston and Caldas 1996, 1997, 1998; Coleman 1966; Hanushek, Kain and Rivkin 2002; Roscigno 1998; Rumberger and Palardy 2002), improved social relations and self-esteem (e.g., Crain and Weisman 1972; Inniss 1991; Johnson, Crosnoe and Elder 2001; Joyner and Kao 2000; Moody 2001; Quillian and Campbell 2003; Schofield and Sagar 1983) or greater "life prospects" such as graduation from college and higher earnings (e.g., Braddock, 1985; Braddock and Dawkins 1984; Braddock and McPartland 1988; Crain 1970, 1971; Crain and Mahard 1978; Dawkins and Braddock 1994). This research is predicated on an understanding of the specific relationship between racial composition of a school and academic achievement. However, this relationship is still not well understood. Further, little research in this area includes ethnic groups beyond just blacks and whites, especially at the national level.

The goal of this analysis is to use a representative data set (the National Longitudinal Study of Adolescent Health), and Hierarchical Linear Models (HLM) to examine the effects of school racial composition on students' academic achievement on a national level. The study design includes Hispanics as an ethnic group in research that has traditionally focused on only black and white student racial composition. In addition, peer group influences are measured by utilizing the comprehensive peer network data available for all respondents in the Add Health sample.

Including measures of peer influence is important for two reasons. First, during adolescence peer influences increase as peer groups become more autonomous and less neighborhood-based, and increasingly include peers of the opposite sex (Brown 1990). Socialization by peers occurs as peers begin to function as credible sources of information, role models of new social behaviors, sources of reinforcement, and bridges to alternative lifestyles.

Therefore, peer groups are an important social context that affects adolescents.   Second, including peer group influence measures in the analysis provides a way to better disentangle the larger context of school composition effects from smaller group context of peer relations in a school, an issue previous research in this area has not been able to address due to data set limitations (e.g. Hanushek, Kain and Rivkin 2002; Roscigno 1998; Rumberger and Palardy 2002). There is a difference between peers and peer group. Peers are a set of similar-aged individuals who share some social context (e.g. school or cohort). While a peer group is an interaction-based entity comprised of a limited number of adolescents identified as a group because they "hang out" together and develop close relationships or friendships (Harris and Cavanagh Forthcoming).

Interactions between individual race/ethnicity and school racial/ethnic composition are also tested to better understand the possible differential effects of racial/ethnic composition for each race/ethnicity.

There is urgency in gaining a better understanding of racial and ethnic composition effects because around the nation there is a trend back toward segregation. The desegregation of black students, increased continuously from the 1950s to the late 1980s, but has now receded to levels not evidenced in over 30 years. The proportion of black students in majority white schools has decreased by 13 percentage points, during the 1990s, to a level lower than any year since 1968 (Frankenberg, Lee and Orfield 2003). In addition, public schools are steadily becoming more nonwhite. Minority students make up approximately 40% of all public school students. This is almost twice the proportion of minority students in the public school system in the 1960s.

Along with these trends in resegregation have been large changes in the ethnic diversity of the nation. In 2000 the U.S. population was 72 percent non-Hispanic white; 12 percent African-American; 11 percent Hispanic; and 5 percent Asian and other. The minority share of the U.S. population has more than doubled since 1950. The number of Hispanics in the U.S. has grown five times faster than the rest of the population since 1980, making the United States the third largest Spanish-speaking country in the world (Population Resource Center 2000). These large demographic changes in the ethnic diversity of the United States also help to influence the ethnic makeup of schools, especially public schools.

If segregation is found to be deleterious to students' academic achievement then these trends are important. Many researchers make the point that racial segregation is also strongly related to socioeconomic segregation (Jencks and Mayer 1990; Frakenberg, Lee and Orfield 2003; Orfield 2001; Orfield and Lee 2004; Roscigno 1998; Rumberger and Palardy 2002). Furthermore, until we can understand the dynamics of race we cannot form adequate policy measures to address the issues of racial inequality for those students who will find themselves in school of a majority African-American or Hispanic.

It needs to be emphasized that racial segregation is a school context issue. Although some may see investigating the relationship between racial/ethnic composition and academic achievement of students in a school as old hat, this is a relatively under researched area, especially with the use of recent data sets. Many researchers take the negative academic effects

of school racial/ethnic context as a given and instead explore individual level factors that can affect academic achievement, with little focus on contextual influences in terms of racial and ethnic composition of schools.

Researchers have lost sight of the importance of social context measured in terms of racial and ethnic composition as a factor in affecting academic achievement of students in and of itself.   Ironically, it is specifically the lack of recent and methodologically sound sociological research that focuses on school racial composition that prevents social science research from being a factor in courts decisions to terminate or continue school desegregation orders (Ryan 2003).

This research extends previous research in race/ethnic composition effects by including the effects of peer networks. Perhaps conflicting results from prior studies are due to the fact that racial/ethnic segregation and its effects do not operate at the school level but at the lower nested level of the racial/ethnic composition of friendship groups. This research will help to move the field forward along these lines.

Expected Findings

Hypothesis 1: I expect that the proportion of black students in a school will have a negative effect on academic achievement of students (white, black and Hispanic) after controlling for all selected variables. As percent black increases, I expect that student GPA will decrease. Previous research has shown that as the percent black in a school increases, the academic achievement of students decreases, although this is not a universal finding. Using theories about race effects, black students have certain negative conceptions of schooling due to their involuntary minority status (Ogbu 1987; Ogbu and Simons 1998), current and past discrimination and an attitude of distrust and ambivalence toward schooling fostered by their parents that affect their academic achievement. These conceptions lead to less effort in school in the form of neglecting to do homework, pay attention in class, and keep up with school work, as well as in claims that work is boring. A strong negative peer group influence exists that stigmatizes academic achievement to some degree. Poor academic performance is the result of all of these behaviors and attitudes. Larger groups of blacks create a larger social context for which attitudes of ambivalence and distrust toward schooling pervade and affect the achievement of all students (Ogbu 1987; Ogbu and Simons 1998).

Hypothesis 2: The relationship between proportion Hispanic in a school and academic achievement is less clear because very little empirical research has been done to investigate this relationship and what has been done has mixed results (Hanushek et al. 2002; Hoxby 2001). Rumberger and Palardy (2002), using a national data set of adolescents, find a negative effect of percent minority in a school, where minority is a measure of both black and Hispanic students, making it impossible to sort out the effects of black and Hispanic composition. There is reason to believe that the effect of percent Hispanic on the academic achievement of students in a school may be different from the effects of percent black due to language differences between blacks and Hispanics and the larger proportion of Latino youths who are immigrants or are the children of immigrants, which affect their orientations toward school. Because a large proportion of Latino immigrants live in highly segregated and impoverished neighborhoods and attend highly segregated and impoverished schools, segmented assimilation theory would suggest that a large

proportion of native-born Hispanic youth in a school would negatively affect individual level academic achievement[1]. This research will be able to ascertain if a relationship (positive or negative) exists and in what direction.

Hypothesis 3: Although there is not much known about the potential mediating effects of peer group influences on the relationship between school composition and academic achievement, there is evidence that peer networks are significantly associated with individual motivation in school (e.g. Chen, Chang and He 2003; Kinderman 1993). Because close friends in a school are probably more salient than the entire student body in their influence on motivation and achievement, the effect of school racial/ethnic composition may operate through peer networks. Although friendship choices are constrained by the race and ethnic composition of the school, I expect that the racial/ethnic composition of friendship groups will follow the same relationship that school racial/ethnic composition has with academic achievement, and may mediate the school composition effects.

Hypothesis 4: I expect the effect of racial composition to vary by individual-level race/ethnicity. Specifically, I expect the effect of black racial composition will be the most detrimental for black students. Although previous research indicates that percent black should have no effect on whites, the research is based on data from the 1960s and 1970s. It seems logical that the proportion black in a school would influence white students, especially in schools where the proportion black is very high and ambivalent conceptions toward schooling would be the norm. It seems likely that the interaction effect of percent black and Hispanic would also be negative, however the possible magnitude of this relationship is unclear due to lack of research in this area. The differential effects of proportion Hispanic for blacks, whites and Hispanics is also unclear and will be ascertained in the analysis. I expect that an increase in percent white of a school population will interact with individual black and white students to positively impact academic achievement. I hypothesize this interaction effect will be largest for blacks and weak for whites, because previous research has shown that blacks benefit most from desegregation. The relationship between percent white and Hispanic is unclear and will be discovered in the analysis.

Data

The National Longitudinal Study of Adolescent Health (Add Health) is an ongoing nationally representative, school-based study of adolescents in grades 7 to 12 that began in 1994. In 1994 Add Health administered an In-School Questionnaire to 90,118 students from a nationally representative sample of schools. The sample included 80 U.S. high schools and 52 middle schools (which formed feeder school and high school pairs). Incorporating systematic sampling methods and implicit stratification into the Add Health study design ensured this sample is representative of U.S. schools with respect to region of country, urbanicity, school type, ethnicity, and school size. A subsample of individuals in these schools, along with one parent, usually the mother, participated in the In-Home Interview in 1995 (Wave1), given an average of eight months after the In-School Survey. From the school rosters, a random sample of some 200 students from each school pair was selected, irrespective of school size, to produce

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[1] However, this is complex because, according to segmented assimilation theory, only third generation Hispanics would have a negative effect on academic achievement.

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the core in-home sample of about 12,105 adolescents. In addition to this core sample of adolescents, selected special oversamples (including ethnic, disabled, and sibling over-samples) were included in the in-home sample, resulting in a sample size of 27,000 adolescents. These data can be linked to other Add Health data sets, such as the School Administrator Data Set, which contains information from the official (typically a principal) in each study school.

A cluster-based sample by design allows for the creation of variables at many levels of aggregation. Therefore, Add Health can be used to investigate how social context affects adolescents by design.[2] For more on the Add Health study see Harris et al. (2003).

This study uses data from the Wave 1 In-School, In-Home and School Administrator Questionnaires. In addition, each youth who completed and in-school questionnaire was asked to nominate up to five friends of his or her closest male and female friends, beginning with a best friend and then next best friend and so forth (for a maximum of 10 students). Students were given a roster upon which all schoolmates' identification numbers (Add Health-defined) were listed. Students then transferred identification numbers onto their questionnaire. Those who had close friends who did not attend their school entered a generic code. Because the in-school sample was a saturated sample, with nearly all children in the school interviewed, the identification numbers of nominated friends can be linked back to their own in-school questionnaire. Peer group-level indicators were created by taking each friend's self-reports of school achievement and college expectations, for example, as well as demographic characteristics and indexing them across groups. School-level measures were derived by aggregating the responses of the In-School Questionnaire for all students in their respective schools. Other school-level variables were obtained from the School Administrator Questionnaire for each student.

The dependent variable grade point average or GPA (described below) is measured in both the in-school and in-home interview. Therefore, analysis will be based on two samples: the in-school sample of all students attending school sampled by Add Health (N ≈ 90,000); and the in-home sample of adolescents sampled from school rosters of selected schools (N ≈ 20,000). By conducting a similar analysis of GPA using both in-school and in-home samples, I can examine the robustness of model results.

Two constraints are imposed on both study samples. First, because other ethnic groups (e.g. Native American and Asian Americans) were few and concentrated in a limited number of schools, this study will focus on three specific ethnic groups, whites, African Americans and Hispanic Americans. Second, because 2 of the 132 schools in the original sample do not have sample weights and thus cannot be used to generalize to the entire nation, they will be excluded from the sample. This results in an effective sample of 126 schools (Moody 2001).

After applying these data constraints and deleting missing data listwise, the final study samples contain 78,952 students and 13,296 students, in the in-school based study sample and in-

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[2] The Add Health Sample design utilized in the collection of data has brought about a complexity to the analysis. Biased parameter estimates and incorrect variance estimates may result if this complexity is not taken into account. Therefore, in order for the results to be nationally representative with unbiased estimates, design effects and unequal probability of selection are corrected for in this analysis (Chantala 2001; Chantala and Tabor 1999).

home based study sample respectively. In all analyses sampling weights that adjust for the differential sampling probabilities of adolescents responding to the Wave I In-School Questionnaire (for the in-school based study sample) and the Wave I In-Home interview (for the in-home based study sample), as well as corrections for design effects associated with the clustered sampling at the school level were used.

Measures

Dependent Variable

Two dependent variables are used in this analysis to measure achievement, self-reported grade point average (GPA), measured in both the in-school questionnaire and in-home interview, and Add Health Picture Vocabulary Test (AHPVT) scores, measured in the in-home interview.

The average GPA variable is created by first transforming self-reported letter grades in English/Language Arts, Mathematics, History/Social Studies and Science of each student in each school into a 4.0 scale and then averaging these GPAs for each student.

The Add Health Picture Vocabulary Test (AHPVT) is an abridged version of the Peabody Picture Vocabulary Test-Revised (PPVT-R). Raw scores were age standardized with a mean of 100 and a standard deviation of 15. The AHPVT is used as a measure of intelligence (Dunn and Dunn 1981). The test instrument correlates highly with standardized intelligence tests and can be properly administered under field conditions by interviewers without highly specialized training (Bearman, et al, 1997). Standardized test scores are used by a number of studies that examine the relationship between racial composition and academic achievement to represent academic success (Bankston and Caldas, 1996, 1997, 1998, Roscigno, 1998, Hanushek et al 2002, Mickelson, 2002, Rumberger and Palardy, 2002).

Because the AHPVT was only administered to those respondents who participated in the In-Home survey, this variable is only included in the in-home based study sample used in this analysis. Both samples, however, included self-reported average GPA. In addition, when possible, if grades were missing for certain respondents for any subject in the in-school sample, then they were taken from reported grades of the same respondent in the in-home sample and vice-versa.

Independent Variables

Data from student (i.e. Wave 1 In-School and In-Home questionnaires) and school administrator (i.e. School Administrator questionnaire) surveys are used to construct a set of independent variables to measure various aspects of individual, family and school characteristics. Individual and family variables are used to control for differences in the background characteristics of students as a way to provide more accurate estimates of school effects on student achievement. Peer group-level measures are used as potential mediating variables. The constructed school-level variables measure two aspects of school context. The first set of variables measure the social composition of the school. They are aggregate measures of individual and family characteristics that possibly affect individual level academic achievement.

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These second set of school context measures are controlled for as a way to provide more accurate estimate of school social composition effects on academic achievement. The second set of variables measures school characteristics that are often associated with school social composition (such as school resources and structures) but could be altered through policies and practices without altering the social composition of schools.[3] Basic descriptive statistics for each variable in both the in-home based and in-school based study samples is provided in tables 1 and 2, respectively [See Appendix]. Below measurement of each variable is described in detail.

Race/Ethnicity

In this analysis, the race-ethnicity variable is measured using dummy variables for Hispanic, black and white based on adolescent self-report[4]. As noted earlier, adolescents in Add Health are allowed to choose any number of race and ethnic categories. For the purposes of this paper: "white" refers to those who choose white as their only race and do not report Hispanic or Spanish origin, "black" refers to those who choose black as their race but identify no Hispanic or Spanish origin and Hispanic is measured as those who report being of Hispanic or Spanish origin despite race. In addition, when possible, if race/ethnicity variables were missing for certain respondents in the in-school sample, then they were taken from reported race/ethnicity variables of the same respondent in the in-home sample and vice-versa.

Family Characteristics

Students were asked to report their parent's education level. The highest education reported of the two parents is used to measure parental education. If there is only one parent report of education, then that education level is used. Dummy variables are created to indicate if a respondent reported if their parent received less than a high school degree, a high school degree, or a bachelors degree or higher. Missing reports of parental education are also used as a category and measured as a dummy variable. Missing reports include "don't know" and skipped responses (for both parents).

A series of indicators are used to measure family structure that are derived from asking respondents with whom they live. Dummy variables are created to indicate if a respondent reported living with both parents, a single mother household, single father household or another type of family structure.

Wherever possible, if family structure variables were missing for certain respondents in the in-school sample, then they were taken from reported family structure variables of the same respondent in the in-home sample and vice-versa.

Individual Characteristics

A measure of a respondent's social cohesion to their school is measured as an composite

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[3] All independent variables in this analysis that are measured at the school (aggregate) -level are the result of the aggregating individual-level responses or are taken from responses to questions from the School-Administrator Questionnaire.
[4] This measure of race is identical to the measure used by Johnson Crosnoe and Elder (2001)

index based on three statements: I feel close to people at this school; I feel like I am part of this school; and I am happy to be at this school. Response categories represent a 5-point Likert scale ranging from strongly agree to strongly disagree. The responses were reverse-coded and averaged resulting in a range from 1 to 5 with high scores representing greater social cohesion to a school (Bollen and Hoyle 1990). Missing values were assigned the mean and a dummy variable was also created to represent missing values.

The measure of a respondent's <u>self-esteem</u> is also measured as a composite index based on 5 statements: I have a lot of good qualities; I have a lot to be proud of; I like myself just the way I am; I feel like I am doing everything just right and I feel socially accepted. Response categories represent a 5-point Likert scale ranging from strongly agree to strongly disagree. The responses were reverse-coded and averaged resulting in a range from 1 to 5 with high scores representing greater self-esteem. Missing values were assigned the mean and a dummy variable was also created to represent missing values.

A measure of <u>college expectations</u> is derived from the response to the question that was (on a scale of 0 to 5, where 0 is no chance and 5 is high): "How likely is it that you will graduate from college?" This measure is transformed into a dummy variable where respondents are categorized as 1 if they chose a 0 or 1 response (if they believed there was little to no chance that were going to graduate from college) and 0 if they chose any other response. A dummy variable was also created to represent missing values.

A dummy variable is also created to measure self-reported <u>gender</u> and a continuous variable is used to measure <u>grade-level</u>.

Wherever possible, if individual characteristic variables were missing for certain respondents in the in-school sample, then they were taken from reported individual characteristic variables of the same respondent in the in-home sample and vice-versa.

Peer Group Level Variables

Peer group level variables were created that measured the number of in- school friends, the proportion of female in-school friends, the average grade-level of in-school friendship groups, the racial/ethnic composition of in-school friendship groups, the average GPA of in-school friendship groups and the college expectations of in-school friendship groups.

Add Health provides data with which to construct indicators of whether one has any in-school friends and the <u>number of in-school friends</u>.

The gender composition of peer groups was calculated by calculating the <u>proportion of female friends</u> for the nominated peer groups of each respondent.

The average grade level of peer groups was calculated by calculating the <u>mean grade of friends</u> for the nominated peer groups of each respondent.

The racial/ethnic composition of peer groups was calculated by calculating the <u>proportion</u>

of black friends, proportion of white friends and the proportion of Hispanic friends for the nominated peer groups of each respondent.

The average GPA of peer groups was calculated by taking the mean of the GPAs for the nominated peer groups of each respondent.

The proportion college expectations of peers was calculated by calculating the proportion of peers who believed there was little to no chance that they were going to college for the nominated peer groups of each respondent.

School Level Variables
School Resources and Structures and School Social Composition

Individual level variables are aggregated to create school-level variables of proportion of black students in a school, proportion of white students in a school, proportion of Hispanic students in a school, proportion of school with students living in single-mother families, proportion of students with parents with a bachelor's degree or higher, mean social cohesion and the mean student reported self-esteem of the school. These variables measure school social characteristics.

Other school level variables are derived from the School –Administrator questionnaire. These are measures for average classroom size, school size [dummy variables are used that indicate if the school is small (1 to 400 students), medium (401 to 1000 students) or large (1001 to 4000 students)], school type (private schools coded as 1 and public schools coded as 0), if there was tracking in the school (dummy variable), and the percent of teachers with a Masters degree or higher. These variables school structural characteristics.

Analysis
Multivariate Multi-level Analysis

The primary objectives of this study are to establish a relationship between school racial/ethnic composition and academic achievement and identify how school racial/ethnic composition explain differential academic outcomes by racial and ethnic background. Of particular interest are the interrelationships between individual factors and school contexts in their effects on the academic achievement of youth. Because these influences operate at multiple levels, I employ a multi-level modeling procedure that takes advantage of the structure of the data where individuals are nested within larger units–school. The model relates properties of individuals and properties of schools with an individual's academic achievement.

Hierarchical linear models explicitly recognize the clustering of individuals and adjust for the correlation among individuals who share the same context to correct for their lack of independence.

There are a number of advantages to this choice of model. First, the fully interactive model is consistent with my conceptual framework specifying that features of the social environment interact with individual factors in their effects on adolescent academic achievement.

The fundamental assumption of hierarchical modeling is that the micro values of the dependent variable depend on context and that the effects of the micro determinants may vary systematically as a function of context. Second, separate error terms are specified for the macro- and microlevel equations, overcoming problems associated with correlated measurement error across levels of analysis. Third, estimation of the individual-level effects is improved (over a standard regression approach) because all coefficients are adjusted for covariates at all levels. Fourth, variance on the dependent variable is partitioned into individual and contextual components.

Modeling Plan

Descriptive analysis will establish the bivariate association between racial composition and school achievement (controlling for race/ethnicity). I will also explore correlations between school-level variables.

As discussed earlier, variables are grouped into individual and family characteristics variables, peer group-level variables and school-level variables measuring social composition and structures and resources. The basic model for analysis in this study includes the individual level variables for race (black and Hispanic dummy variable), sex (female dummy variable), grade-level, social cohesion, and self-esteem, individual level variables that account for the background family characteristics (family structure and parental education) and school racial/ethnic composition (proportion of school black and proportion of school Hispanic) (Model 1). Here, controlling for individual characteristics accounts for the aggregation effects of individual characteristics that are confounded with school-level measures (Manski 1993). School context variables are added to the basic model in steps to test if the influence of racial/ethnic composition on individual level academic achievement persists (assuming an effect of racial and ethnic composition was established in Model 1) even with the inclusion of additional measures of school social composition and resources and structures. Then peer group-level measures are added to the model to see if the relationship between school racial/ethnic composition and academic achievement is mediated by peer group-level measures. Lastly, variables that measure the interaction between race/ethnicity and racial/ethnic composition will be added in the final model.

First, school resources and structures variables are added in Model 2. These include school size, class size, school type, tracking, and percent school with teachers that hold a Masters or above.

Second, school family background variable is included in Model 3. The school-level family background variable that has been chosen is proportion of students in a single-mother family. This variable is added separately as a way to test the discrepancies in findings between the effect of percent female-headed families in a school between Bankston and Caldas' (1998) and Rumberger and Palarady's (2002) research.

Third, another school-level family background variable is included in Model 4, proportion of students whose parent has a Bachelor's degree or higher.

Fourth, other school social context variables are added in Model 5. These are mean social cohesion and mean school self-esteem.

Fifth, peer group-level measures are added in Model 6.

Sixth, variables that interact race/ethnicity with racial composition are then added in Model 7.

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Note: Appendix is on the following two pages.

Table 1. Variable Descriptive Statistics for In-School Sample (N=78,952)

Variable	Mean	Maximum	Minimum
GPA	2.811 (0.022)	4.000	1.000
Race/Ethnicity Dummies:			
White	0.637 (0.030)		
Black	0.189 (0.024)		
Hispanic	0.165 (0.018)		
Sex (Female =1)	0.496 (0.006)		
Grade-Level	9.487 (0.119)	6.000	12.000
Parent Education Dummies:			
Bachelors +	0.341 (0.014)		
High School	0.452 (0.010)		
No High School	0.078 (0.006)		
Missing Report	0.129 (0.007)		
Family Structure Dummies:			
Two Parents	0.707 (0.012)		
Single Mother	0.204 (0.009)		
Single Father	0.039 (0.001)		
Other Parent	0.050 (0.003)		
Social Cohesion	3.574 (0.017)	1.000	5.000
Missing Report of Social Cohesion	0.075 (0.008)		
Self-Esteem	3.866 (0.011)	1.000	5.000

Variable	Mean	Maximum	Minimum
Missing Report of Self-Esteem	0.083 (0.009)		
College Expectations	0.050 (0.003)		
Missing Report of College Expectations	0.170 (0.007)		
Proportion School White	0.561 (0.028)	0.000	0.924
Proportion School Black	0.167 (0.021)	0.000	0.878
Proportion School Hispanic	0.143 (0.016)	0.000	0.932
Proportion School Single-Mother	0.204 (0.009)	0.031	0.435
Proportion School Parent Education Bachelors+	0.344 (0.014)	0.002	0.906
School Social Cohesion	3.565 (0.016)	3.098	4.350
School Self-Esteem	3.853 (0.011)	3.461	4.458
Class Size	25.392 (0.438)	10.000	39.000
School Size Dummies:			
Small	0.188 (0.035)		
Medium	0.459 (0.048)		
Large	0.353 (0.048)		
School Type (Private =1)	0.073 (0.022)		
Tracking (Yes=1)	0.533 (0.048)		

Variable	Mean	Maximum	Minimum
Percent MA+ Teachers	50.887 (2.371)	0.000	95.000
Mean Number of Friends	5.121 (0.124)	0.000	10.000
Proportion of Friends Female	0.526 (0.007)	0.000	1.000
Mean Grade of Friends	9.509 (0.115)	6.000	12.000
Mean GPA of Friends	2.862 (0.023)	1.000	4.000
Mean College Expectations of Friends	0.040 (0.002)	0.000	1.000
Proportion of Friends White	0.609 (0.027)	0.000	1.000
Proportion of Friends Black	0.159 (0.022)	0.000	1.000
Proportion of Friends Hispanic	0.127 (0.014)	0.000	1.000

N =78,952
Note: Standard Errors are in parentheses
Note: Cells blocked out in gray indicate that no minimum or maximum values are reported due to the fact that the variables are dummies

Table 2. Variable Descriptive Statistics for In-Home Sample (N=13,296)

Variable	Mean	Maximum	Minimum
AHPVT	100.862 (0.211)	139.000	13.000
GPA	2.805 (0.010)	4.000	1.000
Race/Ethnicity Dummies:			
White	0.706 (0.006)		
Black	0.161 (0.005)		
Hispanic	0.133 (0.005)		
Sex (Female =1)	0.494 (0.006)	1.000	
Grade-Level	9.391 (0.088)	12.000	7.000
Parent Education Dummies:			
Bachelors +	0.394 (0.009)		
High School	0.519 (0.008)		
No High School	0.077		
Missing Report	0.010 (0.001)		
Family Structure Dummies:			
Two Parents	0.707 (0.017)		
Single Mother	0.193 (0.011)		
Single Father	0.042 (0.004)		
Other Parent	0.058 (0.005)		
Social Cohesion	3.732 (0.014)	5.000	1.000
Missing Report of Social Cohesion	0.002 (0.001)		
Self-Esteem	3.853 (0.016)	5.000	1.000
Missing Report of Self-Esteem	0.094 (0.012)		
College Expectations	0.057 (0.004)		
Missing Report of College Expectations	0.172 (0.012)		
Proportion School White	0.535 (0.042)	0.924	0.000
Proportion School Black	0.132 (0.020)	0.878	0.000
Proportion School Hispanic	0.184 (0.031)	0.932	0.000
Proportion School Single-Mother	0.193 (0.011)	0.435	0.033
Proportion School Parent Education Bachelors+	0.381 (0.019)	0.906	0.117
School Social Cohesion	3.516 (0.026)	4.350	3.098
School Self-Esteem	3.826 (0.014)	4.458	3.629
Class Size	26.992 (0.516)	39.000	10.000
School Size Dummies:			
Small	0.045 (0.012)		
Medium	0.310 (0.054)		
Large	0.645 (0.058)		
School Type (Private =1)	0.048 (0.023)		
Tracking (Yes=1)	0.663 (0.059)		
Percent MA+ Teachers	52.541 (2.936)	95.000	0.000
Mean Number of Friends	3.847 (0.357)	10.000	0.000
Proportion of Friends Female	0.524 (0.015)	1.000	0.000
Mean Grade of Friends	9.714 (0.113)	12.000	6.500
Mean GPA of Friends	2.852 (0.034)	4.000	1.000
Mean College Expectations of Friends	0.035 (0.003)	1.000	0.000
Proportion of Friends White	0.572 (0.038)	1.000	0.000
Proportion of Friends Black	0.132 (0.020)	1.000	0.000
Proportion of Friends Hispanic	0.160 (0.028)	1.000	0.000

N =13,296

Note: Standard Errors are in parentheses

Note: Cells blocked out in gray indicate that no minimum or maximum values are reported due to the fact that the variables are dummies

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