UC Santa Barbara
UC Santa Barbara Previously Published Works

Title
Segregation paradox? School racial/ethnic and socioeconomic composition and racial/ethnic differences in engagement.

Permalink
https://escholarship.org/uc/item/3pd0p9gg

Author
Ackert, Elizabeth

Publication Date
2018-02-01

DOI
10.1016/j.ssresearch.2017.10.010

Peer reviewed

eScholarship.org Powered by the California Digital Library
University of California

Social Science Research 70 (2018) 144–162

Contents lists available at ScienceDirect

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

Segregation paradox? School racial/ethnic and socioeconomic composition and racial/ethnic differences in engagement

Elizabeth Ackert

Population Research Center, The University of Texas at Austin, United States

ARTICLE INFO

Keywords:
School composition
School segregation
Race/ethnicity
School engagement

ABSTRACT

This study examines the associations between school racial/ethnic and socioeconomic composition and school engagement levels among Mexican-origin Latinos/as, African Americans, and non-Latino/a whites. Prior research suggests that whiter and more affluent schools should promote engagement, but some studies reveal paradoxes of school segregation whereby minority and socioeconomically disadvantaged students exhibit worse outcomes in schools with white and socioeconomically advantaged peers. Using data from the Education Longitudinal Study of 2002, this study examines the associations between the percent of non-minority students in the school, average school socioeconomic status, and three engagement outcomes: Liking school, involvement in school-sponsored activities, and coursework engagement. The findings reveal an affective-behavioral trade-off for students in schools with higher proportions of white students. Students who attend whiter schools are less likely to report that they like school, but they are more engaged in coursework. This affective-behavioral paradox is not unique to any particular racial/ethnic group.

1. Introduction

Racial/ethnic minority students disproportionately attend high-poverty, high-minority schools (Orfield et al., 2012). Studies from the *Coleman Report* onward consistently demonstrate that students attending impoverished and minority-concentrated schools experience worse educational outcomes than peers in whiter and more affluent schools (Coleman et al., 1966; Mickelson et al., 2013; Palardy, 2013; Rumberger and Palardy, 2005; Wells and Crain 1994). Lower-poverty, lower-minority schools may confer advantages to students through exposure to high-quality school resources and access to social capital leading to upward mobility (Brooks-Gunn et al., 1993; Coleman, 1988; Jencks and Mayer, 1990; Wells and Crain 1994). For these reasons, there is a widespread belief that racial/ethnic minority students might fare better educationally if they attended lower-minority, lower-poverty schools.

Prior studies, however, also reveal paradoxes of segregation—situations where minority and poor students exhibit better educational outcomes in minority-concentrated and impoverished schools, and worse outcomes in schools with higher proportions of white and affluent peers (Crosnoe, 2009; Goldsmith, 2003). This paradox may be driven in part by social-psychological processes, or "frog pond" effects (Davis, 1966; Goldsmith 2011), whereby minority and poor students in high-minority, high-poverty schools experience an increased sense of belonging when they are surrounded by peers from similar backgrounds, but encounter discrimination, relative deprivation, and negative competition in whiter and more affluent schools (Holland, 2012; Ispa-Landa, 2013; Jencks and Mayer, 1990).

This study uses the Education Longitudinal Study of 2002 to examine the associations between school racial/ethnic and socioeconomic composition and student engagement. School engagement is a multi-faceted construct that encompasses affective,

E-mail address: ackert@prc.utexas.edu.

https://doi.org/10.1016/j.ssresearch.2017.10.010
Received 23 February 2017; Received in revised form 11 August 2017; Accepted 29 October 2017
Available online 31 October 2017
0049-089X/ © 2017 Elsevier Inc. All rights reserved.

cognitive, and behavioral dimensions. Affective engagement is defined as a student's social, emotional, and psychological attachments towards school (Johnson et al., 2001; Lawson and Lawson, 2013; Ueno, 2009), whereas behavioral engagement involves actions within schools and tasks related to schooling (Lawson and Lawson, 2013). This study focuses on one measure of affective engagement (liking school) and two measures of behavioral engagement (involvement in school-sponsored activities and coursework engagement).

The work pays particular attention to how associations between school composition and engagement vary among the three largest racial/ethnic groups in U.S. schools: Mexican-origin Latinos/as, African Americans, and whites.[1] On average, Mexican-origin and black youth are more socioeconomically disadvantaged than white youth, and face racial/ethnic discrimination. Even though there is much prior research on engagement, there is little research on how engagement levels vary across schooling contexts by racial/ethnic and socioeconomic composition (but see Johnson et al., 2001). Given pervasive racial/ethnic and socioeconomic school segregation (Orfield and Eaton, 1996; Reardon and Owens, 2014), it is crucial to assess how students engage in more or less segregated schooling environments.

This study evaluates the salience of the "equality of opportunity" versus "school segregation paradox" hypotheses for explaining racial/ethnic engagement patterns. In the equality of opportunity scenario, engagement should be higher among all students in whiter and more affluent schools due to increased resources and social capital leading to upward mobility. In the school segregation paradox scenario, disadvantaged minority students should exhibit worse engagement outcomes in whiter and more affluent schools due to relative deprivation, discrimination, and negative competition in these contexts, and/or positive psychosocial processes and targeted resources in high-poverty, high-minority schools.

Only students from racial/ethnic backgrounds that are socioeconomically disadvantaged (i.e., Mexican-origin and African American youth) are anticipated to exhibit a school segregation paradox. The school segregation paradox is highly linked to psychosocial mechanisms that can influence students' feelings towards their schools. Whites should have more positive feelings towards their schools in whiter and more affluent schools, whereas Mexican-origin and black youth may feel more negative about school in these same contexts. Affective disengagement among Mexican-origin and black students in whiter and more affluent schools will be commensurate with behavioral disengagement, even amidst greater resources for engagement. Because white students in whiter and more affluent schools do not experience affective disengagement, they should benefit from greater resources for engagement in these contexts.

2. Background

2.1. School composition and educational outcomes

The background characteristics of students, including race/ethnicity and social origins, vary widely across schools. Student compositional characteristics matter for educational outcomes because of the ways in which they are associated with educational resources, opportunities, and educational social capital. Even though school socioeconomic and racial/ethnic composition are intertwined, each of these aspects of schooling could have independent influences on educational outcomes because of the unique ways in which they shape resources, opportunities, and social relations between students, families, and teachers.

The theoretical literature on school and neighborhood effects suggests that engagement in school should be highest among members of all racial/ethnic groups in whiter and more affluent schools because these schooling contexts have both high-quality resources for being involved in school and social relations that promote engagement. I refer to this perspective as the "equality of opportunity" hypothesis. Higher socioeconomic status (SES) schools often have higher-quality school resources, such as teachers with higher education levels and experience (Clotfelter et al., 2006; Jencks and Mayer, 1990; Peske and Haycock, 2006). More affluent schools also offer an array of opportunities for involvement in activities outside of the classroom, and higher-quality facilities for participating in activities such as sports and theater. In higher SES schools, students also have access to networks of peers, parents, and other adults who promote, monitor, and reinforce behaviors that are associated with social mobility (Coleman, 1988; Jencks and Mayer, 1990; Leventhal and Brooks-Gunn, 2000; Sampson et al., 1999). Students in higher SES schools may also be more likely to engage in activities such as doing homework before class and participating in many extracurricular activities as part of the process of "concerted cultivation" (Lareau, 2011).

Schools with higher proportions of white students may also have increased resources for engagement, even above and beyond socioeconomic composition. For example, schools with higher proportions of minority students have difficulties attracting and retaining high-quality teachers (Jackson, 2009), even after controlling for student poverty composition (Clotfelter et al., 2005). Students in minority-concentrated schools may also be unable to form ties with members of the white majority, who could potentially provide knowledge about opportunities for engagement in school (Wells and Crain 1994; Wilson, 1987). These theoretical arguments all suggest that engagement should be highest among students in schools with high concentrations of white and affluent students, and lowest in high-minority, high-poverty schools.

[1] Mexican-origin Latinos/as are the focus of the analysis, rather than all Latinos/as, because there are substantial differences in experiences of incorporation within the Latino/a population by national origin (Portes and Rumbaut, 2001, 2006). Mexican-origin youth are the largest national origin subgroup within the Latino/a population, and they arguably face heightened obstacles to integration relative to other groups, especially due to discrimination and constraints associated with unauthorized status. Other non-Mexican-origin Latinos/as are also included in the analytical sample.

2.2. Paradoxes of school segregation

Students from racial/ethnic minority backgrounds—especially those who are socioeconomically disadvantaged—may not necessarily reap the benefits associated with attending whiter and more affluent schools. In fact, exposure to white and affluent students could engender negative psychosocial processes that increase the risk of affective disengagement, which could in turn lead to behavioral disengagement for these students. For this reason, the "school segregation paradox" perspective asserts that the association between exposure to non-minority and higher SES students will be positive for whites, but negative for racial/ethnic minority students from lower SES backgrounds, including Mexican-origin and black students.

Higher SES schools may pose barriers to engagement for students who are not themselves from socioeconomically advantaged backgrounds by fostering relative deprivation. In the relative deprivation model, a student's disadvantaged socioeconomic background becomes salient when he/she is exposed to more socioeconomically advantaged peers (Jencks and Mayer, 1990). Given that many Mexican-origin and black youth come from socioeconomically disadvantaged households, these students could be susceptible to experiencing relative deprivation. In higher SES schools, these students could respond to relative deprivation by detaching or withdrawing from school as a coping mechanism. Schools with greater concentrations of wealthier students may also be more competitive schooling environments than higher poverty schools. Students from middle- or high-SES families place a high premium on earning good grades and securing positions in college as part of the process of concerted cultivation (Lareau, 2011). These higher SES schooling contexts may be harmful for socioeconomically disadvantaged students if they do not feel that they have the resources to compete (Jencks and Mayer, 1990). Because it focuses on socioeconomic differences between students and their schooling contexts, the relative deprivation argument could lead to a gradient in engagement outcomes by socioeconomic background within racial/ethnic groups, and could thus also apply to lower-income whites in higher SES schools.

Factors related to racial/ethnic differences with peers may also become salient for minority students in schools where they are the numerical racial/ethnic minority. Exposure to white peers could threaten engagement among minority youth if interactions with these peers involve the enactment of stereotypes and discrimination. Two recent qualitative studies of minority students who were bussed to majority-white schools in a voluntary school integration program illustrate how social interactions with white peers can be problematic for minority students. Both studies reveal that minority students bussed to majority-white schools had to constantly navigate racial/ethnic stereotypes about their abilities and questions about the legitimacy of their presence in the school (Holland, 2012; Ispa-Landa, 2013). Some minority students, especially minority girls, purposefully isolated themselves from school activities in order to shield themselves from these types of negative interactions and stereotypes.

Regardless of racial/ethnic background, students may also feel more connected to one another in schools with same-race/ethnicity peers. Prior research suggests that close student-student relationships are important precursors to student engagement (Juvonen, 2006; Osterman, 2000). Minority students may be more likely to form close social bonds in schools with higher concentrations of minority peers, given that the ability to form same race/ethnicity friendships has been shown to decline as racial/ethnic heterogeneity in schools increases (see Moody, 2001). Same-race friendships may be able to better promote engagement in school than different-race/friendships if they are associated with a heightened sense of social belonging. This logic implies that minority youth may be more engaged in high-minority schools because of the social bonds that they form with same race/ethnicity peers in these environments.

Minority students in minority-concentrated and impoverished schools may also have unanticipated resources for engagement—both in terms of institutional support and social capital—than their peers in other schools. Schools with high proportions of minority and/or Free and Reduced Price Lunch eligible students are clear targets for educational intervention. Schools with higher proportions of minorities and/or Latinos/as often have more targeted resources for learning, such as Title 1 funding, minority teachers, ELL teachers, and professional development geared towards meeting the needs of specific populations (Goldsmith, 2003; Lee and Klugman, 2013; Potochnick and Handa, 2012). Mexican-origin students may also have greater co-ethnic parental support in high-Latino/a schools (Klugman et al., 2012). These resources could promote engagement for minority students in high-minority, high-poverty schools.

2.3. The importance of engagement

Even though a number of outcomes could potentially be linked to school compositional characteristics, this research focuses on school engagement for three reasons. First, there are notable racial/ethnic differences in levels of engagement, and school characteristics may exacerbate these patterns. While the prior literature on racial/ethnic differences in engagement is somewhat inconsistent, findings suggest that Mexican-origin and black students have positive attitudes towards schooling but often feel less attached towards their specific schools and may be less engaged in behaviors that lead to school success, such as completing homework and participating in extracurricular activities (Ainsworth-Darnell and Downey, 1998; Goldsmith, 2004; Portes and Rumbaut, 2001; Ream and Rumberger, 2008).

Attending high-minority, high-poverty schools has been shown to be positively associated with affective engagement among minorities, but there is little prior research on differences in behavioral engagement across schools between racial/ethnic groups. Members of all racial/ethnic groups are more attached to school as the proportion of same-race/ethnicity peers increases (Johnson et al., 2001; Ueno, 2009). For black and Latino/a students, pro-school attitudes are higher among students in schools with higher proportions of minority students, especially if there are also higher proportions of minority teachers (Goldsmith, 2004). Exposure to higher-SES peers is also associated with more negative self-images, higher levels of perceived social isolation, and increased rates of depression among low-income Latinos/as (Crosnoe, 2009). It is not clear, however, whether this school segregation paradox for

affective engagement extends to behavioral engagement outcomes such as participating in activities and engaging in coursework.

Second, it is important to examine school engagement because this domain of education may be particularly linked to school environments. School engagement involves affective, cognitive, and behavioral components. Affective engagement refers to social, emotional, and psychological attachments towards school, whereas behavioral engagement captures actions and tasks related to schooling (Lawson and Lawson, 2013). Such actions may include involvement in homework activities, school preparation, tardiness or skipping school, attentiveness in class, and athletic and arts participation (see Johnson et al., 2001; Portes and Rumbaut, 2001; Ream and Rumberger, 2008). Although family influences likely play a role in contributing to affective and behavioral engagement, students' feelings about their schools and participation in coursework and activities may be closely linked to processes embedded directly within the school environment, such as interactions with peers and opportunities for involvement. This linkage may be especially strong for socioeconomically disadvantaged racial/ethnic minorities, who depend on schools to increase their chances for upward mobility.

Finally, it is critical to determine how schools shape engagement in school among racial/ethnic minorities because of the negative consequences of low engagement for later educational inequality. Low levels of school engagement can have significant negative consequences for students' educational attainment and adult socioeconomic outcomes. School engagement is a significant positive predictor of school persistence (Archambault et al., 2009; Finn and Rock, 1997; Finn and Zimmer, 2012; Ream and Rumberger, 2008). Engagement in school could also be important for reasons beyond educational attainment, such as being a good school citizen, connecting with social networks within schools (and accessing social and cultural capital within these relationships), and learning to persist in school even in the face of obstacles.

3. Research goals and hypotheses

The two main goals of this study are as follows: a) To investigate the associations between school racial/ethnic and socioeconomic composition and levels of engagement among students, and; b) to determine whether these associations vary by student race/ethnicity. The study tests two competing hypotheses—the “equality of opportunity” hypothesis and the “school segregation paradox” hypothesis. If the equality of opportunity hypothesis is salient, then all racial/ethnic groups will have higher levels of engagement in whiter and more affluent schools due to positive social capital and increased resources and opportunities for engagement in these contexts. If the school segregation paradox is salient, then only white students (the most advantaged group) will have higher levels of engagement in whiter and more affluent schools, whereas disadvantaged minority students (black and Mexican-origin youth) will have lower levels of engagement in these schools, due to negative psychosocial processes in whiter and more affluent schools and/or positive psychosocial processes and targeted resources in high-minority, high-poverty schools.

4. Data and Methods

4.1. Data and sample

The dataset for this study is the restricted-use Education Longitudinal Study of 2002 (ELS:2002) from the National Center for Education Statistics (National Center for Education Statistics, Institute of Education Sciences, 2015). The ELS:2002 includes a nationally representative sample of approximately 16,200 students in 750 schools throughout the United States. The ELS:2002 sample was drawn using a two-stage sampling design. Schools were sampled first using a probability proportional to size sampling technique, and approximately 26 students within each school were subsequently sampled via random sampling. The ELS:2002 is somewhat dated for studying student outcomes, especially relative to the more recent High School Longitudinal Study of 2009 (HSLS:09). The ELS:2002 is informative, however, because it contains a greater variety of student engagement measures than the HSLS:09, including math and English teacher reports of students' engagement behaviors. Additionally, there is little reason to believe that the associations between school composition and engagement have changed drastically over 7 years, the time span between the base-year ELS:2002 and HSLS:09.

The analysis focuses on the base-year ELS:2002 sample, which includes approximately 15,240 students who were 10th graders in 2002. The data do not include students who dropped out of school prior to 10th grade; the sample is thus representative of students that persisted in school through 10th grade. Students are categorized into six mutually exclusive racial/ethnic groups based on self-reported racial status, Hispanic status, and Hispanic national origin subgroup (for Latinos/as): Non-Latino White (n = 8,680), Mexican-Origin Latino/a (n = 1,460), Non-Latino Black (n = 2,020), Non-Latino Asian (n = 1,400), Non-Latino Other Race (n = 930), and Latino- Other (n = 760).[2] The “Non-Latino Other Race” category includes all non-Latino students that are not White, Black, or Asian, including American Indians, Alaskan Natives, Pacific Islanders, and multiracial youth. The “Latino- Other” category includes all Latinos/as who are not of Mexican origin.[3] The “non-Latino” prefix is dropped when referencing non-Latino groups.

[2] Cell sizes have been rounded to the nearest tenth to comply with NCES restricted-use data regulations.

[3] There are significant national origin differences within the Latino/a population (Portes and Rumbaut, 2001). However, because the ELS:2002 only contains a small number of cases representing non-Mexican origin national origin Latino/a subgroups, the other groups are categorized jointly as “Other” Latino/as.

4.2. School engagement measures

The dependent variables in this analysis are intended to capture affective and behavioral domains of engagement. Previous studies have operationalized affective engagement using measures of attachment to schooling in AddHealth, such as feeling close to people at school and being happy to be at school (Johnson et al., 2001; Ueno, 2009). The ELS:2002 does not have as wide a range of measures of affective engagement as AddHealth, but does include a question about how much a student likes school, with responses including "Not at all", "Somewhat", or "A Great Deal." A dichotomous measure of whether the student liked school was created based on this question. Students that said that they liked school "Somewhat" or "A Great Deal" were coded as "1" for liking school, and students who reported that they did not like school were the reference category. Before collapsing these categories, multinomial logistic regression models were estimated to determine if school compositional variables had similar associations with liking school whether a 3-category variable or binary measure was analyzed. The substantive results were the same regardless of the measure chosen.

Previous studies of behavioral engagement have examined homework activities, school preparation, tardiness or skipping school, attentiveness in class, athletic participation, and arts participation (Johnson et al., 2001; Portes and Rumbaut, 2001; Ream and Rumberger, 2008). Two measures of behavioral engagement are examined here: Involvement in school-sponsored activities and coursework engagement. Involvement in school-sponsored activities is measured using a dichotomous variable indicating whether the student was involved in one or more school-sponsored activities versus no activities. The ELS:2002 includes a variable listing the number of school-sponsored activities that the student participated in during the 2001–2002 academic year. Students were given a value of "1" if they participated in one or more school-sponsored activities and "0" if they were not involved in any school-sponsored activity.

Finally, a coursework engagement index was created to capture behavioral engagement and to provide a teacher-reported measure of student engagement. Exploratory factor analysis (EFA) was conducted using 28 potential measures of engagement in the ELS:2002, such as how many times the student was late for school, how often the student completed homework, and whether the student was disruptive in class. EFA is a statistical technique that identifies variables that have shared variance and thus represent a common underlying latent construct (Fabrigar and Wegener, 2011). The EFA results revealed a factor representing math and English teacher perceptions of student engagement in coursework at school (Eigenvalue: 6.8). Four variables from math and English teacher reports of student behaviors (linked to the student's record) had factor loadings higher than $\pm$ 0.6 on this factor: 1) The teacher agrees that the student works hard for good grades; 2) how often the student completes homework; 3) how often the student is attentive in class, and; 4) the student has fallen behind in school. The Cronbach's alpha scale reliability coefficient for these variables is 0.89.

To create the engagement index, each of these eight variables was first standardized to have a mean of zero and a standard deviation of 1.0, with reverse coding for "student has fallen behind in school." These eight standardized measures were then summed and divided by eight (the total number of items used to create the index).[4] The resulting index was then standardized to have a mean of zero and a standard deviation of 1.0. Higher values indicate greater levels of coursework engagement as reported by math and English teachers. In cases where students had missing values on one or more of the eight items, the index was created based on existing items, and the total number of items was recorded and is controlled in multivariate models where coursework engagement is the dependent variable.

4.3. Measures of school racial/ethnic and socioeconomic composition

The main independent variables are the racial/ethnic and socioeconomic composition of schools attended by students. Even though there are many potential measures of school racial/ethnic composition, this analysis is interested in determining how exposure to white students is associated with student engagement in school.[5] The restricted-use ELS:2002 includes a measure of the percent of minority students in the school in 2001–2002 that is linked into the ELS:2002 from the Common Core of Data (CCD). The percent of minority students in the school is subtracted from 100 to obtain the percent of non-minority students in the school. Minority groups identified include non-Latino Blacks, non-Latino Asians and Pacific Islanders, non-Latino American Indians or Alaskan Natives, and Latinos/as of any race. The percent of non-minority students thus largely represents the percentage of non-Latino whites in the school. Approximately 280 out of 15,240 students in the ELS:2002 base-year sample (1.8%) were missing values for the percent of non-minority students in the school, and these values were imputed using multiple imputation (see below).

The average socioeconomic status of students in the school is created using in-sample student-level data on household

[4] There are approximately n = 4,580 cases in the base-year sample where one or more of the variables used to create the coursework engagement index are missing. Approximately 26.4% (n = 1,210) of these cases have at least 7 out of 8 possible course engagement measures, and 62.7% (n = 2,870) have 4 out of 8 possible measures, usually because only one teacher (math or English) filled out a survey. The coursework engagement variable is created based on all available teacher report variables, even if there were fewer than 8 items recorded. Multivariate models include a control for the number of non-missing variables used to create the coursework engagement index.

[5] The total racial/ethnic make-up of schools is based on a linear combination of all racial/ethnic groups counted in the school. The percent of non-minorities in the school is therefore highly correlated with the percentage of particular minority groups in the school. In a separate analysis, the counts of particular racial/ethnic groups from the Common Core of Data 2001–2002 Public School Universe Survey and Private School Universe Survey were merged into the ELS:2002. For minority students, the correlation between the percent of non-Latino white students in the school and the percent of same-race/ethnicity students in the school (% Latinos in the school for Latinos, for example) was −0.71. Thus, for minority students, attending a school with more non-minorities implies less exposure to co-racial/ethnic students.

socioeconomic status to create an aggregate school-level measure that was assigned to students through the school identification number.[6] The ELS:2002 includes a composite measure of household socioeconomic status for each student, which combines measures of parental educational attainment, family income, and parental occupational prestige (SEI score). The base-year ELS:2002 sample includes approximately 26 students sampled randomly from each school, with some students oversampled such as Asians. The ELS:2002 does not include a within-school sample weight, so there is no way to determine how many students each case in the ELS:2002 represents within his/her school. However, the base-year student weights in the ELS:2002 are used as an approximation of within-school weights.

For each student *i* in school *j*, the average SES of the school is calculated using the formula below. This value is then assigned to all students in school *j*.

$$[(\Sigma\ (\text{Base-year SES for Student}_{ij})*(\text{Base-Year Weight for Student}_{ij}))/\Sigma\ (\text{Base-Year Weight for Student}_{ij})] \tag{1}$$

4.4. Covariates

Any study of schooling contexts and engagement must acknowledge that observed associations between schools and engagement could be due to the fact that students with risk factors for disengagement are disproportionately likely to attend high-minority, high-poverty schools. Controlling for factors related to selection into school may attenuate any association between school compositional characteristics and engagement (see Lauen and Gaddis, 2013). Additionally, some background characteristics may be mechanisms that explain the linkages between school composition and engagement outcomes. For this reason, all multivariate models include controls for variables that could influence student selection into schools and engagement and/or that could be explanatory mechanisms, based on the prior literatures on engagement, educational stratification, and immigrant incorporation (see Alba and Nee, 2009; Hirschman, 2001; Johnson et al., 2001; Kao and Thompson, 2003; Landale et al., 1998; Ream and Rumberger, 2008; Rumberger and Lim, 2008; Sandefur et al., 1992).

Household socioeconomic status is measured using the household socioeconomic status (SES) composite variable in the base-year ELS:2002. The SES variable is a standardized index that combines measures of parental educational attainment, family income, and parental occupational prestige (SEI score). To measure family composition, students in ELS:2002 are divided into four family composition categories: Intact (both biological or adoptive parents in the household), stepparent (one biological/adoptive parent and one stepparent), mother only, and "other" (father only, grandparent/s, sibling/s, or other family composition). Because the sample includes immigrant-origin students, a categorical measure of immigrant generational status is created based on Rumbaut's (2004) typology, using information on student, maternal, and paternal nativity and student age of arrival. Students are classified into five immigrant generational groups: Third and higher generation, 2nd/2.5 generation, 1.75 generation, and 1st/Foreign-born (FB) "Other" generation and missing generational status. The 3rd and higher generation includes U.S.-born students who have parents that are U.S.-born, the 2nd−/2.5-generation includes U.S.-born students that have one or two parents who are foreign born, the 1.75 generation includes foreign-born students who arrived in the United States before the age of five, and the 1st/FB Other category includes foreign-born students who arrived after the age of five and foreign-born youth who are missing information on age of arrival.

Two academic risk factors prior to 10th grade are also controlled: Student mobility and grade repetition. A three-category variable of student mobility measures whether the student changed schools once, two or more times, or never changed schools. Students who have ever repeated a grade are also flagged using a dummy variable, with the reference being students who have never repeated a grade. Three schooling characteristics that may confound the association between school composition and engagement are also included in multivariate models: School sector, high enrollment levels, and urbanicity. School sector is measured using a public versus private school dummy variable. Schools are also categorized as "high" versus "medium/low" enrollment based on student population size. High enrollment schools have enrollments that are one standard deviation above the mean for the ELS:2002 base-year sample (2,080 or more students). School urbanicity is measured using a categorical variable indicating whether the school is located in an urban, suburban, or rural location. Weighted means for all covariates are listed for the overall sample and for focal racial/ethnic groups in Table 1.

4.5. Analytic strategy

The analysis first describes the characteristics of 10th graders and compares levels of engagement in school among the focal racial/ethnic groups. All descriptive analyses are weighted using the base-year student weights in the ELS:2002 in order to be representative of 10th graders in 2002. The associations between school compositional variables and engagement are then estimated using multilevel regression models, with students "nested" in schools. These models adjust for differences in student and household

[6] An aggregate school-level measure of average socioeconomic status using student-level measures was chosen over alternative measures for several reasons. The ELS:2002 dataset includes a measure of the percent of students receiving Free and Reduced Price Lunch (FRPL) from the CCD, but this variable has a high number of missing values (29.4%). FRPL may also be a poor overall measure of socioeconomic status because it contains both "false positives"—students who are not eligible for FRPL but are listed as eligible—and "false negatives"—students who are eligible for FRPL but do not apply (Harwell and LeBeau, 2010). Variables such as parental education and occupation, household composition, and income are preferable measures of socioeconomic status when compared to federal cut-off points for poverty status (Hauser, 1994). The base-year socioeconomic status index is available for all students in the ELS:2002 sample, and takes into account parental education, occupation, and income. The index is also highly correlated with % FRPL in the school (0.7) for students with non-missing values on the % FRPL measure.

Table 1
Weighted mean characteristics of 10th graders by race/ethnicity, 2002.

	Overall Sample		White		Black		Mexican Origin	
	Mean	(S.E.)	Mean	(S.E.)	Mean	(S.E.)	Mean	(S.E.)
Dependent Variables								
Likes school	0.882	(0.004)	0.869	(0.005)	0.910	(0.008)	0.917	(0.008)
School-sponsored activities	0.497	(0.007)	0.538	(0.008)	0.450	(0.016)	0.335	(0.016)
Coursework engagement	−0.070	(0.014)	0.055	(0.016)	−0.418	(0.031)	−0.258	(0.037)
Independent Variables								
School non-minority (%)	65.3	(1.0)	80.8	(0.6)	37.4	(1.7)	35.9	(2.2)
School mean peer SES	−0.008	(0.014)	0.091	(0.014)	−0.163	(0.018)	−0.319	(0.036)
White	0.602	(0.010)	1.000	(0.000)	na	na	na	na
Black	0.144	(0.007)	na	na	1.000	(0.000)	na	na
Mexican origin	0.110	(0.008)	na	na	na	na	1.000	(0.000)
Asian	0.039	(0.003)	na	na	na	na	na	na
Other race	0.055	(0.003)	na	na	na	na	na	na
Other Latino/a	0.049	(0.003)	na	na	na	na	na	na
Female	0.496	(0.005)	0.497	(0.007)	0.488	(0.012)	0.525	(0.014)
3rd + Gen.	0.792	(0.007)	0.927	(0.004)	0.875	(0.012)	0.359	(0.024)
2nd/2.5 Gen.	0.127	(0.005)	0.050	(0.003)	0.076	(0.009)	0.395	(0.021)
1.75 Gen.	0.029	(0.002)	0.010	(0.002)	0.014	(0.003)	0.087	(0.009)
1st- Other	0.052	(0.003)	0.013	(0.002)	0.035	(0.006)	0.159	(0.014)
Household SES (index)	−0.008	(0.014)	0.170	(0.015)	−0.248	(0.019)	−0.551	(0.032)
Intact	0.568	(0.006)	0.636	(0.007)	0.315	(0.013)	0.580	(0.015)
Stepparent	0.167	(0.004)	0.160	(0.005)	0.180	(0.01)	0.165	(0.012)
Mother only	0.190	(0.004)	0.142	(0.005)	0.397	(0.014)	0.173	(0.013)
Other family composition	0.075	(0.003)	0.061	(0.004)	0.108	(0.008)	0.083	(0.008)
Ever repeated a grade	0.126	(0.004)	0.099	(0.005)	0.218	(0.013)	0.156	(0.012)
Changed schools once	0.231	(0.005)	0.233	(0.006)	0.207	(0.013)	0.254	(0.015)
Changed schools two or more times	0.324	(0.006)	0.285	(0.007)	0.403	(0.015)	0.377	(0.015)
Public school	0.924	(0.003)	0.904	(0.005)	0.973	(0.004)	0.967	(0.006)
School high enrollment	0.200	(0.015)	0.130	(0.014)	0.178	(0.021)	0.491	(0.047)
Urban	0.302	(0.008)	0.205	(0.01)	0.493	(0.023)	0.476	(0.04)
Suburban	0.503	(0.008)	0.538	(0.011)	0.407	(0.022)	0.456	(0.039)
Rural	0.196	(0.006)	0.257	(0.009)	0.100	(0.014)	0.068	(0.013)
Coursework engagement total items	6.3	(0.1)	6.6	(0.1)	5.8	(0.2)	5.8	(0.2)
n	15,240		8,680		2,020		1,460	

Note: Means are calculated for cases with non-missing values.

background factors and school-level confounders. The binary outcome variables (likes school and involvement in school-sponsored activities) are estimated using multilevel logistic regression models. The basic functional form of a multilevel logistic regression model with both Level 1 (student-level) and Level 2 (school-level) predictors is as follows:

$$logit(\Pr[nonenroll_i = 1]) = \alpha_{school[j]} + \mathrm{B}_{ij}X_{ij}$$

$$\alpha_{school[j]} \sim N(\gamma_0 + \Gamma_{school}\mathrm{M}_{school}, \sigma^2_{school}) \quad (2)$$

The continuous coursework engagement variable is estimated using multilevel linear regression models. The functional form of a multilevel linear regression model with both Level 1 and Level 2 predictors is as follows:

$$y_{ij} = \alpha_{school[j]} + \mathrm{B}_{ij}X_{ij} + \varepsilon_{ij}$$

$$\alpha_{school[j]} \sim N(\gamma_0 + \Gamma_{school}\mathrm{M}_{school}, \sigma^2_{school}) \quad (3)$$

In both of these equations, B_{ij} represents the fixed parameter estimates for all student-level background factors that may be correlated with dropout, and $\Gamma_{school[j]}$ represents the fixed parameter estimates for school-level predictors. The multilevel logistic regression models are varying intercept models that allow the mean outcome to vary by schools, as represented by the parameter $\alpha_{\mathrm{school[j]}}$. All continuous independent variables in the multilevel logistic regression models are centered at their means.

The multivariate analyses of each dependent variable follow a similar sequence. Baseline models, controlling only for race/ethnicity and school confounders, are first estimated to determine whether there are significant associations between school composition and engagement. Next, full models with all covariates are estimated to see if these baseline associations persist with controls for factors related to selection into schools and explanatory mechanisms. Finally, interaction models are estimated, with each school compositional measure (percent non-minority and mean SES) interacted with student race/ethnicity. If the school segregation paradox is salient, then interactions between school compositional variables and Mexican-origin and black racial/ethnic status should be significant and should indicate that the associations between school percent non-minority and mean SES levels and engagement are negative for these two groups. Three-way interactions between school percent non-minority, school SES, and student race/

ethnicity were also estimated, but none of these interactions was significant for the focal groups of interest.[7]

Multiple imputation in Stata 14.0 is used to attend to missing values. There are approximately 4% of cases missing on the likes school measure, 2% of cases missing on the school-sponsored activities measure, and 9% of cases missing on the coursework engagement measure. Cases with missing values on the dependent variables are included in the imputation procedure, given that the omission of the dependent variable from the imputation procedure can bias regression coefficients for imputed predictors towards zero (Allison, 2000; Graham, 2009; Schafer, 1997). Covariates with missing values are also imputed, with the highest percentages of missing values for repeating a grade and changing schools (approximately 19% missing cases). The "mi impute chained" option generates 10 multiply imputed datasets via chained equations. These datasets are then combined using "mi estimate", which adjusts coefficients and standard errors for variability between imputations using Rubin's rules (Rubin, 1987).

The potential for selection bias to affect results arises in any study of associations between school-level predictors and individual-level outcomes (Lauen and Gaddis, 2013). This work estimates the degree of bias that would be necessary to invalidate inferences about school-level predictors in terms of sample replacement (Frank et al., 2013). The sample replacement estimate from Frank et al. (2013) uses the coefficient, standard error, sample size, and number of covariates in a model to determine how many cases in a sample would need to be replaced with cases for whom there is no association between a focal predictor and the outcome in order to invalidate the inference at a given significance level (in this case, $\alpha = 0.05$). Higher values indicate that a greater percentage of cases in the sample would need to be replaced, and thus point to greater robustness of the results to potential biases, including selection into schools.

This analysis uses multiply imputed data and multilevel analyses, which are not yet supported by the KonFound-it! software used to calculate case replacement estimates (Frank, 2014). There were two solutions to circumvent these limitations. First, varying intercept models were re-estimated as regression models with standard errors clustered by school, which yielded similar coefficients and standard errors to the multilevel models. Second, these models were estimated for each of the 10 imputed datasets separately. This procedure resulted in 10 coefficient and standard error estimates. The mean coefficient estimates from these 10 models, and pooled standard error estimates based on Rubin's rules to account for within- and between-imputation variability (van Ginkel and Kroonenberg, 2014; Rubin, 1987), were then entered into the KonFound-it! spreadsheet (Frank, 2014) to obtain case replacement estimates.

5. Results

5.1. School engagement and school composition by race/ethnicity

Table 1 displays the weighted mean population characteristics of 10th graders in 2002 for the overall sample and by race/ethnicity. Racial/ethnic differences in levels of engagement depend on the domain of engagement that is being analyzed. As Table 1 shows, Mexican-origin and black students are more likely to report that they like school than whites. Approximately 91.7% of Mexican-origin students and 91.0% of black students report liking school versus 86.9% of white students. This finding confirms prior research showing that most racial/ethnic minority students hold positive viewpoints towards schooling (Ainsworth-Darnell and Downey, 1998; Carter, 2005; Harris, 2011). Mexican-origin and black youth, however, have lower levels of behavioral engagement in school than whites. Mexican-origin students have the lowest average levels of involvement in school-sponsored activities (33.5%) and a 0.3 standard deviation unit gap with whites in coursework engagement. Black youth are more likely than Mexican-origin youth to participate in activities, but have a 10 percentage point gap in school-sponsored activities participation with whites. Black students also have the lowest average levels of coursework engagement (-0.4) among these three racial/ethnic groups.

Not surprisingly, Mexican-origin and black youth are more isolated in minority-concentrated and lower SES schools than white youth. As Table 1 indicates, white students on average attend a school where 81% of peers are non-minority whites, whereas approximately 1-in-3 students in the schools attended by black and Mexican-origin youth is non-minority white. Mean peer SES levels are also the highest in the schools attended by white students, followed by black students, and then Mexican-origin students.

A key question for this analysis is how levels of engagement vary within racial/ethnic groups by school racial/ethnic and socioeconomic composition. Figs. 1 and 2 display how the three engagement measures vary for each racial/ethnic group by school percent non-minority and school SES. (The values for engagement measures by school composition and race/ethnicity are displayed in Appendix Table A1.) For all three groups, the percentage of students reporting liking school decreases slightly among students in schools with higher concentrations of whites (Fig. 1). For Mexican-origin and black youth, a slight negative association between liking school and school SES is also observed, whereas whites are slightly more likely to report liking school in higher SES schools (Fig. 2). These differences in liking school across contexts are not pronounced, however, especially when uncertainty in the estimates is taken into account.

As can be seen in Fig. 1, Mexican-origin youth and white youth in majority-white schools are more likely to be engaged in school-sponsored activities than those in majority-minority schools. This same pattern is not observed for blacks—their activities involvement is fairly constant across schools with varying percentages of white students. Mexican-origin and white youth in the highest SES

[7] One three-way interaction between school percent non-minority, school SES, and Asian race/ethnicity was significant for predicting involvement in school-sponsored activities. Because Asian students were not a major focus of this study, the interaction results are not presented here, but are available upon request. These interaction results indicate that, unlike white students, who do not exhibit a significant association between school composition and activities involvement, Asian students have an increased likelihood of being involved in school-sponsored activities as the percentage of white and higher SES students increases.

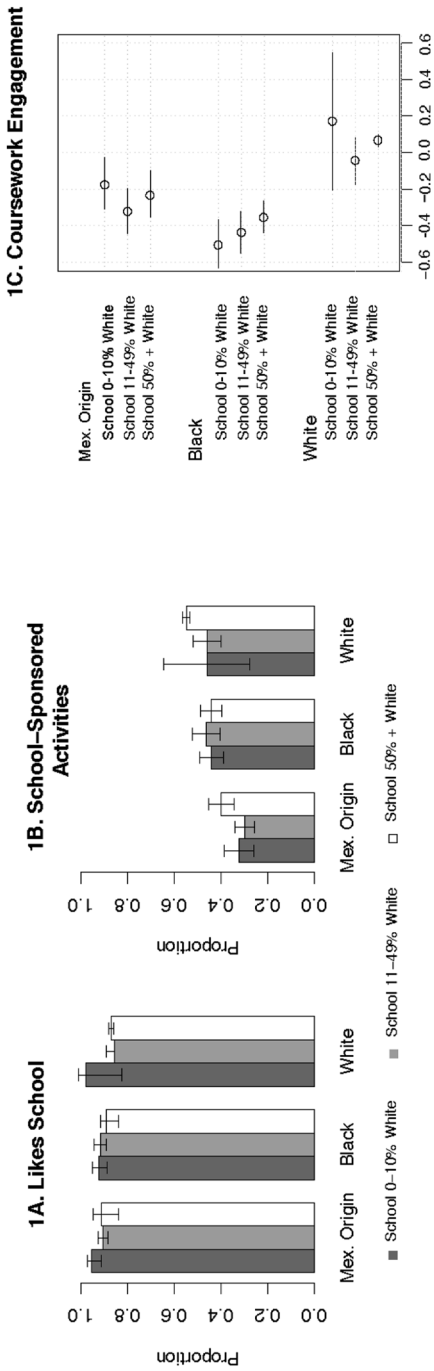

Fig. 1. Engagement levels by school percent non-minority (white) for Mexican-origin, black, and white students.

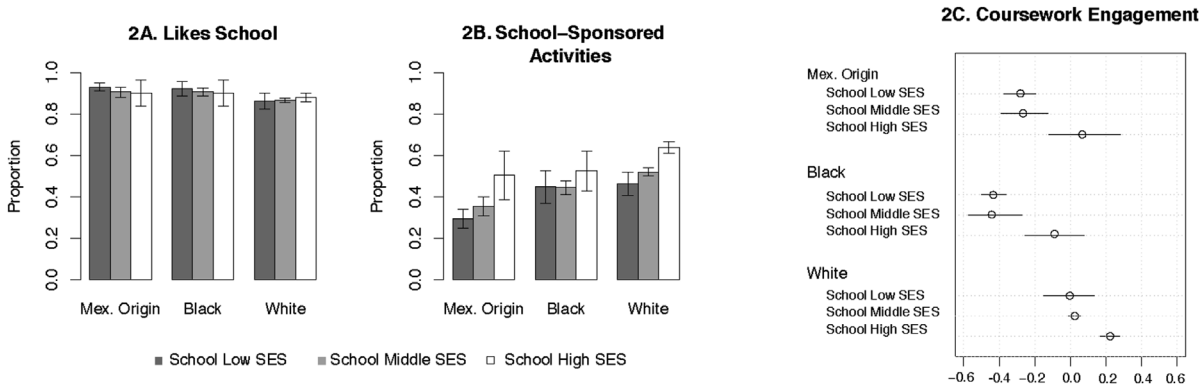

Fig. 2. Engagement levels by school mean socioeconomic status for Mexican-origin, black, and white students.
Note: For school socioeconomic status, the sample mean is 0 and standard deviation is 0.43. A low SES school is at or below 1 standard deviation from the mean, a middle SES school is between −/+ 1 standard deviation from the mean, and a high SES school is at or above 1 standard deviation from mean.

schools are more likely to be involved in school-sponsored activities (Fig. 2). Black involvement in activities is also higher in the highest SES schools, but the 95% confidence intervals overlap with those for the low and middle SES schools.

Finally, for all three racial/ethnic groups, there is not a clear gradient in coursework engagement patterns by school percent white, especially when 95% confidence intervals are taken into account (Fig. 1). Coursework engagement levels by school SES, in contrast, show a discernable pattern whereby Mexican-origin, black, and white students in the highest SES schools are more engaged than their peers in low and middle SES schools (Fig. 2). To summarize, the bivariate associations between school composition and engagement outcomes for each racial/ethnic group do not unilaterally support the equality of opportunity or school segregation paradox hypothesis. There is some evidence that minority groups like school less in whiter and more affluent schools, which would support the school segregation paradox hypothesis. Mexican-origin and white students are more engaged in activities in whiter and more affluent schools though, and all three groups are more involved in coursework in the highest SES schools, which lends support to the equality of opportunity hypothesis.

5.2. School racial/ethnic and socioeconomic composition and liking school

The first portion of the multivariate analysis looks at the association between school racial/ethnic and socioeconomic composition and liking school. Table 2 lists the odds ratios from multilevel logistic regression models predicting whether students like school somewhat or a great deal, with the reference category being students who do not like school at all. In Model 1, the baseline model, there is a significant and negative association between school percent white and liking school, but there is not a significant association between school SES and liking school. Net of school socioeconomic status and a student's own racial/ethnic background, students are less likely to say that they like school if they attend a whiter school.

The negative association between school percent non-minority and liking school persists in the full model (Model 2). After adjusting for all covariates, the odds of liking school decline by 0.3% for each one percentage point increase in the percent of non-minority white students in the school. This association is relatively weak, but there are also vast differences across schools in the percentage of white students. A 50 percentage point increase in the percent of non-minority students in the school would be associated with an approximately 15% decline in the odds of liking school. In Model 2, students are also less likely to report that they like school as school SES levels increase, although this association is not significant at $p < 0.05$. In sum, students in school environments that should presumably be conducive to higher affective engagement in school—those with higher proportions of white students—are less likely to report liking school.

Do the associations between liking school and school composition differ for minority students relative to white students, as suggested by the school segregation paradox hypothesis? The results of Models 3 and 4 demonstrate that cross-level interactions between school compositional variables and student race/ethnicity are not significant. Substantively, this result implies that Mexican-origin and black youth are no different from non-Latino white youth in the association between school composition and liking school.

5.3. School racial/ethnic and socioeconomic composition and activities involvement

The next set of models turn to involvement in school-sponsored activities. Estimates from multilevel logistic regression models predicting involvement in one or more activities versus no involvement in activities are listed in Table 3. In Model 1, the baseline model, only school SES (and not school percent non-minority) is positively and significantly associated with involvement in activities. The significant association between school SES and involvement in activities does not, however, persist in the full model (Model 2). This result implies that the correlation between school SES and involvement in activities is due to the fact that higher-SES schools have higher proportions of students who are more likely to be involved in school-sponsored activities, such as those from higher SES households and those with fewer academic risk factors for non-engagement. This finding supports a selection mechanism explanation for why students in more affluent schools are more likely to participate in school-sponsored activities.

Table 2
Odds ratios for school compositional characteristics as predictors of liking school.

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
School Composition				
School non-minority (%)	0.996**	0.997*	0.999	0.997*
	(0.001)	(0.001)	(0.002)	(0.001)
School mean SES	1.004	0.839	0.851	0.908
	(0.088)	(0.083)	(0.085)	(0.106)
Race/Ethnicity (Ref. White)				
Mexican origin	1.328*	1.173	1.137	1.142
	(0.154)	(0.148)	(0.160)	(0.152)
Black	1.262*	1.344**	1.320*	1.322**
	(0.125)	(0.137)	(0.149)	(0.139)
Asian	1.232	0.889	0.945	0.921
	(0.134)	(0.113)	(0.129)	(0.119)
Other race	0.936	0.910	0.946	0.939
	(0.103)	(0.103)	(0.109)	(0.108)
Latino/a- Other	1.090	0.963	0.965	0.986
	(0.152)	(0.141)	(0.148)	(0.145)
*School Composition * Race/Ethnicity*				
School non-minority * Mexican origin			0.995	
			(0.004)	
School non-minority * Black			0.995	
			(0.003)	
School non-minority * Asian			0.999	
			(0.004)	
School non-minority * Other race			0.998	
			(0.004)	
School non-minority * Latino/a- Other			0.995	
			(0.005)	
School mean SES * Mexican origin				0.742
				(0.186)
School mean SES * Black				0.725
				(0.177)
School mean SES * Asian				0.775
				(0.177)
School mean SES * Other race				1.285
				(0.378)
School mean SES * Latino/a- Other				0.885
				(0.273)
Covariates				
Female (ref. Male)		1.944***	1.944***	1.940***
		(0.109)	(0.109)	(0.109)
2.5/2nd generation (Ref. 3 + gen.)		1.297*	1.287*	1.292*
		(0.146)	(0.145)	(0.145)
1.75 generation		2.112***	2.094***	2.096***
		(0.414)	(0.411)	(0.410)
1st generation- other		2.443***	2.420***	2.408***
		(0.398)	(0.395)	(0.393)
Socioeconomic status		1.184***	1.187***	1.183***
		(0.054)	(0.055)	(0.054)
Stepparent (Ref. Intact family)		0.964	0.966	0.966
		(0.075)	(0.075)	(0.075)
Mother only		1.010	1.008	1.009
		(0.078)	(0.078)	(0.078)
Other family type		0.885	0.884	0.888
		(0.093)	(0.093)	(0.094)
Repeated a grade (ref. Did not repeat a grade)		0.881	0.882	0.880
		(0.079)	(0.079)	(0.079)
Changed schools once (Ref. Did not change schools)		0.944	0.946	0.944
		(0.078)	(0.078)	(0.078)
Changes schools 2 or more times		0.912	0.914	0.914
		(0.071)	(0.072)	(0.072)
Public school (Ref. Private school)	0.823*	0.810*	0.816*	0.824*
	(0.073)	(0.072)	(0.073)	(0.074)
High enrollment school (Ref. Low/med. enroll.)	1.131	1.090	1.095	1.078
	(0.103)	(0.100)	(0.101)	(0.099)
Suburban (Ref. Urban)	0.866*	0.882	0.883	0.887
	(0.062)	(0.063)	(0.063)	(0.064)

(*continued on next page*)

Table 2 (*continued*)

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
Rural	0.849	0.890	0.890	0.905
	(0.081)	(0.085)	(0.085)	(0.087)
Constant	9.738***	7.299***	6.980***	7.069***
	(0.813)	(0.692)	(0.700)	(0.688)
Random Effects (School)	0.056	0.051	0.052	0.051
	(0.028)	(0.028)	(0.028)	(0.028)
Observations	15,240	15,240	15,240	15,240
Number of groups	750	750	750	750

Note: Standard errors in parentheses; ***p < 0.001, **p < 0.01, *p < 0.05.

Interactions between school compositional variables and student race/ethnicity are incorporated in Models 3 and 4. The associations between school compositional characteristics and involvement in school-sponsored activities do not differ for Mexican-origin or black youth relative to white students. For all three groups, the associations between school racial/ethnic and socioeconomic composition and involvement in activities are non-significant.

5.4. School racial/ethnic and socioeconomic composition and coursework engagement

The last engagement outcome of interest is coursework engagement. Table 4 lists the coefficients from a multilevel linear regression model predicting coursework engagement levels. As the baseline model (Model 1) demonstrates, coursework engagement is significantly higher among students in higher SES schools. In the full model (Model 2), the positive and significant association between school mean SES levels and coursework engagement is attenuated (Model 2), but a significant and positive association appears between the percentage of non-minority students in the school and coursework engagement. Thus, net of covariates, students who attend whiter schools have higher teacher-reported coursework engagement levels. This finding supports the equality of opportunity hypothesis for explaining behavioral engagement in coursework in whiter schools. This pattern, however, does not differ by student racial/ethnic background. Interactions between school compositional variables and race/ethnicity in Models 3 and 4 are not significant. There is thus nothing unique about the association between school composition and coursework engagement for Mexican-origin and black students relative to white students.

5.5. Sample replacement results

Two major findings from the results are as follows: 1) As the percentage of white students in the school increases, the odds of liking school significantly decrease, and; 2) coursework engagement significantly increases as the percentage of white students increases. Sample replacement results can provide some insights into the robustness of the associations between school percent non-minority and these two outcomes. As described in the Data and Methods section, the full non-interaction models (Model 2) in Tables 2 and 4 were re-estimated for the 10 multiply imputed datasets, using clustered standard errors by school instead of varying intercepts. The average marginal effect was also obtained for the dichotomous "likes school" variable. The results from these models are displayed in Appendix Table A2.

The mean average marginal effect for liking school is −0.0003, a small association. A 50-point increase the percentage of white students in the school would reduce the probability of liking school by approximately 1.5 percentage points. The sample replacement value for the average marginal effect of school percent non-minority is 22%. To invalidate the inference about the association between school percent white and liking school, 22% of the estimated effect would have to be due to bias; approximately 3,370 of the cases would have to be replaced with cases for whom there is an effect of zero. The mean coefficient estimate for percent non-minority as a predictor of coursework engagement is 0.001. A 50-point increase in the percentage of white students in the school would increase the coursework engagement index by approximately 0.05 standard deviation units. The sample replacement value for the coefficient on the percent of non-minority students as a predictor of coursework engagement is 13%. To invalidate this inference, approximately 2,050 cases would need to be replaced with cases for whom the percentage of whites in the school has an effect of zero.

To summarize, the associations between school percent non-minority and liking school, and between school percent non-minority and coursework engagement, are small, but they are somewhat robust to selection bias. Over one-fifth of the sample would need to be replaced with students for whom school percent white has no effect in order to invalidate the inference about school percent non-minority and liking school, and over one-tenth of the sample would need to be replaced with students for whom there is no effect in order to invalidate the inference about school percent non-minority and coursework engagement.

Table 3
Odds ratios for school compositional characteristics as predictors of involvement in school-sponsored activities.

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
School Composition				
School non-minority (%)	0.999	1.000	1.001	1.000
	(0.001)	(0.001)	(0.002)	(0.001)
School mean SES	1.698***	1.127	1.128	1.147
	(0.124)	(0.090)	(0.091)	(0.106)
Race/Ethnicity (Ref. White)				
Mexican origin	0.577***	0.719***	0.773**	0.755**
	(0.043)	(0.059)	(0.073)	(0.066)
Black	0.775***	0.919	0.913	0.891
	(0.048)	(0.061)	(0.067)	(0.061)
Asian	1.318***	1.552***	1.536***	1.549***
	(0.093)	(0.130)	(0.139)	(0.131)
Other race	0.905	1.030	1.044	1.034
	(0.069)	(0.082)	(0.085)	(0.082)
Latino/a- Other	0.795**	1.009	0.993	1.003
	(0.068)	(0.094)	(0.102)	(0.094)
*School Composition * Race/Ethnicity*				
School non-minority * Mexican origin			1.001	
			(0.003)	
School non-minority * Black			0.997	
			(0.002)	
School non-minority * Asian			0.997	
			(0.003)	
School non-minority * Other race			0.997	
			(0.003)	
School non-minority * Latino/a- Other			0.997	
			(0.003)	
School mean SES * Mexican origin				1.168
				(0.195)
School mean SES * Black				0.764
				(0.121)
School mean SES * Asian				1.002
				(0.161)
School mean SES * Other race				1.019
				(0.207)
School mean SES * Latino/a- Other				0.854
				(0.170)
Covariates				
Female (ref. Male)		2.335***	2.335***	2.337***
		(0.085)	(0.085)	(0.085)
2.5/2nd generation (Ref. 3 gen.)		0.881	0.883	0.889
		(0.060)	(0.060)	(0.060)
1.75 generation		0.928	0.936	0.937
		(0.097)	(0.098)	(0.098)
1st generation- other		0.959	0.962	0.971
		(0.088)	(0.088)	(0.089)
Socioeconomic status		1.555***	1.558***	1.553***
		(0.048)	(0.048)	(0.048)
Stepparent (Ref. Intact family)		0.788***	0.787***	0.786***
		(0.041)	(0.041)	(0.041)
Mother only		0.877**	0.876**	0.873**
		(0.044)	(0.044)	(0.044)
Other family type		0.834*	0.834*	0.834*
		(0.060)	(0.060)	(0.060)
Repeated a grade (ref. Did not repeat a grade)		0.802***	0.803***	0.800***
		(0.050)	(0.050)	(0.050)
Changed schools once (Ref. Did not change schools)		0.9	0.901	0.9
		(0.050)	(0.050)	(0.050)
Changes schools 2 or more times		0.897*	0.898*	0.899*
		(0.046)	(0.046)	(0.046)
Public school (Ref. Private school)	0.817**	0.812**	0.815**	0.812**
	(0.059)	(0.061)	(0.061)	(0.061)
High enrollment school (Ref. Low/med. enroll.)	0.822**	0.811**	0.811**	0.816**
	(0.059)	(0.060)	(0.061)	(0.061)
Suburban (Ref. Urban)	1.042	1.054	1.058	1.057
	(0.060)	(0.062)	(0.063)	(0.063)

(*continued on next page*)

Table 3 (*continued*)

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
Rural	1.351***	1.432***	1.426***	1.434***
	(0.106)	(0.115)	(0.114)	(0.116)
Constant	1.337***	0.952	0.928	0.945
	(0.087)	(0.071)	(0.073)	(0.072)
Random Effects (School)	0.189	0.197	0.197	0.196
	(0.023)	(0.024)	(0.024)	(0.024)
Observations	15,240	15,240	15,240	15,240
Number of groups	750	750	750	750

Note: Standard errors in parentheses; ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

6. Conclusion

This study has examined the associations between school composition and student engagement patterns, paying particular attention to the case of Mexican-origin and black youth, who are disproportionately concentrated in high-minority, high-poverty schools. The equality of opportunity hypothesis predicted that all students would have higher levels of engagement in whiter and more affluent schools due to positive social capital and increased opportunities and resources for engagement in these environments. The school segregation paradox, in contrast, predicted that disadvantaged minority students such as Mexican-origin and African American youth would have lower levels of engagement in whiter and more affluent schools, due to negative psychosocial processes in these contexts and/or positive social relations and targeted school resources in high-minority, high-poverty schools.

The findings show that all students have lower odds of liking school in schools with higher concentrations of white students, net of racial/ethnic background, school socioeconomic composition, and covariates. This result provides partial support for the school segregation paradox hypothesis, in that minority students are less likely to like school whiter schools. Contrary to the predictions of the school segregation paradox hypothesis, however, students from all racial/ethnic backgrounds—not just disadvantaged minority students—have lower affective engagement in whiter schools. The results also demonstrate that students of all racial/ethnic backgrounds are more likely to be engaged in coursework in whiter schools. This finding supports the equality of opportunity perspective.

Notably, school racial/ethnic composition is not significantly associated with involvement in school-sponsored activities in full models. In full multivariate models, school socioeconomic status is not a significant predictor of liking school, being involved in school-sponsored activities, or coursework engagement. Overall, these results reveal an affective-behavioral trade-off for students in whiter schools. Regardless of racial/ethnic background and school socioeconomic composition, students are less likely to like school in whiter schools, but they are more likely to be engaged in coursework in these contexts.

Three overarching themes can be gleaned from this analysis of schooling contexts and engagement patterns among racial/ethnic groups. First, even though school integration is a laudable goal, there may be affective-behavioral trade-offs for students attending whiter schools. Students may benefit from attending whiter schools because they have exposure to peers and parents who promote behaviors such as doing homework, coming prepared for class, and arriving to class on time (Coleman, 1988; Jencks and Mayer, 1990; Lareau, 2011; Leventhal and Brooks-Gunn, 2000). These behaviors may be reinforced by resources such as high-quality teachers (Clotfelter et al., 2005; Jackson, 2009). Students may have colder feelings towards school, however, in these environments, due to lower aggregations of minority students who exhibit optimistic and positive views towards schooling (Goldsmith, 2004; Harris, 2011). A lack of affective attachment to schooling could have negative consequences for other aspects of adolescent life such as social integration, mental health, and long-term attachments to educational institutions. Future work should delve more deeply into the affective-behavioral trade-offs associated with whiter schooling contexts, perhaps drawing on recent qualitative studies of voluntary school integration programs (see Holland, 2012; Ispa-Landa, 2013).

This leads to a second major theme—whiter schools may not be positive environments for all aspects of students' schooling experiences. Schools with higher concentrations of white students likely offer more resources and opportunities for engagement than high-minority schools, such as highly qualified teachers and high-quality facilities (Clotfelter et al., 2005; Jackson, 2009; Kozol, 2012). There may also be greater social capital in these schools for promoting and monitoring behavioral engagement in school (Coleman, 1988). Other aspects of these schooling contexts, however, especially psychosocial and relational processes, may adversely affect students' feelings towards school. It may be the case that whiter schools are more competitive and less collegial due to increased pressures to earn good grades and attend college (Lareau, 2011), which leads all students to like school less in these environments.

A third and final theme is that minority students and white students who attend similar school environments experience convergent, rather than divergent, engagement outcomes. A surprising finding was a lack of moderating associations between student race/ethnicity and school compositional characteristics for predicting engagement outcomes. Even though this analysis is not causal, this pattern suggests that aspects of schooling associated with racial/ethnic and socioeconomic composition, such as school resources and social relationships, have similar effects on engagement patterns for white, Mexican-origin, and black students. Where Mexican-origin and black youth differ from their white counterparts, however, is in their lack of exposure to schooling environments that are associated with increased behavioral engagement in school.

Table 4
Coefficients for school compositional characteristics as predictors of coursework engagement.

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
School Composition				
School non-minority (%)	0.001	0.001*	0.001	0.001*
	(0.000)	(0.000)	(0.001)	(0.000)
School mean SES	0.189***	−0.031	−0.032	−0.021
	(0.032)	(0.034)	(0.034)	(0.038)
Race/Ethnicity (Ref. White)				
Mexican origin	−0.210***	−0.172***	−0.183***	−0.160***
	(0.034)	(0.035)	(0.040)	(0.038)
Black	−0.316***	−0.192***	−0.195***	−0.193***
	(0.029)	(0.028)	(0.032)	(0.029)
Asian	0.255***	0.183***	0.189***	0.185***
	(0.032)	(0.035)	(0.038)	(0.036)
Other race	−0.204***	−0.158***	−0.161***	−0.156***
	(0.036)	(0.035)	(0.036)	(0.035)
Latino/a- Other	−0.288***	−0.232***	−0.221***	−0.228***
	(0.042)	(0.042)	(0.045)	(0.042)
*School Composition * Race/Ethnicity*				
School non-minority * Mexican origin			−0.000	
			(0.001)	
School non-minority * Black			0.000	
			(0.001)	
School non-minority * Asian			0.001	
			(0.001)	
School non-minority * Other race			−0.000	
			(0.001)	
School non-minority * Latino/a- Other			0.001	
			(0.001)	
School mean SES * Mexican origin				0.022
				(0.072)
School mean SES * Black				−0.024
				(0.072)
School mean SES * Asian				−0.089
				(0.065)
School mean SES * Other race				0.006
				(0.089)
School mean SES * Latino/a- Other				0.022
				(0.091)
Covariates				
Female (ref. Male)		0.400***	0.400***	0.400***
		(0.016)	(0.016)	(0.016)
2.5/2nd generation (Ref. 3 + gen.)		0.095***	0.094**	0.096***
		(0.029)	(0.029)	(0.029)
1.75 generation		0.118*	0.116*	0.119*
		(0.049)	(0.049)	(0.049)
1st generation- other		0.254***	0.254***	0.255***
		(0.044)	(0.044)	(0.044)
Socioeconomic status		0.191***	0.190***	0.191***
		(0.014)	(0.014)	(0.014)
Stepparent (Ref. Intact family)		−0.148***	−0.147***	−0.148***
		(0.022)	(0.022)	(0.022)
Mother only		−0.147***	−0.147***	−0.147***
		(0.023)	(0.023)	(0.023)
Other family type		−0.153***	−0.153***	−0.153***
		(0.031)	(0.031)	(0.031)
Repeated a grade (ref. Did not repeat a grade)		−0.359***	−0.359***	−0.359***
		(0.027)	(0.027)	(0.027)
Changed schools once (Ref. Did not change schools)		−0.043	−0.043	−0.042
		(0.023)	(0.023)	(0.023)
Changes schools 2 or more times		−0.114***	−0.114***	−0.113***
		(0.020)	(0.020)	(0.020)
Public school (Ref. Private school)	−0.182***	−0.170***	−0.170***	−0.167***
	(0.032)	(0.031)	(0.031)	(0.031)
High enrollment school (Ref. Low/med. enroll.)	0.032	−0.003	−0.001	−0.004
	(0.032)	(0.031)	(0.031)	(0.031)
Suburban (Ref. Urban)	−0.013	−0.011	−0.012	−0.008
	(0.025)	(0.025)	(0.025)	(0.025)

(*continued on next page*)

Table 4 (*continued*)

	Model 1 (Baseline)	Model 2 (Full)	Model 3 (Interact.)	Model 4 (Interact.)
Rural	0.024	0.050	0.050	0.054
	(0.034)	(0.033)	(0.033)	(0.033)
Coursework engagement index items (#)	0.026***	0.023***	0.022***	0.023***
	(0.005)	(0.004)	(0.004)	(0.004)
Constant	0.022	−0.075	−0.072	−0.081
	(0.042)	(0.043)	(0.044)	(0.043)
Random Effects (School)	0.030	0.029	0.029	0.029
	(0.004)	(0.004)	(0.004)	(0.004)
Random Effects (Residual)	0.911	0.823	0.823	0.823
	(0.011)	(0.010)	(0.01)	(0.01)
Observations	15,240	15,240	15,240	15,240
Number of groups	750	750	750	750

Note: Standard errors in parentheses; ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

This work provides greater insight into the interplay between school composition and student engagement levels, but the analysis has several limitations that must be acknowledged. This analysis focuses on school composition and engagement among 10th graders, and is thus only representative of students that persist in school through 10th grade. Some Mexican-origin and black students drop out of school before 10th grade, or are labor migrants who never enroll in U.S. schools (Oropesa and Landale, 2009). If early dropouts and non-enrollees are more susceptible to school compositional influences on their levels of engagement, then this analysis will underestimate the influence of school racial/ethnic and socioeconomic composition on engagement among these subgroups. The associations between school composition and engagement are also measured cross-sectionally in this analysis. The school compositional characteristics of students in high schools likely resemble those of the elementary and middle schools that they attended. Even so, future research could take a life course approach to understanding the interplay of school composition and student engagement, investigating how school composition shapes school engagement patterns as students progress through school.

Given persistent Latino-white and black-white school segregation (Fiel, 2013; Orfield et al., 2012) and increasing socioeconomic school segregation (Owens et al., 2014), it is imperative to continue to assess the impact that schooling contexts have on the educational and psychosocial outcomes of racial/ethnic minority students. School integration programs that purposefully sort students across schools by racial/ethnic status could benefit minority youth in terms of their behavioral engagement, but greater exposure to white students could negatively affect minority students' otherwise positive feelings towards school. White students could benefit in terms of liking school, however, if they had more exposure to minorities in schools, given minority students' high levels of affective engagement in school. Across school environments, more intervention is needed to help Mexican-origin and black students match their positive orientations towards schooling with higher levels of behavioral involvement in their classrooms and school communities.

Funding

Partial support for this research came from a *Eunice Kennedy Shriver* National Institute of Child Health and Human Development grant, R24 HD042828, and from a *Shanahan Endowment Fellowship* and a *Eunice Kennedy Shriver* National Institute of Child Health and Human Development training grant, T32 HD007543, to the Center for Studies in Demography & Ecology at the University of Washington. Partial support also came from the Institute of Education Sciences, Award R305A150027 (PI: Robert Crosnoe), and from two *Eunice Kennedy Shriver* National Institute of Child Health and Human Development grants to the Population Research Center at the University of Texas at Austin, R24 HD42849 (PI: Mark Hayward) and T32 HD007081-35 (PI: Kelly Raley). Thank you to Charles Hirschman, Stew Tolnay, Kyle Crowder, Mark Long, and Robert Crosnoe for comments on this manuscript.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.ssresearch.2017.10.010.

Appendix

Table A1

School engagement levels by student race/ethnicity and school composition.

Racial/Ethnic Group	Likes School			School-Sponsored Activity Involvement			Coursework Engagement		
	Mean	S.E.	n	Mean	S.E.	n	Mean	S.E.	n
Mexican origin	91.7%	0.8%	1,390	33.5%	1.6%	1,420	−0.258	0.037	1,290
School 0–10% Non-Minority	95.2%	1.0%	290	32.2%	3.3%	290	−0.185	0.072	240
School 11–49% Non-Minority	90.4%	1.1%	640	29.7%	2.2%	650	−0.325	0.063	600
School 50% + Non-Minority	91.1%	1.8%	450	39.8%	2.8%	470	−0.224	0.066	450
Low SES School	93.1%	0.9%	560	29.6%	2.3%	580	−0.283	0.067	490
Middle SES School	90.7%	1.3%	700	35.4%	2.3%	710	−0.268	0.046	670
High SES School	90.2%	3.2%	120	50.4%	6.0%	130	0.069	0.103	130
White	86.9%	0.5%	8,420	53.8%	0.8%	8,580	0.055	0.016	8,190
School 0–10% Non-Minority	97.8%	1.6%	70	46.0%	9.4%	70	0.168	0.192	60
School 11–49% Non-Minority	85.5%	1.8%	590	45.8%	3.0%	600	−0.046	0.065	560
School 50% + Non-Minority	87.0%	0.5%	7,590	54.7%	0.8%	7,750	0.064	0.017	7,430
Low SES School	86.3%	2.0%	470	46.4%	2.8%	470	−0.005	0.073	450
Middle SES School	86.7%	0.6%	5,880	52.1%	0.9%	5,980	0.023	0.018	5,680
High SES School	88.1%	1.0%	2,080	64.0%	1.4%	2,130	0.222	0.028	2,060
Black	91.0%	0.8%	1,900	45.0%	1.6%	1,930	−0.418	0.031	1,770
School 0–10% Non-Minority	92.3%	1.3%	500	44.0%	2.6%	490	−0.505	0.068	420
School 11–49% Non-Minority	91.5%	1.5%	600	46.3%	3.1%	610	−0.432	0.058	550
School 50% + Non-Minority	89.0%	1.3%	740	44.2%	2.3%	770	−0.357	0.044	740
Low SES School	92.3%	1.8%	340	44.8%	4.0%	340	−0.432	0.077	310
Middle SES School	90.7%	0.9%	1,420	44.5%	1.7%	1,430	−0.440	0.036	1,310
High SES School	90.1%	3.2%	150	52.5%	4.9%	150	−0.093	0.086	150
	Likes School			School-Sponsored Activity Involvement			Coursework Engagement		
Asian	91.2%	0.8%	1,360	56.6%	2.0%	1,370	0.281	0.039	1,180
School 0–10% Non-Minority	92.0%	1.8%	130	54.5%	7.4%	120	0.086	0.077	80
School 11–49% Non-Minority	91.3%	1.4%	560	54.9%	3.3%	560	0.217	0.065	480
School 50% + Non-Minority	91.1%	1.2%	670	58.6%	2.8%	680	0.365	0.051	620
Low SES School	95.1%	1.3%	230	48.5%	4.4%	230	0.045	0.072	190
Middle SES School	91.1%	1.1%	800	54.2%	2.5%	810	0.259	0.053	690
High SES School	88.6%	1.9%	330	70.0%	3.7%	330	0.490	0.051	310
Other race	85.7%	1.6%	900	48.6%	2.0%	910	−0.276	0.048	840
School 0–10% Non-Minority	91.6%	4.1%	110	48.9%	5.8%	110	−0.457	0.164	90
School 11–49% Non-Minority	87.1%	3.0%	210	47.0%	4.6%	210	−0.187	0.090	190
School 50% + Non-Minority	84.3%	2.0%	570	49.1%	2.4%	580	−0.286	0.058	550
Low SES School	83.3%	5.3%	100	35.4%	5.3%	100	−0.440	0.140	90
Middle SES School	86.0%	1.7%	650	48.9%	2.3%	660	−0.293	0.054	610
High SES School	86.6%	4.7%	150	60.4%	5.7%	150	0.008	0.111	140
Latino (other)	88.8%	1.6%	730	43.1%	2.5%	740	−0.339	0.054	680
School 0–10% Non-Minority	92.3%	2.6%	140	39.6%	4.5%	140	−0.410	0.170	100
School 11–49% Non-Minority	90.0%	2.4%	240	39.7%	4.3%	250	−0.400	0.077	230
School 50% + Non-Minority	85.8%	2.5%	340	48.3%	3.4%	360	−0.260	0.076	340
Low SES School	90.8%	3.2%	110	35.4%	7.4%	110	−0.148	0.112	80
Middle SES School	88.0%	1.9%	480	44.0%	2.5%	490	−0.436	0.067	460
High SES School	90.2%	3.4%	140	54.6%	6.3%	140	0.075	0.123	140
All	88.2%	0.4%	14,690	49.7%	0.7%	14,950	−0.070	0.014	13,950
School 0–10% Non-Minority	93.3%	0.8%	1,220	40.8%	2.2%	1,210	−0.341	0.051	1,000
School 11–49% Non-Minority	89.3%	0.8%	2,840	42.2%	1.7%	2,890	−0.237	0.037	2,600
School 50% + Non-Minority	87.3%	0.5%	10,360	52.9%	0.7%	10,590	0.002	0.016	10,120
Low SES School	90.5%	0.9%	1,800	38.7%	1.8%	1,830	−0.216	0.041	1,610
Middle SES School	87.8%	0.4%	9,920	49.2%	0.7%	10,090	−0.097	0.017	9,420

High SES School	88.3%	0.9%	2,960	62.7%	1.3%	3,030	0.200	0.025	2,920

Note: For school socioeconomic status, the sample mean is 0 and standard deviation is 0.43. A low SES school is at or below 1 standard deviation from the mean, a middle SES school is between −/+ 1 standard deviation from the mean, and a high SES school is at or above 1 standard deviation from mean.

Table A2. Model results for calculation of case replacement results with multiply imputed data.

Imputed Dataset Number	School % Non-Minority as a Predictor of Liking School		School % Non-Minority as a Predictor of Coursework Engagement		n
	Average Marginal Effects[a]	Std. Error	Coefficient[b]	Standard Error	
1	−0.00032	0.00013	0.00105	0.00046	15,240
2	−0.00031	0.00013	0.00108	0.00046	15,240
3	−0.00035	0.00013	0.00114	0.00044	15,240
4	−0.00034	0.00012	0.00093	0.00045	15,240
5	−0.00041	0.00013	0.00093	0.00046	15,240
6	−0.00034	0.00013	0.00090	0.00045	15,240
7	−0.00031	0.00013	0.00115	0.00045	15,240
8	−0.00033	0.00013	0.00111	0.00046	15,240
9	−0.00027	0.00012	0.00125	0.00045	15,240
10	−0.00033	0.00013	0.00105	0.00045	15,240
Mean	−0.00033		0.00106		
Pooled Std. Error		0.00013		0.00047	

Note: All models include controls for school mean socioeconomic status, school high enrollment, school sector, school urbanicity, student race/ethnicity, sex, immigrant generation, socioeconomic status, family composition, grade repetition, and school mobility.

[a] Average marginal effects from logistic regression models predicting liking school with standard errors clustered by school.

[b] Coefficients from linear regression models predicting coursework engagement with standard errors clustered by school.

References

Ainsworth-Darnell, James W., Downey, Douglas B., 1998. Assessing the oppositional culture explanation for racial/ethnic differences in school performance. Am. Sociol. Rev. 63 (4), 536–553.

Alba, Richard, Nee, Victor, 2009. Remaking the American Mainstream: Assimilation and Contemporary Immigration. Harvard University Press.

Allison, Paul D., 2000. Multiple imputation for missing data: a cautionary tale. Sociol. Methods & Res. 28 (3), 301–309.

Archambault, Isabelle, Janosz, Michel, Fallu, Jean-Sébastien, Pagani, Linda S., 2009. Student engagement and its relationship with early high school dropout. J. Adolesc. 32 (3), 651–670.

Brooks-Gunn, Jeanne, Duncan, Greg J., Kato Klebanov, Pamela, Sealand, Naomi, 1993. Do neighborhoods influence Child and adolescent development? Am. J. Sociol. 99 (2), 353–395.

Carter, Prudence L., 2005. Keepin' it Real: School Success beyond Black and White. Oxford University Press.

Clotfelter, Charles T., Helen, F. Ladd, Vigdor, Jacob, 2005. Who teaches Whom? Race and the distribution of novice teachers. Econ. Educ. Rev. 24 (4), 377–392.

Clotfelter, Charles, Ladd, Helen F., Vigdor, Jacob, Wheeler, Justin, 2006. High-poverty schools and the distribution of teachers and principals. NCL Rev. 85, 1345.

Coleman, James S., 1988. Social capital in the creation of human capital. Am. J. Sociol. 95–120.

Coleman, James S., et al., 1966. Equality of Educational Opportunity. U.S. Government Printing Office, Washington, D.C.

Crosnoe, Robert, 2009. Low-income students and the socioeconomic composition of public high schools. Am. Sociol. Rev. 74 (5), 709–730.

Davis, James A., 1966. The campus as a frog pond: an application of the theory of relative deprivation to career decisions of college men. Am. J. Sociol. 17–31.

Fabrigar, Leandre R., Wegener, Duane T., 2011. Exploratory Factor Analysis. Oxford University Press.

Fiel, Jeremy E., 2013. Decomposing school resegregation social closure, racial imbalance, and racial isolation. Am. Sociol. Rev. 78 (5), 828–848.

Finn, Jeremy D., Rock, Donald A., 1997. Academic success among students at risk for school failure. J. Appl. Psychol. 82 (2), 221–234.

Finn, Jeremy D., Zimmer, Kayla S., 2012. Student engagement: what is It? Why does it Matter?" pp. 97–131. In: Handbook of Research on Student Engagement. Springer.

Frank, Kenneth A., 2014. KonFound-it!. Retrieved. https://www.msu.edu/~kenfrank/research.htm#causal.

Frank, Kenneth A., Maroulis, Spiro J., Duong, Minh Q., Kelcey, Benjamin M., 2013. What would it take to change an Inference? Using Rubin's causal model to interpret the robustness of causal inferences. Educ. Eval. Policy Anal. 35 (4), 437–460.

Goldsmith, Pat António, 2003. All segregation is not equal: the impact of Latino and black school composition. Sociol. Perspect. 46 (1), 83–105.

Goldsmith, Pat Antonio, 2004. Schools' racial mix, students' optimism, and the black-white and latino-white achievement gaps. Sociol. Educ. 77 (2), 121–147.

Goldsmith, Pat Rubio, 2011. Coleman revisited school segregation, peers, and frog ponds. Am. Educ. Res. J. 48 (3), 508–535.

Graham, John W., 2009. Missing data analysis: making it work in the real world. Annu. Rev. Psychol. 60, 549–576.

Harris, Angel L., 2011. Kids Don't Want to Fail. Harvard University Press.

Harwell, Michael, LeBeau, Brandon, 2010. Student eligibility for a free Lunch as an SES measure in education research. Educ. Res. 39 (2), 120–131.

Hauser, Robert M., 1994. Measuring socioeconomic status in studies of Child development. Child. Dev. 65 (6), 1541–1545.

Hirschman, Charles, 2001. The educational enrollment of immigrant youth: a test of the segmented-assimilation hypothesis. Demography 38 (3), 317–336.

Holland, Megan M., 2012. Only here for the day the social integration of minority students at a majority white high school. Sociol. Educ. 85 (2), 101–120.

Ispa-Landa, Simone, 2013. Gender, race, and justifications for group exclusion urban black students bussed to affluent suburban schools. Sociol. Educ., 0038040712472912.

Jackson, C. Kirabo, 2009. Student demographics, teacher sorting, and teacher quality: evidence from the end of school desegregation. J. Labor Econ. 27 (2), 213–256.

Jencks, Christopher, Mayer, Susan E., 1990. "Residential segregation, job proximity, and black job opportunities." pp. 187–222. In: Lynn Jr.L.E., McGeary, M.G.H.

(Eds.), Inner-city Poverty in the United States. National Academy Press, Washington, D.C.
Johnson, Kirkpatrick, Monica, Crosnoe, Robert, Elder, Glen H., 2001. Students' attachment and academic engagement: the role of race and ethnicity. Sociol. Educ. 74 (4), 318–340.
Juvonen, Janna, 2006. Sense of Belonging, Social Bonds, and School Functioning. Handbook of Educational Psychology, vol. 2. pp. 655–674.
Kao, Grace, Thompson, Jennifer S., 2003. Racial and ethnic stratification in educational achievement and attainment. Annu. Rev. Sociol. 417–42.
Klugman, Joshua, Lee, Jennifer C., Nelson, Shelley L., 2012. School Co-Ethnicity and hispanic parental involvement. Soc. Sci. Res. 41 (5), 1320–1337.
Kozol, Jonathan, 2012. Savage Inequalities: Children in America's Schools. Random House LLC.
Landale, Nancy S., Salvador Oropesa, R., Llanes, Daniel, 1998. Schooling, work, and idleness among mexican and non-latino white adolescents. Soc. Sci. Res. 27 (4), 457–480.
Lareau, Annette, 2011. Unequal Childhoods: Class, Race, and Family Life. Univ. of California Press.
Lauen, Douglas Lee, Gaddis, S. Michael, 2013. Exposure to classroom poverty and test score achievement: contextual effects or selection? Am. J. Sociol. 118 (4), 943–979.
Lawson, Michael A., Lawson, Hal A., 2013. New conceptual frameworks for student engagement research, policy, and practice. Rev. Educ. Res. 83 (3), 432–479.
Lee, Jennifer C., Klugman, Joshua, 2013. Latino school concentration and academic performance among Latino children. Soc. Sci. Q. 94 (4), 977–1015.
Leventhal, Tama, Brooks-Gunn, Jeanne, 2000. The neighborhoods they live in: the effects of neighborhood residence on Child and adolescent outcomes. Psychol. Bull. 126 (2), 309–337.
Mickelson, Arlin, Roslyn, Cecilia Bottia, Martha, Lambert, Richard, 2013. Effects of school racial composition on K–12 mathematics outcomes a metaregression analysis. Rev. Educ. Res. 83 (1), 121–158.
Moody, James, 2001. Race, school integration, and friendship segregation in America. Am. J. Sociol. 107 (3), 679–716.
National Center for Education Statistics, Institute of Education Sciences, 2015. Education longitudinal study of 2002 (ELS:2002). Retrieved August 20, 2015. http://nces.ed.gov/surveys/els2002/.
Orfield, Gary, Eaton, Susan E., 1996. Dismantling Desegregation: the Quiet Reversal of Brown v. Board of Education. The New Press.
Orfield, Gary, Kucsera, John, Siegel-Hawley, Genevieve, 2012. E Pluribus… Separation: Deepening Double Segregation for More Students. Retrieved April 8, 2015. http://escholarship.org/uc/item/8g58m2v9.pdf.
Oropesa, Ralph Salvador, Landale, Nancy S., 2009. Why do immigrant youths who never enroll in US schools Matter? School enrollment among mexicans and non-hispanic whites. Sociol. Educ. 82 (3), 240–266.
Osterman, Karen F., 2000. Students' need for belonging in the school community. Rev. Educ. Res. 70 (3), 323–367.
Owens, Ann, Reardon, Sean F., Jencks, Christopher, 2014. Trends in School Economic Segregation, 1970 to 2010 Ann Owens University of Southern California. Retrieved May 10, 2015. http://cepa.stanford.edu/sites/default/files/owens%20reardon%20jencks%20school%20income%20segregation%20july2014.pdf.
Palardy, Gregory J., 2013. High school socioeconomic segregation and student attainment. Am. Educ. Res. J. 50 (4), 714–754.
Peske, Heather G., Haycock, Kati, 2006. Teaching inequality: how poor and minority students are shortchanged on teacher quality: a report and recommendations by the education trust. Educ. Trust Retrieved November 11, 2015. http://eric.ed.gov/?id=ED494820.
Portes, Alejandro, Rumbaut, Rubén G., 2001. Legacies: the Story of the Immigrant Second Generation. Univ of California Press.
Portes, Alejandro, Rumbaut, Ruben G., 2006. Immigrant America: a Portrait. Univ of California Press.
Potochnick, Stephanie, Handa, Sudhanshu, 2012. The Latino Paradox? School segregation and Latino student achievement." pp. 15–30. In: Gastic, B., Verdugo, R. (Eds.), The Education of the Hispanic Population: Selected Essays. Information Age Publishing.
Ream, Robert K., Rumberger, Russell W., 2008. Student engagement, peer social capital, and school dropout among mexican american and non-latino white students. Sociol. Educ. 81 (2), 109–139.
Reardon, Sean F., Owens, Ann, 2014. 60 Years after brown: trends and consequences of school segregation. Annu. Rev. Sociol. 40, 199–218.
Rubin, Donald B., 1987. Multiple Imputation for Nonresponse in Surveys. Wiley, New York.
Rumbaut, Rubén G., 2004. Ages, life stages, and generational cohorts: decomposing the immigrant first and second generations in the United States. Int. Migr. Rev. 38 (3), 1160–1205.
Rumberger, Russell, Lim, Sun Ah, 2008. Why Students Drop Out of School: a Review of 25 Years of Research. California Dropout Research Project, Santa Barbara, CA Retrieved January 15, 2015. http://inpathways.net/researchreport15.pdf.
Rumberger, Russell, Palardy, Gregory, 2005. Does segregation still Matter? The impact of student composition on academic achievement in high school. Teach. Coll. Rec. 107 (9), 1999–2045.
Sampson, Robert J., Morenoff, Jeffrey D., Earls, Felton, 1999. Beyond social capital: spatial dynamics of collective efficacy for children. Am. Sociol. Rev. 64 (5), 633–660.
Sandefur, Gary D., McLanahan, Sara, Wojtkiewicz, Roger A., 1992. The effects of parental marital status during adolescence on high school graduation. Soc. Forces 71 (1), 103–121.
Schafer, Joseph L., 1997. Analysis of Incomplete Multivariate Data. Chapman and Hall/CRC.
Ueno, Koji, 2009. Same-race friendships and school attachment: demonstrating the interaction between personal network and school Composition. Sociol. Forum 24 (3), 515–537.
van Ginkel, Joost R., Kroonenberg, Pieter M., 2014. Analysis of variance of multiply imputed data. Multivar. Behav. Res. 49 (1), 78–91.
Wells, Amy Stuart, Crain, Robert L., 1994. Perpetuation theory and the long-term effects of school desegregation. Rev. Educ. Res. 64 (4), 531–555.
Wilson, William Julius, 1987. The Truly Disadvantaged: the Inner City, the Underclass, and Public Policy. University of Chicago Press.