Empirical Article

Student Experience Outcomes in Racially Integrated Schools: Looking Beyond Test Scores in Six Districts

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Abstract
In this study, we examine eight social and emotional outcomes (e.g., student engagement, sense of belonging) analyzing differences for students who attend racially diverse schools. Drawing on survey responses from roughly 26,000 students, we find that racially diverse schools are associated with more positive social and emotional outcomes for all students. Strikingly, we find that these outcomes are most uniformly positive among white students, whose families have long represented the strongest opposition to systematic racial desegregation. In light of these results, this study has implications for educators, advocates, researchers, and policy makers during a time of renewed attention to school integration.

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By the end of the 20th century, the aim of integrating K-12 public schools by race seemed to have fallen from the national policy agenda (Orfield & Yun, 1999). In recent years, however, school desegregation has received renewed attention—from journalists, politicians, and educators (e.g., Crain, 2019; Hannah-Jones, 2016; U.S. Department of Education and U.S. Department of Justice, 2011). For the first time in our nation's history, white students no longer constitute a majority of American K-12 public education, and, at the same time, schools are rapidly becoming more segregated (Frankenberg et al., 2019). From broad public conversation to district-level debates about school policy, educational practitioners and policy makers are confronting this changing reality, and as they do, old questions about the barriers and benefits of racial integration are once again emerging as matters of pressing concern.

Generally speaking, the research on racially integrated schools makes a strong case for educating children together (e.g., Johnson, 2011, 2019; The Century Foundation [TCF], 2016). Yet the research base is limited in two significant ways. The first of those limitations concerns the issue of *who benefits*. Making the case for racially integrated schools, supporters have largely focused on the benefits for students of color—a logical consequence of the fact that desegregation efforts were historically part of a larger push for racial equality. Long denied equal opportunity, African Americans and other historically marginalized racial groups struggled to win entrance into mainstream institutions, including schools with superior resources. Not surprisingly, then, research has tended to focus on the benefits of racial integration for these students (see Asycue et al. 2017; Mickelson & Nkomo, 2012; Page, 2008; Siegel-Hawley, 2012; Stuart Wells et al., 2009).

The second limitation concerns the issue of *how* students benefit. Research on racial integration in education has traditionally focused on academic performance as measured by standardized test scores (see TCF, 2016; Vigdor & Ludwig, 2007). Again, this is a logical consequence. The most abundantly available data tend to be student test scores—a fact that has shaped the examination of student outcomes more broadly. Nevertheless, the promise of the 1954 *Brown v. Board of Education* (1954) decision extends far beyond what can be measured via test scores. Indeed, the Supreme Court's unanimous decision in *Brown* hinged on the "feeling of inferiority" inculcated among marginalized students, and articulated a concern with the impact of segregation on "hearts and minds" (p. 494).

In this study, we investigate educational outcomes among students from different racial groups across a cohort of schools in Massachusetts, comparing schools that meet or do not meet our threshold for racial diversity. Though we look at growth and overall performance on standardized tests,

our study focuses chiefly on outcomes not captured by test scores. Leveraging a unique data set, which measures a range of social and emotional constructs such as student engagement and sense of belonging, we explore how white students and students of color in racially diverse schools fare relative to their peers in schools that do not meet our criteria for being racially diverse. We find that students in racially diverse schools report more positive outcomes than their counterparts in schools that did not meet our threshold for racial diversity, particularly with regard to physical safety and social perspective taking. Perhaps more significantly, we find that although results are mixed across constructs for students of color, they are generally positive for white students.

Conceptual Framework and Relevant Literature

Defining Racially Diverse Schools

What is a racially diverse school? Prior research has not answered this question definitively (Frankenberg, 2010; Reardon & Firebaugh, 2002). The most recent work on the issue comes from The Century Foundation (2018), which defines racially diverse schools as consisting of no more than 70% of any single racial group. To identify this threshold, TCF (2018) relied on social science research, which has found that when a single racial group in a school surpasses the 70% threshold, other groups "feel increased isolation and alienation, and cross-racial friendships are less likely to occur" (see also Ma & Kurlaender, 2005; Welner, 2006). This definition, despite its merits, raises an immediate question about whether a school can be racially diverse without a white population. According to the the TCF definition, a school that is 70% Hispanic/Latinx and 30% Black/African American would be considered "racially diverse." Yet it is unlikely that such a school would be viewed by the public as such (e.g., Charles, 2003). Moreover, it would be out of step with the racial demography of any state in the union. In light of this, we propose an alternative definition of racially diverse schools.

Since the 1954 *Brown* decision, numerous desegregation-related cases have come before the courts. One case, *Sheff v. O'Neill* (1996), resulted in the State of Connecticut mandating that the Hartford Public Schools implement a voluntary interdistrict program aimed at reducing racial, ethnic, and economic segregation in educational settings. In particular, the program used the following guideline: the percentage of enrolled students who identify themselves as any part Black/African American, or any part Hispanic/Latinx, cannot exceed 75% of a school's total enrollment (Sheff v. O'Neill, 2013. Phase Three Settlement). Under these stipulations, a racially diverse school must

have at least 25% white or Asian students. An alternative definition of a racially diverse school, then, might require the enrollment of at least 25% white or Asian students, while also meeting the TCF standard of no more than 70% from any single racial group. The combination of white and Asian students presupposes a level of social advantage among Asian families that is unlikely to exist across multiple ethnicities under the monolithic "Asian" student sub-group. Due to the presence in some Massachusetts districts of large Asian refugee populations who have not shared in the economic prosperity and academic achievement stereotypically applied to all Asians, we propose a definition that considers *only* white students in a minimum enrollment standard. Thus, our working definition of a racially diverse school is one in which no more than 70% of students are from a single racial group, and at least 25% are white.

Dimensions of School Quality

School quality is often discussed as a singular concept, and in practice it is frequently measured through standardized test scores. Yet significant evidence suggests that school quality is multidimensional in a way that tests fail to capture. Rothstein and Jacobsen (2006), for instance, found strong support among a representative sample of Americans for measuring school quality across a wide range of school processes and outcomes. While academic knowledge and skills ranked first among essential features of public schools, they were accompanied by critical thinking, appreciation for arts and literature, preparation for skilled work, social skills and work ethic, good citizenship, and physical and emotional health. As the authors concluded, an accountability system relying exclusively on standardized tests was "a betrayal of our historic commitments" (p. 271).

    Other scholars have found similar support for these dimensions of school quality. Drawing on national polling and local focus group data, Schneider (2017) devised a framework consisting of five school quality domains—teachers and the teaching environment, school culture, resources, indicators of academic achievement, and character and wellbeing outcomes. While acknowledging overlap between academic achievement and other aspects of the framework, Schneider (2017) argued that each element is "important in its own right" (p. 139). Social and emotional health, for instance, may lead to stronger academic performance, but are also valuable outcomes worth pursuing regardless of the influence on test scores.

    Beyond making a case for the multidimensionality of school quality, scholars have investigated the degree to which the dimensions are, in fact, separate. One study, for instance, found that various elements of school

quality may be orthogonal. Investigating five measured categories of school quality, Gagnon and Schneider (2019) found only moderate correlations—indicating that student standardized test scores would not be predictive of other valued processes and outcomes. Other research has found that, even within bounded domains of quality, variation exists. Petek and Pope (2016), for instance, found that teacher quality is multidimensional, and that raising student achievement scores was not necessarily related to improving student behavioral outcomes.

Benefits of Racially Diverse Schools

Prior research has demonstrated the positive effects of schools that meet various thresholds of racial diversity. Studies have found that racially diverse schools have smaller gaps in reading and math scores when measured against comparison schools (Boger & Orfield, 2005; Hallinan, 1998; Mickelson, 2008; Mickelson & Nkomo, 2012; National Academy of Education, 2007; TCF, 2016). Scholars have also found that the academic benefits of racially integrated schools tend to be stronger for students who enter at an early age (Boger & Orfield, 2005), and those benefits appear to extend beyond the end of high school (Johnson, 2011, 2019; Kurlaender & Yun, 2005, 2007; Orfield, 2001a; Page, 2008; Stuart Wells, 2009). Yet, as noted by The Century Foundation (2016), such analyses are "often measured through grade-level reading and math scores" (p. 12).

A growing body of literature has engaged in more nuanced analysis of racially diverse schools, linking school integration to important non-academic outcomes, such as social skills, critical thinking, and good citizenship (Asycue et al., 2017; Eaton, 2001). One project, for example, re-analyzed data from over 500 earlier studies, and found that inter-group contact has positive impacts on all students by reducing prejudice, negative attitudes, and stereotypes, while at the same time increasing inter-group friendships (Pettigrew & Tropp, 2006).

Other studies have linked school integration to improvements in critical thinking, communication, and problem solving (Kurlaender & Yun, 2005, 2007; Orfield, 2001b; Page, 2008). Based on a nationally representative sample of nearly 7,000 K-2 children, Rucinski (2015) found that diverse classrooms are associated with higher "cognitive flexibility," or the ability to look at the world in different ways. In addition, a widely-cited study of desegregation found that Black/African American adults who attended integrated schools had higher lifetime earnings, decreased incarceration rates, and lived longer than those who attended segregated schools (Johnson, 2011, 2019).

Our research joins this literature in looking beyond test scores to understand the many benefits of racially diverse schools.

Research on the benefits of racially diverse schools, however conceived, has focused primarily on outcomes for students of color. Of course, it is extremely important that the research literature explore the benefits of diverse schools for historically marginalized and underserved students. But research on the impact of racially diverse schools on white students remains relatively thin. Older reseach has found that desegregation has no detrimental effect on white students' achievement (e.g., Crain & Mahard, 1983). And other work has sought to identify the benefits of racially diverse schools for white students specifically (e.g., Siegel-Hawley, 2012). But more work is needed, particularly in light of the fact that white families—both historically and in the contemporary policy debates—have constituted the chief resistance to school integration (Delmont, 2016; Erickson, 2016; Garda, 2011; McRae, 2018; Roda & Stuart Wells, 2013).

On the whole, research suggests that racially diverse schools have benefits that extend across multiple domains; however, given the emphasis on standardized test scores in the research literature, we still have much to learn about other student outcomes resulting from school integration. Moreover, while much of the research focuses on the benefits of racially diverse schools for students from historically marginalized racial groups, there is reason to think that white students may benefit as well.

Our research aims to fill each of these gaps. Specifically, we examine the following social and emotional outcomes for students: civic participation, emotional safety, physical safety, positive affect, sense of belonging, social perspective taking, student engagement, and valuing of learning. While test scores certainly matter, these other elements are of significant importance, and may be affected by school-level racial diversity.

Methods

Sample

Recruitment for this study began at the district level as part of a project to comprehensively measure school quality (Schneider 2017). Six school districts in Massachusetts agreed to gather additional data about students' schooling experience through an online survey. All schools within each of the districts were asked by district leaders to administer surveys to students in grades 4 to 12, except in one district where surveys were administered in grades 4 to 11. A total of 149 schools are included in our analysis. As shown in Figures 1 and 2, schools included in the sample varied widely with regard to their racial and economic diversity.
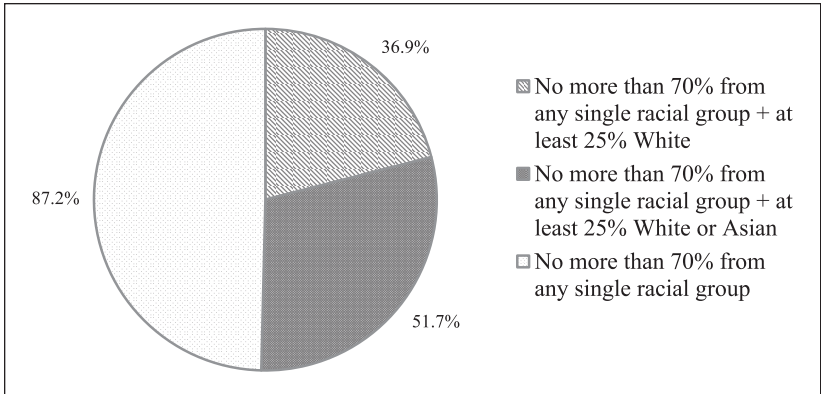
Figure 1. Percent of schools in sample meeting various definitions of racially diverse.
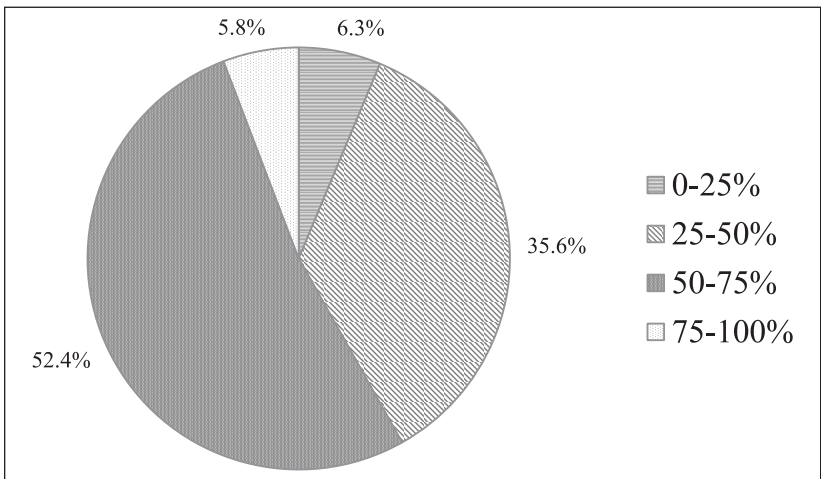
Figure 2. Percent of schools in sample with various proportions of economically disadvantaged students.

Data Collection

The survey was administered to approximately 26,000 unique students in the spring of 2017. Students were afforded the opportunity to take the survey in one of nine languages.[1] To maximize the number of survey questions, preserve a large sample size, and minimize burden on student respondents,

Table 1. Difference Between District Demographics and Research Sample.

	% Asian	% Black/African American	% Hispanic/ Latinx	% White/ Caucasian
District A	+1.5	+1.1	+6.2	+18.4
District B	−0.4	+14.0	+16.0	−6.9
District C	+6.4	+2.2	+18.2	+6.9
District D	+0.4	−2.4	+18.3	+11.4
District E	+2.6	+3.6	+23.1	+1.7
District F	+8.9	+0.7	+1.5	+0.8

students were randomly assigned to subsets of 44 questions. On average, approximately 16,000 students responded to each survey question.

All survey question responses, including those in partially completed surveys, are included in the analysis. Our response rate for this survey was approximately 47.6%, calculated as the number of survey participants who answered at least one survey question (25,807) divided by the total number of enrolled students in participating grades within participating districts (54,252), as reported by the Massachusetts Department of Elementary and Secondary Education (DESE) for the 2016 to 2017 school year. On average, participating students answered 41 (92.9%) of the survey questions presented to them. Our response rate was likely higher than what we are reporting, as we did not account for the fact that the survey was not administered to special education students in substantially separate learning environments.

Student survey respondents, on the whole, were less white (26%) than the overall student population of the state (63%); however, as shown in Table 1, our sample of students was relatively representative of the population of students in participating districts. To protect the identities of the districts, we do not present raw district student demographics; instead, we calculate the difference between the percent of students of a particular race/ethnicity in each district, as reported by the Massachusetts Department of Elementary and Secondary Education, from the percent of students in our sample of survey respondents of a particular race/ethnicity within the district, as reported by the students themselves. For example, the percent of Asian students in District A is 1.5% higher than the percent of Asian survey respondents from District A in our sample.

Among all student survey respondents, 26% self-identified as white, 12% as Black/African American, 23% as Hispanic/Latinx, 9% as Asian, less than 1% as American Indian or Alaskan Native, 10% as multi-racial, and 9% as an "other" race/ethnicity; the remaining 10% either did not mark an answer or

specifically indicated that they preferred to not answer the race/ethnicity question. The gender of student survey respondents was 49% female and 46% male. Additionally, 3% of students identified as an "other" gender and 2% of students did not mark an answer for the gender question. This nearly 50 to 50 gender split is similar to both the districts and the state as a whole. Ninety-six percent of students completed the survey in English.

Lastly, we supplemented our survey analysis with a comprehensive review of standardized test scores from 2011–12 to 2016–17. Because these data are available publicly for the entire state—unlike the survey data, which are available only in a subset of districts—our analysis of test score data includes all Massachusetts public K-12 schools. As with our analysis of survey data, we organized schools according to whether or not they met our definition for racial diversity.

Measures

In this study, we examine eight survey scales: civic participation, emotional safety, physical safety, positive affect, sense of belonging, social perspective taking, student engagement, and valuing of learning (see Appendix B). The constructs considered in this study are part of a larger school quality framework developed for the multi-district project (Schneider 2017). That framework was created through an iterative process that began with a review of research literature and public opinion polling. After an initial draft of the framework was created, focus groups were held in each of the six districts with students, teachers, principals, administrators, families, and community members in order to futher refine the framework according to community-level educational priorities.

Adapted from existing survey instruments, these scales offer strong evidence of validity and had been previously tested for reliability (Gagnon & Schneider, 2019). Scales were piloted for 2 years in a highly diverse district. Factor loading supported the findings of scale developers, and measures of internal consistency for each scale using Cronbach's alpha exceeded 0.7—a figure that has long served as an informal benchmark (Nunnaly, 1978).

Analysis

Using statistical software (STATA), student survey responses were merged with DESE data on school-level student demographics and test-based outcomes. We used school-level student demographic data to develop a binary indicator of our definition of a racially diverse school, coded as 1 if the school

consisted of no more than 70% of any single racial group and at least 25% white students; otherwise, it was coded as 0.

To answer our questions about how white students and students of color fare in racially diverse schools, we examined descriptive statistics of both social-emotional and test-based outcomes for all students, as well as racial/ethnic groups of students—doing so for students who *were* and *were not* enrolled in schools meeting our definition of racially diverse schools. We also conducted t-tests to explore whether the differences across students in "racially diverse" or "not racially diverse" schools were statistically significant.

Next, to investigate the relationship between students' social-emotional outcomes and their individual and school characteristics—particularly, the racial diversity of the school in which a student is enrolled—we employed a multilevel ordinal logistic model. Specifically, we first modeled the relationship between our outcomes of interest, y_{ij} (i.e., each of the eight aforementioned social and emotional constructs, measured on a 0-to-5 Likert scale) and our primary dependent variable of interest: a binary variable of whether or not the student is in a racially diverse school. Since students' social and emotional outcomes have been found to be related to individual, as well as school and district characteristics (e.g., Loeb et al., 2018; West et al., 2018), we included the following student characteristics as controls in our model: race/ethnicity, gender, grade level, and district. Given that research has documented the substantial impact that student socioeconomic status has on academic achievement (Coleman et al., 1966; Kennedy et al., 1986; Koretz, 2008; Mayer, 2002), we control for school-level socioeconomic disadvantage.

We estimated the regression equation shown in below separately for each school:

$$y_{ij} = \beta_{j0} + \beta_{j1} X_{ij1} + \beta_{j2} X_{ij2} + \ldots + \beta_{jk} X_{ijk} + R_{ij}$$

for $i = 1, \ldots, n$ student survey respondents in school j where $j = 0, \ldots, 147$ schools; $k = 0, \ldots, K-1$ independent variables; and R_{ij} is the random error. In this model, the β_{ijk} can vary across schools, unlike a standard linear model.

To examine whether the variability in each of the eight social and emotional outcomes is a function of the student charcateristics at the school level, in addition to at individual student level, we posed a second between-group model where, for each of the regression coefficients from the equation above, it was assumed that:

$$\beta_{ijk} = \theta_{0k} + \theta_{1k} Z_{1j} + \theta_{2k} Z_{2j} + \ldots + \theta_{3k} Z_{3j} + U_{jk}$$

where θ_{pk} are the regression coefficients that capture the effects of school-level variables on the within-school structural relationships (β_{ijk}). The two previously presented models were then reduced to the following model:

$$y_{ij} = \beta_{00} + X_{ij}\beta_{10} + Z_j\beta_{20} + \upsilon_j + \varepsilon_{ij}$$

where y_{ij} is one of the eight aforementioned student-level social and emotional measures, β_{00} is a constant term, β_{10} is a column vector of regression estimates of student predictors, β_{20} is a column vector of regression estimates of school predictors, X is a row vector of student-level predictors, and Z is a row vector of school-level predictors. υ is a school-level residual and ε is a student-level residual.

As a point of comparison to our analysis of students' social and emotional outcomes, we examined the relationship between a school's test-based outcomes and racial diversity, employing ordinary least squares regression (OLS). Both the dependent and independent variables in these models were at the school-level. Our dependent variables were fourfold: the percent of students in a school meeting or exceeding expectations on the state math and English Language Arts (ELA) assessment, and a school's student growth percentile for math and ELA, as measured by DESE.[3] Our independent variable of interest was a binary variable of whether or not the school is racially diverse.

For all models, we report the coefficients and standard errors, as well as *p*-values for our diversity variable. We also report confidence intervals, which, unlike *p*-values, indicate the extent of uncertainty of the coefficient, in addition to providing the best point estimates (Cummings, 2014). Statistical output for all other control variables included in the models are available upon request.

As a test of model sensitivity, we ran linear mixed models for the eight social and emotional constructs used in the study and compared the results to the multilevel ordinal logistic models. We also tested for interactions between a school's racial diversity and the percent economically disadvantaged in a school. As shown in Appendix A, we find no substantially different results when employing the linear mixed models. We also find very few statistically significant interaction effects. Thus we focus our results and discussion on the multilevel ordinal logistic regression models that do not include the racial diversity-by-economic disadvantage interaction.

Results

We present results in line with two main questions. First, we examine how white students fare in racially diverse schools relative to white students in

non-diverse schools (i.e., schools that did not meet our definition of racial diversity). Second, we examine how students of color fare in racially diverse schools relative to students of color in non-diverse schools. For each question, we first look at the eight social and emotional variables, and then consider differences in student test scores and growth.

Social and Emotional Results: Outcomes for White Students

Compared to their counterparts in schools that did not meet our definition of diversity, white students in racially diverse schools tended to report more positive social conditions and emotional schooling experiences (see Table 2).

Four of our eight results were statistically significant and positive at $p < .05$: student engagement, civic participation, sense of belonging, and physical safety. On average, the largest difference between white students in racially diverse schools and white students who did not attend diverse schools schools was in feelings of physical safety. Discussed later, this finding has important implications for present conversations about school integration.

One result did not fit within the general pattern of positive findings for white students. Specifically, white students in racially diverse schools reported lower average scores on our emotional safety scale, and the difference was statistically significant at the $p < .05$ level. Three other social and emotional constructs—social perspective taking, positive affect, and valuing of learning—did not produce statistically significant differences.

Social and Emotional Results: Outcomes for Students of Color

Findings were more mixed with regard to the social and emotional outcomes for students of color in racially diverse schools. For each student of color subgroup (Black/African American, Hispanic/Latinx or Asian), across the eight social and emotional constructs, statistically significant negative differences slightly outnumbered statistically significant positive differences for students in racially diverse schools compared to those in schools that did not meet our criteria for diversity.

Statistically significant ($p < .05$) negative differences in ratings—in which students of color attending racially diverse schools recorded lower average responses than their peers in nondiverse schools—were most common in student engagement, valuing of learning, and positive affect. Meanwhile, statistically significant ($p < .05$) positive outcomes for students of color in racially diverse schools were evident in two survey constructs: physical safety and social perspective taking. As with white students,

Table 2. Social-Emotional and Test-Based Outcomes, By School Diversity Status, For All Students and Racial/Ethnic Groups.

| | TCF + Hartford B (at least 25% white) | | | |
	Racially diverse	Not racially diverse	Diff	t-Test p-Value
Emotional safety				
All	2.53	2.55	−0.02	.03
White/Caucasian	2.51	2.56	−0.05	.01
Black/AfrAm	2.51	2.50	0.01	.78
Hispanic/Latinx	2.54	2.53	0.01	.62
Asian	2.53	2.55	−0.02	.38
Student engagement				
All	3.01	3.11	−0.10	<.01
White/Caucasian	2.99	2.91	0.08	.02
Black/AfrAm	3.05	3.19	−0.14	.01
Hispanic/Latinx	2.99	3.13	−0.14	<.01
Asian	3.03	3.16	−0.13	<.01
Civic participation				
All	3.53	3.52	0.01	.34
White/Caucasian	3.58	3.5	0.08	.01
Black/AfrAm	3.60	3.52	0.08	.11
Hispanic/Latinx	3.48	3.52	−0.04	.18
Asian	3.62	3.54	0.08	.06
Sense of belonging				
All	3.54	3.56	−0.02	.06
White/Caucasian	3.56	3.49	0.07	.01
Black/AfrAm	3.58	3.57	0.01	.79
Hispanic/Latinx	3.51	3.63	−0.12	<.01
Asian	3.55	3.59	−0.04	.22
Value of learning				
All	3.46	3.55	−0.09	<.01
White/Caucasian	3.47	3.44	0.03	.36
Black/AfrAm	3.48	3.64	−0.16	<.01
Hispanic/Latinx	3.45	3.60	−0.15	<.01
Asian	3.52	3.60	−0.08	.05
Positive affect				
All	3.28	3.34	−0.06	<.01
White/Caucasian	3.30	3.25	0.05	.11
Black/AfrAm	3.32	3.40	−0.08	.05

(continued)

Table 2. (continued)

| | TCF + Hartford B (at least 25% white) | | | |
	Racially diverse	Not racially diverse	Diff	t-Test p-Value
Hispanic/Latinx	3.24	3.37	−0.13	<.01
Asian	3.23	3.38	−0.15	<.01
Social perspective taking				
All	3.34	3.28	0.06	<.01
White/Caucasian	3.41	3.37	0.04	.17
Black/AfrAm	3.36	3.26	0.10	.03
Hispanic/Latinx	3.26	3.28	−0.02	.66
Asian	3.55	3.30	0.25	<.01
Physical safety				
All	4.06	3.82	0.24	<.01
White/Caucasian	4.16	3.97	0.19	<.01
Black/AfrAm	4.05	3.78	0.27	<.01
Hispanic/Latinx	4.03	3.85	0.18	<.01
Asian	4.22	3.88	0.34	<.01
ELA %meet or exceeds expectation				
All	48.92	28.04	20.88	<.01
White/Caucasian	60.02	48.38	11.64	<.01
Black/AfrAm	38.66	22.50	16.16	<.01
Hispanic/Latinx	38.23	24.25	13.98	<.01
Asian	60.03	45.68	14.35	<.01
Math %meet or exceeds expectation				
All	47.75	27.93	19.82	<.01
White/Caucasian	58.65	47.00	11.65	<.01
Black/AfrAm	32.83	19.85	12.98	<.01
Hispanic/Latinx	34.90	23.08	11.82	<.01
Asian	64.94	60.90	4.04	.35
ELA SGP				
All	52.23	46.20	6.03	<.01
White/Caucasian	55.07	48.42	6.65	.05
Black/AfrAm	47.29	43.58	3.71	.27
Hispanic/Latinx	49.93	45.71	4.22	.06
Asian	57.41	48.47	8.94	.04
Math SGP				
All	50.05	44.53	5.52	.03
White/Caucasian	52.18	49.00	3.18	.38

(continued)

Table 2. (continued)

| | TCF + Hartford B (at least 25% white) | | | |
	Racially diverse	Not racially diverse	Diff	*t*-Test *p*-Value
Black/AfrAm	41.61	41.91	−0.29	.94
Hispanic/Latinx	46.09	43.01	3.08	.32
Asian	57.25	50.75	6.50	.22

differences in feelings of physical safety across racially diverse schools and more segregated schools were also largest among students of color, with students of all racial sub-groups reporting higher levels of physical safety in racially diverse schools; results were statistically significant at the $p < .01$ level.

Test Score Results: Outcomes for All Students

Analyses of test score results corroborate existing research on the academic benefits of school diversity. Specifically, we found statistically significant ($p < .05$) positive differences in each of our four different test-score outcomes. Across all test-score measures, there were no statistically significant negative differences for students in racially diverse schools—a finding true across all racial sub-groups.

Previous literature has found positive to neutral results for white students in diverse schools (Orfield & Lee, 2004, 2006; Page, 2008; Siegel-Hawley, 2012; TCF, 2016); our findings support this. Analysis of outcomes for white students, specifically, revealed statistically significant ($p < .05$) positive results in the proportions of students meeting or exceeding expectations in ELA and math at racially diverse schools, compared to their sub-group counterparts at non-diverse schools. Student growth scores (SGP) in ELA were statistically significant ($p < .05$) and positive for white students in racially diverse schools, while math SGP was not statistically significant ($p < .05$).

Consistent with previous research, our analysis also revealed positive test score outcomes for students of color in racially diverse schools. Across all three student of color sub-groups, there were five statistically significant ($p < .05$) positive differences in the percent of students meeting or exceeding expectations for their math or ELA scores, compared to zero statistically significant negative findings. In particular, results were positive and statistically

Table 3. Results of Multilevel Ordinal Logistic Regression (Social and Emotional Measures) and OLS Regression (Test-Based Measures) Models.

	Diversity indicator	
	β (SE)	CI
Emotional safety	−0.107 (0.078)	[−0.260, 0.046]
Student engagement	−0.052 (0.108)	[−0.265, 0.160]
Civic participation	−0.058 (0.082)	[−0.219, 0.102]
Sense of belonging	−0.097 (0.108)	[−0.309, 0.115]
Value of learning	0.031 (0.109)	[−0.182, 0.244]
Positive affect	0.037 (0.097)	[−0.153, 0.228]
Social perspective taking	−0.057 (0.074)	[−0.203, 0.089]
Physical safety	0.078 (0.148)	[−0.211, 0.368]
ELA % meet or exceeds expectations	7.237*** (2.323)	[2.638, 11.836]
Math % meet or exceeds expectations	6.758** (2.768)	[1.278, 12.239]
ELA SGP	1.816 (2.465)	[−3.065, 6.697]
Math SGP	1.603 (3.185)	[−4.704, 7.910]

**p < 0.05. ***p < 0.01.

significant at the $p < .01$ level for Black/African American students and Hispanic/Latinx students meeting or exceeding expectations in ELA and math. There was one statistically significant positive difference in our analysis of growth scores (ELA SGP for Asian students), and five results that were not statistically significant.

To test whether our findings for students of color are the product of student background variables, rather than school diversity, we controlled for student demography and school-level economic disadvantage (see Table 3); importantly, our results did not change dramatically. We found that school-level racial diversity continues to be positively associated with student achievement on math and ELA assessments ($p < .05$) and no statistically significant relationships between school-level racial diversity and either SGP or any of the eight social and emotional outcomes.

Discussion

Racial Diversity and White Students

Scholars have strongly emphasized the importance of helping white parents see a benefit for their children in the process of racial integration (Frankenberg & Lee, 2008; Stuart Wells et al., 2009). Yet, empirical research has found

that, even after controlling for academic quality, school building physical quality, and safety, white families continue to avoid schools with higher percentages of students of color (e.g., Billingham & Hunt, 2016; Holme, 2002). It is particularly striking, then, that the leading beneficiaries of racially diverse schools in our study appear to be white students.

One finding that seems of chief importance concerns physical safety. In our study, this scale included questions such as "How often do you worry about violence at your school?" And we know from contemporary reporting on school integration efforts that white parents often cite safety concerns as part of their opposition to policies that would result in more integrated schools, as seen in a recent debate about school attendance zone changes in Austin, TX and Howard County, MD (e.g., Baltimore Sun, 2019; McInerny, 2019). Our findings indicate that safety concerns have not been salient for white students in the diverse schools in our sample. If white families seek out more segregated schools for the purpose of helping their children feel safer, such moves may be misguided.

Our sense of belonging scale asked students about the extent to which they feel supported by adults in their school, and about whether they feel respected by their peers. Positive results for white students in diverse schools call into question a possible belief among white parents that their children will feel a stronger sense of belonging in mostly white schools. Instead, our results suggest that white parents seeking an environment where their children will fit in would do better to look for a racially diverse school.

Meanwhile, the student engagement scale included questions about students' level of excitement about their academic learning and about whether they spend time outside of school learning about topics that interest them. Lastly, the civic engagement scale asked students to rate their level of interest in becoming engaged in their communities and/or in addressing larger social injustice. Positive results on these constructs for white students in racially diverse schools align with previous research identifying integrated schools as places that nurture authentic engagement with academic subjects and inspire interest in social change (e.g., Orfield, 2001a).

While white students appear to benefit from being enrolled in racially diverse schools, we must approach on-the-ground integration efforts with caution. Simply placing students together will not ensure that they interact and get along with one another. For example, our finding that white students in racially diverse schools have significantly lower feelings of emotional safety than those in non-diverse schools suggests that diverse schools can do more to promote school cultures and classroom environments that are inclusive, safe, and supportive.

For test-based outcomes, white students in racially diverse schools achieve significantly higher on both state math and ELA assessments than white students who are not enrolled in racially diverse schools. Additionally, whether or not a school is racially diverse had no significant relationship to test score growth for white students, even when we control for student demographics and school-level economic disadvantage. These findings align with other research that has found that white students' academic achievement and test score growth are not harmed by racial integration (e.g., Orfield & Lee, 2004, 2006).

Racial Diversity and Students of Color

Among the mixed results detailed above, students of color in racially diverse schools tend to rate their experiences lower in the following constructs: student engagement, valuing of learning, and positive affect. These findings illustrate the complexity of school diversity and the importance of taking a holistic approach to school integration efforts.

We define racial diversity according to school-level composition, and as a result we cannot elaborate on whether or not our results are impacted by forms of segregation that exist within schools, such as ability tracking or racially disproportionate school discipline (see Lewis & Diamond, 2015 for an ethnographic analysis of within-school forms of racial inequity). Relatedly, our results cannot tell us about "informal interactional diversity" or "the extent to which students actually interact with peers from racial/ethnic backgrounds different from their own" (Gurin et al., 2002, p. 116). These within-school forms of segregation may explain some of the negative findings for students of color on our social and emotional constructs.

It is also important to remember that students of color attend schools that are embedded in a white and Eurocentric culture. In addition to within-school forms of segregation, curricular homogeneity and a lack of teacher diversity may explain the lower ratings issued by students of color in more diverse schools for the student engagement, valuing of learning, and positive affect constructs. Research demonstrates that students of color are more engaged in school when they see themselves represented in the curriculum (Bernal, 2002; García & Guerra, 2004; Tung et al., 2015) and when they are taught by teachers of color (e.g., Milner, 2006). As in many other states, racial diversity in Massachusetts has spread rapidly in suburban communities that previously were predominantly white (Boston Indicators, 2019). It is reasonable to expect that corresponding diversification of the curriculum and teaching staff will lag behind demographic changes, even in

well-intentioned schools and districts. As detailed in earlier research on Boston-area desegregation efforts, schools face challenges when embracing a more diverse enrollment, but addressing those challenges can yield educational and socio-emotional benefits for all students (Eaton, 2001).

An exclusive focus on the negative outcomes for students of color would miss the larger and more nuanced picture of school integration revealed in our analysis. Across all data sources, our study suggests that school-level racial diversity is a positive step in the right direction, but is not enough, on its own, to provide meaningful social and emotional learning opportunities for students of color. In particular, positive results for students of color are evident on the physical safety and social perspective taking survey scales, as well as in our analysis of math and ELA proficiency rates for Black/African American and Hispanic/Latinx students.

Common across the country, schools that disproportionately serve students of color are more likely to staff school resource officers or to use so-called safety measures such as metal detectors, which may criminalize students of color (American Civil Liberties Union [ACLU], 2019). To the extent that such practices are in place within Massachusetts schools, students may feel safer at schools with higher proportions of white students where such practices are less common.

Meanwhile, our social perspective taking scale asked students about democratic life, such as how often they "try to understand the point of view of other people" or how often they "try to figure out what motivates others to behave as they do." Positive outcomes for students of color on this construct are a strong indication of the benefit of learning in a diverse setting. Our findings align with research suggesting that diverse schools provide students with opportunities to understand the perspectives of students from different racial backgrounds (e.g., Rucinski, 2015), helping to nurture thoughtful participation in a multicultural democracy.

Lastly, positive findings on test score constructs corroborate existing research on the academic benefits of diverse schools for students of color. It is not clear whether race is functioning as a proxy here for other issues, like family background or school funding, which influence student learning. What is clear, however, is that students of color in racially diverse schools perform better, on average, than their peers who do not attend schools that meet our definition of racial diversity. In addition, because we controlled for background variables, such as student demography and school-level economic disadvantage (see Table 3), we can more confidently suggest that test score differences are due to school racial composition.

Measuring Racial Diversity

To date, no single definition of "racially diverse" schools has been established. In some ways, this is remarkable. After three-quarters of a century of jurisprudence, policy debate, and public deliberation, a minimum threshold for racial diversity certainly might have taken hold. After all, a single definition would allow for more consistent and coherent policymaking, as well as for more complete research into the effects of racially diverse schools. In other ways, however, this fact is unsurprising—racial diversity is dependent on context, is perceived differently by different groups, and is not exclusive of other forms of diversity.

In this study, we used an amalgamated definition of racial diversity—one drawing on work by The Century Foundation and the *Sheff v. O'Neill* settlement. For the context of this study, such a definition seemed reasonable. Yet it is worth noting that this definition is not necessarily superior to other reasonable alternatives. In fact, it may be that multiple definitions of racial diversity can co-exist, and that no single model is necessary. Local- or state-level definitions of racial diversity may enable the important work of measuring progress across a range of outcomes and then acting on behalf of all students—particularly those from historically marginalized groups. Insofar as that is the case, we believe that our definition is an important starting point for future efforts, however they may unfold.

Limitations

We believe this study offers a unique window into the different ways that racially diverse schools may impact student outcomes. That said, it is not without limitations. The state of Massachusetts is not representative of the United States—racially, economically, or in terms of student achievement. Additionally, the six districts included in this study are not representative of all districts. There may be particular differences that make them non-generalizable in a way that only further research can determine. Moreover, the approximately 26,000 students who participated in this research may differ in important ways from other students in the U.S. or in other districts. Any findings from this study, then, should be considered preliminary and can perhaps be most influential in making the case for similar research in other contexts.

Conclusion

Racial integration of the public schools is one of the nation's great unfulfilled promises. After two decades of headway following the *Brown* (1954) decision

and the 1964 Civil Rights Act, American schools began a long period of reseg-regation (Frankenberg et al., 2019). By the end of the 20th century, the move-ment seemed all but dead.

In recent years, the aim of racial integration has resurfaced in serious pol-icy debate, including a national reemergence at the Democratic primary debates in the summer of 2019. This is a promising turn, unforeseen by policy analysts. Yet if the movement is to succeed, it will require the cooperation of white families, who have historically constituted the strongest resistance to school integration. As the population of students of color continues to grow, and as competition for educational resources intensifies, white families will be essential partners in the work of achieving meaningful and durable school integration.

As our study indicates, white students in racially integrated schools appear to have more positive experiences than white students in less diverse schools, while achieving at the same rates or higher as measured by stan-dardized tests. Insofar as that is the case, we believe that this work marks an important step in making a research-based case to white families about the benefits of racial integration. As history indicates, the moral imperative is not enough.

Our study also illustrates that school-level racial diversity, alone, is not a panacea. Importantly, advocates of school integration are usually careful to distinguish between school-level desegregation and holistic school integra-tion. The school diversity advocacy community, for example, promotes a vision for school integration that includes culturally responsive curricula, restorative justice, and teacher diversity in addition to consideration of school-level diversity (see IntegrateNYC, n.d.). After significant advocacy from youth-led community organizing groups, this model—known as the "5Rs" of real integration—was formerly adopted in 2019 as the official school integration framework of the New York City Department of Education (2019). Our findings point to the relevance of this framework as a holistic model for contemporary integration that encompasses much more than the one-dimensional school-level desegregation of an earlier era.

Unique in the field of school integration research, our study provides evi-dence that these factors indeed are important if school integration is to reach its full potential in providing supportive and culturally-affirming learning experiences to those who have been historically marginalized in American public education. Thus, we end on a note of caution. Unless schools attend carefully to the well-being of students of color, we may at long last achieve the aim of racial integration, but fail to reap the full benefit of it.

Appendix A. Results of Multilevel Linear Regression.

	Diversity indicator	
	β (SE)	CI
Emotional safety	−0.037 (0.026)	[−0.088, 0.013]
Student engagement	−0.022 (0.056)	[−0.133, 0.088]
Civic participation	−0.034 (0.040)	[−0.112, 0.045]
Sense of belonging	−0.039 (0.048)	[−0.133, 0.055]
Value of learning	0.018 (0.048)	[−0.077, 0.112]
Positive affect	0.018 (0.042)	[−0.065, 0.101]
Social perspective taking	−0.018 (0.038)	[−0.091, 0.056]
Physical safety	0.040 (0.057)	[−0.073, 0.152]

Coefficients and Confidence Intervals of School Diversity-by-Economic Disadvantage Interaction in Multilevel Logistic Regression Model.

	Diversity × β (SE)	% EconDis CI
Emotional safety	−0.002 (0.005)	[−0.011, 0.007]
Student engagement	0.007 (0.006)	[−0.006, 0.019]
Civic participation	0.004 (0.005)	[−0.006, 0.013]
Sense of belonging	0.007 (0.006)	[−0.005, 0.019]
Value of learning	0.009 (0.006)	[−0.003, 0.021]
Positive affect	0.008 (0.006)	[−0.003, 0.019]
Social perspective taking	0.006 (0.004)	[−0.003, 0.015]
Physical safety	0.012 (0.008)	[−0.005, 0.028]

Appendix B. Eight Social and Emotional Construct Scales Included in Student Surveys.

Part	Scale	Question text	1	2	3	4	5
A	Emotional safety	How often do you observe students teasing other students at your school?	Almost never	Once in awhile	Sometimes	Often	Very frequently
A	Emotional safety	How often do you think students at your school are bullied online?	Not at all frequently	Rarely	Occasionally	Rather frequently	Very frequently
A	Emotional safety	How worried are you that you will be bullied because of who you are?	Not at all worried	Slightly worried	Somewhat worried	Quite worried	Extremely worried
A	Civic participation	To what extent do you believe that being concerned with national, state, and local issues is everyone's responsibility?	Not at all	A little bit	Somewhat	Quite a bit	A great deal
A	Civic participation	How important is it to you to get involved in improving your community?	Not at all important	Slightly important	Somewhat important	Quite important	Extremely important
A	Civic participation	How important is it to you to actively challenge inequalities in society?	Not at all important	Slightly important	Somewhat	Quite a bit	Extremely important
A	Civic participation	How important is it to you to take action when something in society needs changing?	Not at all important	Slightly important	Somewhat important	Quite important	Extremely important
A	Student engagement	How often do you get so focused on class activities that you lose track of time?	Almost never	Once in a while	Sometimes	Often	Very often
A	Student engagement	How excited are you about going to this class?	Not at all excited	A little bit excited	Somewhat excited	Quite excited	Extremely excited
A	Student engagement	Overall, how interested are you in this class?	Not at all interested	A little bit interested	Somewhat interested	Quite interested	Extremely interested

Appendix B. (continued)

Part	Scale	Question text	1	2	3	4	5
A	Student engagement	How often do you take time outside of class to learn more about what you are studying in class?	Almost never	Once in a while	Sometimes	Often	Very often
B	Physical safety	How often do you worry about violence at your school?	Almost never	Rarely	Occasionally	Regularly	Very frequently
B	Physical safety	How often do students get into physical fights at your school?	Almost never	Rarely	Occasionally	Regularly	Very frequently
B	Physical safety	Overall, how safe do you feel at school?	Extremely unsafe	Quite unsafe	Somewhat safe	Quite safe	Extremely safe
B	Physical safety	How often do you feel like you might be harmed by someone at school?	Almost never	Once in awhile	Sometimes	Often	Almost always
B	Sense of belonging	Overall, how much do you feel like you belong at your school?	Do not belong	Belong a little bit	Belong somewhat	Belong quite a bit	Almost totally belong
B	Sense of belonging	At your school, how accepted do you feel by the other students?	Not at all accepted	A little accepted	Somewhat accepted	Quite accepted	Extremely accepted
B	Sense of belonging	How well do people at your school understand you?	Don't understand me	Understand me a little	Understand me somewhat	Understand me quite a bit	Understand me extremely well
B	Sense of belonging	How much support do the adults at your school give you?	No support at all	A little bit of support	Some support	Quite a bit of support	A great deal of support
B	Sense of belonging	How much respect do students in your school show you?	No respect at all	A little bit of respect	Some respect	Quite a bit of respect	A great deal of respect
B	Sense of belonging	How connected do you feel to the adults at your school?	Not at all connected	Slightly connected	Somewhat connected	Quite connected	Extremely well connected

Appendix B. (continued)

Part	Scale	Question text	1	2	3	4	5
B	Sense of belonging	How close are your relationships with others at this school?	Not at all close	A little close	Somewhat close	Quite close	Extremely close
B	Valuing of learning	Overall, how important is school to you?	Not at all important	Slightly important	Somewhat important	Quite important	Extremely important
B	Valuing of learning	How often do you use ideas from school in your daily life?	Almost never	Once in a while	Sometimes	Often	Very frequently
B	Valuing of learning	How interesting do you find the things you learn in school?	Not at all interesting	Slightly interesting	Somewhat interesting	Quite interesting	Extremely interesting
B	Valuing of learning	How curious are you to learn more about things you talked about in school?	Not at all curious	Slightly curious	Somewhat curious	Quite curious	Extremely curious
B	Valuing of learning	How much do you enjoy learning in school?	Do not enjoy at all	Enjoy a little bit	Enjoy somewhat	Enjoy quite a bit	Enjoy a tremendous amount
B	Valuing of learning	How much do you see yourself as a learner?	Don't see myself as a learner at all	See myself as a learner a little bit	See myself somewhat as a learner	See myself as a learner to some extent	See myself completely as a learner
B	Social perspective taking	How often do you attempt to understand your friends better by trying to figure out what they are thinking?	Almost never	Once in a while	Sometimes	Often	Very frequently
B	Social perspective taking	How often do you try to think of more than one explanation for why someone else acted as they did?	Almost never	Once in a while	Sometimes	Often	Very frequently

Appendix B. (continued)

Part	Scale	Question text	1	2	3	4	5
B	Social perspective taking	Overall, how often do you try to understand the point of view of other people?	Almost never	Once in a while	Sometimes	Often	Very frequently
B	Social perspective taking	How often do you try to figure out what motivates others to behave as they do?	Almost never	Once in a while	Sometimes	Often	Very frequently
B	Social perspective taking	In general, how often do you try to understand how other people see things?	Almost never	Once in a while	Sometimes	Often	Very frequently
B	Positive affect	On a regular day at school, how often do you feel relaxed?	Almost never relaxed	Rarely relaxed	Sometimes relaxed	Often relaxed	Very often relaxed
B	Positive affect	How often are you enthusiastic at school?	Almost never enthusiastic	Rarely enthusiastic	Sometimes enthusiastic	Often enthusiastic	Almost always enthusiastic
B	Positive affect	How often are you interested in what you're doing in school?	Almost never interested	Rarely interested	Sometimes interested	Often interested	Almost always interested
B	Positive affect	On a normal day in school, how confident do you feel?	Not at all confident	A bit confident	Somewhat confident	Significantly confident	Very confident
B	Positive affect	On a normal day in school, how much are you able to concentrate?	Can't concentrate at all	Can concentrate a bit	Can concentrate somewhat	Can concentrate well	Can concentrate extremely well

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Notes

1. Student surveys were available in the following languages: Armenian, Brazilian Portuguese, Cape Verdean-Creole, Chinese, English, Haitian Creole, Khmer, Somali, and Spanish.
2. Detailed information about Massachusetts's Student Growth Percentile (SGP) can be found at http://www.doe.mass.edu/mcas/growth/

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