

# Professional Staff Diversity and Student Outcomes: Extending Our Understanding of Race/Ethnicity-Matching Effects in Education

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Studies consistently show that minoritized students benefit from having a teacher of the same race/ethnicity. We extend this literature by examining educational impacts of exposure to same-race/ethnicity professional staff, including administrators, instructional coaches, guidance counselors, and special education specialists. Students interact with these staff less frequently than teachers, yet staff of color may also serve as role models, support culturally relevant practices, and help prevent discrimination. Using within-student and within-school variation in statewide Maryland data, we find that higher shares of same-ethnicity staff improve test scores and modestly reduce suspensions for Hispanic students. For Black students, exposure to non-Black, non-White professionals of color is associated with higher English language arts performance, although these effects are smaller—about one-fifth the size of teacher effects.

**Keywords:** diversity; educational policy; quasi-experimental analysis; staff development

Research in education consistently shows benefits of same-race/ethnicity teachers on the outcomes of minoritized students of color, including increased test-score performance (Dee, 2004; Easton-Brooks, 2019; Eddy & Easton-Brooks, 2011; Egalite et al., 2015), improved social-emotional development (Blazar, 2024; Egalite & Kisida, 2018; Wright et al., 2017), and reduced absences, suspensions, and expulsions (Gottfried et al., 2022; Holt & Gershenson, 2019; Lindsay & Hart, 2017; Shirrell et al., 2024; Tran & Gershenson, 2021). Assignment to just one Black teacher early on in elementary school also has long-run impacts for Black students, including increased probabilities of graduating from high school and enrolling in college (Gershenson et al., 2022). Theory suggests potential mechanisms include (a) role modeling from adults in positions of power (Villegas & Lucas, 2004), (b) culturally relevant instructional practices (Ladson-Billings, 1995), and (c) reduced exposure to academic and disciplinary discrimination (Milner & Tenore, 2010).

Teachers are not the only ones who can provide these resources and supports to students. Outside of the classroom, other school professionals (e.g., administrators, instructional coaches, guidance counselors, and special education specialists) may also serve

as role models, contribute directly or indirectly to the implementation of culturally relevant instructional and schoolwide practices, or prevent students from facing exclusionary discipline. In this case, we would expect to observe similar benefits for students. Although studies have examined principal race/ethnicity and student outcomes (e.g., Bartanen & Grissom, 2023; Edwards et al., 2023), none have examined effects of diversity among a broader set of professional staff. Because principals serve a very specific leadership role in schools, the mechanisms driving principal-student race/ethnicity matching effects likely are different from potential effects of diversity among schools' other professional staff.

To bridge this gap in the literature, we use 12 years of public school records across the state of Maryland that link students to schools and professional staff within them and then to key academic and behavioral outcomes, including end-of-year test scores in math and English language arts (ELA), absences, and suspensions. We focus on a sample of third through eighth graders, for whom we can exploit year-to-year variation in outcomes

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and professional staff diversity. Applying models with student, school, and year fixed effects, our findings extend the education-based race/ethnicity-matching literature in multiple ways. First and foremost, we find that an increased share of same-ethnicity professional staff leads to increased test-score performance in math and ELA of 0.005 *SD* and decreased probability of being suspended of 0.1 percentage points for Hispanic<sup>1</sup> students. As expected, these effects are smaller in magnitude than documented effects of same-race/ethnicity teachers in other scholarship (Bristol & Martin-Fernandez, 2019) but still are notable and policy relevant.

For Black students, our findings primarily support the benefits of same-race/ethnicity teachers to test-score outcomes (0.02–0.03 *SD*). Estimated effect sizes for same-race/ethnicity professional staff on the outcomes of Black students are about one-fifth the magnitude and not statistically significantly different from zero. Notably, the effect size for non-Black, non-White professional staff of color (i.e., Hispanic, Asian) is very similar in magnitude (0.005 *SD*) and is statistically significant—suggesting that Black students likely benefit from professional staff of color beyond race-matching effects specifically. Our findings contribute to the broader literature on whether diversity or matching matters more, which has come to mixed conclusions (e.g., Lindsay & Hart, 2017; Shirrell et al., 2024). Gershenson et al. (2022) showed that Black teacher effects accrue to Black students only, and Blazar (2024) showed that Black teachers benefit non-Black students of color and White students, too.

At the same time, like the prior literature, we too find some inconsistencies in our results and across race/ethnicity groups. For example, for Asian students, we document some evidence that non-Asian professional staff of color (i.e., Black, Hispanic) reduce ELA test scores. And we report null effects of same-race professional staff on the outcomes of White students, ruling out potential externalities on this group of students of increased diversity in the school workforce. Consistent with prior literature, diversity benefits work in multifaceted ways across student groups. That said, we document some added benefits of diversity among schools' professional staff in addition to the benefits of diversity among teachers.

Although our large-scale data and quantitative analyses are best set up for estimating input-output relationships and are more limited in understanding mechanisms, we conduct one exploratory analysis to look for role modeling as a potential mechanism. Role modeling theory in education contends that teachers of color are particularly important to students of color (although may also impact the outcomes of other students), in large part because of their positioning as successful professionals with advanced training and degrees (Villegas & Lucas, 2004). To the extent that role modeling is driving our results, we expect to see larger matching effects than broader diversity effects. We also expect to see larger effects for staff members who hold positions of power and authority versus those with less power and authority. Consistent with this theory, we find that an increased share of same-race aides leads to decreased test-score outcomes of Black students (–0.023 to –0.011 *SD*). In the case of Hispanic students, the direction of the effects of same-ethnicity aides is the same (i.e., larger shares of Hispanic aides negatively impact test scores), but the results are not statistically significant.

These patterns suggest that role modeling likely plays a role in the patterns we observe. The fact that we also observe positive effects of non-Black, non-White professional staff members on the test scores of Black students suggests that additional mechanisms—such as culturally relevant instructional and schoolwide practices—also are at play.

## Theoretical Framework and Related Research

### *Race/Ethnicity Matching in Schools*

Our study examines benefits to students of racial/ethnic diversity among schools' professional staff, which builds most directly from long-standing theory and empirical research on the benefits of access to same-race/ethnicity teachers.

Although the teacher workforce is overwhelmingly White (roughly 80%; National Center for Education Statistics, 2021), teachers of color are thought to be uniquely positioned to understand the social, political, and economic inequalities that students of color face (Ladson-Billings, 1994). More specifically, theory indicates that the academic experiences and outcomes of students of color are informed by their lives beyond the classroom, and as such, it is important that they have teachers who recognize and seek to understand how racial inequality shapes their world (Irvine, 1989; Ladson-Billings, 1995). Teachers of color are described as having access to “community cultural wealth,” including the cultural knowledge and contacts that can be particularly beneficial for students of color (Kohli, 2008; Yosso, 2005). White teachers may be more likely to adopt deficit views and colorblind ideologies attributing academic challenges to individual rather than systemic factors (Lewis, 2001; Valencia, 2012). Teachers of color may hold higher expectations for students of color, offsetting stereotype threat (Ferguson, 2003; Steele & Aronson, 1995). Theory also indicates that students of color benefit from having role models of their same race/ethnicity, particularly those who exemplify academic success (Villegas & Lucas, 2004).

Confirming at least part of this theory, quantitative analyses indicate that Black students randomly assigned to a Black teacher in early elementary grades outperform their peers on standardized tests by over 0.2 *SD* (Dee, 2004). Black students randomly assigned to a Black teacher also improve substantially in multiple dimensions of their social and emotional development, including their engagement in class, upwards of 0.6 *SD* (Blazar, 2024). Several nonexperimental studies that exploit within-student and/or within-school variation in teacher demographics show that race/ethnicity-matching effects on test scores extend to students in older grades (Egalite et al., 2015) and to social and behavioral outcomes, including students' own academic expectations for themselves (Gershenson et al., 2016). Using a similar fixed-effects methodology, Holt and Gershenson (2019) found that teacher-student race/ethnicity matching results in decreased absences (0.04 days) and suspensions (0.01 total suspensions). Lindsay and Hart (2017) and Shirrell et al. (2024) found similar patterns related to suspensions, and Gottfried et al. (2022) found similar results related to absences.

Gershenson et al. (2022) extended these analyses to examine the long-run impacts of teacher-student race matching for Black

students and explore potential mechanisms driving these effects. Using the experimental data also analyzed by Dee (2004) linked to end of high school and college outcomes, the authors found that Black students randomly assigned to a Black teacher are more likely to take the SAT or ACT (6 percentage points), graduate from high school (9 percentage points), and attend college (6 percentage points). The authors further explored possible mechanisms driving these relationships: the overall effectiveness of Black teachers versus their position as role models. They argued against the effectiveness hypothesis, finding that Black teachers do not universally benefit non-Black students and that race-matching effects are not explained by observable teacher quality measures.

Other studies have come to slightly different conclusions about mechanisms. On one hand, Blazar (2024) found that Black teachers have particularly large effects on the self-efficacy of their Black but not their non-Black students, which suggests role-modeling channels. On the other hand, this study showed that Black teachers impact the test-score outcomes of all students, whether or not they are Black. These effects are mediated, in part, by Black teachers' classroom practices and their growth mindset beliefs regarding student learning, indicating that culturally relevant practices likely serve as an additional mechanism. Other studies point to teacher expectations and attention to students' emotional needs as mechanisms (Foster, 1997; Ladson-Billings, 2009; O'Connor & McCartney, 2007; Siddle Walker, 2000). Thus, the academic literature suggests that multiple mechanisms likely drive effects on student outcomes.

Beyond direct student–teacher matching effects, recent work emphasizes that exposure to diverse educators can shape broader school dynamics. For instance, Gershenson and colleagues (2023) showed that Black teachers improve the outcomes of not only their own Black students but also those taught by novice White colleagues through mechanisms of peer learning and reduced bias. These findings underscore that the presence of racially diverse staff can create spillover benefits, enhancing institutional capacity to serve students of color even when individual students are not directly matched to a same-race teacher. By extension, other professional staff members—such as administrators, guidance counselors, and instructional specialists—may similarly contribute to schoolwide benefits by shaping teacher practices and influencing policies and supports that affect students more broadly.

### *Benefits of Diversity Among School Professional Staff*

The theoretical arguments for teacher–student race/ethnicity matching extend naturally to other adults in schools. Scholars have long emphasized that students benefit from seeing diverse “professionals” in positions of authority. Villegas and Lucas (2004) described how “children of color see few people of their own backgrounds among the professional staff in schools,” not just teachers (p. 72). Minoritized students who see adults like them in positions of power can challenge myths of racial/ethnic inferiority. Waters (1989) noted that because school is

a place where cultures and value systems are fashioned..., [a]bsence of [B]lack teachers and administrators...distorts the

social reality of our society and deprives all children, [B]lack or non-[B]lack, of educational experiences that are increasingly important in our pluralistic society. (p. 267)

These scholars advocate for increased diversity across both teachers and school leaders as a means of creating school climates that are conducive to students' academic and social-emotional development.

Diversity among schools' professional staff—aside from teachers—may benefit students of color in both direct and indirect ways. Aligned to the aforementioned literature on teacher–student matches, same-race/ethnicity staff, such as administrators, guidance counselors, instructional specialists, and others, likely serve as role models because they work in positions of power and exemplify academic success (Villegas & Lucas, 2004). Furthermore, school leaders—and principals in particular—oversee disciplinary policies, potentially implementing “zero tolerance” policies that can result in a school-to-prison pipeline for minoritized students (Wald & Losen, 2003) versus restorative justice programs and policies (Fronius et al., 2016). Indirectly, school leaders also serve as key mechanisms to recruit, hire, and retain a diverse group of teachers (Bartanen & Grissom, 2023; D'Amico et al., 2017; Goff et al., Yang, 2018) and to support them in their work (Brezicha & Fuller, 2019), which, in turn, can benefit students.

In parallel, research on school diversity points to the importance of intergroup contact. Studies of racial composition in postsecondary settings find that diverse environments reduce prejudice and reshape long-term attitudes (Billings et al., 2021; Carrell et al., 2019). In schools, such mechanisms suggest that staff diversity may contribute to more inclusive climates and better student outcomes by influencing how all educators—not just those of color—approach their work. Importantly, these effects highlight that the benefits of professional diversity operate at the institutional level, extending beyond dyadic relationships between adults and students.

To our knowledge, only a handful of quantitative studies have examined links between school professional staff diversity and student outcomes, all of which focused on principals (for a recent review, see Grissom et al., 2021). In largely correlational analyses, Brockmeier et al. (2013) found higher student test scores when they have a principal of color, although estimates are sensitive to grade level and subject. Bowers and White (2014) found no relationship between principal race and average student outcomes, and Bastian and Henry (2015) found several negative relationships. All three of these studies consider the benefits of Black or non-White principals for students as a whole rather than disaggregating by student race/ethnicity subgroups.

Focusing more narrowly on principal–student demographic matches, Meier et al. (2004) found that an increased share of Hispanic principals is not associated with increased academic performance on key metrics (e.g., test scores, advanced course-taking, college entrance exams). However, the authors did observe a relationship between the share of Hispanic principals and an increased share of Hispanic teachers, which, in turn, predicts student outcomes. Using student-level data across two states and a value-added framework of student test-score growth, Bartanen and Grissom (2023) found that the math test scores of Black

**Table 1**  
**Student and Staff Characteristics (Grades 3–8, 2008–2019)**

	Students	Teachers	Professionals	Aides
	(1)	(2)	(3)	(4)
Asian	0.061	0.035	0.013	0.022
Black	0.345	0.175	0.250	0.312
Hispanic	0.140	0.025	0.021	0.045
White	0.406	0.735	0.693	0.595
Other	0.048	0.031	0.024	0.026
Female	0.488	0.783	0.826	0.876
Free/reduced-price lunch eligibility	0.432	—	—	—
English language learner	0.058	—	—	—
Special education	0.154	—	—	—
Highest degree: bachelor	—	0.283	0.063	0.069
Highest degree: master or higher	—	0.714	0.930	0.063
Total observations (person/year)	4,683,468	745,142	122,715	236,147
Unique observations (person)	1,581,233	115,718	22,381	40,302

*Note.* Proportions obtained at the person/year level. The professional staff group includes administrative professional staff, instructional specialists, guidance/counselor specialists, and special education specialists. The aides group includes paraprofessionals, teaching assistants, library personnel, nurses, and other clerks.

students increase when they have a Black principal (0.04 *SD* to 0.07 *SD*) but only when the principal has been in the school for more than a year. In other words, the effects likely reflect principals' job-specific human capital accumulation over time.

To our knowledge, no studies have examined links between other professional staff of color, beyond principals, to student outcomes or potential mechanisms driving these effects.

### Data and Sample

Analyses presented in this article focus on K–12 public school administrative records from the state of Maryland between the 2007–2008 school year—the first year of available data—and the 2018–2019 school year—the last year before the onset of the COVID-19 pandemic.<sup>2</sup> Data provided by the Maryland State Department of Education (MSDE) include information on all students enrolled in public schools during these years, their demographic characteristics, and academic and behavioral outcome measures, including end-of-year test scores in math and ELA, suspensions, and absences.

A key feature of the Maryland data that facilitates our analyses is that all school personnel are included in the data system and can be linked to schools. In addition to teachers, professional staff members include administrators (e.g., principals, assistant principals, department chairs), instructional coaches, guidance and counselor specialists, and special education specialists. These positions require advanced degrees (see Appendix Table A1, available on the journal website). We also examine the impact of staff members in supporting/aides roles (i.e., paraprofessionals, teaching assistants, library personnel, health care support staff, clerks), most of whom are not expected to have advanced degrees (and as such, their degree information is not reported in the statewide data; see Appendix Table A1, available on the journal website; MSDE, 2018).<sup>3</sup>

We limit our sample to students in Grades 3 through 8, the grades in which statewide math and ELA assessments are consistently administered each year. In this panel structure, the vast majority of students contribute multiple observations as they progress through these grades (e.g., Grade 3, then Grade 4, etc.).<sup>4</sup> The final analytic sample includes more than 4.6 million student/year observations, 745,142 teacher/year observations, 122,715 professional staff/year observations, and 236,147 aide/year observations.

As we show in Table 1, most students in Grades 3 through 8 in Maryland public schools are students of color. Approximately 35% of student/year observations are Black, and 14% are Hispanic; White students account for 41% of the student population. In contrast to the racial/ethnic composition of students in Maryland, most of the public school workforce is White. This is evident when we consider teachers (74% of teacher/years in Grades 3–8 are White), professional staff (69% White), and aides (60% White). There is a larger share of Black professionals (25%) than Black teachers (18%) and an even larger share of Black aides (31%). Far fewer teachers, professional staff members, or aides are Hispanic (2.5%, 2.1%, and 4.5%, respectively) or Asian (3.5%, 1.3%, and 2.2%, respectively). In the case of Asian students, their relatively small share of the student population (6%, which is less than half the proportion of Hispanic students in Maryland) limits the statistical power of our analysis.

Our key independent variables focus on students' exposure to teachers, professional staff, and aides from different racial/ethnic groups. For Black students in our sample (see Table 2, Panel A, Column 5), 31% of teachers, 43% of professionals, and 56% of aides are of their same race/ethnicity, and 10.6% of teachers, 6.1% of professionals, and 8.2% of aides are non-Black, non-White (mostly Hispanic). For Hispanic students (see Table 2, Panel A, Column 7), only 4% of teachers, 3.3% of professionals, and 10.7% of aides are of their same race/ethnicity, and 28.8%

**Table 2**  
**Descriptive Statistics for Primary Independent and Dependent Variables (Grades 3–8, 2008–2019)**

	All Students		Asian Students		Black Students		Hispanic Students		White Students	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: independent variables										
Same-race/ethnicity teachers	0.478	0.388	0.039	0.039	0.315	0.239	0.040	0.043	0.886	0.111
Same-race/ethnicity professional staff	0.500	0.395	0.021	0.055	0.423	0.313	0.033	0.072	0.855	0.175
Same-race/ethnicity aides	0.537	0.376	0.048	0.074	0.556	0.346	0.107	0.124	0.803	0.196
Same-race/ethnicity workers	0.482	0.360	0.109	0.141	0.658	0.311	0.162	0.196	0.553	0.327
Non-same-race/ethnicity, non-White teachers	0.173	0.205	0.167	0.148	0.107	0.078	0.288	0.231	0.114	0.111
Non-same-race/ethnicity, non-White professional staff	0.183	0.251	0.227	0.225	0.061	0.105	0.375	0.313	0.145	0.175
Non-same-race/ethnicity, non-White aides	0.213	0.245	0.276	0.238	0.079	0.103	0.398	0.291	0.197	0.196
Non-same-race/ethnicity, non-White workers	0.355	0.326	0.569	0.245	0.112	0.178	0.567	0.273	0.447	0.327
Panel B: dependent variables										
Math test scores ( <i>SD</i> )	0.000	1.000	0.721	1.007	−0.450	0.867	−0.329	0.906	0.332	0.922
Reading test scores ( <i>SD</i> )	0.000	1.000	0.584	0.983	−0.383	0.909	−0.297	0.923	0.314	0.949
Suspensions (count)	0.294	1.958	0.035	0.597	0.540	2.652	0.167	1.413	0.170	1.507
Ever suspended (binary)	0.066	0.249	0.011	0.106	0.113	0.317	0.041	0.198	0.044	0.205
Absences (count)	8.852	9.311	5.325	6.013	9.645	10.870	9.011	8.718	8.633	8.325
Absences (log)	1.935	0.870	1.486	0.862	1.958	0.932	1.981	0.839	1.963	0.808
Chronic absenteeism (binary)	0.121	0.326	0.042	0.201	0.151	0.358	0.124	0.330	0.105	0.306

of teachers, 37.5% of professionals, and 39.8% of aides are non-Hispanic, non-White (mostly Black). In contrast, for White students, approximately 88.6% of their teachers, 85.5% of the professionals, and 80.3% of aides that work in schools in which they enroll are of their same race/ethnicity.<sup>5</sup>

We link these independent variables to end-of-year test scores in math and ELA, administered in all Grades 3 through 8. We standardize test scores by test/subject, grade, and year so that  $M = 0$  and  $SD = 1$ . We also link our independent variables to suspensions and absences. Because suspensions and absences are highly skewed (see Table 2, Panel B), we use binary indicators for ever suspended and chronic absenteeism (absent  $\geq 10\%$  of days) in each academic year.

### Empirical Strategy

Our analyses aim to provide evidence on the effect of staff–student racial/ethnic matching and end-of-year educational outcomes. Following other scholars who have studied race/ethnicity-matching effects in schools, we exploit plausibly random variation in the demographics of school staff within schools and within students over time by specifying models that include fixed effects for school, student, and year (e.g., Egalite et al., 2015; Holt & Gershenson, 2019; Lindsay & Hart, 2017; Shirrell et al., 2024). Our main set of results are derived from the following model:

$$Y_{ist} = \beta_0 + \beta_1 \text{SameTch}_{it} + \beta_2 \text{ColorTch}_{it} + \beta_3 \text{SameProf}_{it} + \beta_4 \text{ColorProf}_{it} + \beta_5 \text{SameAide}_{it} + \beta_6 \text{ColorAide}_{it} + \sigma \text{Sch}_{it} + \zeta \text{Stud}_{it} + \theta_i + \omega_s + \gamma_t + \varepsilon_{ist}, \quad (1)$$

where  $Y$  is the outcome of interest (i.e., math test scores, ELA test scores, ever suspended, chronically absent) for student  $i$  in school  $s$  in year  $t$ .

Our key independent variables are the proportions of staff from different racial/ethnic groups. To facilitate interpretation of  $\beta_1$  through  $\beta_6$ , we standardize these variables so that each has a mean of 0 and a standard deviation of 1. This allows us to report effects per standard deviation increase in staff composition rather than the unrealistic 0 to 100 percentage point shift. Standardizing in this way enhances comparability across models and, importantly, allows us to compare the relative effects across student and staff subgroups—where the distribution of exposure is quite different (see standard deviations of the independent variables reported in Table 2).<sup>6</sup>

Following Equation 1, we specify each outcome as a function of the standardized share of same-race/ethnicity teachers, professional staff, and aides and the standardized share of non-White but not same-race/ethnicity teachers, professional staff, and aides. Coefficients on these independent variables are captured by  $\beta_1$  through  $\beta_6$ . We estimate the model for the three subgroups of interest—Asian, Black, and Hispanic students. To estimate potential externalities of increased teacher and staff diversity, we also estimate separate models for White students and assess the effect of same-race teachers, professional staff, and aides for this group. By including the standardized shares of teachers, professional staff, and aides from different racial/ethnic groups in the same model, we parse the unique effect of each.<sup>7</sup> Standard errors are clustered at the school level.

The key identification challenge in our analyses is that students and staff members nonrandomly sort to schools and thus

to each other. Unobserved factors that drive these matches—such as neighborhoods that students and staff members live in and individual/family preferences for specific school contexts—may bias our estimates of interest. To address these concerns, we include school fixed effects,  $\omega_j$ , which force within-school comparisons and thus accounts for all time-invariant, school-level factors that may be associated with both students' exposure to same-race/ethnicity staff and outcomes. For teacher-student matching, there is another layer of nonrandom sorting of students to classes within schools. We begin to account for this type of sorting by focusing on school-year averages of teachers from different racial/ethnic backgrounds rather than the teachers that students work with directly. That said, at least some of the teacher-student matching effect estimates will be driven by students' own teachers.<sup>8</sup> Therefore, we also include student fixed effects,  $\theta_j$ , to account for fixed differences across students that may also introduce bias.<sup>9</sup> Student fixed effects account for factors that we actually do observe in our data (e.g., prior-year test scores) and that are used in other analyses to limit bias due to nonrandom sorting and factors that we do not observe (e.g., fixed differences across students in school motivation, parent/family-school interactions, etc.). Year fixed effects,  $\gamma_t$ , address year-to-year variation in local market conditions that may affect the composition of school staff.

Finally, we control for observable time-varying student characteristics (i.e., free/reduced-price lunch status, English language learner status, special education status) and time-varying school characteristics (i.e., proportion of students of different race/ethnicity groups, the numbers of teachers and professional staff). Ultimately, our empirical strategy exploits unexpected turnover of staff due to factors such as maternity leave (Bettinger & Long, 2010).

## Results

We present our main results in Table 3, which provides estimates of the effect of teacher and professional staff race/ethnicity on student outcomes. The four panels/sets of rows correspond to four student subgroups (i.e., Asian, Black, Hispanic, White), and sets of columns correspond to the four outcomes of interest (i.e., end-of-year math and ELA test scores, ever suspended in a given year, chronic absenteeism in a given year). Each panel-column combination represents estimates from a single regression model that includes all of the main independent variables.<sup>10</sup> Coefficients represent the effect of a 1 *SD* increase in the standardized share of same-race/ethnicity staff (or staff of color, non-same-race), with robust standard errors clustered at the school level reported in parentheses.<sup>11</sup>

We focus first on patterns related to teacher-student matching, which have been discussed extensively in the extant literature and so provide a useful point of comparison when interpreting patterns related to staff-student demographic matching. Results for exposure to same-race/ethnicity teachers are quite consistent with what other scholars have found for Black students. Specifically, we find that a 1 *SD* increase in exposure to Black teachers increases end-of-year math test scores by 0.022 *SD* and ELA test scores by 0.026 *SD* and decreases the

probability of being suspended by 0.9 percentage points. We do not observe any relationship between the share of non-White, non-Black teachers (i.e., Hispanic teachers in our context; see Table 1) and the outcomes of Black students. Standard errors are expectedly larger than for estimates for Black teachers given smaller shares of non-White, non-Black teachers in Maryland public schools.

For Hispanic students, exposure to same-ethnicity teachers yields changes in test scores, suspensions, or absences that align with expectations, but the large standard errors render the estimated effects statistically insignificant. Similarly, for Asian students, same-ethnicity teacher exposure is not statistically significantly associated with any of the outcomes. For White students, a 1 *SD* increase in exposure to White teachers has no statistically significant effect on test scores or suspensions but leads to a 0.4 percentage point reduction in chronic absenteeism.

Above and beyond exposure to same-race/ethnicity teachers, we provide novel evidence that exposure to diverse school professional staff results in improved test-score performance for Hispanic students. For this group, benefits come from larger shares of Hispanic school professionals. Specifically, we observe that a 1 *SD* increase in Hispanic school professionals leads to increased math and ELA test scores of 0.005 *SD* and decreased probability of being suspended in a given year of 0.1 percentage points. Although Hispanic teacher effects are not statistically significant, the math coefficient (0.007 *SD*) is similar to the Hispanic professional staff effect.

For Black students, we document that a 1 *SD* increase in the share of non-White, non-Black school professionals (mostly Hispanic but also Asian) corresponds to a 0.005 *SD* gain in end-of-year ELA scores. The estimated relationship for math test scores (0.003 *SD*)—and estimates linking Black school professionals to the test-score outcomes of Black students (0.004 *SD* to 0.005 *SD*)—are fairly similar in magnitude. However, they are not statistically significantly different from zero.

Comparing magnitudes of effects across staff type, the effects of same-race/ethnicity professional staff on test-score outcomes of Black students are substantially smaller (15% to 20%) than those of same-race teachers (e.g., 0.022 *SD* to 0.026 *SD* vs. 0.003 *SD* to 0.005 *SD*). This pattern suggests that at least for Black students, exposure to Black teachers may matter more than exposure to Black professionals. However, as noted earlier, this pattern is not universally true across student subgroups. For Hispanic students, the statistically detectable associations come from Hispanic professional staff rather than teachers. We treat these comparisons as exploratory given limited statistical power for formal hypothesis tests.

For Asian students, results indicate that exposure to same-race teachers or professionals is not associated with improvements in test scores. And unlike for Black and Hispanic students, coefficients for professional staff move in the opposite of the expected direction, with a 1 *SD* increase in non-Asian professionals of color linked to lower ELA performance (–0.022 *SD*). However, Asian students make up about one-third of the size of the Hispanic student population (Table 1), and their exposure to same-race professionals is about two-thirds that of Hispanic students (Table 2), which may help explain these different patterns.

**Table 3**  
**Relationship Between Staff Diversity and Outcomes**

	Math	ELA	Ever Suspended	Chronic Absenteeism
	(1)	(2)	(3)	(4)
<b>Panel A: Asian students</b>				
Standardized share of Asian teachers	-0.009 (0.007)	-0.004 (0.006)	-0.000 (0.001)	0.001 (0.002)
Standardized share of not-Asian teachers of color	0.024 (0.015)	0.000 (0.014)	-0.001 (0.002)	-0.003 (0.003)
Standardized share of Asian professionals	-0.000 (0.004)	0.001 (0.003)	0.000 (0.000)	0.001 (0.001)
Standardized share of not-Asian professionals of color	-0.001 (0.010)	-0.022*** (0.007)	-0.001 (0.001)	-0.000 (0.002)
Standardized share of Asian aides	-0.000 (0.004)	-0.005 (0.003)	-0.000 (0.000)	-0.001 (0.001)
Standardized share of not-Asian aides of color	0.007 (0.013)	-0.020* (0.011)	0.001 (0.001)	0.001 (0.003)
Observations	262,435	257,618	270,494	270,494
<b>Panel B: Black students</b>				
Standardized share of Black teachers	0.022** (0.009)	0.026*** (0.008)	-0.009** (0.004)	0.002 (0.004)
Standardized share of not-Black teachers of color	-0.000 (0.005)	0.002 (0.004)	-0.001 (0.002)	0.001 (0.002)
Standardized share of Black professionals	0.004 (0.005)	0.005 (0.004)	0.001 (0.002)	0.001 (0.002)
Standardized share of not-Black professionals of color	0.003 (0.003)	0.005** (0.002)	0.001 (0.001)	-0.000 (0.001)
Standardized share of Black aides	-0.009 (0.010)	-0.023*** (0.008)	-0.003 (0.004)	-0.005 (0.005)
Standardized share of not-Black aides of color	-0.003 (0.005)	-0.011*** (0.004)	0.002 (0.002)	0.001 (0.002)
Observations	1,463,477	1,459,493	1,536,145	1,536,145
<b>Panel C: Hispanic students</b>				
Standardized share of Hispanic teachers	0.007 (0.005)	0.001 (0.005)	-0.000 (0.001)	-0.000 (0.001)
Standardized share of not-Hispanic teachers of color	-0.003 (0.014)	0.013 (0.010)	0.000 (0.003)	0.008* (0.004)
Standardized share of Hispanic professionals	0.005* (0.003)	0.005* (0.003)	-0.001** (0.001)	0.001 (0.001)
Standardized share of not-Hispanic professionals of color	-0.006 (0.005)	-0.002 (0.005)	-0.001 (0.001)	-0.000 (0.002)
Standardized share of Hispanic aides	-0.002 (0.005)	-0.003 (0.004)	0.001 (0.001)	0.003** (0.001)
Standardized share of not-Hispanic aides of color	0.011 (0.010)	-0.008 (0.009)	-0.000 (0.002)	0.002 (0.003)
Observations	593,203	578,924	617,948	617,948
<b>Panel D: White students</b>				
Standardized share of White teachers	0.003 (0.014)	0.004 (0.011)	0.000 (0.003)	-0.004* (0.003)
Standardized share of White professionals	-0.003 (0.006)	0.008 (0.005)	-0.001 (0.001)	0.000 (0.001)
Standardized share of White aides	-0.004 (0.009)	0.010 (0.008)	-0.002 (0.002)	0.001 (0.002)
Observations	1,764,354	1,762,104	1,817,545	1,817,545

*Note.* Coefficients in each column and panel come from separate regression models that include school, year, and student fixed effects and covariates at the student-year level (i.e., free/reduced-price lunch status, English language learner status, and special education status) and school-year level (i.e., total enrollment, proportion of students of different race/ethnicity groups, proportion of students eligible for free/reduced-price lunch, and the absolute number of teachers and professional staff members). Robust standard errors, clustered at the school level, are in parentheses. ELA = English language arts.

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

Finally, for White students, similarly as with teachers, exposure to all White professional staff does not have any statistically significant impact on test scores, suspensions, or absences.

In Table 3, we also show estimates of the effects of diversity among aides, which allows us to examine whether role modeling may be a mechanism driving results. Unlike teachers and professional staff, aides hold less power and authority in schools. We find negative effects on ELA test scores from a larger share of both Black aides ( $-0.023$  *SD*) and non-White, non-Black aides ( $-0.011$  *SD*) for Black students and of aides of color for Asian students ( $-0.02$  *SD*). We also document negative coefficients for end-of-year math test scores for Asian, Black, and Hispanic students, but as before, these relationships are not statistically different from zero. These findings generally align with our hypothesis and with theory: that matching and diversity among schools' professional staff likely matters insofar as those staff members hold positions of authority and power.

### Robustness Checks

We conduct three robustness checks to examine the extent to which our findings are driven by specific model construction and data decision rules. First, we estimate the effects of increased diversity of teachers, professional staff, and aides in unconditional models. That is, we assess the effect of increased proportion of each of these roles by introducing them separately in the models, therefore not conditioning on the proportion of the other roles. We present the results in Appendix Table A3, available on the journal website. As we show, the results of this specification are largely consistent in terms of direction, magnitude, and level of statistical significance with the results of the fully specified models presented in Table 3.

Second, we separate effects of students' own teachers (directly assigned) from not-own teachers (in the school but not teaching the student). This specification allows us to explore to what extent direct, routine interactions in the classroom versus exposure at the school level drive the effects of a diverse staff, at least in the case of teachers. To conduct this analysis, we rely on yearly course assignment data. This course assignment data is available only starting in the 2012–2013 school year, which means that our estimations are limited to half of the study period.

Results in Appendix Table A4, available on the journal website, are not fully consistent across outcomes or student groups. For Black students, coefficients on exposure to own Black teachers are small and not statistically significant, whereas exposure to not-own Black teachers is positively associated with ELA scores ( $0.022$  *SD*). Exposure to not-own teachers of color (not Black) is positively associated with math ( $0.010$  *SD*), and exposure to own teachers of color (not Black) is negatively associated with math and ELA ( $-0.007$  *SD* and  $-0.005$  *SD*, respectively). For Hispanic students, exposure to own Hispanic teachers is near zero, whereas exposure to not-own Hispanic teachers is positively associated with math ( $0.013$  *SD*). For Asian students, exposure to own Asian teachers is near zero and not significant, while coefficients for not-own non-Asian teachers of color are positive for math ( $0.041$  *SD*). For White students, exposure to own White teachers is modestly associated with higher math ( $0.011$  *SD*), and not-own White teacher

exposure is not significant. These mixed patterns suggest that both channels—direct classroom interaction and broader school-level exposure—may matter, but disentangling them is challenging. Smaller sample sizes, reduced within-student variation in the shorter 2012–2019 window, and the use of standardized shares (which compress variation, particularly for smaller groups) likely contribute to the inconsistencies observed between own and not-own measures.

Finally, in Appendix Table A5, available on the journal website, we present results from a sensitivity check in which we remove student fixed effects and control for lagged dependent variables instead. When introducing our empirical strategy, we argue for including student fixed effects that may absorb additional sources of bias above and beyond school fixed effects. At the same time, inclusion of a large set of fixed effects (i.e., school, student, year) may lead us to remove too much of the variation that we are interested in. We find that direction and general magnitude of coefficients related to professional staff positions are largely unchanged for Black and Hispanic students. We observe larger differences for estimates focused on teachers, potentially reflecting the within-school sorting of students to teachers that is not adequately addressed when excluding student fixed effects.

### Discussion and Conclusion

In this study, we provide novel evidence that increased diversity not only among teachers but also school professionals improves academic outcomes for Black and Hispanic students. Specifically, increased representation of same-ethnicity professionals in the case of Hispanic students and exposure to non-White, non-Black staff for Black students contribute to higher end-of-year test scores for both groups of students from third to eighth grades and to reductions in the probability of being suspended for Hispanic students. These findings extend the “teacher like me” empirical literature and are consistent with theoretical discussion that above and beyond a more diverse set of teachers, professional staff diversity is important for minoritized students (Villegas & Lucas, 2004; Waters, 1989). At the same time, the magnitude of these professional staff effects is more modest compared to the stronger effects observed for teacher-student matching, particularly for Black students.

Despite the overall pattern of positive effects from racial/ethnic matching between students and school personnel, several findings warrant further discussion. First, although the positive effects of increased shares of Black teachers and Black students' test scores and suspensions align with prior research, this is not true for Hispanic students. The associations between the share of Hispanic teachers and Hispanic student outcomes are small in magnitude and not statistically significant. In contrast, the effects of Hispanic professional staff, although also small ( $0.005$  *SD*), are consistently positive and statistically detectable. This pattern is consistent with mixed findings in the existing literature on Hispanic students, where effects of teacher race/ethnicity are often smaller or less consistent (Redding, 2019).

Second, our analysis does not uncover any effect of racial/ethnic diversity among school staff on Black or Hispanic students' absenteeism. This contrasts with earlier studies that

identify meaningful reductions in absenteeism among students of color when matched with same-race teachers (e.g., Gottfried et al., 2022; Holt & Gershenson, 2019; Tran & Gershenson, 2021). The absence of such findings in our context may reflect differences in the mechanisms that link staff diversity to attendance versus academic or behavioral outcomes.

Third, our results suggest a more nuanced pattern in the importance of same-race/ethnicity versus broader staff of color representation. For Black students, exposure to non-Black professionals of color results in improved ELA outcomes even when same-race professionals do not yield statistically significant effects. Conversely, for Hispanic students, the benefits of exposure are tied specifically to same-ethnicity professionals; no effects are detected from broader non-White representation. However, in both cases, the magnitude of professional staff effects is much more modest compared to teacher effects. For Black students, professional staff effects on test scores are roughly 15% to 20% the size of teacher effects ( $\approx 0.003$  *SD*– $0.005$  *SD* vs.  $0.022$  *SD*– $0.026$  *SD*). For Hispanic students, professional staff associations ( $\approx 0.005$  *SD*) are of a similar order of magnitude to teacher coefficients, which are near zero and not statistically significant. These patterns raise questions about how students perceive and interact with diverse staff members and whether racial and ethnic identification operates through shared cultural experience, representation, or institutional support.

Taken together, these findings suggest that the effects of staff diversity, albeit small, may operate through multiple overlapping mechanisms. Role modeling is one likely pathway—particularly when adults of color hold positions of authority that signal academic success and institutional belonging. This is supported by our finding that higher shares of Black and non-White, non-Black aides—who typically hold lower-status positions—yield lower ELA scores for Black students. At the same time, the benefits associated with professional staff diversity point to other possible mechanisms, including the diffusion of culturally responsive practices, mentoring, and the creation of more inclusive school climates. These influences may occur even when students do not interact directly with staff, reflecting a broader institutional effect.



Our quantitative framework captures these dynamics by operationalizing the interaction between student and staff demographics as changes in outcomes associated with a one standard deviation increase in exposure to same-race professionals or to other staff of color. These estimates should be understood as net effects that may reflect multiple overlapping pathways rather than any single mechanism in isolation. Although administrative data do not allow us to disentangle role modeling from culturally responsive practices or school climate, the consistent patterns we document suggest that student exposure to staff diversity does translate into measurable, if more modest, changes in academic and behavioral outcomes.

Future research should further investigate these channels, particularly by linking changes in staff demographics to shifts in student perceptions of school climate or inclusion. Experimental or quasi-experimental designs—such as those leveraging school admissions lotteries—may also help isolate causal effects by

minimizing concerns over nonrandom sorting of students and staff. Although our fixed-effects strategy addresses many sources of bias, we cannot fully rule out residual sorting. Prior work suggests that nonexperimental estimates of race-matching effects tend to be smaller than those derived from experimental designs (Redding, 2019), implying that our results may understate true effects.

Ultimately, understanding how and why diversity among teachers and professional staff shapes student outcomes remains an important goal. Even in the absence of definitive knowledge on mechanisms, our findings support ongoing policy efforts to recruit and retain a more racially and ethnically diverse school workforce—not only among teachers but also across a broader range of professional staff roles. At the same time, the results highlight that the academic impacts of professional staff diversity, although present, are more modest compared to the stronger effects associated with teacher–student matching.

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#### NOTES

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<sup>1</sup>Throughout the article, we use the term “Hispanic” because that is the language used in the state administrative data we use.

<sup>2</sup>Although statewide data extend through the pandemic, test scores are unavailable in 2019–2020 and limited in 2020–2021. With only 2 years of postpandemic data, we exclude these school years to maintain analytical consistency.

<sup>3</sup>Teacher and professional staff information come from a staff-level data file that includes all staff positions, links to schools, full-time equivalence (FTE), and highest degree. We identify “professional staff” based on their position description (see main text) and the proportion of individuals in each category who have a master’s degree or higher. Out of the 24 school staff positions, classifying two of them—“other professional staff” and “nurse, hygienist, health professional”—was not straightforward. Although both positions include professionals, only 31% of staff members in these positions have master’s or higher degrees, as opposed to more than 70% in all other professional positions (see Appendix Table A1, available on the journal website). Therefore, we classified these two positions as aides instead of professionals. Estimates are similar when we include versus exclude these individuals when creating our independent variables. We assign each staff member to a unique school/year position. For professional staff members that have multiple roles in a given school/year (e.g., teacher, instructional coach), we use FTE information to assign them to a primary position based on the number of hours that the individual spends in each role. In the rare cases in which an individual has two positions in the same school/year

with the same FTE (fewer than 0.2%), we keep the position that is not other professional, special education specialist, nurse, guidance/counselor, or instructional specialist (in that order).

<sup>4</sup>A small subset of students contribute only a single observation to the data set (e.g., those who enter in Grade 8 or exit after Grade 3). Although these students are included in descriptive statistics, they do not contribute identifying variation in our fixed-effects estimations. Because our empirical strategy relies on within-student changes over time, singletons are effectively dropped when estimating models with student fixed effects.

<sup>5</sup>In descriptive tables such as Table 2, the reported standard deviations summarize the variability of these staff composition measures across students.

<sup>6</sup>Appendix Table A2, available on the journal website, reports results using the raw proportions of staff from different racial/ethnic groups rather than standardized shares. The substantive conclusions are consistent, but the standardized specification is presented in the main text because it facilitates comparability across student subgroups and staff roles and avoids reliance on the unrealistic scenario of a 0 to 100 percentage point shift.

<sup>7</sup>In auxiliary analyses, we show that results remain largely consistent with fully specified models when we separate out the effect of each staff member—that is, teachers, professional staff, aides—in separate models (see Appendix Table A3, available on the journal website).

<sup>8</sup>As a robustness check, we include a specification that separates out the effect of own—that is, teachers that teach a course to students and therefore interact directly with them in the classroom—and not own teachers—that is, other teachers in the school but not directly working with students on a given year (see Appendix Table A4, available on the journal website).

<sup>9</sup>In auxiliary analyses, we show a specification without student fixed effects that instead adds lagged dependent variables as controls. As expected, exclusion of student fixed effect (our preferred estimation strategy) slightly alters the results, particularly for the effects of teacher–student race/ethnicity matching (see Appendix Table A5, available on the journal website).

<sup>10</sup>We set a slightly higher threshold for statistical significance ( $p$  value  $< .10$ ) given that between-group differences generally require higher statistical power compared to tests of null hypotheses that individual coefficients are different from zero. Following guidance from the American Statistical Association (Wasserstein et al., 2019), we think of  $p$  values as providing some guidelines for interpretation while also paying close attention to magnitudes of effects and consistency in patterns across outcomes and groups.

<sup>11</sup>All regression tables report standard errors in parentheses, which capture the precision of the coefficient estimates. These are distinct from the standard deviations reported in descriptive tables, which summarize the distribution of the variables themselves.

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