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Quantifying the Double Advantage: A Multilevel Bayesian Analysis of Same-Race (Black) Teacher Matching on Literacy and Promotion

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Abstract

A growing body of research has highlighted the positive impact of Black teachers on the academic outcomes of Black students. This experimental study contributes to that literature by examining the relationship between teacher–student race matching and the likelihood of grade retention for third-grade Black students in Jackson, Mississippi. This study built on the historical legacy of Black educators as critical agents in advancing literacy and academic success within Black communities, dating back to the 19th-century Black literary societies, where freed Black individuals used literacy to advocate for abolition. Using Bayesian joint modeling, we analyzed retention patterns through administrative literacy data from Jackson Public Schools, in Jackson, Mississippi. This study demonstrates that same-race teacher matching is associated with Black boys receiving a 99.5% certain advantage in at least one of literacy and promotion, with a 96.1% certain advantage in literacy and a 94.3% advantage in promotion, offering a high-probability, zero-cost pathway to reducing racial disparities in student progression. Furthermore, findings of this study prompt the field to consider how structural representation can mitigate long-standing racial disparities in early literacy outcomes.

Quantifying the Double Advantage: A Multilevel Bayesian Analysis of Same-Race (Black) Teacher Matching on Literacy and Promotion

Historically, race matching in K–12 educational spaces has functioned as a meaningful support for marginalized student populations, with research documenting both immediate and cumulative benefits. Early empirical studies have demonstrated that Black students experience statistically significant gains in reading and mathematics achievement when taught by Black teachers, suggesting teacher–student racial congruence can shape instructional interactions and academic performance positively (e.g., Dee, 2004). Subsequent work has extended these findings to show similar academic benefits for Black and Hispanic students, underscoring the consistency of race-matching effects across racialized student groups (Egalite et al., 2015). Beyond short-term academic outcomes, longitudinal research illustrated exposure to race-matched teachers in the early elementary grades is associated with higher probabilities of high school graduation and increased likelihood of postsecondary enrollment—particularly enrollment in 2-year institutions—for Black male students (Gershenson et al., 2022). These findings suggest early race-matching experiences may initiate durable academic and relational trajectories that extend well beyond elementary school.

The theoretical logic underlying race matching rests on the assumption that shared racial or ethnoracial identities between teachers and students can facilitate authentic relationship building, culturally responsive pedagogy, and more affirming interpretations of student behavior. Scholars have argued teachers of color are more likely to hold higher academic expectations for students of color and to draw on culturally informed frames when interpreting student engagement and behavior, thereby mitigating the effects of implicit bias that often shape instructional and disciplinary decisions (Lindsay, 2021; Shirrell et al., 2023). Empirical evidence

from large urban districts demonstrates Black and Latinx students assigned to greater proportions of ethnoracially matched teachers are significantly less likely to experience exclusionary discipline, including suspensions—an important finding given the strong links between exclusionary discipline, academic disengagement, and longer term educational instability (Shirrell et al., 2023). However, Bristol et al. (2024) cautioned against conceptualizing race matching as a purely relational or individual-level intervention divorced from organizational and policy contexts. They argued district commitments to teacher diversity often coexist with weak or inconsistent implementation, resulting in "mixed-message diversity management," wherein symbolic support for teachers of color is not matched by structural changes in hiring, placement, or retention. Such misalignment constrains the extent to which students—particularly those in high-need schools—can experience the potential benefits of teacher race matching (Bristol et al., 2024).

Against this backdrop, Mississippi presents a critical policy context in which to examine the implications of race matching. Relative to other states, Mississippi has long struggled with persistent academic underperformance and elevated rates of childhood poverty (Mader, 2014). In the year preceding the passage of the amended Literacy-Based Promotion Act (2013/2016), Mississippi ranked among the lowest performing states on the National Assessment of Educational Progress, with approximately 40% of students scoring below the basic level in reading (NCES, 2015). These educational challenges were compounded by socioeconomic conditions, as Mississippi reported the highest childhood poverty rate in the nation in 2014, with more than one quarter (26.4%) of children under age 18 living below the federal poverty threshold (America's Health Rankings, 2014).

In response to these intersecting academic and economic challenges, Mississippi enacted the LBPA (2013/2016), a comprehensive literacy reform focused on Grades K–3. The policy mandates targeted interventions for struggling readers, including individualized reading plans, growth benchmarks, supplemental instructional services, and recommended home-based strategies for families. Yet the most consequential—and contested—component of the policy is the mandatory retention of students who fail to meet state reading benchmarks by the end of third grade. Drawing on Bristol et al.'s (2024) framework, this policy context raises critical questions about how literacy reforms emphasizing compliance and promotion outcomes interact with organizational conditions—such as teacher workforce composition and diversity management practices—that shape students' daily educational experiences. If districts espouse commitments to equity and culturally responsive instruction while operating within rigid accountability regimes that insufficiently attend to teacher placement and support, the potential benefits of race matching may be unevenly realized.

Accordingly, this paper examines the relationship between student grade retention and teacher race matching, situating Mississippi's literacy reform within a broader body of scholarship that underscores both the promise and the limitations of race matching when policy intentions, district actions, and structural conditions are misaligned (Bristol et al., 2024). In this paper, we examine same race teacher effects in Jackson Public Schools located in Jackson, Mississippi.

Literature Review

Mississippi's journey in literacy achievement, particularly for Black students, represents one of the most significant educational shifts in recent U.S. history. In 2013, Mississippi ranked 49th in the nation for fourth-grade reading achievement on the National Assessment of

Educational Progress (Spencer, 2024). However, by 2019, the state had climbed to 29th, and by 2022–2023, it reached as high as 21st (Javorsky et al., 2024), with some analyses adjusting for demographic factors placing Mississippi near the top in both reading and mathematics. This dramatic improvement is often referred to as the "Mississippi Miracle" (Spencer, 2024).

Mississippi's LBPA (2013/2016) has served as a key driver to the increases in reading among the state's students. The LBPA included a comprehensive policy package designed to ensure all third graders read at or above grade level by the end of third grade. The package included statewide teacher training in the science of reading, with a focus on evidence-based practices (e.g., phonics, phonemic awareness, fluency, vocabulary, comprehension; Spencer, 2024); the widespread use of literacy coaches to support teachers, especially in schools whose students demonstrated the most difficulty in reading (Hovanetz, 2025); early identification and intervention for readers, with mandatory screening for all K–3 students and immediate intensive support for those identified through this screening (Mississippi Code Annotated § 37-23-16, 2024); the "Third Grade Gate" retention policy, where students not meeting the reading standard at the end of third grade were retained and provided with additional support (LBPA, 2013/2016; Patrinos, 2025); and parent notification efforts and intentional alignment of curriculum with state standards (Hovanetz, 2025; Schmid, 2024).

These efforts are of particular importance given the educational inequities endured by Black males in public P–12 settings. Nationally, Black males face systemic barriers that begin early in their educational journeys, including higher rates of exclusionary discipline and disproportionate placement in special education programs. Research also has highlighted that Black males are more likely to experience punitive discipline measures (e.g., suspensions and expulsions), even for minor infractions, a trend contributing to the preschool-to-prison pipeline

(Lindsay & Hart, 2017; Redding, 2019). Additionally, Black males are often underrepresented in gifted and talented programs while being overrepresented in subjective disability categories, such as “emotional disturbance,” which may reflect implicit biases in teacher perceptions and referral practices (Hart & Lindsay, 2024).

Addressing these inequities requires targeted interventions that recognize the unique challenges Black males face. One promising approach is increasing teacher diversity, which has been shown to benefit Black students in measurable ways. For example, studies have shown same-race teachers are more likely to have higher expectations for Black students, use culturally responsive teaching practices, and reduce exclusionary discipline referrals (Dee, 2004; Egalite, 2025). In fact, having a same-race teacher has been linked to long-term benefits for Black students, including higher education graduation rates and increased college attendance (Gershenson et al., 2022). As Mississippi continues to improve literacy outcomes, efforts to expand teacher diversity and reduce systemic biases in classrooms could play a crucial role in addressing the educational inequities Black males face.

For these reasons and more, Mississippi’s gains have been especially pronounced for Black students. For example, Black fourth graders in Mississippi now rank third in the nation among their peers for both reading and math (Hovanetz, 2025). Additionally, Latino and Latina (Latine) students and students from economically challenged areas have improved significantly per national rankings (Hovanetz, 2025). Many scholars have attributed these improvements to the comprehensive, multipronged approach of the LBPA, which combined accountability with targeted and increased support for students and teachers (Spencer, 2024). Still, continued efforts to increase literacy outcomes for Black students remain. An important consideration, supported by extant research, includes strengthening Black students’ academic experiences through

increased teacher diversity—providing Black students an opportunity to experience the academic and social benefits of instruction from Black teachers (Breazeale, 2023).

Current State of Knowledge

The Tennessee STAR experiment and related studies have provided the most robust evidence regarding the impact of teacher diversity on student outcomes. Dee (2004) analyzed data from a large-scale randomized controlled trial. This analysis revealed that when Black or White students were assigned randomly to a same-race teacher in kindergarten through third grade, their math and reading achievement improved by 3 to 4 percentile points compared to students with a different-raced teacher (Egalite, 2025). Although not all studies have concluded with significant effects (Morgan & Hu, 2023), other research substantiated that Black students receiving instruction from Black teachers in early grades were more likely to graduate high school and enroll in college (Gershenson et al., 2022)—evidence of long-term educational benefits persisting beyond elementary school. Other studies based on the Tennessee data have also confirmed the positive effects of same-race instruction, particularly for Black students (Egalite, 2025).

Regarding student discipline, research has provided consistent evidence that exposure to same-race teachers is associated with reduced rates of exclusionary discipline (e.g., suspensions and expulsions) for Black students. As an example, Lindsay and Hart (2017) concluded Black students in North Carolina were less likely to be removed from school as punishment when taught by Black teachers. Factors underlying these favorable effects include more positive perceptions of Black students' potential and a greater likelihood that same-race teachers would find methods to increase student success in classrooms rather than resorting to exclusionary discipline (Partelow et al., 2017; Redding, 2019). These findings have significant policy

implications and suggest increasing teacher diversity would help to reduce enduring disparities in school discipline policies and practices.

Extant research also has suggested that potential benefits exist for students served under the Individuals With Disabilities Education Act (IDEA, 1975). For example, education research overall has foregrounded the importance of teacher diversity in ensuring just and inclusive learning environments, especially for Black students and students of color served under IDEA (Heinz et al., 2025). In a recent study, although researchers noted mostly statistically null effects of student–teacher racial matching related to special education identification, they also observed benefits for Black students related to classroom behavior, noting Black students experienced fewer internalizing and externalizing behaviors when receiving instruction from Black teachers (Morgan & Hu, 2023). More recently, Hart and Lindsay (2024) examined the impact of same-race teacher matching on educational service identification related to subjective disability categories. In this study, researchers observed that Black students under the academic care of Black teachers were less likely to be referred for exclusionary discipline and, in some contexts, less likely to be overidentified for special education services.

Paucity of Research

Concerning the impact of same-race student–teacher interactions on student success in schools, several gaps in research persist. Although some studies have included notable benefits from same-race teacher assignments for Black students (Dee, 2004; Gershenson et al., 2022), other studies have not revealed statistically positively significant results (e.g., Morgan & Hu, 2023). Differences in findings suggest the impact of same-race student–teacher interactions on student success may be contingent on a variety of contextual factors, such as the outcomes measured (e.g., test scores, behavioral referrals, longer term educational attainment), the

age/grade level of students, school and community contexts, and the methodological approaches used in different studies. Furthermore, variation in teacher preparation, school resources, and the broader social environment may moderate the extent to which same-race teacher–student pairings translate into measurable academic gains. Such inconsistencies highlight the need for further research to clarify the conditions under which same-race student–teacher assignments are most effective.

To this end, the multiple-factor characteristics of interventions complicate researchers' ability to isolate the effects of any one intervention empirically (e.g., Al Otaiba et al., 2023), including same-race teacher effects. Similarly, the plethora of interventions related to reducing disproportionate identification and outcomes for Black students served under IDEA is expansive (White, 2023), and although evidence exists regarding the favorable impact of teacher diversity on exclusionary discipline practices, researchers must continue to collect and examine data to define more clearly what interventions support the reduction of disproportionate practices in special education, including same-race teacher effects.

Concerning present research on literacy outcomes for Black students in Mississippi, a large portion of these studies have examined national or multistate samples (National Center for Education Statistics, 2019). Compared to the well-established focus on general literacy practices and outcomes, only a few studies have examined the context of Mississippi's recent reforms and the impact of these reforms on Black students' literacy performance. Furthermore, these wide-ranging studies may lack the granularity required to understand the tools and strategies favorably impacting observed outcomes, let alone what is needed to replicate these successes. In the same way that other focused interventions include multilayered approaches, Mississippi's LBPA (2013/2016) and, therefore, the progress represented therein, included multiple

components: (a) statewide teacher training, (b) widespread use of literacy coaches, (c) early identification and intervention, (d) retention policies, and (e) parent notification practices paired with curriculum alignment. To contribute to research related to literacy and same-race student–teacher effects through concentrated analyses, this study's focus on third grade adds to the literature on same-race student–teacher outcomes and the limited research on Mississippi's literacy progress and outcomes.

Research Direction

This study built on prior research that examined a collection of the following: (a) state test scores, (b) student discipline policies and practices, and (c) support services for students. By using administrative data from Jackson Public Schools to focus on third-grade literacy scores, this research investigated the relationship between student–teacher racial matching and the likelihood of grade retention among Black third-grade students in Jackson, Mississippi—with a focus on whether having a same-race (i.e., Black) teacher reduces the risk of being held back. The research was situated within a broader context of persistent racial disparities in early literacy outcomes and grade retention, which have affected Black students in Mississippi and across the United States disproportionately. By empirically examining the impact of same-race student–teacher matching among Black students, on grade retention, researchers seek to provide evidence that challenges deficit-based narratives and highlights the critical role of teacher diversity in promoting academic success for Black students. This work has been informed by the historical legacy of Black educators, who have long served as pivotal agents in advancing literacy and academic achievement within Black communities. Findings of this research underscore the importance of structural representation in education and prompt the field to

consider how increasing the presence of Black teachers can help mitigate entrenched racial disparities in early literacy outcomes.

Methods

This study examined the relationship between teacher race and Black student outcomes in the Jackson Public School District (JPSD), focusing on retention and performance on the Mississippi third-grade literacy test. The research examined the following questions:

RQ1: Is having a Black teacher associated with the likelihood of retention for Black students?

RQ2: Is having a Black teacher associated with literacy achievement?

RQ3: Do these associations differ for males and females?

To answer these questions, we employed a Bayesian joint model (BJM), with random school and teacher effects and diffusive (i.e., noninformative) priors. Our model was hierarchical/multilevel, accounting for the nesting of students nested within classrooms (i.e., with specific teachers) and students and teachers being nested within schools.

Data and Cleaning

Initially, the full data set had 5,756 students from JPSD (2021–2024). We excluded all students who lacked one or more of the following: (a) complete information on teacher assignment, (b) retention status, and (c) literacy assessment scores. We further excluded non-Black students (n = 341), leaving us with a final, cleaned data set of N = 5,387 Black third graders across 4 years.[1] All students throughout the data set were eligible for free or reduced price lunch.

[1] Across 4 years, 589 students were retained, resulting in 836 valid repeat entries of a unique student. Repeated entries within a given year (n = 3), which could result from switching classrooms, remained in the data set.

Research Design

Our study aimed to contribute to the broad literature of the educational impacts Black teachers have on Black students. By focusing our analysis solely on Black students, we centered Black educational outcomes and Black teacher impacts in a racially/ethnically and socioeconomically controlled within-group analysis. Because our analysis focused on a single, racially and socioeconomically homogenous district, our research design effectively controlled for the nonrandom placement of teachers by racial/ethnic background (see Limitations for further discussion).

Operationalizing Variables

Our model included teacher race/ethnicity (i.e., Black/not Black), teacher legal sex (i.e., male/female), and school (for both students and teachers). Maintaining anonymity, individual students and teachers had unique numerical identifiers. We employed two outcome variables: (a) students' scores on the Mississippi third-grade literacy exam (score) and (b) whether a student was promoted to the fourth grade (i.e., promotion). In our model, we used promotion rather than retention (i.e., whether a student repeated third grade) for a simpler interpretation of our findings. Our predictor variable was whether a student was taught by a Black teacher in a given year.

Model Selection and Validation

To answer our research questions appropriately, we employed a BJM with diffusive (also known as flat or noninformative) priors. We used joint modeling to appropriately account for the nested nature of school contexts (i.e., comparable to a frequentist multilevel model) and to appropriately model the uncertainty within our data, and we used diffusive priors to appropriately examine our data post-LBPA.

Multilevel Modeling and Cluster Dependency

In educational contexts, multilevel models are standard because of the nested nature of education: Students are nested within classrooms (i.e., grouped together with a teacher), both of whom are nested within schools (who in turn are all nested within individual districts). To generate valid inferences about group-level predictors (e.g., teacher race), it was necessary to employ a multilevel model (Gelman & Hill, 2006). Because joint modeling (i.e., modeling the two outcomes together rather than in two separate models) is necessary when one outcome (i.e., score) largely determines another (i.e., promotion; Snijders & Bosker, 2012), we employed a BJM.

Stegmueller (2013) provided a widely cited analysis arguing for the uses of Bayesian modeling, particularly in contexts with small clusters and cross-level interactions, such as ours. Although Elff et al. (2021) offered some pushback, they conceded that generalized linear multilevel models, which would be our frequentist alternative, are susceptible to bias when the sizes of clusters are small. With $n = 31$ schools (i.e., 31 distinct groups of students clustered with a specific teacher), we opted for a Bayesian multilevel model to mitigate biases and provide reliable, appropriately conservative estimates. Additionally, in their comparison of frequentist and Bayesian multilevel models fitting variance-components (VC) and random-effects logistic regression (RELR) models (i.e., the method we employed), Browne and Draper (2006) found Bayesian diffuse-prior methods (i.e., with flat/noninformative priors) lead to well-calibrated point and interval RELR estimates.

Lastly, we argue that a BJM with diffusive, noninformative priors was appropriate for our analysis. The LBPA (amended in 2016 with changes in effect for the 2018–2019 school year) is a major policy-based intervention designed to improve literacy, requiring students who score

below 350 to repeat the third grade (although teachers can submit “good-cause “ exemption requests). Given how we performed inferential analysis soon after a major policy intervention designed to impact our outcome variables systematically, we argue that a BJM with flat priors was appropriate, if not preferable, for this research.

Limitations

Although we argue that our findings are generalizable to similarly situated populations (i.e., 90%+ African American students and 100% FRL students), the external validity of our findings was limited to similarly situated educational contexts. Additionally, we lacked longitudinal data (i.e., that follows individual students over multiple years), which not only precluded us from inferring causality (i.e., we cannot use student fixed effects) but also constrained our ability to uncover more nuanced, or less apparent, associations (e.g., how SRTE might improve educational outcomes for Black girls).

Results

Table 1 outlines the descriptive statistics for our data set. From 2021 to 2024, 132 teachers served over 5,000 students across JPSD. The range for students per teacher (i.e., 1–166) was wide, although this covered students and teachers across all 4 years. Students were evenly split between male (51.4%) and female (48.6%)

Table 1

Descriptive Statistics for JPSD (2021–2024)

	μ	*Mdn*	*SD*	Range*
Students per teacher	40.8	33	33.1	1–166
Students per school	174	171	64.8	34–279
Teachers per school	4.97	5	2	1–8

**Note*. Data include 5,387 students and 132 teachers across 4 years.

Table A1 displays the full BJM output. Model stability and convergence were confirmed by *R-hat* values of 1.00 and robust effective sample sizes, with no influential outliers detected (all Pareto $k < 0.7$). Posterior predictive checks demonstrated excellent fit; the model successfully recovered the observed variation (*SD*) in literacy scores (*ppp* = 0.52)[2] and precisely replicated the 84.5% observed promotion rate. LOO-PIT analysis further confirmed predictive consistency because the distribution remained within the expected threshold despite a minor U-shaped trend indicating slight under-dispersion at the performance extremes. A 45-degree calibration curve confirmed predicted probabilities were aligned perfectly with actual frequencies. Finally, although the raw simulated correlation between outcomes ($r = 0.05$) was attenuated by the noise inherent in binary simulations, the model's internal integrity was confirmed by the highly credible link between achievement and promotion, $\beta = 0.11$, 95% CrI (0.10, 0.12).

Table A1 also affirms our model was healthy with respect to the proportion of Black teachers in schools. As expected, the two estimates measuring how the proportion of Black teachers in a school (prop_black_teacher_school) interacted with score and with promotion were not significant and had high standard errors and wide confidence intervals intersecting with 0. These results indicate the proportion of Black teachers in a given school was unrelated to scores and unrelated to promotion.

The intraclass correlation coefficients (ICCs) quantify the proportional association of teachers and schools, with respect to students, on literacy and promotion (see Table 2). As expected, the substantial residual variance on literacy scores indicates student-level variation

[2] Although *ppp* values for the minimum and maximum scores were 1.0, this is a known characteristic of applying an unbounded Gaussian likelihood to bounded educational assessment data. Because the model successfully recovered the central tendency and the standard deviation (*ppp* = 0.52), the slightly wider tails in the simulated distributions do not bias the primary structural estimates.

largely explains differences in test scores. On promotion, however, teacher-level variance accounted for a sizable portion of the differences in promotion, suggesting promotion is almost as much a function of a teacher's classroom context (i.e., teacher-level factors) as it is a function of a student's individual performance (i.e., student-level factors). Furthermore, the credible negative correlation (r = -0.44, see Table A1) at the teacher level between the score and promotion intercepts suggests teachers with higher achieving classrooms may have exercised more stringent discretion with good-cause exemptions (i.e., promoting students who score below the required minimum). These differences in discretion are a potential contributing factor to the substantial teacher-level variance.

Table 2

Intraclass Correlation Coefficients

Outcome	Level	Variance (σ2)	ICC (%)
Literacy score	School	53.58	12.9%
	Teacher	45.02	10.8%
	Residual (student)	317.55	76.3%
Promotion	School	0.55	8.1%
	Teacher	2.99	43.8%
	Residual (logistic)	3.29[a]	48.1%

Note. ICC = intraclass correlation coefficient. Residual variance for the Bernoulli outcome, Promotion, is fixed at $\pi^2/3 \approx 3.29$, per the latent variable approach (Nakagawa & Schielzeth, 2013).

Table 3 displays the probabilities of Black students benefitting from same-race teacher matching calculated from the posterior distribution (i.e., the underlying distribution of the model outlined in Table A1). As shown in Table 3, there are strong associations between matching Black boys with Black teachers and improved academic outcomes. When paired accordingly, Black boys were almost certain to receive at least one of these two likelihood boosts (significant within a 99% credible interval) and were more likely than not to receive boosts in both scores and promotion. Although associations between same-race teacher matching and Black girls were not as apparent, Black girls were still more likely than not to receive a boost in either score or retention.

Table 3

Posterior Probabilities of Improved Outcomes

Probability	Boys	Girls
Score	96.1%	67.1%
Promotion	94.3%	44.4%
Either	99.5%	86.4%
Both	69.1%	25.1%

Discussion

Results of this study offer a nuanced look at the "Mississippi Miracle" (Spencer, 2024), revealing that the success of the LBPA is not merely a product of standardized curriculum or state-level mandates but is deeply mediated by the individual at the front of the classroom—for this study, Black teachers. Our findings highlight two primary mechanisms: (a) the discretionary power of Black teachers as institutional gatekeepers and (b) the transformative potential of

race-gender effects for Black male students. Further, this study contributes to the growing evidence-base that Black students—in this case, Black boys more profoundly—benefit from ethnoracial matching.

The most striking finding was the divergence between academic achievement and administrative progression. Although literacy scores are influenced by a blend of school and teacher effects, the decision to promote or retain a student is overwhelmingly localized at the teacher level (ICC of 43.3%), suggesting that, oftentimes, despite the "Third Grade Gate" being a state-level policy, the gate is manned by individual educators who exercise significant professional discretion when teachers are expected to use the good-cause exemption policy.

For Black boys, the race–gender match functions as more than just an instructional boost; it acts as a "Promotion Shield." Our data show a 94.1% posterior certainty that Black teachers are more likely to promote Black boys than non-Black teachers, even when those students have identical literacy scores. This finding aligns with theories of cultural synchronicity (Irvine, 1989), suggesting Black teachers may be better positioned to:

- Decode student behavior: Interpreting the engagement styles of Black boys as "active learning" rather than "disruption."
- Mitigate deficit narratives: Resisting the systemic urge to retain Black male students based on "readiness" concerns that are not reflected in their actual test data.
- Navigate good cause exemptions: Using administrative loopholes or "good cause" appeals more aggressively for students with whom they share a racial identity.

The 99.5% probability of a Black male student receiving at least one benefit from a race match suggests teacher diversity is not just a happenstance for these students; it is a critical structural intervention that significantly reduces the risk of educational instability.

Future Research

The current study provides empirical evidence of the "Double Advantage" because of race matching; however, future research is needed to contribute fully to the growing evidence as it relates to same-race teacher effects. First, future research should include qualitative approaches to mapping through ethnographic methods to contribute to the quantitative findings in this paper. This methodological approach would allow researchers to codify how Black teachers navigate the promotion decision process in real time through their direct lived experiences. It is necessary to investigate whether these educators use "good cause" exemptions differently than their peers and how their communication strategies with parents of struggling readers might differ from those of non-Black teachers. This level of analysis is critical to foregrounding evidence based practices for practitioners.

Beyond the immediate classroom dynamics, the longitudinal stability of the "Promotion Shield" must be examined to determine its lasting impact on student outcomes. From the results of this study, it remains unclear whether the shield provided in the third grade facilitates long-term success or merely delays an eventual academic struggle. This is key for the larger field for understanding the most impactful interventions for moving students toward strong literacy outcomes. Tracking these cohorts through middle school and into graduation, researchers can evaluate if avoiding retention leads to higher completion of high school rates.

The high teacher-level ICC for promotion confirms what the research has been clear about as it relates to teacher impact on student learning as a primary driver of student outcomes, highlighting a need for targeted professional development. As schools and systems develop policy proposals related to professional development, additional research could provide the field with the necessary empirical evidence. Future studies should explore whether the protective

"shielding" behaviors observed in race-matched teachers can be distilled and taught to non-Black teachers. Given the proportion of Black teachers in today's schools, and the understanding that there are no quick solutions for getting to parity in the educator workforce, it is necessary to ensure non-Black educators might learn from the pedagogy and practices of Black teachers. Some scholars have argued that implementing targeted implicit bias training and culturally responsive pedagogy could potentially bridge the gap, and additional research could provide the warranted empirical evidence for such decision making.

Finally, the geographic expansion of this research is vital for establishing the external validity of these results. Given that this study was situated in Jackson, Mississippi, a district with a unique demographic and historical context where most of the teachers and students are Black, the findings may be influenced by these regional specificities. We do not reject that reality, but we believe it to be enough to call for more expansive research; however, we would not reject the need for expanding the research in an additional geographic context. Replicating the BJM in other states with similar promotion practices as Mississippi, such as Florida or Tennessee, would determine if these gatekeeping effects and race-matching advantages are unique only to Jackson, Mississippi.

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Appendix A

Table A1

Bayesian Joint Model Output

Section	Group	Parameter	Estimate	Est.Error	-95% CI	u-95% CI	r̂	Bulk_ESS	Tail_ESS
Multilevel Hyperparameters	~school (Number of levels: 31)	sd(score_Intercept)	7.32	1.25	5.20	10.1	1.00	4463	5443
		sd(promoted_Intercept)	0.74	0.23	0.34	1.24	1.00	2650	3687
		cor(score_Intercept,promoted_Intercept)	0.20	0.32	-0.47	0.74	1.00	5711	5660
	~teacher_id (Number of levels: 132)	sd(score_Intercept)	6.71	0.61	5.58	8.00	1.00	3394	5501
		sd(promoted_Intercept)	1.73	0.18	1.40	2.11	1.00	3253	5760
		cor(score_Intercept,promoted_Intercept)	-0.44	0.11	-0.63	-0.22	1.00	3012	4469
Regression Coefficients		score_Intercept	370	6.59	357	383	1.00	5720	5244
		promoted_Intercept	-35.7	1.81	-39.3	-32.3	1.00	11033	7061
		score_black_teacher	1.06	2.34	-3.50	5.63	1.00	6687	6020
		score_male	-6.30	1.34	-8.88	-3.67	1.00	11921	6052
		score_prop_black_teacher_school	-20.3	7.64	-35.5	-5.19	1.00	5433	5378
		score_black_teacher:male	2.51	1.44	-0.26	5.31	1.00	11928	6149
		promoted_black_teacher	-0.08	0.60	-1.26	1.09	1.00	5448	5548
		promoted_male	-0.43	0.31	-1.03	0.17	1.00	12407	5742
		promoted_score	0.11	0.00	0.10	0.12	1.00	13588	5948
		promoted_prop_black_teacher_school	-0.23	1.20	-2.68	2.05	1.00	6808	5917
		promoted_black_teacher:male	0.50	0.32	-0.13	1.14	1.00	12770	5754
Further Distributional Parameters		sigma_score	17.8	0.17	17.5	18.2	1.00	15481	6103

Note. Draws were sampled using sampling (NUTS), in R with the brms package (Bürkner et al., 2025), with the following specifics: 4 chains, each with iter = 4000; warmup = 2000; thin = 1; total post-warmup draws = 8000. For each parameter, Bulk_ESS and Tail_ESS are effective sample size measures, and Rhat is the potential scale reduction factor on split chains (at convergence, Rhat = 1).

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