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Differences in Teacher Background and School Structure by Racial/Ethnic Congruence between Teachers and Students

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Abstract

Differences in personal characteristics, professional qualifications, and contextual factors for congruent and incongruent Black, Hispanic, and White teachers were investigated using data from the National Teacher and Principal Survey ($n_{teachers}=25,420$; $n_{schools}=5,500$). Racial/ethnic congruence was defined as the match between the predominant race/ethnicity of students within a school and the teacher's own race/ethnicity. White incongruent elementary and secondary teachers were less qualified than their congruent counterparts. There were few differences in teacher qualifications between congruent and incongruent Black and Hispanic teachers. This study demonstrates that predominantly White schools employ more qualified teachers given the substantial differences between White congruent and incongruent teachers and thereby illustrates yet another aspect of systemic inequities in U.S. schools.

Differences in Teacher Background and School Structure by Racial / Ethnic Congruence between Teachers and Students

This investigation is a subset of a larger study (Fitchett et al., 2020; Lambert et al., 2020; McCarthy et al., 2020) of the relationship between a teacher's racial / ethnic congruence with the students in their school and occupational stress. Prior to comparing congruent and incongruent teachers on indicators of stress, the researchers sought to investigate whether teachers working in congruent and incongruent school settings are equivalent with respect to personal characteristics, professional qualifications, and contextual factors.

White children comprise less than 50% of the population of U.S. schools, but White female teachers represent approximately 80% of the U.S. teacher workforce. Black students comprise 16% of U.S. public schools, but only 7% of teachers identify as Black (Villegas et al., 2012). Hispanics make up 20% of students and 19% of teachers (NCES, 2020). However, more than half of U.S. students attend schools that are either 75%+ White or 75%+ students of color (EdBuild, 2019). In schools with 75%+ White students, Black and Hispanic teachers make up 2% of the teaching staff combined, with White teachers comprising 97% (NCES, 2014). Black and Hispanic teachers are much more likely to work in schools with high-concentrations of students from minoritized racial/ethnic backgrounds.

Racial/ethnic congruence refers to the match between the racial/ethnic demographics of students and the teacher's own race/ethnicity (Grissom et al., 2015; Mueller et al., 1999; Villegas et al., 2012). Research examining school settings where congruence exists between minority students and teachers has found positive outcomes for minority students in the areas of achievement, attendance, and satisfaction (Grissom et al., 2015; Gershenson, Holt, & Papageorge, 2016). Racial/ethnic incongruence, especially for White teachers, is linked to many potential sources of teaching demands, such as student discipline (Blake et al., 2016), learning

outcomes (Dee, 2005; Egalite, Kisida, & Winters, 2015), and relationships with colleagues (Coffey & Farinde-Wu, 2016). Since teachers of color have navigated a minoritized experience throughout their lives, research suggests that they are less likely to appraise working conditions in White majority contexts as demanding compared to White teachers in majority minority contexts (Fitchett et al, 2020). The question remains as to whether congruent and incongruent teachers of different race / ethnicities are equivalent with respect to background characteristics.

Methods

Data Source

The teacher data source was the nationally representative 2015-2016 National Teacher and Principal Survey (NTPS) from the National Center for Education Statistics (NCES). The Common Core of Data (CCD) was the source of student demographic information in each sampled school. Participants were only eligible for the study if they were full-time teachers, identified as Black, Hispanic, or White, and if student demographic variables for their school were available in the CCD. The final number of participants for this study was 25,420 in 5,500 schools. NTPS teacher responses were first matched with all relevant school-level variables from the CCD to create a variable indicating whether each teacher was racially/ethnically congruent with the predominant student racial group in their school. Over 96% of American teachers self-identified as Black, Hispanic, or White and other ethnicities and races were excluded due to small sample sizes.

The CCD included data on the number of White, Black, and Hispanic students in each school. Previous studies have used a range of cutoffs (e.g. 40% to 70%) to establish racial majority (Renzulli et al., 2011; Fairchild et al., 2012). We examined whether the student body was or was not greater than 50% Black, Hispanic, or White. The school race/ethnicity

concentrations were as follows: 23% of schools were Heterogeneous (no majority group), 8% of schools were majority Black, 15% were majority Hispanic, and 54% were majority White. Approximately 25% of teachers in each racial/ethnic group worked in heterogeneous settings, and the preponderance of teachers in each racial/ethnic group worked in congruent settings (59% of White teachers work in predominantly White schools; 60% of Hispanic teachers work in predominantly Hispanic schools; 46% of Black teachers work in predominantly Black schools).

Analyses

Comparisons between congruent and incongruent teachers within racial/ethnic group were conducted by applying both sampling weights and replicate weights using the jackknife procedure to produce standard errors and significance tests that account for the NTPS complex multi-stage sampling design. Design-based corrected tests of association were conducted for comparisons with categorical dependent variables. The *svyset* and *svy* procedures within Stata (version 14.2) were used to conduct these analyses.

Results

Throughout these results, all percentages are rounded to the nearest whole number per IES reporting guidelines. Table 1 shows the results for elementary teachers. There were statistically significant differences between congruent and incongruent Black elementary teachers for five of the 22 background and school structural characteristics. Black incongruent teachers were less likely to be new to their school, served a much higher average percentage of children with LEP (congruent = 5%, incongruent = 14%), and served a much lower percentage of children living in poverty (congruent = 85%, incongruent = 67%) and receiving Title I services (congruent = 86%, incongruent = 65%) than their congruent counterparts. They also worked in schools with larger average enrollments (congruent = 507.65, incongruent = 614.04).

There were statistically significant differences between congruent and incongruent Hispanic elementary teachers for seven of the 22 background and school structural characteristics. Hispanic incongruent teachers were less likely to have alternative certification, more likely to have an advanced degree, and more likely to be new to their school (congruent = 31%, incongruent = 43%) than their congruent counterparts. Incongruent Hispanic teachers were slightly younger and served students who were less likely to have LEP (congruent = 43%, incongruent = 23%), live in poverty (congruent = 80%, incongruent = 53%), and receive Title I services (congruent = 86%, incongruent = 42%).

There were statistically significant differences between congruent and incongruent White elementary teachers for 17 of the 22 background and school structural characteristics. White incongruent teachers were slightly more likely to be male, have alternative certification, and be a union member when compared to their congruent counterparts. They had fewer average years of experience, were more likely to be new to the teaching profession and new to their school, were slightly younger, and earned an average of almost six thousand dollars more per year. Incongruent White teachers had a slightly lower average percentage of children with an IEP in their classrooms and served a much higher average percentage of children with LEP (congruent = 4%, incongruent = 17%). Incongruent White teachers worked in larger schools with much higher poverty levels (congruent = 40%, incongruent = 67%), higher teacher student ratios, and much higher average percentages receiving Title I services (congruent = 38%, incongruent = 65%). These schools were also much more likely to be urban (congruent = 16%, incongruent = 43%), more likely to be located in a small town (congruent = 5%, incongruent = 8%), and much less likely to be rural (congruent = 27%, incongruent = 7%).

Table 2 shows the results for secondary teachers. There were statistically significant differences between congruent and incongruent Black secondary teachers for nine of the 22 background and school structural characteristics. Black incongruent teachers were less likely to have advanced degrees (congruent = 69%, incongruent = 56%) and earned an average of almost six thousand dollars more per year than their congruent counterparts. They served a much higher average percentage of children with an IEP (congruent = 7%, incongruent = 14%) and served in schools with more children with LEP (congruent = 5%, incongruent = 9%). Incongruent Black teachers served in schools that were less likely to be urban (congruent = 61%, incongruent = 37%), more likely to be suburban (congruent = 24%, incongruent = 44%), and had a much lower percentage of children living in poverty (congruent = 76%, incongruent = 56%). They also worked in schools with much larger average enrollments (congruent = 508.65, incongruent = 614.04) and larger student teacher ratios (congruent = 15%, incongruent = 17%).

There were statistically significant differences between congruent and incongruent Hispanic secondary teachers for four of the 22 background and school structural characteristics. Hispanic incongruent teachers had slightly less years of experience (congruent = 13, incongruent = 12). Incongruent Hispanic teachers served students who were less likely to have an IEP (congruent = 16%, incongruent = 11%), less likely to have LEP (congruent = 21%, incongruent = 6%), and less likely to live in poverty (congruent = 75%, incongruent = 45%).

There were statistically significant differences between congruent and incongruent White secondary teachers for 14 of the 22 background and school structural characteristics. White incongruent teachers were more likely to have alternative certification (congruent = 19%, incongruent = 25%) or no certification (congruent = 5%, incongruent = 7%) than their congruent counterparts. They were also less likely to have an advanced degree (congruent = 62%,

incongruent = 59%), more likely to be new to the teaching profession and new to their school, were slightly older, and earned an average of almost six thousand dollars more per year. Incongruent White teachers taught a much higher average percentage of children with LEP (congruent = 3%, incongruent = 9%). Incongruent White teachers worked in larger schools with much higher poverty levels (congruent = 35%, incongruent = 57%). These schools were also much more likely to be urban (congruent = 18%, incongruent = 44%), less likely to be located in a small town (congruent = 17%, incongruent = 8%), and less likely to be rural (congruent = 20%, incongruent = 9%).

We also examined regional differences in how likely a teacher is to work in an incongruent setting by school level and race/ethnicity of teacher. Table 3 illustrates that there were substantial regional differences for both elementary and secondary teachers. For example, White teachers were least likely to teach in incongruent settings in the Midwest (elementary = 24%, secondary = 21%) and most likely in the West (elementary = 55%, secondary 55%). Black teachers were also least likely to teach in incongruent settings in the Midwest (elementary = 34%, secondary = 44%) and most likely in the West (elementary = 96%, secondary 92%). Hispanic teachers were least likely to teach in incongruent settings in the South (elementary = 25%, secondary = 40%) and most likely in the Northeast (elementary = 60%, secondary 86%).

Discussion

Majority White school districts receive 23 billion dollars more in funding than districts that serve mostly students of color (EdBuild, 2019). This study demonstrates that they also employ more qualified teachers given the substantial differences between White congruent and incongruent teachers. These findings illustrate yet another aspect of the systemic inequities in U.S. schools, and have important implications for hiring decisions which result from many

factors: preferences of school administrators; varying effectiveness of hiring practices across districts; and teacher preferences about what and where to teach (Lankford et al., 2002).

White incongruent elementary teachers were less qualified than those working in schools with a majority of White students. They were more likely to have alternative certification and be new to teaching. The same pattern of lower qualifications was observed for White incongruent secondary teachers who were more likely to have alternative certification or no certification, less likely to have an advanced degree, and more likely to be new to teaching. There were few differences in teacher qualifications between congruent and incongruent Black teachers. There were also few differences in qualifications between congruent and incongruent Hispanic secondary teachers. However, Hispanic elementary teachers who worked in schools with a majority of non-Hispanic children were somewhat more qualified than their counterparts in majority Hispanic schools, being more likely to have an advanced degree and less likely to have alternative certification.

White elementary and secondary teachers had a financial incentive to work in incongruent settings as indicated by the \$6,000 higher average salary. This is related to the findings that incongruent schools for White teachers are much more likely to be urban and received Title I funding. Black secondary teachers had a financial incentive to work in incongruent settings, also indicated by a \$6,000 higher average salary. This is related to the findings that incongruent settings for Black teachers are more likely to be suburban with a lower concentration of children from economically disadvantaged backgrounds.

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Table 1

Background characteristics for congruent and incongruent elementary teachers by race / ethnicity

	White Teachers			Black Teachers			Hispanic Teachers		
	Congruent <i>n</i> = 3,710	Incongruent <i>n</i> = 2,380		Congruent <i>n</i> = 250	Incongruent <i>n</i> = 230		Congruent <i>n</i> = 510	Incongruent <i>n</i> = 220	
<u>Teacher Characteristics</u>									
Male %	6	8	*	8	6		10	11	
Alternative certification %	6	11	***	22	20		24	15	**
No certification %	4	5		8	5		7	8	
Advanced degree %	53	48		60	56		40	49	*
Union member %	68	72	*	69	69		72	65	
Mean years of experience	14.31	13.13	***	12.43	12.80		12.63	11.30	
New to teaching %	13	17	***	20	19		16	22	
New to current school %	27	34	***	44	35	*	31	43	*
Mean age	41.82	41.19	*	42.18	42.44		41.77	39.40	*
Teach third grade or higher %	47	47		47	44		46	46	
Mean earnings from school	\$52,988	\$58,750	***	\$50,036	\$54,135		\$57,914	\$56,284	
<u>Classroom Characteristics</u>									
Mean % with an IEP	10	8	***	7	8		7	8	
Mean % LEP	4	17	***	5	14	***	43	23	***
<u>School Characteristics</u>									
NSLAPP %	40	67	***	85	67	***	80	53	***
Urban %	16	43	***	58	51		44	49	
Small town %	5	8	***	5	3		7	7	
Rural %	27	7	***	8	10		7	12	
Suburban %	43	42		29	36		43	32	
School size	509.76	588.81	***	507.65	614.04	***	639.20	645.60	
Mean student teacher ratio	14.80	15.61	***	14.78	15.28		17.32	16.84	
% receiving Title I services	38	65	***	86	65	***	86	42	***

SOURCES: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) survey, and the National Teacher and Principal Survey (NTPS), "Teacher Questionnaire" 2015-2016. (This table was prepared March, 2021.)

Note. *** - $p < .001$, ** - $p < .01$, * - $p < .05$. Per IES rounding procedures, final sample sizes are rounded to the nearest ten, and all percentages have been rounded to whole numbers.

Table 2

Background characteristics for congruent and incongruent secondary teachers by race / ethnicity

	White Teachers		Black Teachers		Hispanic Teachers				
	Congruent <i>n</i> = 4,590	Incongruent <i>n</i> = 2,900	Congruent <i>n</i> = 290	Incongruent <i>n</i> = 340	Congruent <i>n</i> = 420	Incongruent <i>n</i> = 360			
<u>Teacher Characteristics</u>									
Male %	39	41		38	42		42	36	
Alternative certification %	19	25	***	42	49		38	33	
No certification %	5	7	***	15	12		9	8	
Advanced degree %	62	59	*	69	56	**	49	56	
Union member %	73	74		67	69		71	68	
Mean years of experience	14.59	14.14		12.74	12.84		13.21	11.85	*
New to teaching %	13	15	*	18	17		14	18	
New to current school %	25	29	**	42	35		30	34	
Mean age	43.00	43.77	*	43.86	44.15		41.95	41.50	
Mean earnings from school	\$58,241	\$64,231	***	\$53,348	\$59,496	**	\$63,747	\$60,582	
<u>Classroom Characteristics</u>									
Mean % with an IEP	14	15		7	14	**	16	11	*
Mean % LEP	2	9	***	5	9	*	21	6	***
<u>School Characteristics</u>									
NSLAPP %	35	57	***	76	56	***	75	45	***
Urban %	18	44	***	61	37	***	49	41	
Small town %	17	8	***	5	8		9	7	
Rural %	20	9	***	9	11		8	8	
Suburban %	45	39		24	44	**	34	44	
School size	1237.36	1443.43	***	985.46	1621.28	***	1648.96	1622.54	
Mean student teacher ratio	16.48	16.91		15.19	17.00	**	18.46	18.69	
Middle school %	14	14		14	17		14	11	

SOURCES: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) survey, and the National Teacher and Principal Survey (NTPS), "Teacher Questionnaire" 2015-2016. (This table was prepared March, 2021.)

Note. *** - $p < .001$, ** - $p < .01$, * - $p < .05$. Per IES rounding procedures, final sample sizes are rounded to the nearest ten, and all percentages have been rounded to whole numbers.

Table 3
Racial/ethnic congruence by school level, race/ethnicity of teacher, and region

School Level	Race / Ethnicity	Congruence	Northeast	Midwest	South	West	Total
Elementary	White	Incongruent	44	24	45	55	42
		Congruent	56	76	55	45	58
	Black	Incongruent	85	34	43	96	51
		Congruent	15	66	57	4	49
	Hispanic	Incongruent	59	46	25	25	29
		Congruent	41	54	75	75	71
Secondary	White	Incongruent	45	21	46	55	42
		Congruent	55	79	54	45	58
	Black	Incongruent	79	44	50	92	55
		Congruent	21	56	50	8	45
	Hispanic	Incongruent	86	71	40	40	47
		Congruent	14	29	60	60	53

SOURCES: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) survey, and National Teacher and Principal Survey (NTPS), "Teacher Questionnaire" 2015-2016. (This table was prepared March, 2021.) Per IES rounding procedures, all percentages have been rounded to whole numbers.