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SHOULD WE CARE ABOUT TEACHER DIVERSITY?: STUDENT PERCEPTIONS OF TEACHERS OF THE SAME RACE

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Abstract

As student diversity increases in many schools across the globe, teacher diversity may not be keeping pace with the ever changing student population. Along with this comes an increasing number of issues and queries around race and education. The ideas surrounding how race impacts the education of students have been shrouded in controversy given the sensitive nature of the topic and its troubled past in some countries. Countries across the world struggle to recruit a teacher workforce that matches that of the student population especially in pockets where there are a larger number of minorities students. Many education programs, policies, and interventions more recently have been reasserting the ways that addressing issues with race in schools can be a positive change, specifically seeking to diversify teacher recruitment and match teachers or mentors with groups of students based on race to serve as built- in role models. Indeed, our increased awareness of teacher recruitment practices and the need for a more diverse teaching force is based on some of those assumptions that student/teacher race matching is and can be a positive thing. This pilot study seeks to examine these assumptions by looking at how race may actually affect teacher-student relationships.

This study focuses on students and teachers in a low-income area of the United States to assess student perceptions of their teachers on several key attributes of quality teaching. The aim of the study is to see if classrooms of students with similar races to that of their teacher perceive their teachers differently. More directly, do students share more favorable perceptions of their teachers if they are of the same racial background? This study finds that students perceive that teachers of the same race are more effective and have more positive relationships with them. The paper concludes with a call for more research and a continued push to diversity the teacher workforce worldwide.

Keywords: Education, Race, Diversity, Student Perceptions, Teacher Effectiveness, Teacher Relationships.

1 INTRODUCTION

Since the inception of public education in the U.S., race has seemingly always played a role in shaping education policies and reforms, from *Plessy v. Ferguson* to *Brown v. Board of Education* to the most recent Every Student Succeeds Act. The ideas surrounding how race impacts the education of students have been shrouded in controversy given the sensitive nature of the topic and its troubled past. More recently many education programs, policies and interventions have been reasserting the ways that addressing issues with race in schools can be a positive change, specifically seeking to match teachers or mentors and students based on race to serve as built-in role models. Indeed, our increased awareness of teacher recruitment practices and the need for a more diverse teaching force is based on some of those assumptions that student/teacher race matching is and can be a positive thing. This pilot study will examine perceptions of students in low-income schools on several key attributes of quality teaching to see if students and classrooms of similar races to that of their teacher perceive their teachers differently. More directly, do students share more favorable perceptions of their teachers if they are of the same racial background?

1.1 Research Questions

While in theory most of us agree that a more diverse teacher workforce is a positive thing, we must ask what impact it has on students. This study will seek to answer several questions regarding the relationship between student perceptions of their teacher and race.

The central questions of this research are:

1 Do students in classrooms of a similar race as their teachers perceive their teachers' **effectiveness** differently than do students with teachers of a different race?

2   Do students in classrooms of a similar race as their teachers perceive their **relationship** with their teachers differently than do students with teachers of a different race?

1.2   Problem

Students of color have been underserved by public education throughout history in the U.S. and elsewhere around the world; this continues today. A recent movement in education has focused on the recruitment and retention of teachers of color especially in low-income, high-minority schools with an expectation that students learn better or relate to individuals who look like them or come from similar cultural backgrounds. Successful recruitment of teachers of color has, though, been a struggle for schools and districts across the U.S. A study by Ingersoll [1] in 2015 found that the rate of growth in the minority student population is much faster than the growth in teachers of color. The student population is made up of roughly 44% minority students yet the minority teacher population is only 17% [1]. The picture in the state of Arkansas (the context of this study) is very similar. The Arkansas Department of Education in 2017 reports that while nearly 40% of the student population is made up of minority students, barely 10% of teachers are reported as minority teachers [2].

While some studies (referenced below) focus on the academic outcomes of students with a same race teacher, it is also important to understand some of the perceptions that students have of their teachers and relate those to key attributes of effective teaching. In other words, do students perceive their teacher's abilities differently if they are the same race? We do not fully know the impact that having a same race teacher has on students in low-income school and whether or not students perceive and in turn interact with their teachers differently because of their race. This study will look at the classroom effect; that is how do student perceptions differ when the majority race of students in the classroom matches or doesn't match that of the teacher.

This is an important issue for policymakers. As you will see in the literature below, teachers of color can play an important role in the academic and social mobility of students from all backgrounds but most importantly students of color. With the rapid growth of minority populations across the country, we need to ensure that we recruit a teaching force that accurately reflects the schools in which they work.

1.3   Review of Literature

There has been a heavy focus on student achievement in the U.S. especially in the post-"No Child Left Behind" era. Part of that focus has looked at how race can have an impact on students with particular focus on the black-white achievement gaps. Data from the U.S. Department of Education using the National Assessment of Educational Progress (NAEP) shows that in both math and reading, across all grade levels assessed, and in every state, white students outperform their black peers [3] [4]. In fact, a study by Lubienski found that black 12th graders performed at a lower level on the NAEP in mathematics than white 8th graders making them potentially 4 years behind their white peers at graduation [5].

It is important to look at how these differences might be mitigated or eliminated. One strategy aimed at this problem is the increased recruitment of teachers of color. Recent studies have examined the impact of student to teacher race matching on student education achievement. Dee found that students with a teacher of the same race (both white and non-white) had significantly higher achievement in both math and reading [6]. Egalite et. al. found similar results [7]. Their study found that black and white students who were matched to a teacher of the same race performed slightly better in both reading and math. The study also found that lower-performing students seemed to benefit from a similar race teacher the most [7].

As mentioned previously, recruitment of teachers of color has been a challenge across the country. Studies have looked at how different programs have been successful at recruiting teachers of color. Given the prevalence of minority students in urban areas, most of the programs that have been successful in diversifying recruitment of teachers have been in cities. Teach for America (TFA) is one non-traditional teacher training program that has been successful at recruiting teachers of color for both urban and rural areas. For the 2015 cohort, 49% of TFA teachers were teachers of color [8]. In the state of Arkansas, Teach for America has had some success recruiting individuals of color to teach in classrooms across the Delta region. Comparatively, state-wide educator prep programs enroll around 20% teachers of color while TFA has 33% teachers of color [9]. Overall recruitment numbers for TFA in Arkansas, though, are down drastically over the past few years from 295 in 2013 to only 63 in 2015 [9]. One response, in part, to this reduction in recruitment in the state of Arkansas was the

creation of the Arkansas Teacher Corps (ATC), a home-grown TFA-like program. ATC incorporated many methods focused on the successful recruitment of teachers of color, including targeted recruitment and financial incentives with a home-approach [10]. The most recent cohort of teachers consists of 50% teachers of color and boasts the largest cohort to date [11]. While these programs have been successful at increasing diversity in teacher recruitment, the state still has a teacher force that looks drastically different from that of the student population. The state must recognize the need for additional, widespread approaches to increasing diversity in the teacher workforce.

While it is important to understand how race can impact student achievement, this study focuses on the non-academic outcome of student perceptions, specifically student views regarding teacher effectiveness. As mentioned previously, few studies have focused on how students perceive their teacher's effectiveness especially using a student's race (and more specifically the majority race of a class) compared to the race of the teacher. There has, though, been an interest in how students perceive teachers and the impacts of student/teacher relationships.

A recent study by Gehlbach et. al. looked at how perceived similarities between students and teachers can affect student achievement and student/teacher perceptions [12]. In the experiment, students and teachers took a "getting to know you" survey to find similarities between students and their teacher. The study found that teachers when told of their similarities with their students later felt they had better relationships with those students. Furthermore, they found that in the group where students were told of their similarities with their teachers, the achievement gap between advantaged and disadvantaged students was closed by over 60% [12]. This study highlights the concrete benefits of creating better student teacher matches.

Another recent study looked specifically at how the race of the teacher can affect student perceptions of that teacher. Cherng and Halpin used data from the Gates Foundation's Measure of Effective Teaching to see how students perceived teachers differently base on the teacher's race [13]. They found that minority teachers were preferred by all students over white teachers on all measures. The authors conducted further analysis to see if students from different races preferred teachers of the same race. Here they found slightly different results for different ethnicities. Latino students did not score Latino teacher any differently than their white or black teachers while black students preferred their black teachers over teachers from other races. Last, they show that all student groups (including white students) preferred their minority/ethnically diverse teachers over their white teachers. The authors conclude that this is an indication that recruitment of a more ethnically diverse teacher workforce is essential [13]. This study did not look at how the racial makeup of a particular classroom compared to the race of the teacher might affect the perceptions of students (i.e. a majority black class with a black teachers). Also, the sample used here was mainly urban and across the U.S.; the study discussed here seeks to look at the impacts of race matching in mostly low-income and rural schools. Last, the study by Cherng and Halpin focuses only on middle school students whereas our study will look at a range of grade levels.

While these studies begin to get at the research questions proposed here, there are still questions we do not know the answers to. For instance, given the enhanced effects of race matching on student achievement for low-income students observed by Egalite et. al. [7], does race matching have a more significant effect on the perceptions of students in low-income areas such as those in the proposed sample? Also, are these classroom effects based on race matching of teachers to the majority race of the student population for a class? These questions get to the heart of the reasons policymakers are interested in increasing minority teacher recruitment. They may shed additional light on reasons that race matching of teachers to students could be an effective educational intervention.

2 METHODOLOGY

2.1 Data

To address these questions, this study uses a set of student surveys given during the 2015-2016 school year to the students in schools served by the Arkansas Teacher Corps (the program mentioned above). Surveys were administered to students who had both ATC and non-ATC teachers. The aim of the survey was to assess the students' perceptions of their teacher's effectiveness and their relationship with that teacher. The survey and the constructs were adapted from the Panorama Student Surveys which is a validated and piloted student survey developed with the Harvard Graduate School of Education [14].

The survey was made up of 41 multiple-choice questions (each with four answer choices) and three open response questions. The four answer choices differ based on the question but were ordered in a consistent format: very negative, negative, positive, very positive. These answers were coded 1, 2, 3, and 4 respectively during data entry. No middle or neutral choice was given to force students to make a decision one way or another.

Student surveys were administered on paper to students in their classes by survey administrators hired by the University of Arkansas. The survey administrator was asked to record the number of male and female students in the class as well as the number of white and non-white students in the class. Teachers had no access to completed surveys for privacy reasons and to eliminate bias or tampering. Students were given 20-30 minutes to complete the survey, but survey administrators were told to give extra time if needed and available. Students in the 3rd through 5th grades were given the same survey with slightly simplified wording to adapt to their reading level. The survey was also read aloud to these students. Students were told in the directions and verbally that all individual data would be kept confidential and not individually released to their teachers. Students were also made aware that no punishments or promotion will result based on their responses. All surveys were collected by the survey staff and returned to the university for data entry.

2.2 Sample

The sample includes 7,265 students taught by 98 teachers in 508 classrooms within 23 schools across southern Arkansas. The majority of students in the sample are students of color and from low-income families given the types of schools that ATC serves. Table 1 displays some of the key characteristics of students in the sample.

Table 1. Student Characteristics

Characteristics	N	Percentage (valid data)	Percentage (all data)
Race			
White	1,911	29.2%	26.3%
Black	4,108	62.8%	56.5%
Other	523	8.0%	7.2%
Not reported	723		10.0%
Sex			
Male	3,220	48.7%	44.3%
Female	3,395	51.3%	46.7%
Not reported	650		8.9%
Grade level			
Elementary (K-5)	967	13.7%	13.3%
Middle (6-8)	1,990	28.2%	27.4%
High School (9-12)	4,111	58.2%	56.6%
Not reported	197		2.7%

There are 98 teachers in the sample. The vast majority of teachers are white females teaching in high schools. Table 2 displays the key characteristics of teachers in the sample.

Table 2. *Teacher Characteristics*

Characteristics	N	Percentage (valid data)	Percentage (all data)
Race			
White	66	77%	67.3%
Black	13	15.3%	13.3%
Other	6	7.1%	6.1%
Not reported	13		13.3%
Sex			
Male	30	34.5%	30.6%
Female	57	65.5%	58.2%
Not reported	11		11.2%
Grade level			
Elementary (K-5)	9	9.2%	9.2%
Middle (6-8)	24	24.5%	24.5%
High School (9-12)	65	66.3%	66.3%
Teacher Training			
Traditional	51	52.0%	52.0%
Arkansas Teacher Corps	39	39.8%	39.8%
Other Non-Traditional	8	8.2%	8.2%

It is important to note for the discussion later that there are stark differences between the racial makeup of the students and the teachers in the sample with over 70% of the students are non-white while just over 20% of teachers are non-white.

2.3 Outcome Variables

As mentioned above, the key outcome (dependent) variables for this study are constructs created from multiple questions around aspects of quality teaching. The constructs used in this study were based on constructs used in the Panorama Student Surveys [14], a validated and piloted student survey developed with the Harvard Graduate School of Education, as well as similar indicators of effective teaching from other sources including the Bill and Melinda Gates Foundation [15].

The construct of teacher effectiveness is the first of the two constructs used as outcomes for this particular study. This construct aims to measure students' perceptions of a teacher's effectiveness based on key characteristics of effective teaching that can be observed by the students themselves. Questions are asked regarding a teacher's instructional methods, knowledge of the content, management of behavior, engagement of student, level of rigor, and maintenance of high expectations. Fig. 1 below displays a sample of questions from the effectiveness construct.
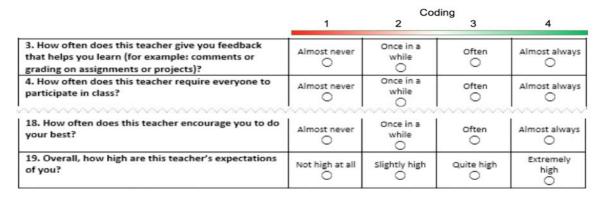

Figure 1. Example of effectiveness questions

The construct of supportive relationships is the second of the two constructs used as outcomes for this particular study. This construct aims to measure students' perceptions of a teacher's care and support for the personal development and well-being of their students beyond the classroom. Questions are asked regarding a teacher's concern for students, interest in students' extracurricular activities, approachability, and general concern for students. On face, one may think this is simply how likeable a particular teacher is, but the questions within the construct measure specific actions that attribute to positive teacher student relationships and interactions outside of academics. Fig. 2 below displays the questions from the relationship construct.

Figure 2. Example of relationship questions

The overall score for a particular construct is the average of the answers to all questions in a construct. Table 3 displays the descriptive statistics for these two constructs.

Table 3. *Construct Descriptive Statistics*

Measure	Effectiveness	Relationships
n	7,100	7,001
Mean	3.17	2.86
Standard Error	0.00681	0.009606
Median	3.25	3
Mode	3.5	3
Standard Deviation	0.574	0.804
Sample Variance	0.329	0.646
Range	3	3
Minimum	1	1
Maximum	4	4
No. of items in construct	16	3

2.4 Regression Modelling

To assess the impact that similar race teachers have on student perceptions, we use a linear regression model controlling for characteristics that might also impact perceptions. We use several models controlling for different variables in each model. Each model is based on a variation on the equation:

$$Y_i = \beta_0 + \beta_1 X_{RaceMatch} + \beta_2 X_{School} + \beta_3 X_{Subject} + \beta_4 X_{GradeLevel} + \beta_5 X_{FRL} + \beta_6 X_{Achievement} \ldots + \varepsilon$$

where:

- Y_i is the average perceptions score on the construct of interest (effectiveness or relationships) for students in class i

- β_0 is the intercept

- β_1 is the coefficient for the variable $X_{RaceMatch}$ which is based on the proportion of students who have the same race as the teacher in class i

- β_2 is the coefficient for the variable X_{School} which is a vector of dummy variables that corresponds to the school that students in class i attend

- β_3 is the coefficient for the variable $X_{Subject}$ which is a vector of dummy variables that corresponds to the subject that students in class i are studying

- β_4 is the coefficient for the variable $X_{GradeLevel}$ which is a vector of dummy variables that corresponds to the grade level for students in class i

- β_5 is the coefficient for the variable X_{FRL} which is a continuous variable relating to the proportion of pupils within the school of class i that receive free- or reduced-lunches

- β_6 is the coefficient for the variable $X_{Achievement}$ which is a continuous variable relating to the percentage of pupils within student i's closest tested grade and subject within their school that met the benchmark on the state exam relative to the state average

- β_7 is the coefficient for the variable $X_{StudentBlack}$ which is a continuous variable based on the proportion of class i that are black

- β_8 is the coefficient for the variable $X_{StudentOther}$ which is a continuous variable based on the proportion of class i that are of another race than black or white

- β_9 is the coefficient for the variable $X_{TeacherRace}$ which is a vector of dummy variables that corresponds to the race of the teachers for class i

- β_{10} is the coefficient for the variable X_{ATC} which is a binary dummy variable as to whether or not the teacher was trained through the ATC program.

- ε is the error term.

We use several variations of the model controlling for different possible variables. Below is a brief description of the controls included in each different model.

- Model I: Controls for school, subject, grade level, FRL, and achievement

- Model II: Controls for school, subject, grade level, FRL, achievement, and student race

- Model III: Controls for school, subject, grade level, FRL, achievement, student race, and ATC

- Model IV: Controls for school, subject, grade level, FRL, achievement, student race, and teacher race

- Model V: Controls for school, subject, grade level, FRL, achievement, student race, ATC, and teacher race

- Model VI: Controls for school, subject, grade level, FRL, achievement, and ATC

3   RESULTS

The first research question was whether or not students of the same race as their teacher found their teachers to be more or less effective than those with a teacher of a different race. The results of the regression models created to answer that question are reported in Table 4 below.

Race matching across all models has a positive effect on students' perceptions of teacher effectiveness. All models, but for those controlling for teacher race, show statistically significant results that students find teachers of a similar race to that of their teachers find them more effective. There is a concern with models IV and V that controlling for teacher race may actually be controlling away some of the effect of the intervention of race matching. In all models where ATC is included, we find that students of ATC teachers rate those teachers slightly higher on effectiveness. Overall, the models in table 4 show that race matching seems to have a positive effect on student perceptions of their teacher's effectiveness.

The same models above were also used to assess the impact of race matching on teacher student relationships as perceived by the student. Table 5 below displays the results of the regression models on teacher student relationships.

Table 4. Regression model coefficients for teacher effectiveness

Variables	Model I	Model II	Model III	Model IV	Model V	Model VI
Race Match	.194 ** (.070)	.170 * (.076)	.155 * (.076)	.139 (.130)	.185 (.130)	.182 ** (.070)
Class Achievement	-.008 * (.004)	-.008 * (.004)	-.007 (.004)	-.008 (.004)	-.008 * (.004)	-.007 (.004)
% Black Students		-.112 (.127)	-.125 (.127)	-.155 (.153)	-.155 (.153)	
% Other Students		-.270 (.182)	-.236 (.181)	-.230 (.185)	-.230 (.185)	
ATC			.079 * (.036)	.081 * (.036)		.081 * (.035)
Black Teacher				.003 (.118)	-.030 (.118)	
Other Teacher				-.097 (.078)	-.084 (.078)	
School [1]	Y	Y	Y	Y	Y	Y
Subject [1]	Y	Y	Y	Y	Y	Y
Grade Level [1]	Y	Y	Y	Y	Y	Y
% FRL [2]	N	N	N	N	N	N
R-squared	.231	.235	.244	.247	.238	.241
Constant	2.779 (.124)	2.921 (.163)	2.916 (.162)	2.953 (.180)	2.934 (.181)	2.775 (.123)

Note: Coefficient standard errors in parentheses clustered at the class level; + = p-value < 0.10, * = p-value < 0.05, ** = p-value < 0.01, *** = p-value < 0.001.
1: Vector of variables included in the models. 2: Variable excluded in model due to collinearity tolerance.

Table 5. Regression model coefficients for teacher student relationships

Variables	Model I	Model II	Model III	Model IV	Model V	Model VI
Race Match	.199 * (.087)	.176 + (.094)	.158 + (.094)	.016 (.160)	.076 (.159)	.184 * (.087)
Class Achievement	-.008 (.005)	-.008 * (.005)	-.007 (.005)	-.008 (.005)	-.009 * (.005)	-.007 (.005)
% Black Students		-.133 (.157)	-.148 (.157)	-.305 (.189)	-.254 (.188)	
% Other Students		-.618 ** (.225)	-.578 ** (.225)	-.593 ** (.227)	-.625 ** (.228)	
ATC			.094 * (.044)	.105 * (.044)		.104 * (.044)
Black Teacher				.117 (.145)	.074 (.145)	
Other Teacher				-.270 ** (.095)	-.254 ** (.096)	
School [1]	Y	Y	Y	Y	Y	Y
Subject [1]	Y	Y	Y	Y	Y	Y
Grade Level [1]	Y	Y	Y	Y	Y	Y
% FRL [2]	N	N	N	N	N	N
R-squared	.199	.213	.222	.237	.226	.210
Constant	2.391 (.154)	2.642 (.202)	2.635 (.201)	2.802 (.222)	2.778 (.223)	2.386 (.153)

Note: Coefficient standard errors in parentheses clustered at the class level; + = p-value < 0.10, * = p-value < 0.05, ** = p-value < 0.01, *** = p-value < 0.001.
1: Vector of variables included in the models. 2: Variable excluded in model due to collinearity tolerance.

Similar to the effectiveness outcome, student with teachers of a similar race also rate their relationships with those teachers higher than those of a different race. Differing from the effectiveness outcome, only 2 of the models are statistically significant at p = 0.05 though 2 other models are near significance at p = 0.10. Models IV and V again seem to control away some of the effect race matching has by controlling for teacher race. Again similar to effectiveness, in all models students rate their relationships with their ATC teachers higher than students of non-ATC teachers.

3.1 Analysis

The results above give us some indication of the possible impact of having a more diversified teacher workforce. All models on both the effectiveness and relationship variables find positive impacts for race matching though some lose statistical significance given the size of the sample. On students' perceptions of teacher effectiveness, having a similar race teacher has a positive impact with coefficients ranging from 0.139 to 0.194 which equates to roughly 24-34% of a standard deviation difference. These results only lose significance when controlling for teacher race which may very well control away some of the desired effect we are attempting to measure with the race match variable. We find similar results with students' perceptions of their relationship with their teacher. Having a similar race teacher has a positive impact on the relationship outcome with coefficients ranging from 0.016 to 0.199 which equates to roughly 2-25% of a standard deviation difference in the average score. The relationship variable has a bit more variability which is evidenced by the volatility in the models with two of the maintaining statistical significance, two having near statistical significance (p < 0.10), and two losing statistical significance. Overall, these models suggest there is a perceived positive effect on students' perceptions when the teaching force is more similar in terms of race to that of the student population.

Another interesting outcome of the model was the effect that ATC teachers had on student perceptions of effectiveness and relationships. In all models where the ATC variable was included, ATC teachers have a significant positive affect on student perceptions across both outcome variables. ATC teachers were found by students to be more effective with scores 14% of a standard deviation higher than non-ATC teachers. Similarly, students perceived their relationships with their ATC teachers to be better by roughly 13% of a standard deviation. Given the success ATC has had recruiting teachers of color, mentioned previously, as well as the positive impacts ATC teachers have on student perceptions, programs like ATC seems to be beginning to address some of the problems with quality teacher recruitment and a more diversified workforce.

4 CONCLUSIONS

This study adds to a body of evidence surrounding the need for a more diversified teacher workforce that better represents that of our ever-diversifying student populations. There seem to be positive affects from the student perspective on having a similar race teacher or even a teacher from a more diverse teacher training route. Additional research is necessary to better understand the impact that diverse teachers have on different populations of students and, more importantly, how do we attract more diverse individuals to the profession.

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