

Teachers Are People Too: Examining the Racial Bias of Teachers Compared to Other American Adults

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Schools are heralded by some as unique sites for promoting racial equity. Central to this characterization is the presumption that teachers embrace racial equity and teaching about this topic. In contrast, others have documented the ongoing role of teachers in perpetuating racial inequality in schools. In this article, we employ data from two national data sets to investigate teachers' explicit and implicit racial bias, comparing them to adults with similar characteristics. We find that both teachers and nonteachers hold pro-White explicit and implicit racial biases. Furthermore, differences between teachers and nonteachers were negligible or insignificant. The findings suggest that if schools are to effectively promote racial equity, teachers should be provided with training to either shift or mitigate the effects of their own racial biases.

Keywords: achievement gap; diversity; equity; race; regression analyses; social stratification; teacher education/development

Schools are sometimes heralded as democratizing institutions that allow citizens to partake equitably in society (Dewey, 1923) and have the power to instill more positive racial attitudes than those that presently exist (e.g., Banks et al., 2005). However, teachers entrusted to carry out this capacity are themselves embedded in a society in which racial biases are pervasive (Nosek et al., 2007). The expectation that teachers facilitate racial equity in their classrooms, absent training to address their own biases, may be an impossible task, especially if teachers' racial biases mirror those of the American population. Indeed, teachers' racial bias has been implicated as one driver of racial inequality in education (Dixson & Rousseau, 2005; Warikoo et al., 2016). The extent to which teachers are subject to racial bias, then, is an important empirical question. The following research investigates teachers' explicit and implicit racial bias, comparing them to adults with similar characteristics. The present studies are the first effort to provide descriptive data regarding the implicit racial bias of teachers. The examination of implicit racial bias is important because it introduces the possibility that well-intentioned teachers may be subject to biases they are less conscious of, limiting their capacity to facilitate racial equity despite their best intentions. For the purpose of this work, we focus on the aspect of racial bias that is most consistent

with definitions of prejudice: broad attitudinal or affective reactions to members of certain racial groups (Pérez, 2016).¹

On the one hand, we might expect to find lower levels of bias among teachers compared to similarly educated Americans. Teachers enter a profession that serves children, a majority of whom will be Hispanic or racial minorities by 2020 (Federal Interagency Forum on Child and Family Statistics, 2017). Some level of faith in the potential of children of color to succeed may go hand in hand with lower levels of racial bias and a desire to become a teacher. Indeed, teachers frequently claim that they "do not see race" (Marx & Larson, 2010). In addition, given that exposure to racial diversity is associated with lower levels of bias (Pettigrew & Tropp, 2006), school environments might actually reduce teachers' level of racial bias (Frankenberg, 2012). Consistent with the possibility that working in schools reduces bias, studies have found the experience of participating in the Teach for America program to be related to lower levels of racial resentment toward African Americans (Mo & Conn, 2018), lower implicit racial bias (Dobbie & Fryer, 2015), and lower implicit skin tone bias (Mo & Conn, 2018).

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On the other hand, teachers' bias levels may not differ from those of other Americans. Racial biases are thought to reflect broad societal influences (e.g., Dovidio & Gaertner, 2010), and recent analysis of the General Social Survey, a nationally representative survey, shows that teachers generally report explicit racial attitudes that are indistinguishable from those of non-teachers after controlling for pertinent demographic factors (Quinn, 2017). Furthermore, teachers work in environments characterized by racial disparities in student achievement and discipline (Morris & Perry, 2016; Reardon et al., 2019) that may over time facilitate a bias for White students over minority students (Ferguson, 2003; Wright et al., 2014). Indeed, decades of research has demonstrated that teachers make racially biased decisions that can fundamentally shape the lives of students, perpetuating racial inequality (e.g., Blanchett, 2006; Lewis, 2003; Lewis & Diamond, 2017; Nicholson-Crotty et al., 2009; Tenenbaum & Ruck, 2007). Theories of social reproduction explicate how schools systematically reproduce existing social inequalities (Bourdieu & Passeron, 1977; Bowles & Gintis, 1976)—including ethnic and racial inequality (Dixson & Rousseau, 2005)—in part through the unintentional actions of culturally mismatched teachers (Delpit, 1995; Valenzuela, 1999). This process is exacerbated by the overrepresentation of White teachers, who comprise 80% of the profession (National Center for Education Statistics, 2017), and is further compounded by the racial prejudices teachers may hold.

Scholars distinguish between explicit and implicit forms of racial bias (Greenwald & Krieger, 2006). Explicit bias refers to attitudes or affective reactions that people are aware that they have, that they can alter with relative ease as their beliefs change, and that they can strategically misreport when they want to do so. Explicit racial bias is measured by simply asking people to report their thoughts and feelings. For example, feeling thermometers in which people are asked how warmly they feel toward different social groups are commonly used measures of explicit bias. Although measures such as the Symbolic Racism Scale (Henry & Sears, 2002) and Modern Racism Scale (McConahay, 1983) assess feelings toward African Americans less overtly, they are also considered measures of explicit racial bias. This is because they use a self-report approach and the overall constructs have affective reactions (i.e., racial resentment) at their core. In essence, explicit bias encompasses measures and conceptualizations of bias that center on the group-based feelings people can articulate to themselves and are willing to share with others.

In contrast, implicit bias is thought to reflect the automatic cognitive associations or affective predispositions individuals have with different social groups. Individuals have limited awareness of and control over their implicit biases (e.g., Blair et al., 2015; Greenwald et al., 1998). As such, implicit bias is gauged using indirect measures such as the Implicit Association Test (IAT), in which reaction times to various stimuli are assessed and compared (Greenwald et al., 1998). When considering implicit bias, it is important to note that there are ongoing controversies in the conceptualization and measurement of it. For example, implicit measures have been found to have low test-retest reliability at the level of a specific individual, leading some to argue that implicit bias should be thought of as an indicator of biased

associations in one's immediate social environment or society at large rather than something entrenched in individual people (Arkes & Tetlock, 2004; Payne et al., 2017). There is also debate about whether implicit and explicit biases are derived from distinct processes or represent different ways of assessing a single underlying continuum of bias (Perugini et al., 2010). Despite these controversies, both implicit and explicit biases are important because while self-reported explicit racial biases have decreased significantly over time (Schuman et al., 1997), a great majority of people in the United States continue to exhibit racial biases when they are measured implicitly (Nosek et al., 2007). In addition, the two forms of racial bias have been shown to work in concert to influence behavior (Perugini et al., 2010), and both play a role in shaping students' outcomes in schools (Glock & Kovacs, 2013).

Most research on the relationship between bias and behavior focuses on a pattern in which explicit bias tends to predict deliberative components of behavior and implicit bias tends to predict spontaneous components of a behavior (Gawronski & De Houwer, 2014). That is, explicit bias has been found to most strongly relate to behaviors when people are able and willing to devote their full attention to the task at hand (e.g., Olson & Fazio, 2009). On the other hand, implicit bias has been found to most strongly relate to behavior when attention is overloaded or when people are unable or unwilling to engage in behavioral self-regulation (e.g., the behavior is difficult to control or people do not recognize self-regulation is warranted; Cameron, Brown-Iannuzzi & Payne, 2012; Olson & Fazio, 2009). For example, Dovidio, Kawakami and Gaertner (2002) found that Whites participants' explicit racial bias predicted what they said during interactions with African American peers but that implicit bias predicted the subtle, nonverbal signals they sent. Beyond behaviors, political attitudes can be shaped by implicit bias (Pérez, 2010, 2016), explicit bias (Sears & Henry, 2003), and both simultaneously (Lodge & Taber, 2013).

Although numerous studies demonstrate the persistence of racial disparities in expectations and evaluation of students (Irizarry, 2015; Tenenbaum & Ruck, 2007; Yates & Marcelo, 2014), as well as their punishment (Skiba et al., 2002, 2014) academic-level placement (Glock et al., 2015; Solorzano & Ornelas, 2004), and academic achievement (Reardon et al., 2019), the body of research documenting a direct relationship between teachers' racial biases and student outcomes is surprisingly small.

However, the studies that do empirically examine this direct relationship illustrate the importance of examining both explicit and implicit bias. For example, in a lab study in which some participants were tasked with teaching a lesson to other participants, both the implicit and explicit bias of the "teachers" were associated with poorer test performance of Black learners (Jacoby-Senghor et al., 2016, Study 1). Although both biases related to poorer lesson quality, explicit biases were directly related and implicit biases indirectly related through their association with greater teacher anxiety during the lesson. Research with actual classroom teachers in the Netherlands found that the explicit bias of Dutch elementary school teachers showed no relationship to the performance of their Turkish and Moroccan students, but

their implicit bias was negatively related to their students' scores on standardized math and reading exams (van den Bergh et al., 2010). Similarly, Peterson et al. (2016) found that teachers' implicit (but not explicit) bias was positively associated with achievement for students in teachers' preferred ethnic groups. In another study, teachers' implicit bias toward Arab American and Chaldean Americans accounted for 30% of the variance in their decision to use culturally responsive pedagogical strategies and to promote respect and cooperation among diverse students; their explicit bias accounted for 13% (Kumar et al., 2015). Given that both explicit and implicit bias have the potential to shape teachers' behavior toward their students, it is important to investigate teachers' levels of both types of racial bias.

The Current Studies

We present two studies in which we investigate implicit and explicit bias among teachers using two complementary national data sets, Project Implicit (Xu et al., 2014) and the American National Election Study (ANES) 2008 Time Series Study. Project Implicit houses a large collection of data from hundreds of thousands of self-administered, web-based IATs as well as pertinent explicit measures. Utilizing Project Implicit data allows us to evaluate explicit and implicit bias for a large sample of teachers. The 2008 Time Series ANES is a nationally representative survey that consists of over 2,000 in-person election interviews around the time of the 2008 presidential election (see Lupia et al., 2009). A targeted sampling strategy was used to adequately capture minority populations, and the sample was weighted to proportionally reflect the demographic distribution of the population at large. Although the ANES has been fielded regularly since 1948, the present analyses focus on 2008 because this is the only year that we are aware of that included both implicit and explicit measures of racial bias. The ANES allows us an opportunity to replicate our investigation using the Project Implicit data with a nationally representative sample.

Study 1

Methods

Sample. Project Implicit is a demonstration website that allows visitors to self-administer IATs (Nosek et al., 2007). Participants find the website through a variety of channels (e.g., search engines, peer recommendations, media coverage) and have the option of selecting from IATs that span several different categories (e.g., race, age, gender). Here, we focus on those adults who chose to complete the Black-White IAT. Explicit bias measures and a demographic survey accompany each administration of an IAT. Afterward, participants receive feedback regarding their performance on the IAT in addition to various background materials. Project Implicit has collected measures of explicit and implicit biases along with a number of demographic variables from visitors to the website since 2002 (Xu et al., 2014).

Our analyses focus on a specific subset of individuals who have visited the Project Implicit website. Specifically, they must have completed the measures described in the following, reported

their country of residence as the United States, specified their occupation, and reported their age as 18 years or older.² Filtering the full set of Project Implicit data to only those individuals who met these criteria resulted in a data set of 1.6 million respondents, of whom 68,930 identified as preK–12 instructors. Among preK–12 teachers, 73.7% identified as female, and the average age was 34.9 years. Among the nonteachers, 60.0% identified as female, and the average age was 29.0 years. For full descriptive statistics, see Table 1.

Measures

Occupation. Since 2006, respondents who visited the Project Implicit website have indicated their occupation using the Bureau of Labor Statistics Standard Occupational Classification system. We used the occupation codes to group all respondents into two categories: preK–12 teachers (code 25-2000) and nonteachers (all other reported professions).

Implicit bias. The IAT is one of the most widely used and one of the most internally reliable measures of implicit attitudes (Gawronski & De Houwer, 2014). The Black-White IAT used in this study reflects biases in how quickly and accurately respondents can pair White faces with “good” words and Black faces with “bad” words in comparison to the inverse (Greenwald et al., 2003). The IAT presents participants with four categories consisting of two concepts (in our case, Black and White people) and two attributes (in our case, good and bad). Black and White people are represented by images of Black and White faces, and good and bad are represented by lists of positive and negative words. Participants are presented with exemplars of each category prior to commencing with the task and have two practice blocks to familiarize themselves with the exemplars and the task (Nosek et al., 2007). For each trial, an exemplar is presented in the middle of the screen, and participants use the “e” or “i” key to categorize them into the appropriate category. For two critical blocks (60 trials total), one concept (e.g., Black people) and one attribute (e.g., good) will share one response key while the remaining concept (e.g., White people) and attribute (e.g., bad) will share the other response key. In the final two critical blocks, the response pairings will switch (e.g., Black people and bad words will be categorized using the same key). The IAT is scored by subtracting the mean reaction times when Black is paired with good from the mean reaction times when White is paired with good and dividing that difference by the pooled standard deviation of reaction times on Black-good and White-good blocks (see Greenwald et al., 2003). Negative scores indicated pro-Black/anti-White bias, and positive scores indicated pro-White/anti-Black bias, with distance from zero indicating magnitude of the bias.

Explicit bias. We calculated a measure of explicit bias by subtracting participants' reported warmth toward Black people from their reported warmth toward White people, both assessed on a 0 to 10 scale (0 = *very cold*, 10 = *very warm*). Higher values here indicate more warmth toward White people compared to Black people.

Covariates. In the following analyses, we also include self-reported measures of gender, education level, age, race (White,

Table 1
Descriptive Statistics for Teacher and Nonteacher
Subsamples in Project Implicit Data

Study 1 Descriptive Statistics		
	General Public	PreK–12 Teachers
Sample size	1,561,269	68,930
Age (in years)	29.0 (11.7)	34.9 (11.5)
Sex		
Female	936,101 (60.0%)	50,811 (73.7%)
Male	625,168 (40.0%)	18,119 (26.3%)
Race		
White	1,109,727 (71.1%)	56,429 (81.9%)
Black	196,738 (12.6%)	6,029 (8.7%)
Other	254,804 (16.3%)	6,472 (9.4%)
Ethnicity		
Not Latino	1,415,549 (90.7%)	64,588 (93.7%)
Latino	145,720 (9.3%)	4,342 (6.3%)
Education		
High school or less	185,225 (11.9%)	655 (1%)
Some college	793,478 (50.8%)	5,877 (8.5%)
BA or higher	582,566 (37.3%)	62,398 (90.5%)
Political orientation	4.5 (1.7)	4.7 (1.7)
Implicit bias	.32 (.45)	.32 (.45)
Explicit bias	.33 (2.05)	.30 (1.79)

Note. Numbers in parentheses (excluding percentages) are standard deviations.

Black, and other), ethnicity (Latino or not Latino), and political identification (reported on a scale ranging from 1 = *strongly conservative* to 7 = *strongly liberal*) as covariates because these characteristics have been associated with racial bias in past research. Because the education level variable was indicated by self-reporting the highest level achieved from 14 nonordinal categories (elementary school, junior high, some high school, high school graduate, some college, associate's degree, bachelor's degree, some graduate school, master's degree, JD, MD, PhD, other advanced degree, and MBA), we could not treat this as a continuous variable. For interpretive clarity, we trichotomized this variable into high school or less, some college (including the some college response and the associate's degree response), and BA or higher.

Analysis. The data were analyzed with linear regressions. We fit two separate series of models, one set for implicit bias and another set for explicit bias. The regression models examine the effect of occupation without any other covariates (Model 1); after adjusting for demographic characteristics of gender, age, race, and ethnicity (Model 2); after adjusting for education (Model 3); after adjusting for political orientation (Model 4); and the full model, including all covariates (Model 5). As such, the primary predictor of interest in these models was the dummy coded occupational type (0 = nonteachers, 1 = preK–12 teacher). We additionally used dummy codes for the categorical covariates gender, race, ethnicity, and level of education. For each of these, we set the baseline to be the category that was most prevalent for teachers

(female, White, non-Latino, and bachelor's or higher, respectively). We standardized the continuous covariates of age and political identification. All adjusted means are reported at the level of baseline categories for gender, race, ethnicity, and education and at the mean level of the continuous covariates.

Results

We found significant differences between occupation and level of bias (see Table 2). For both implicit and explicit bias, the direction of the difference depended on the controls included in the model. When all of the controls were included, there was a small but statistically significant tendency for teachers to have lower implicit bias and explicit bias than nonteachers.

Figure 1 displays the comparison between teachers and nonteachers in further detail as estimated by the full model (Model 5). Both groups exhibit a statistically significant amount of pro-White/anti-Black implicit bias given that estimates for both group are significantly above zero ($ps < .05$). However, as indicated by the regression analyses for the full model, teachers have a statistically lower level of predicted implicit bias ($M = 0.37$, 95% CI [0.37, 0.38]) than the nonteachers ($M = 0.38$, 95% CI [0.38, 0.38]), $p < .01$. This conclusion holds for explicit biases as well. Both groups exhibit a statistically significant amount of pro-White/anti-Black explicit bias given that estimates for both groups are significantly above zero ($ps < .05$). As indicated by the regression analyses for the full model, teachers have a statistically lower level of explicit bias ($M = 0.61$, 95% CI [0.60, 0.63]) than nonteachers ($M = 0.65$, 95% CI [0.64, 0.65]), $p < .01$.

A more intuitive description of the degree of bias may help make this concrete. Because both the implicit and explicit measures have a true zero, we can determine the percentage of teachers and nonteachers who have some amount of bias. Among teachers, 77.0% had implicit bias scores above zero; 77.1% of the nonteachers were above zero on this metric. The corresponding rates for explicit bias are patterned similarly but are lower overall. Among teachers, 30.3% had explicit bias scores above zero. This metric was 30.4% for the nonteachers. Alternatively, we can compare that magnitude of the difference observed between teachers and nonteachers to the differences observed between other samples. For example, estimated differences between Black and White respondents and the most liberal and most conservative respondents are, respectively, 74 and 46 times as large as the estimated difference between teachers and nonteachers. These comparisons indicate that although statistically significant, the differences between teachers and nonteachers are negligible.

Study 2

Although both teachers and nonteachers held both implicit and explicit racial bias in Study 1, teachers had statistically lower implicit and explicit bias than nonteachers. It is worth noting that the absolute difference between teachers and nonteachers was quite small. For example, the difference between the percentage of teachers versus nonteachers with some amount of implicit or explicit bias was .1%. The size and corresponding statistical power of the Project Implicit data make small

Table 2
Standardized Regression Coefficients and Standard Errors for Study 1 Implicit and Explicit Bias Models

	Implicit Bias				
	(1)	(2)	(3)	(4)	(5)
Occupation: Teacher	0.002 (0.004)	-0.032*** (0.004)	0.012*** (0.004)	0.018*** (0.004)	-0.013*** (0.004)
Sex: Male		0.090*** (0.002)			0.076*** (0.002)
Age		-0.021*** (0.001)			-0.014*** (0.001)
Ethnicity: Latino		-0.016*** (0.003)			-0.016*** (0.003)
Race: Other		-0.263*** (0.002)			-0.248*** (0.002)
Race: Black		-0.969*** (0.002)			-0.963*** (0.002)
Education: High school or less			0.022*** (0.003)		-0.002 (0.003)
Education: Some college			0.018*** (0.002)		0.022*** (0.002)
Political identification				-0.104*** (0.001)	-0.086*** (0.001)
Constant	-0.0001 (0.001)	0.130*** (0.001)	-0.012*** (0.001)	-0.001 (0.001)	0.121*** (0.002)

	Explicit Bias				
	(1)	(2)	(3)	(4)	(5)
Occupation: Teacher	-0.016*** (0.004)	-0.039*** (0.004)	0.009** (0.004)	0.014*** (0.004)	-0.016*** (0.004)
Sex: Male		0.159*** (0.001)			0.130*** (0.001)
Age		-0.057*** (0.001)			-0.048*** (0.001)
Ethnicity: Latino		-0.135*** (0.003)			-0.132*** (0.003)
Race: Other		-0.333*** (0.002)			-0.306*** (0.002)
Race: Black		-1.208*** (0.002)			-1.195*** (0.002)
Education: High school or less			0.074*** (0.003)		-0.001 (0.003)
Education: Some college			0.038*** (0.002)		0.010*** (0.002)
Political identification				-0.188*** (0.001)	-0.163*** (0.001)
Constant	0.001 (0.001)	0.155*** (0.001)	-0.028*** (0.001)	-0.001 (0.001)	0.154*** (0.001)

Note. Numbers in parentheses are standard errors.
 ** $p < .05$. *** $p < .01$.

differences statistically significant. These small but statistically significant differences should be read with caution because of potential sampling bias. While Project Implicit offers an immense data set that affords considerable statistical power, its sample is not nationally representative because Project Implicit

participants self-select (Nosek et al., 2007), a potential source of bias in the findings in Study 1 (Winship & Mare, 1992). The ANES 2008 Time Series Study addresses this shortcoming by measuring implicit and explicit biases of a nationally representative sample. Thus, we examine the same questions using the

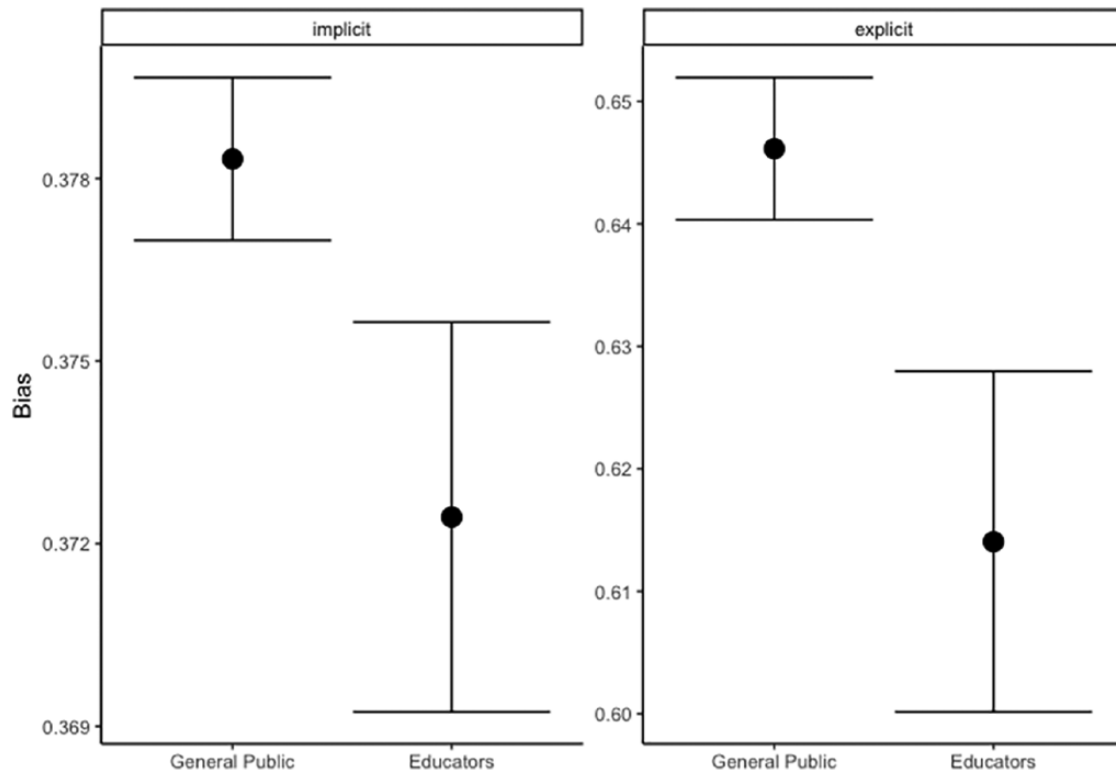


FIGURE 1. *Adjusted estimates of implicit and explicit bias for preK–12 teachers and nonteachers.*
Note. Error bars indicate 95% confidence intervals.

ANES 2008 Time Series Study in Study 2 to determine if the main findings hold for a nationally representative sample.

Methods

Sample. Although the ANES 2008 had both preelection (September–November) and postelection waves, we analyzed the postelection wave administered between November 5 and December 30 because it was the only wave that contained both implicit and explicit bias measures. Participants were selected at random via a five-stage, address-based sampling technique that oversampled Black and Latino communities to attain adequate representation (Lupia et al., 2009). After providing consent, participants completed in-person, computer-assisted interviews that included a battery of questions and lasted approximately 90 minutes, after which they were compensated for their time. The response rate among eligible households was 57.7%. All Spanish- or English-speaking citizens in the continental United States who were at least 18 years of age by October 31 were eligible to participate.

We restricted our analyses to only those participants who specified their occupation and were not missing values for any of the measures listed in the following, resulting in a total sample of 1,984, of which 63 are preK–12 teachers. Among preK–12 teachers, 77.8% identified as female, and the average age was 43.2 years. Among the nonteachers, 55.5% identified as female, and the average age was 47.4 years. For full descriptive statistics, see Table 3.

Measures

Occupation. The ANES 2008 Time Series Study data set includes numerical codes associated with participants' open-ended descriptions of their work (Berent et al., 2013). The coding scheme was based on the minor groups found in the Standard Occupational Classification system. We used the data set's occupation codes to group all respondents into two categories: preK–12 teachers (code 21) and nonteachers (all others).

Implicit bias. To measure implicit bias, the Affective Misattribution Procedure (AMP; Payne et al., 2005) was used rather than the IAT. The task consists of 48 trials. Participants are first presented with a fixation point followed by a Black or White young adult male face for 75 ms. Participants are then shown a pictograph of Chinese characters for 250 ms, followed by a noise mask until participants indicate their response. Participants are instructed to judge each pictograph as pleasant or unpleasant without being influenced by the preceding face. The difference in the proportion of pictographs following a White face that are judged as pleasant and the proportion of pictographs following a Black face that are judged as pleasant is taken as an indicator of pro-White, anti-Black bias, with higher scores indicating greater bias. The AMP is among the most internally and predictively reliable measures of implicit bias and is frequently used in extant research (Gawronski & De Houwer, 2014; Payne & Lundberg, 2014).

Explicit bias. The ANES 2008 Time Series Study employs feeling thermometers similar to the ones used by Project Implicit.

Table 3
Descriptive Statistics for Teacher and Nonteacher
Subsamples for American National Election Study

Study 2 Descriptive Statistics		
	General Public	PreK–12 Teachers
Sample size	1,921	63
Age (in years)	47.403 (17.206)	43.194 (11.452)
Sex		
Female	1,066 (55.5%)	49 (77.8%)
Male	855 (44.5%)	14 (22.2%)
Race		
White	1,202 (62.6%)	45 (71.4%)
Black	475 (24.7%)	10 (15.9%)
Other	237 (12.3%)	8 (12.7%)
Ethnicity		
Not Latino	1,507 (78.4%)	48 (76.2%)
Latino	411 (21.4%)	15 (23.8%)
Years of education	13.097 (2.528)	16.063 (1.469)
Political orientation		
Conservative	997 (51.9%)	29 (46.0%)
Moderate	209 (10.9%)	6 (9.5%)
Liberal	715 (37.2%)	28 (44.4%)
Implicit bias	.12 (.29)	.11 (.28)
Explicit bias		
Thermometer	1.12 (19.82)	2.86 (16.58)
Symbolic racism	2.63 (.93)	2.77 (1.04)

Note. Numbers in parentheses (excluding percentages) are standard deviations.

Our explicit bias measure from this data set is the difference in reported warmth toward White people versus the reported warmth toward Black people, both assessed on a 0 to 100 scale (0 = *very cold*, 100 = *very warm*). Again, we subtracted participants' warmth toward Blacks from their warmth toward Whites to construct this measure. As such, higher numbers indicated more pro-White/anti-Black bias. The ANES 2008 Time Series Study also includes four items from Henry and Sears's (2002) Symbolic Racism Scale. Participants indicated their agreement on a 1 to 5 scale (1 = *agree strongly*, 5 = *disagree strongly*) with the following statements: (a) Irish, Italians, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors; (b) Generations of slavery and discrimination have created conditions that make it difficult for Blacks to work their way out of the lower class (reverse-coded); (c) Over the past few years, Blacks have gotten less than they deserve (reverse-coded); and (d) It's really a matter of some people not trying hard enough; if Blacks would only try harder they could be just as well off as Whites. These items were averaged into a scale, which served as a second measure of explicit racial bias (Chronbach's $\alpha = .769$), with higher scores indicating higher anti-Black bias.

Covariates. As with the Project Implicit analyses, our analyses included gender, race and ethnicity, education level, age, and

political identification as covariates. In this case, educational attainment was measured differently than it was in the Project Implicit data. Here, as a consequence of the structure of available data, we treat education as a continuous variable indicating how many years of school participants completed, with responses ranging from 0 to 17+. Again, we set the baseline to be the category that was most prevalent for teachers (female and 17+ years of education, respectively). We standardized the continuous covariates of age and political identification. The latter was reverse-scored to be, for the sake of consistency with Study 1, on a 1 = *very conservative* to 5 = *very liberal* scale. All adjusted means are reported at the level of baseline categories for sex and education and at the mean level of the continuous covariates.

Analysis. The analytic strategy used here closely parallels the one taken with the Project Implicit data, with two differences. The first difference is necessitated by the complex sampling design used in ANES. Because the survey oversamples or undersamples individuals with certain characteristics and weights their responses, the standard approach to estimating effects are not appropriate (DeBell, 2010). Instead, we use Taylor-series linearization for the computation of variances (see Lumley, 2004). A second difference is that to take advantage of this data set's sampling method, all inferential analyses were conducted using the ANES 2008 Time Series Study's postelection weights designed to make the data set nationally representative of the White, Black, and Latino population of eligible voters.

Results

In this sample, we found no significant association between occupation and level of bias (see Table 4). That is, teachers held levels of implicit bias, explicit bias as operationalized using a feeling thermometer, and symbolic racism that were not statistically different from the levels of nonteachers. This result persisted through all five models. That is, this lack of relationship held despite controlling for demographic factors (Model 2), education (Model 3), political preference (Model 4), or all of these characteristics combined (Model 5).

Figure 2 displays the comparison between teachers and nonteachers derived from Model 5 in further detail. Both teachers ($M = 0.11$, 95% CI [.03, .20]) and nonteachers ($M = 0.10$, CI [.06, .13]) exhibit a statistically significant amount of implicit pro-White/anti-Black implicit bias (i.e., nonzero levels of bias, $ps < .05$). In addition, as mentioned previously, the regression analyses indicate that there is no significant difference in the model-predicted implicit bias levels between the groups ($p = .71$). Similarly, both teachers and nonteachers exhibit a significant, nonzero level of explicit bias on the thermometer ratings ($ps < .05$) and do not significantly differ from one another (teachers, $M = 8.28$, 95% CI [1.47, 15.10]; nonteachers, $M = 3.04$, 95% CI [1.38, 4.70], $p = .13$). Symbolic racism shows a similar pattern in that teachers ($M = 2.60$, 95% CI [2.28, 2.92]) are not significantly different from nonteachers ($M = 2.70$, 95% CI [2.59, 2.80], $p = .55$). Because the Symbolic Racism Scale ranges from 1 to 5, we could not test whether each group is statistically above neutral (i.e., 0).

Table 4
Standardized Regression Coefficients and Standard Errors for Study 2 Explicit and Implicit Bias Models

	Implicit Bias				
	(1)	(2)	(3)	(4)	(5)
Occupation: Teacher	-0.083 (0.149)	-0.109 (0.152)	0.070 (0.150)	-0.073 (0.148)	0.057 (0.152)
Age		0.099*** (0.031)			0.081** (0.031)
Sex: Male		-0.088 (0.059)			-0.094 (0.059)
Race: Black		-0.490*** (0.052)			-0.546*** (0.056)
Race: Other		-0.076 (0.102)			-0.043 (0.099)
Ethnicity: Latino		0.168** (0.078)			0.048 (0.081)
Education			-0.062*** (0.012)		-0.067*** (0.013)
Political identification				-0.073** (0.030)	-0.045 (0.030)
Constant	0.003 (0.030)	0.095** (0.047)	-0.209*** (0.049)	0.002 (0.030)	-0.120** (0.060)
Explicit Bias (Feeling Thermometer)					
	(1)	(2)	(3)	(4)	(5)
Occupation: Teacher	0.145 (0.186)	0.156 (0.180)	0.219 (0.186)	0.154 (0.182)	0.270 (0.179)
Age		0.138*** (0.025)			0.118*** (0.025)
Gender: Male		0.070 (0.053)			0.059 (0.053)
Race: Black		-0.856*** (0.062)			-0.892*** (0.066)
Race: Other		-0.038 (0.063)			0.002 (0.061)
Ethnicity: Latino		-0.184*** (0.055)			-0.265*** (0.061)
Education			-0.028*** (0.010)		-0.043*** (0.010)
Political identification				-0.116*** (0.027)	-0.072*** (0.026)
Constant	-0.005 (0.028)	0.083** (0.042)	-0.102*** (0.036)	-0.006 (0.028)	-0.056 (0.044)
Explicit Bias (Symbolic Racism)					
	(1)	(2)	(3)	(4)	(5)
Occupation: Teacher	-0.084 (0.170)	-0.093 (0.169)	0.073 (0.172)	-0.048 (0.176)	0.105 (0.175)
Age		0.067** (0.026)			0.022 (0.026)
Sex: Male		0.056 (0.055)			0.020 (0.051)
Race: Black		-0.707*** (0.057)			-0.730*** (0.056)
Race: Other		-0.256** (0.106)			-0.156 (0.096)
Ethnicity: Latino		-0.077 (0.072)			-0.207*** (0.071)
Education			-0.062*** (0.012)		-0.073*** (0.011)
Political identification				-0.282*** (0.028)	-0.245*** (0.027)
Constant	0.003 (0.028)	0.092** (0.044)	-0.214*** (0.055)	0.001 (0.027)	-0.144** (0.057)

Note. Numbers in parentheses are standard errors.
 ** $p < .05$. *** $p < .01$.

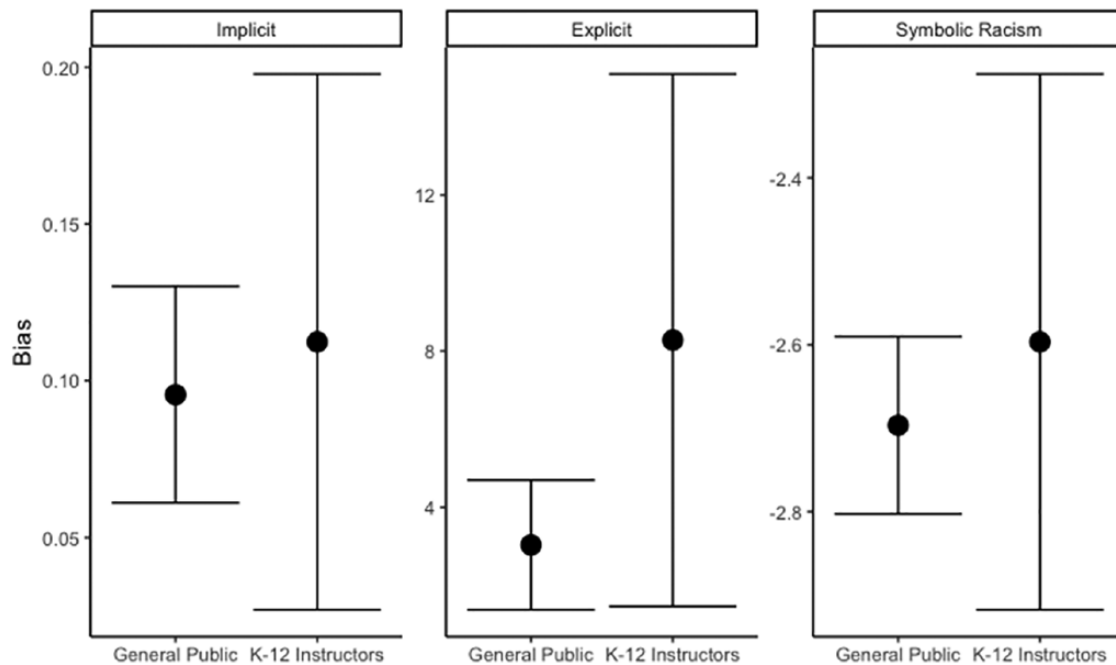


FIGURE 2. *Adjusted estimates of implicit bias, explicit bias, and racial symbolic racism for preK–12 teachers and nonteachers.*
Note. Error bars indicate 95% confidence intervals.

Put differently, 55.0% of teachers and 59.7% of nonteachers demonstrate some degree of pro-White/anti-Black implicit bias, as indicated by a raw score on the AMP above 0.³ With respect to explicit bias, 14.8% of teachers and 24.3% of nonteachers demonstrated some degree of pro-White/anti-Black explicit bias, as indicated by thermometer ratings above 0.

General Discussion

Many place hopes for a more inclusive society in schooling that brings Americans together across racial differences (e.g., see Banks et al., 2005; Souto-Manning & Martell, 2016). In this view, teachers, compared to other adults in society, are assumed to be especially effective purveyors of egalitarian attitudes and interracial harmony. In contrast, others highlight decades of continued racial inequality in schools, with teachers—particularly White teachers—playing a significant role in perpetuating racial inequality (e.g., see Gershenson et al., 2016). The current research shows that teachers’ racial attitudes largely reflect those held within their broader society. In this article, we use two complementary national data sets, one with a very large, nonrepresentative sample (Study 1) and one with a relatively small, nationally representative sample (Study 2). Across both data sets, we showed that on average, both teachers and nonteachers are subject to both implicit and explicit racial biases. Furthermore, teachers differ only a small or indistinguishable amount from nonteachers with respect to these outcomes. That is, Study 1 found a small difference between teachers’ bias and those of comparable members of the general population. The difference in percentage of teachers versus nonteachers who were subject to some degree of implicit or explicit bias was .1%. Given that the sample used in Study 1 was so large (i.e., over 1 million people), these differences were statistically significant. Study 2 found no

statistically significant differences between teachers and nonteachers on any of the measures of bias examined. Overall, these findings resonate with studies of social reproduction that suggest schools are best understood as microcosms of society rather than as antidotes to inequality (Bourdieu & Passeron, 1977; Bowles & Gintis, 1976).

In both studies, we developed a series of models that included various subsets of covariates to allow us to specify with whom we are comparing teachers. Our full models (Model 5 in both studies) are our most stringent comparisons in that they statistically adjust for many of the factors that might contribute to differences in levels of bias held by teacher versus nonteachers, such as teachers’ high education level, liberal leaning political orientations, and the fact that they are predominately women. However, it is important to note that across four out of the five bias measures, the substantive conclusions pertaining to teachers’ bias levels remain the same whether one considers the estimates adjusting for all of these factors (Model 5) or the estimates adjusting for none of them (Model 1). These findings indicate that teachers’ bias levels are comparable to those of the general population whether or not demographic factors among teachers that might in general be associated with less anti-Black bias are considered. Although in this article we have focused on describing the general population of teachers to approximate the amount of bias that students might encounter in their schooling globally, future work should explore bias levels for different subgroups of teachers separately.

Overall, this research suggests that one means of helping teachers and schools fully realize their potential when educating students from a variety of backgrounds may be providing systematic education and training to reduce racial bias. Although organizations offering racial bias trainings abound, there are surprisingly few empirically validated means of achieving sustained

reductions in implicit racial bias (Lai et al., 2016; Paluck & Green, 2009). A promising basic research effort showed that a 45-minute intervention that includes training in a variety of prejudice reduction techniques such as perspective-taking and imagining stereotype-disconfirming examples can reduce implicit bias levels over 2 months (Devine et al., 2012). When a version of this intervention that spoke to gender bias was implemented with faculty at a medical school, it did not affect faculty members' implicit bias but did influence the degree to which female faculty felt as if they belonged and were valued (Carnes et al., 2015). Given that racial bias in general is thought to reflect ongoing societal influences and inequities and implicit racial bias has been relatively slow to change at a societal level (Charlesworth & Banaji, 2019; Payne et al., 2017), reducing racial bias in a way that is efficient and resistant to broad social influences is a challenging goal. Continued research to discover prejudice reduction techniques that will work for teachers is much needed and will have important implications for promoting racial equity in schools.

It also may be beneficial to structure educational settings and interactions with students such that they mitigate potential effects of teacher bias on student outcomes (Warikoo et al., 2016). For example, given that implicit racial bias is more likely to shape perceptions and behavior when attention is overloaded or when perceivers are unable to self-regulate, unwilling to self-regulate, or do not recognize the benefit of self-regulation in a given situation (e.g., Cameron et al., 2012), efforts to alleviate such load or its effect on judgment are likely to be efficacious. Consistent with this supposition, various field-based interventions suggest that strategies that encourage teachers to pause and reconsider their decisions in critical moments can reduce racial disparities. For example, Cook et al. (2018) reported that an intervention pairing teacher trainings on classroom and behavior management with trainings on self-regulation and self-awareness was effective at reducing the odds of Black male students' disciplinary referrals and increasing these students' sense of connection to the school. Another intervention sought to reduce the degree to which implicit bias is associated with the foster care placement decisions of judges (Russell & Summers, 2013). Like teachers, judges must make quick decisions in a cognitively taxing environment. The researchers trained judges about implicit bias and then shared a concise set of laminated cards for them to refer to during deliberation. The cards reminded the judges of key questions to ask and ways to avoid bias. This effort reduced the number of foster care placements and increased the number of parent placements for children of all ethnic groups, suggesting that providing easy-to-follow equity rubrics may prove helpful in mitigating the impact of bias. A similar strategy may be employed when teachers are grading, making disciplinary decisions, or recommending students for special education and advanced placement. Overall, relatively small interventions such as those discussed here should be tested at larger a scale, with an eye toward how such strategies work in different situations and with school personnel subject to different types and levels of bias.

In conclusion, we have found that teachers' bias levels are quite similar to those of the larger population. These findings challenge the notion that teachers might be uniquely equipped to instill positive racial attitudes in children or bring about racial

justice, instead indicating that teachers need just as much support in contending with their biases as the population at large. Practitioners and policymakers should focus on addressing these biases to support schools in the challenges of equitably serving their diverse students.

NOTES

¹Stereotypes, or specific beliefs about different social groups (e.g., African Americans are funny), are outside the scope of this article.

²While our measures of bias are related to anti-Black/pro-White bias, we include teachers of all racial backgrounds. Previous research shows that Black Americans can hold in-group implicit bias, albeit not as frequently as Whites, and those biases can shape judgements, just as they do for Whites (Ashburn et al., 2003; Livingston, 2002).

³The calculation of these descriptive statistics was performed without the weighting variable used for inferential analyses in order to get a "true," unweighted count of participants above and below the neutral point.

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