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The affirmed (White) teacher in a cross-race context

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Abstract

Within psychology, efforts to address racial-ethnic disparities in students' academic outcomes have focused primarily on students themselves. But there is another important person in classrooms: the teacher. In the United States, most racial-ethnically minoritized students are taught by White teachers. Drawing on research on cross-race interactions, we argue that for White teachers—especially those new to the profession—this dynamic is likely to elicit psychological threat, which then undermines their relationships with students, their well-being, and their effectiveness as an instructor. We hypothesized that values affirmation, a technique to mitigate threat and stress, could improve these outcomes. We randomly assigned White public school teachers ($N = 109$) at schools serving predominantly minoritized students to complete a values affirmation exercise or a matched control exercise in the fall of their first year of teaching. Five months later, affirmed teachers reported greater well-being and better teacher–student relationships than their control counterparts, and their classrooms were rated as more rigorous and more supportive of students' academic growth by trained observers.

Keywords Cross-race interactions · Teacher stress and well-being · Psychological threat · Social-psychological intervention · Values affirmation · Teacher–student relationship

> "Not only do I look different than my little scholars, but I am often naive, and I fear insensitive, to the areas in which our cultural values and norms differ. I fear our small differences are creating an even greater barrier between us."
>
> -White first-year elementary school teacher (Anonymous, 2013)

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1 Introduction

Racial-ethnic disparities in academic outcomes in the United States are pervasive and persistent. On average, White students perform better academically than their Black, Latinx, and Native counterparts (hereafter, "minoritized"[1]) and are less likely to experience school discipline (de Brey et al., 2019; Pearman et al., 2019). These disparities emerge early and persist throughout students' schooling. Addressing this issue is pressing, as an increasing majority of primary and secondary public school students are now non-White (Hussar & Bailey, 2020).

Structural factors rooted in racism and oppression, such as housing segregation and approaches to school funding, contribute to these disparities (Carter & Welner, 2013). In addition, psychological factors—informed by this structural context—also play a role. So far, most research has focused on students' psychology. For example, minoritized students can experience stereotype threat in educational environments due to an awareness that, if they perform poorly, they could confirm negative stereotypes about their group's intellectual ability (Steele, 1997). The added burden of this awareness is stressful and can interfere with academic performance. Encouragingly, psychological interventions to mitigate minoritized students' feelings of threat can bolster their performance and well-being, reducing disparities (e.g., Cohen et al., 2009).

Growing attention is being paid to another key player in the classroom—the teacher—and how their psychology may also contribute to educational disparities (Turetsky et al., 2021). In general, teachers are stressed, burned out, and generally dissatisfied with their lives and jobs (Friedman, 2000; Kyriacou, 2001). A recent survey asked 5,000 K-12 teachers to describe their most frequent daily emotions; among the most common responses were *frustrated, tired, stressed, and overwhelmed* (Cipriano & Brackett, 2020).

To understand how teachers' psychology might contribute to racial-ethnic disparities in education, it is important to understand the racial-ethnic demographics of teachers and students in the United States. The vast majority of current public school teachers in the United States identify racial-ethnically as White (approximately 80%; Taie & Lewis, 2022). As the percentage of non-White students in public schools grows, these teachers increasingly find themselves teaching in cross-race contexts (Ladson-Billings, 2001). Even in schools where most students are from minoritized backgrounds (hereafter, "majority-minoritized schools"), 70% of teachers are White (Yeager et al., 2017). It is these teachers on which the present research focuses.

[1] We refer to Black, Latinx, and Native students as "minoritized" rather than "minorities" to highlight the socially constructed nature of the subordination of these groups in U.S. educational institutions (Harper, 2012, Footnote 1; see also Williams et al., 2020). Indeed, minoritized students represented a plurality of the students in the schools in the present study.

1.1 Cross-race interactions and the classroom consequences of psychological threat

A robust literature documents that people tend to appraise cross-race interactions as a threat and experience stress (Trawalter et al., 2009). This is especially true for those unaccustomed to such interactions, as is the case for many White people, including most White teachers when they enter the profession (Frankenberg, 2009; see also Delpit, 2006). Indeed, White teachers in majority-minoritized schools report significantly lower job satisfaction than those teaching in predominantly White schools (Renzulli et al., 2011). Thus, for first-year White teachers at majority-minoritized schools, the already high stress of being a new teacher may be compounded by psychological threat engendered by teaching across racial lines (Cohen et al., 1999).

If White first-year teachers in cross-race contexts chronically experience such psychological threat, what would the consequences be for them and their students? First, threat and stress can interfere with the formation of positive teacher–student relationships (Clunies-Ross et al., 2008), which are integral to student academic success (Roorda et al., 2011). For example, White teachers may be avoidant and distant with their minoritized students out of fear of appearing prejudiced (see Shelton & Richeson, 2006). Second, stress—when too severe or interpreted negatively—taxes executive function (Richeson & Trawalter, 2005) and impairs performance (Beilock, 2011). In one illustrative study, White people randomly assigned to teach a Black (versus White) learner were more anxious during the interaction and delivered lessons of poorer instructional quality (Jacoby-Senghor et al., 2016). Third, the challenge of giving feedback across racial lines can lead White evaluators to engage in the positive feedback bias, reducing rigor and depriving students of a critical resource for growth (Harber, 1998; Harber et al., 2010). Consistent with the idea that White teachers who are new to the profession may be particularly susceptible to reducing rigor in cross-race contexts, first-year White teachers tend to have lower expectations for Black students than Black teachers or even White teachers in their second year and beyond (Vinopal & Holt, 2019). Finally, feelings of threat often jeopardize a person's well-being (Steele, 1997). For teachers, this might manifest as greater burnout on the job, lower efficacy in the classroom, and a reduced sense of belonging at school.

1.2 Values affirmation

If psychological threat impedes the ability of new White teachers in majority-minoritized schools to sustain positive relationships with their students, to provide rigorous and effective instruction, and to maintain personal well-being, then alleviating threat may improve those outcomes (Steele, 1988). Values affirmation—a technique to provide people with the opportunity to reflect on their most important values, such as family, friendship, or religion—is one exercise that has been shown repeatedly to lessen feelings of threat stemming from a wide variety of sources (Cohen & Sherman, 2014). In standard values affirmation procedures, people identify their most important values from a list and then write about why those values are important to

them. Doing so bolsters a sense of personal adequacy or "self-integrity" by broadening their perceived sources of self-worth beyond the immediately threatening situation (Critcher & Dunning, 2015).

By alleviating threat, values affirmation can improve people's well-being and coping (Brady et al., 2016), enhance their problem-solving under stress (Creswell et al., 2013) and reduce the positive feedback bias (Harber et al., 2010; for a review, see Cohen & Sherman, 2014). Consistent with the aforementioned focus on students' psychology, most existing values affirmation studies have focused on students as the experiencers of threat. For example, studies have shown that minoritized students who complete values affirmation exercises often have greater subsequent achievement and belonging than their control counterparts (Brady et al., 2016; Cohen et al., 2009) and that the magnitude of these effects is larger in "high threat" contexts (Hanselman et al., 2014; Wu et al., 2021). To date, only one affirmation study has focused on teachers. A small pilot field study ($N=42$) found that affirmed teachers reported less anxiety, greater positive emotions, and more adaptive emotion regulation than their control counterparts, with effects lasting up to 2 weeks (Morgan & Atkin, 2016).

Although values affirmation exercises are brief (approximately 15 minutes) they can set in motion recursive processes, wherein initial benefits beget further benefits, yielding effects that last months or even years (Cohen et al., 2009; Walton & Wilson, 2018). The opportunity for small effects to compound is large in a relationship of mutually reciprocal influence such as the teacher–student relationship (Okonofua et al., 2016). In the case of students, affirmation benefits have been observed more than 7 years post-intervention (Goyer et al., 2017).

In the case of teachers, one can imagine how small initial effects might concatenate and persist over time. For example, a teacher who has just completed a values affirmation should be less encumbered by psychological threat. They may be less anxious and cognitively taxed and, thus, more effective at responding to classroom challenges. They may set higher expectations for students and provide critical feedback. They may, generally, act in ways that bolster instructional quality and encourage positive teacher–student relationships. Over time, students may come to trust the teacher more (cf. Cohen et al., 1999) and learn more. Seeing students respond positively, the teacher may feel greater affinity for them, believe more strongly in their ability to learn, and engage with them still further, in a cycle that increasingly manifests their potential (Cohen & Sherman, 2014; Purdie-Vaughns et al., 2009). In this way, a timely intervention can set in motion a process that yields lasting benefits.

1.3 The present study

The present study examined whether an affirmation delivered to White first-year teachers in majority-minoritized schools could improve their outcomes and the outcomes of their students. To include teachers from different grade levels, schools, and subject areas, we worked with Teach For America (TFA); an alternative teacher certification and training organization that regularly evaluates its first-year teachers using standardized rubrics. In the fall of their first year of teaching, teachers from

two sequential cohorts completed either a values affirmation exercise or an active control exercise, randomly assigned at the individual level.

We offered teachers these exercises shortly before the Thanksgiving or winter holiday breaks—a time in teachers' first year that has been identified as particularly stressful (Kinnunen & Leskinen, 1989). We did so based on the belief that this would offer the greatest chance of initiating a positive recursive process. If the affirmation boosted teachers' feelings of adequacy, even modestly, at this time of high stress toward the beginning of the school year (cf. Cook et al., 2012), it might help them take advantage of the subsequent break to improve their teaching, such as by reflecting on their practice, preparing lessons, or planning how to connect better with students. These actions could then lead to improved teacher–student interactions or lessons, setting the teacher and their class on a positive trajectory.

We expected that, if affirmation alleviated teachers' feelings of psychological threat, affirmed teachers would report better relationships with their students and that their students would be more engaged in their learning and more likely to make substantial academic progress. These outcomes measures were assessed directly by TFA. With the second cohort of teachers, we were able to conduct an additional survey designed by the research team, in order to assess additional outcomes. This enabled us to assess whether the affirmation reduced teachers' worries about racial dynamics of interactions at school and improved their well-being. Further, it enabled us to examine how affirmation might change their attributions for student challenges.

2 Method

2.1 Participants

Participants were teachers affiliated with the Teach For America (TFA) program. TFA is a non-profit organization that recruits college graduates to teach in under-resourced public schools in several regions of the United States. TFA selects, trains, and works to find the teachers in its program positions in partner school districts. Once hired by a school district, a teacher affiliated with TFA becomes a regular full-time, salaried employee of the district. When a person joins TFA, they commit to teaching for at least 2 years.

To maximize statistical power, we focused specifically on teachers who, as a group, we expected to be most likely to experience feelings of threat from teaching in a cross-race context: teachers in their first year of teaching who identified their racial-ethnic background as White. In each of 2 years, first-year teachers in the Oklahoma region of TFA were invited to participate. Teachers who (a) provided consent via an online survey, (b) started experimental materials, (c) and identified their racial-ethnic background as White, either to TFA or to the research team, are included in the present analyses. Although we originally intended to include only secondary teachers, we include all teachers who met the inclusion criteria regardless of grade level in order to maximize sample size. (As noted in the Supplemental Material, grade level does not moderate results.)

Table 1 Teacher and school characteristics by cohort

Teacher characteristics	Percent or mean (*SD*)	
	Cohort 1 $N=74$	Cohort 2 $N=35$
Demographics		
% White	100%	100%
% Female	69%	69%
Teacher grade level		
% Elementary	50%	54%
% Middle School	31%	32%
% High School	19%	14%
Teacher content area		
% English/Language Arts	19%	12%
% Math	16%	17%
% Science	12%	14%
% Social Studies	3%	3%
% Multi-Subject	50%	54%
School characteristics (average by teacher)	Cohort 1	Cohort 2
% Students: Minoritized (Black, Latinx, Native)	80% (12%)	79% (11%)
% Students: Free or Reduced Price Lunch	94% (5%)	93% (5%)
% Students: English Language Learners	28% (18%)	27% (21%)
Performance Rating (on 100 scale; higher numbers indicate better performance)	55 (13)	52 (11)

Note. Data from four schools are omitted because reliable information about the variables of interest could not be obtained. The omitted schools include one middle school and one high school that closed within a year of the study's conclusion and two early childhood centers

One hundred nine teachers met the inclusion criteria ($n_{control}=53$, $n_{affirmation}=56$). Of these, 69% were female. About half (51%) taught in elementary schools or early childhood programs, and half (49%) taught in secondary schools. All taught in low-income, majority-minoritized schools; the percentage of minoritized students in participating teachers' schools ranged from 51.8 to 95.9%. On average, the racial-ethnic composition of students in teachers' schools was 1.3% Asian or Asian American, 31.5% Black or African American, 42.6% Latinx or Hispanic, 4.7% Native or Indigenous, 15.2% White, and 4.4% multiracial. Across schools, the percentage of students eligible for free or reduced price lunch, a proxy for low-income status, was 94%; it ranged from 83.2 to 100%. Teacher and school characteristics were similar across the two cohorts. See Table 1.

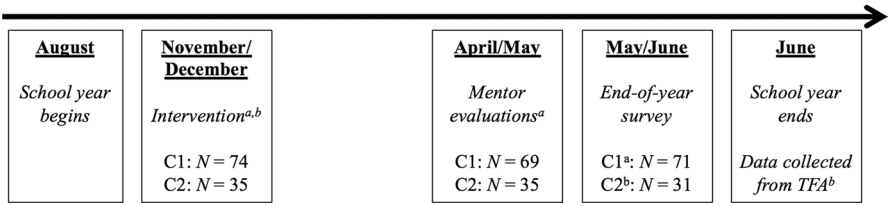

Fig. 1 Study Timeline During Participants' First Year of Teaching. *Note.* C, Cohort; TFA, Teach For America, a non-profit teacher recruitment and training organization with which participating teachers were affiliated. [a]Administered by TFA. [b]Administered by the research team

2.2 Procedure

Figure 1 depicts the study timeline. As discussed below, the intervention occurred in late fall of teachers' first year of teaching and data collection occurred in late spring of that same academic year.

2.2.1 Consent

In October (Cohort 1) or November (Cohort 2) of their first year of teaching, teachers received an email from the research team inviting them to participate in a study concerning "first year teacher experiences." Interested teachers were directed to an online consent form. Teachers who did not complete the consent form at this time but who subsequently completed the experimental manipulation were given another opportunity to consent at the end of their first or second year of teaching. As part of the consent form, teachers agreed to allow TFA to share data with the research team.

2.2.2 Intervention

A few weeks after the study invitation and collection of consent, teachers received an ostensibly unrelated email from a TFA staff member. The email explained that TFA was partnering with outside consultants to learn more about how teachers think about values and requested that teachers complete a brief reflection about their values. Teachers were directed via a link in the email to an online survey. This constituted the experimental values affirmation intervention, described below. TFA staff members were blind to condition assignments and specific hypotheses.

Although the values reflection was presented as coming from TFA and thus connected to participants' identities as teachers, it was structured to encourage teachers to write about values *unrelated* to school. Writing about values unrelated to the domain of threat is theorized to help the affirmation broaden the self beyond the domain of threat (Cohen & Sherman, 2014).

2.2.3 Mentor evaluations

Over the course of the year, each teacher was mentored by one of 16 trained "managers of teacher learning and development" (hereafter, "mentors") who were full-time employees of TFA. This mentor observed the teacher's classroom and provided instructional coaching. Additionally, the mentor rated the teacher's classroom on several dimensions using a standardized rubric; these were TFA's de facto measures of teacher quality. All of the mentors received the same extensive training on how to reliably conduct classroom observations and use the rubric. Throughout the year, the mentors met with one another to ensure that the rubric was applied consistently across classrooms. For each participant, we obtained their mentor's end-of-year ratings of student engagement with rigorous content and student academic growth, assessed in April or May. All mentors except one were blind to the study hypotheses and all were blind to teachers' condition assignments.

2.2.4 End-of-year survey

For Cohort 1, TFA administered a survey to the teachers at the end of their first year of teaching. The survey included questions about teachers' relationships with their students as well as other measures of interest to TFA.

For Cohort 2, we were able to administer our own, more extensive survey at the end of participants' first year of teaching. The survey assessed teachers' relationships with their students, their well-being, and other aspects of their teaching experience. Teachers received a $10 gift card for completing this survey.

2.3 Experimental materials: values affirmation intervention

Participants completed standard values affirmation or control materials (see Supplemental Material). In the affirmation condition, teachers identified 2–3 values *most* important to them from a list of 12 values (e.g., relationships with friends and family, sense of humor, creativity) and then wrote about why those values were important to them. In the control condition, teachers were presented with the same list of 12 values. They identified 2–3 values *least* important to them and wrote about why those values might be important to someone else other than a student.

For Cohort 1, both affirmation and control teachers were offered a second opportunity to reflect on values approximately 4 months after the intervention (see Figure S1). These "booster" exercises retained teachers' original condition assignments: affirmation teachers again wrote about their own values and control teachers again wrote about other people's values. Participation in the booster was high and did not vary by condition (83% in each condition). Due to power limitations and the fact that completion of the booster was not randomized, we do not separately analyze the effects of the booster. We provide examples of affirmation and control responses in the Supplemental Material.

2.4 Measures

2.4.1 Positive relationships with students

Our key self-report measure was the quality of teachers' relationships with their students. The outcome was assessed by TFA for Cohort 1 and by the research team for Cohort 2.[2] For Cohort 1, the measure consisted of two items (2 items: "I am successful at building relationships with students" and "I am successful at creating a classroom culture and environment where all students feel safe, valued, welcomed, and comfortable taking risks"; scale: 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = 0.92$). For Cohort 2, the measure consisted of four items (4 items: "I have a good relationship with my students," "I feel comfortable interacting with my students," "My students have a positive opinion of me," and "My students respect me"; scale: 1 = *not at all true for me*, 5 = *extremely true for me*; $\alpha = 0.90$). The resulting composite for each cohort was standardized to equate their means and variances, and the data were combined across cohorts.

2.4.2 Mentor-evaluated outcomes

We focused on two outcomes, student engagement with rigorous content and student academic growth, which we would expect to be affected by teachers' level of psychological threat (e.g., Harber et al., 2010; Jacoby-Senghor et al., 2016). As noted above, mentor teachers evaluated these outcomes using standardized rubrics developed by TFA.

Mentor teachers rated students' engagement with rigorous content using a five-point scale informed by Bloom's classic taxonomy (Bloom et al., 1971) of the complexity of student learning objectives (*To what extent are students engaging deeply with content and skills needed for success in this course & beyond? Students' academic engagement in the classroom is primarily:* 1 = *no academic activities are occurring*, 2 = *academic activities are passive or confusing*, 3 = *academic work requires memorization or recall,* 4 = *academic work requires analysis or explanation*, 5 = *academic work requires evaluation or synthesis*).

Mentor teachers also rated the extent to which the classrooms were likely to foster students' academic growth using a five-point scale (*This year students in this class are likely to make*: 1 = *no or limited academic growth*, 2 = *typical academic growth*, 3 = *more than typical academic growth*, 4 = *dramatic academic growth*, 5 = *dramatic and likely enduring academic growth*).

[2] Between Cohorts 1 and 2, TFA revised their end-of-year assessment, omitting the teacher–student relationship items. Unaware of this, we included our own teacher–student relationship measure in our survey for Cohort 2. This measure, originally intended to be supplemental, became the primary assessment of teacher–student relationships for Cohort 2.

2.4.3 Additional outcomes in Cohort 2

Stereotype worries. In order to explore whether the affirmation specifically reduced worries related to cross-race interactions, teachers in Cohort 2 completed a measure of stereotype worries developed by the research team. The measure assessed the extent to which teachers felt concerned about appearing prejudiced or that their students would negatively evaluate them based on their race (4 items, e.g., "At school, I worry about making race-, class-, or culture-based missteps", scale: 1 = *not at all true for me,* 5 = *extremely true for me*, $\alpha = 0.80$).

Teacher well-being. In the spring, approximately five and a half months after the affirmation intervention, teachers in Cohort 2 were asked to complete five scales assessing various aspects of their general and school-related well-being, all assessed on 5- or 7-point scales. These included belonging (3 items adapted from Walton & Cohen, 2007; e.g., "I feel like I belong at my school", $\alpha = 0.76$), belonging uncertainty (2 items adapted from Walton & Cohen, 2007, e.g. "When something bad happens, I feel that maybe I don't belong at my school; $\alpha = 0.77$), perceived stress (4 items adapted from Cohen et al., 1983; e.g., "In the last month, how often have you felt that you were unable to control the important things in your classroom?"; $\alpha = 0.92$), burnout (7 face-valid items developed by the research team based on Maslach et al.'s (2001) model of occupational burnout; e.g. "Sometimes I dread going to school in the morning", $\alpha = 0.84$), and self-integrity (3 items, adapted from Sherman et al., 2009; e.g., "I have the ability and skills to deal with whatever comes my way", $\alpha = 0.82$). These scales were correlated with each other, $0.32 < rs < 0.78$ (see Table S4) and all loaded on the same factor in a principal component analysis. To create a single composite measure of teacher well-being, we reverse-scored the belonging uncertainty, burnout, and perceived stress scales, standardized the scores from all five scales, and then averaged them ($\alpha = 0.82$). See Supplemental Material, including Table S3, for more information about these scales.

Teachers' perceptions of students. In order to explore how the affirmation might change teachers' perceptions of their students, we asked them to respond to two scenarios about challenging interactions with students and to make attributions for those challenges. In particular, we were interested in whether teachers saw student difficulties as global (i.e., likely to affect several domains of the student's life) and as stable (i.e., likely to persist across time). The teacher was asked to imagine that they were the teacher in the situation. One scenario involved a student cheating in class and the other involved a student underperforming academically. To assess how global teachers thought the behaviors would be teachers indicated how likely it would be for the students to act this way (a) in other classes, (b) in domains outside of school. To assess how stable teachers thought these behaviors would be, teachers indicated on a 5-point scale how likely it would be for the students to act this way (c) 1 month from now, (d) 1 year from now, and (e) 5 years from now (1 = *not at all likely*, 5 = *very likely*).

3 Results

3.1 Analytic approach

Participating teachers ($N = 109$) were nested within cohorts ($N = 2$), within schools ($N = 57$), and within mentor teachers ($N = 16$). To account for this nesting, we controlled for cohort in analyses that included data from both cohorts. (Of note, none of the effects of affirmation were moderated by cohort, $ps > 0.18$.) In analyses of student–teacher relationships and teacher well-being, we included school as a random effect. The sample analytic model below illustrates this, where we estimate self-reported relationships for teacher i in school j, with $\text{condition}_{\text{Aff}}$ as an indicator for affirmation condition (coded 1 = affirmation, else = 0) and a coefficient for cohort.

$$\text{Relationships}_i \sim N(\alpha_{j[i]} + \beta_1\left(\text{condition}_{\text{Aff}}\right) + \beta_2(\text{cohort}), \sigma^2)$$

$$\alpha_j \sim N(\mu_{\alpha j}, \sigma^2_{\alpha j}), \text{ for school } j = 1 \ldots j$$

In analyses of student growth and rigor, we included mentor (instead of school) as a random effect to account for shared variance among teachers with the same mentor. Of note, also including school as a random effect did not improve model fit, so we did not include it.

In the models reported below, outcome variables were standardized so that beta values can be interpreted as effect sizes (Acock, 2014). Condition was coded such that the coefficient can be interpreted as the effect of affirmation. We used the R package lme4 to implement mixed-effects models (Bates et al., 2015). To calculate p-values, we used the R package lmerTest, which uses a Satterthwaite approximation test to estimate the degrees of freedom (Kuznetsova et al., 2017). Degrees of freedom vary because of the multi-level nature of the data and because the availability of data varied by outcome.

That said, there was very low attrition across time. For the primary outcomes, we obtained data for more than 93% of teachers (see Table 1). For each of the outcomes assessed only in Cohort 2, we obtained data from at least 83% of Cohort 2 participants. For no outcome did the availability of data differ by condition (see Supplemental Material).

3.2 Preliminary analyses

There were no baseline differences by condition in teacher characteristics (i.e., gender, grade level) or school characteristics (e.g., % minoritized students, performance rating). For more information, see Table S2 of the Supplemental Material.

Table 2 provides overall descriptive statistics for the dependent measures and the corresponding zero-order correlations. Table 3 provides these descriptive statistics by condition. For correlations among individual well-being scales, see Table S3 of the Supplemental Material.

Table 2 Descriptive statistics and zero-order correlations for dependent measures

Measure	*N* (109 total)	*M* (*SD*)	1	2	3	4	5	6
Teacher self-report outcomes								
1. Positive relationships with students[a]	102	0.00 (1.00)	–					
2. Stereotype worries	29	2.56 (0.91)	-.63***	–				
3. Well-being (standardized)	31	0.00 (0.79)	.75***	-.70***	–			
4. Teacher attributions: Globality	29	3.12 (0.61)	-.02	-.13	.08	–		
5. Teacher attributions: Stability	29	2.43 (0.60)	-.40*	.14	-.37†	.58***	–	
Mentor-evaluated outcomes								
6. Student engagement with rigorous content[a]	104	3.13 (0.65)	.26**	-.29	.46**	.02	-.01	–
7. Student academic growth[a]	104	2.37 (0.80)	.31**	-.20	.48**	-.15	-.12	.65***

Note. The positive relationships with students measure was standardized by cohort. Individual scales that comprise the well-being measure were standardized before the composite was created

[a]Primary outcome assessed in both cohorts

$^{\dagger}p < .10$, $*p < .05$, $**p < .01$, $***p < .001$

Table 3 Descriptive statistics for dependent measures by condition

Teacher self-report outcomes	Affirmation			Control		
	N	*M*	*SD*	*N*	*M*	*SD*
1. Positive relationships with students[a]	50	0.23	0.67	52	-0.22	1.19
2. Stereotype worries	15	2.27	0.86	14	2.88	0.88
3A. Well-being: Perceived stress	16	2.39	0.75	15	2.73	0.92
3B. Well-being: Burnout	16	2.79	0.53	15	3.28	0.97
3C. Well-being: Self-integrity	16	6.25	0.45	15	5.58	0.87
3D. Well-being: Belonging	16	5.56	1.16	15	4.47	1.31
3E. Well-being: Belonging uncertainty	16	3.88	1.61	15	4.97	1.25
4. Teacher attributions: Globality	14	3.02	0.54	15	3.22	0.67
5. Teacher attributions: Stability	14	2.17	0.43	15	2.67	0.64
Mentor-evaluated outcomes	Affirmation			Control		
	N	*M*	*SD*	*N*	*M*	*SD*
6. Student engagement with rigorous content[a]	55	3.22	0.57	49	3.04	0.73
7. Student academic growth[a]	55	2.49	0.77	49	2.22	0.82

Note. The positive relationships with students measure was standardized by cohort

[a]Primary outcome assessed in both cohorts

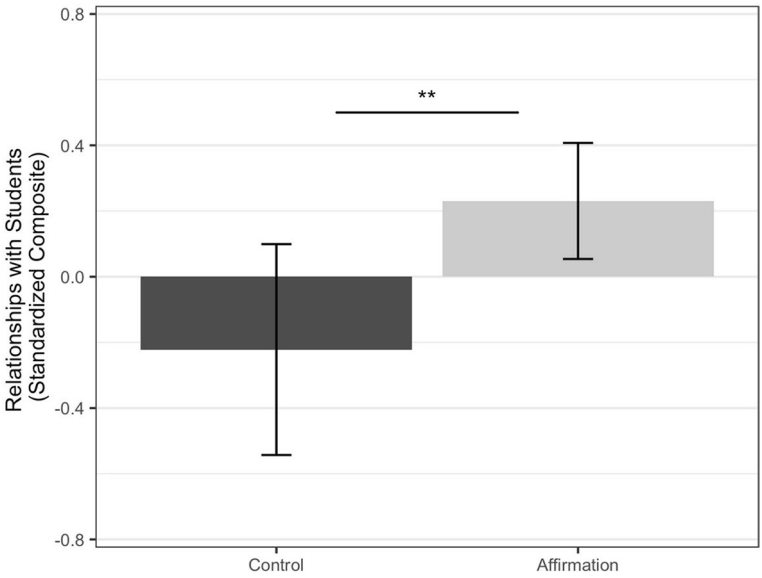

Fig. 2 Effect of Affirmation on Positive Relationships with Students. *Note.* Error bars represent 95% confidence intervals. *$p < .05$, **$p < .01$

3.3 Primary analyses

As expected, affirmed teachers reported significantly better relationships with their students than control teachers, $\beta = 0.49$, $t(89.31) = 2.66$, $p = .01$. See Fig. 2.

Moreover, benefits of the affirmation manifested in classroom interactions: Mentors rated students in the classrooms of affirmed teachers as more engaged with rigorous content than their peers in the classrooms of control teachers; $\beta = 0.36$, $t(94.39) = 1.96$, $p = .05$. Mentors also rated student academic growth to be greater in the classrooms of affirmed teachers than in the classrooms of control teachers; $\beta = 0.43$, $t(92.59) = 2.32$, $p = .02$. See Fig. 3.

3.4 Additional analyses (Cohort 2 only)

There was a marginal effect such that affirmed teachers expressed less concern than control teachers about appearing prejudiced or being stereotyped at school, $\beta = -0.61$, $t(27) = .1.88$, $p = .07$. Although this effect was directionally consistent with our predictions, it was not statistically reliable. See Fig. 4.

Affirmed teachers reported significantly higher overall well-being at the end of their first year than did their control counterparts; $\beta = 0.88$, $t(28) = 2.68$, $p = .01$. See Fig. 4. On an exploratory basis, we examined the effect of condition on the individual well-being scales. Compared with control teachers, affirmed teachers reported greater self-integrity, $\beta = 0.95$, $t(27.69) = 2.94$, CI = [0.27, 1.52], $p = .007$,

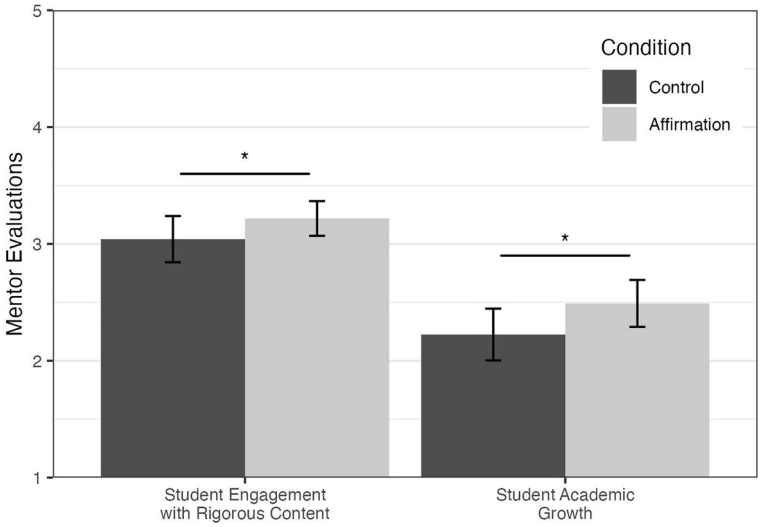

Fig. 3 Effect of Affirmation on Mentor-Evaluated Outcomes. *Note*. Higher numbers indicate greater student engagement with rigorous content and greater student academic growth. Error bars represent 95% confidence intervals. $^{*}p < .05$

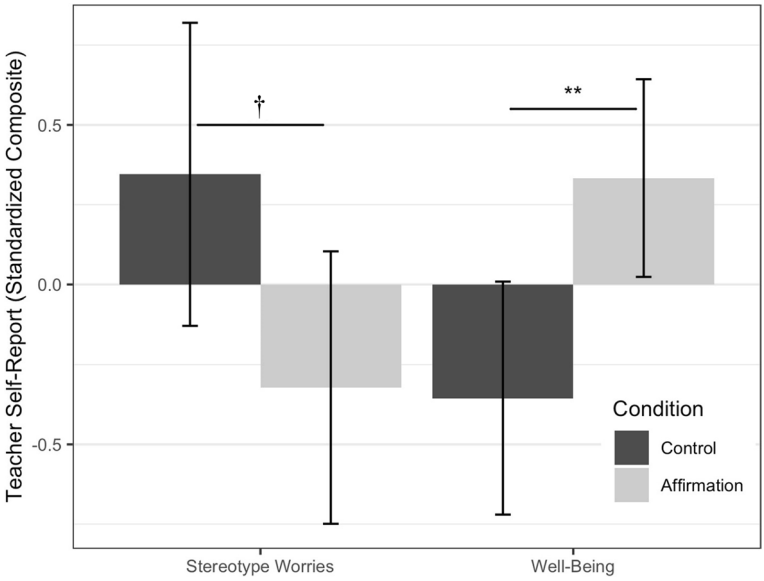

Fig. 4 Effect of Affirmation on Teachers' Stereotype Worries and Well-Being (Cohort 2 Only). *Note.* Error bars represent 95% confidence intervals. $^{\dagger}p < .10$, $^{**}p < .01$

and greater belonging at school, $\beta = 0.84$, ($t28.3$) = 2.53, CI = [0.17, 1.47], $p = .02$. They also reported less belonging uncertainty at school, $\beta = -0.72$, ($t29$) = -2.10, CI = [-1.38, -0.05], $p = .04$. Although not statistically significant, affirmed teachers

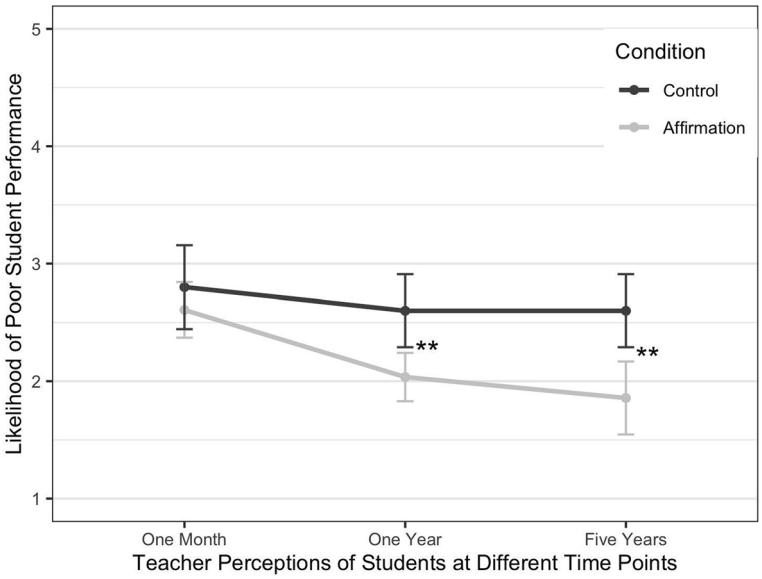

Fig. 5 Teacher Attributions for Student Difficulties: Likelihood of Poor Performance in the Future (Cohort 2 Only). *Note.* Scale: 1 = *not at all likely*, 5 = *very likely*. Error bars represent 95% confidence intervals. $^{**}p < .01$

reported directionally lower stress, β = -0.41, $t(29) = -1.14$, CI = [-1.11, 0.29], $p = .26$, and lower burnout than control teachers, β = 0.61, ($t29$) = -1.76, CI = [-1.29, 0.07], $p = .09$.

Regarding teachers' attributions for student difficulties, we found no difference by condition in teachers' assessments of globality, β = -0.38, $t(22.02) = -1.05$, $p = .31$. However, teachers did differ in their assessments of stability, collapsed across the three time points (in 1 month, in 1 year, in 5 years), β = -0.86, $t(25.49) = -2.54$, $p = .02$. Figure 5 disaggregates the three time points to show that although there was not a statistically reliable difference between control and affirmation teachers' attributions about students' behavior 1 month in the future, there were reliable differences by condition in their attributions about students' behavior 1 year and 5 years in the future. Affirmed teachers were less likely than their control counterparts to expect that a student experiencing challenges today would still experience challenges a year or more in the future.

4 Discussion

White teachers at majority-minoritized schools who completed a values affirmation toward the beginning of their first year of teaching reported better relationships with students and greater well-being at the end of the year than those who did not. Moreover, affirmation visibly improved their students' educational experiences. More than 5 months post-intervention, trained observers witnessed greater engagement

with rigorous content and greater academic growth from the students of affirmed (vs. control) teachers.

How did affirmation trigger this long-term change? Psychological threat, on the teacher's part, can induce chronic stress and undermine positive relationships with students and teaching quality through at least three different mechanisms. First, chronic stress can impede teacher's performance by undermining well-being and depleting working memory. Second, chronic stress may put teachers on the defensive, limiting their ability to interact constructively and empathically with students. Third, stress may "leak out" and be interpreted by students as evidence of bias, diminishing their engagement and growth (Yeager et al., 2017). Positive changes to any of these mechanisms, even if initially modest in magnitude, could concatenate over time in the classroom ecosystem, yielding meaningful benefits for the teacher and their students. Though further research in a larger sample is needed to test mediation, we find evidence consistent with the first two mechanisms. Teachers experienced less burnout and felt more confident in their belonging when affirmed and, ultimately, they fostered more educational classrooms. They also made sense of student difficulty differently. Compared to control teachers, they were more optimistic about the futures of students who were struggling in the present. Research could profitably examine the third mechanism by assessing students' perceptions of their teachers. Relatedly, the strong correlation between teachers' self-reported race-related worries and their positive relationships with students, as well as the marginal effect of affirmation on these worries, begs further investigation into White teachers' racial anxieties.

4.1 Contributions

This research extends past work in three key ways. First, it shows the promise for brief, interventions (Walton & Wilson, 2018) which target specific social-psychological processes to improve teachers' performance and well-being (see also Okonofua et al., 2016, 2022). As noted earlier, only a single previous study has examined values affirmation among teachers (Morgan & Atkin, 2016). The present study more than doubles the sample size of the previous one, measures outcomes for 4 months longer, assesses behavioral outcomes, and hypothesizes a specific psychological process (psychological threat engendered by cross-race interactions) that may make some teachers more sensitive to the benefits of affirmation.

Second, we demonstrate the consequences of teacher psychology for student experience. Absent intervention, new White teachers' experiences of psychological threat undermined their own outcomes and those of their students. Yet these feelings of threat are amenable to intervention. When psychological threat is tamped down, such as by affirmation, new White teachers in majority-minoritized schools are more effective in interacting with and educating their students.

Finally, and relatedly, we highlight the opportunity for affirmation to have second-order effects, improving the outcomes not only of the original person who was affirmed but also those in their social sphere (Lewin, 1943; Powers et al., 2016). By intervening with a single "gatekeeper" teacher, there is the potential

to improve outcomes for twenty, forty, or even hundreds of students. An important question for future research will be whether the benefits of affirming teachers carry forward over years for teachers themselves or their students.

4.2 Limitations

Compared to studies that focus on students, studies that focus on teachers necessarily have a smaller population from which to recruit participants. We anticipated this challenge and, therefore, sought to maximize statistical power by attending to features of the study design beyond sample size. In particular, we focused on teachers we most expected to show our theorized effects: White first-year teachers at majority-minoritized schools. To simplify logistics (which might reduce error variance) and to recruit a sample where we would be able to generalize our findings across grade levels on a behavioral measure, we partnered with TFA to administer the study. While reasonable, these study design decisions led to three main limitations.

As expected, one limitation of concerns the size of the sample. We were able to collect outcome data from approximately 100 White teachers for our core outcomes, but from only about 30 for the additional outcomes in the second year of the study. As such, these effects should be treated with caution. Encouragingly, however, they are consistent with other findings from the broader affirmation literature (Cohen & Sherman, 2014).

A second limitation concerns the nature of the sample: they are not representative of teachers overall, nor of first-year White teachers. As such, it remains unclear how broad or narrow the benefits of affirmation for teachers might be. Is affirmation of unique value to White teachers (as opposed to non-White teachers), to first-year teachers (as opposed to more veteran teachers), and/or in cross-race contexts (as opposed to situations when the teacher shares the racial-ethnic identity of most of their students)? To what extent would the effects observed here generalize to samples of new White teachers trained through traditional teacher education programs (cf. Matsko et al., 2022) rather than through TFA? Future research with a broader sample of teachers who vary on key dimensions such as race, years of teaching experience, prior experience in cross-race contexts, and demographic composition of their classroom could directly test the contingencies of when values affirmation or other efforts to reduce stress will improve the outcomes of teachers and their students.

A third limitation is that none of our outcomes were assessed at the level of individual students. For example, it would be valuable to have both teacher and student ratings of the quality of the teacher–student relationship and to have student grades or test scores. However, the collection of such data was beyond the scope and capacity of the present study. Where possible, future research should test second-order effects directly. Doing so may illuminate whether student-level benefits of affirming teachers are uniform across students or concentrated among certain groups of students.

4.3 Implications for practice

Collectively, our findings underscore that we can improve classroom experience for both teachers and students by understanding and addressing teachers' psychology (cf. Turetsky et al., 2021). Because most minoritized students in the United States are currently taught by White teachers, White teachers' psychology is a key target for interventions aimed at educational equity. Although the present study used a values affirmation exercise to alleviate feelings of threat for White teachers, it is not the only way to do so. For example, past research has shown that White teachers give more critical feedback to Black students when they feel supported by administrators (Harber et al., 2010). Additionally, culturally responsive teaching involves becoming familiar with the prior knowledge and experiences of ethnically diverse students and then using that information to enhance teaching and learning (Gay, 2010; see also Ladson-Billings, 2001). Training and supporting teachers in culturally responsive teaching would presumably lower new White teachers' anxiety about teaching in cross-race contexts and improve their well-being and instruction.

5 Conclusion

Teachers are stewards of a diverse society. They have the capacity to create classrooms that either alienate or welcome students from a wide range of backgrounds, with long-range consequences for children's success later in life (Chetty et al., 2014). But cross-race contexts are challenging to navigate because of our collective awareness of and vulnerability to history and stereotypes. The present study contends that many White teachers at majority-minoritized schools experience feelings of threat at work that undermine their effectiveness as educators and their well-being. Consistent with this, the study shows that providing opportunities for these teachers to affirm their sense of self may be one way to alleviate threat and improve those outcomes. Ultimately, better understanding teachers' psychology can put classroom interactions, and students' lives, on a better trajectory.

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Author contributions STB and GLC developed the study concept and design. STB implemented the study and collected the data. CMG conducted primary analyses, with support from STB and GLC. STB drafted the manuscript, and CMG and GLC provided critical revisions.

Materials and data availability Study materials are available on OSF: [https://osf.io/jg5tw]. Due to the sensitive nature of the data, they are available upon request from the first author.

Declarations

Conflict of interest We have no known conflicts of interest to disclose.

Ethics The Institutional Review Board at Stanford University approved the study procedures. Participating teachers provided active consent.

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