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Supporting Online Material for

Reducing the Racial Achievement Gap: A Social-Psychological Intervention

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Supporting Online Material

Materials and Methods

Subjects

Participants were recruited for the project via permission slips sent to students' parents through the mail and/or distributed in the classroom. The permission slips allowed parents to indicate whether they accepted or declined their child's participation in the study; acceptance included granting the researchers access to their child's official school grades. Of the total students enrolled in the course, approximately 64% returned their permission slips in each year of the project. The participants were primarily regular education students, as we did not have access to the majority of special education students. Of those students returning permission slips, approximately 80% provided consent each year. Of these, 4 students in Experiment 1 and 34 students in Experiment 2 were excluded due to their not having completed the intervention materials. This occurred for the following reasons: absence at the time the intervention was administered (Experiment 1, n = 3; Experiment 2, n = 5), students enrolled in a classroom not participating in the study (Experiment 2, n = 27), missing data (Experiment 1, n = 1), and experimenter error (i.e., students received both treatment and control exercises; Experiment 2, n = 2).

The final sample in Experiment 1 consisted of 133 students (60 males, 73 females). Of these, 38% were African American, 46% European American, 11% Hispanic or Latino American, and 5% Asian American. The final sample in Experiment 2 consisted of 149 students (76 males, 73 females). Of these, 46% were African American, 42% European American, 6% Hispanic or Latino American, 4% Asian American, and 1% "other."

Due to the small sample sizes available for use in analyses of the other racial/ethnic groups at this school site, our examination of treatment effects focused on African American students (Experiment 1, n = 17 males, 33 females; Experiment 2, n = 34 males, 35 females) and on European American students (Experiment 1, n = 32 males, 29 females; Experiment 2, n = 36 males, 27 females). However, if Latino American students—who also experience stereotype-based threat in academic contexts (*S1*)—and African American students are combined into a "negatively stereotyped" group, and Asian Americans are grouped with European Americans into a "non-negatively-stereotyped" group, analyses of course performance using this new bimodal category yields virtually identical results to those found when comparing African American students and European American students.

Experimental tasks

Each envelope was marked with the name of the student to whom it was to be distributed. All teachers were provided with an identical script and procedure to follow in introducing and distributing the envelopes containing the exercise (e.g., "In class today, you're going to be doing a writing assignment for me"), and specific answers to

questions students might raise. In each of the two experiments, students were distributed roughly randomly across the three participating teachers and each teacher's five classroom periods.

Teachers were kept blind to students' assignment to condition through a number of steps. Among these was the distribution of the treatment and control exercises in closed envelopes. Only students opened the envelopes and, upon completion of the exercise, they placed it back into the envelope and sealed it. Additionally, identical envelopes containing the exercises were distributed to all students in each teacher's class. Moreover, the exercises provided students with self-explanatory instructions, requiring virtually no guidance from teachers. Teachers were also instructed to remain at their desk while students independently and silently completed the exercise. We further minimized any potential teacher contamination effects by withholding from the teachers critical information about the nature of the exercises (i.e., which exercise constituted the treatment and which the control), the hypothesized impact of the exercises, and the differences in content between the exercises. Additionally, the visual appearance of the treatment and control exercises was virtually identical in format and structure. The visual similarity of the two exercises was heightened by the fact that the differences in their content lay in relatively small but conceptually important details.

The written instructions used to guide students through the exercises had previously been thoroughly tested to ensure that they were intelligible, age-appropriate, and self-explanatory. Both affirmation and control exercises followed procedures similar to those developed and validated in prior research (*S2, S3*). In both conditions, subjects were presented with a short three-page packet. The written instructions informed all subjects that they would be providing written responses to questions about "your ideas, your beliefs, and your life." The instructions further emphasized that while answering the various questions in the exercise, they should bear in mind that, "there are no right or wrong answers." The same set of values were listed on the cover page of the packet in both conditions: *athletic ability, being good at art, being smart or getting good grades, creativity, independence, living in the moment, membership in a social group (such as your community, racial group, or school club), music, politics, relationships with friends or family, religious values,* and *sense of humor.*

In the first intervention in Experiment 2, the exercise excluded the value *being smart or getting good grades* in order to provide a more difficult test of the hypothesis. We maintain that if people are concerned with protecting a sense of *global* self-integrity, the impact of the intervention should be evident even if they do not have the opportunity to self affirm in the domain of threat (in the present case, academics). This expectation is consistent with previous research showing there is fungibility in the sources of self-integrity, such that bolstering the security of one's identity in one domain increases one's ability to endure threats in another, very different domain (*S4, S5*).

Subjects in each condition were asked to read the list of values and to think about each one. In Experiment 1, subjects in both conditions were asked to mark the value "that is most important to you" with an "M" and the value "that is least important to you" with an

"L." In Experiment 2, the task was simplified by directing subjects in the treatment condition to circle their two or three *most* important values and by directing subjects in the control condition to circle their two or three *least* important values. For both experiments, students in each condition were informed that although several of the values might be important/not important to them, they should select only the requested number of values.

The next page of the packet directed subjects in the affirmation condition to "look at the value[s] you picked as most important to you," and to think about times when "this value" (Experiment 1) or "these values" (Experiment 2) were "important to you." They were then instructed to describe "in a few sentences" why the selected value/s were important to them. To reduce any evaluation apprehension that might otherwise be evoked, the following statement was included: "Focus on your thoughts and feelings, and don't worry about spelling, grammar, or how well written it is." The instructions were virtually identical for subjects in the control condition, with the exception that the wording was altered to instruct students to think about times when their *least important* value/s might be important to *someone else*, and to describe why the value/s might be important to someone else (*S2, S3*).

The manipulation was reinforced on the final page of the packet. This was accomplished by asking students in the affirmation condition to list the top two reasons why the value/s they had selected were important to them and by asking students in the control condition to list the top two reasons why *someone else* would view the chosen value/s as important. Finally, to further increase the potential impact of the manipulation, subjects were asked to indicate their level of agreement with four easy-to-agree-with statements concerning the selected value/s. In the affirmation condition these were, "This value has [these values have] influenced my life"; "In general, I try to live up to this value [these values]"; "This value is [These values are] an important part of who I am"; "I care about this value [these values]." The questions in the control condition, although similar, focused on other people (e.g., "These values have influenced some people"). Students indicated their response to each statement using separate scales that offered six response options, ranging from "strongly disagree" to "strongly agree."

In Study 1, the racial-stereotype activation measure was administered at the end of 8th grade (roughly 18 months after the initiation of the intervention). In Study 2, it was administered at the end of 7th grade (roughly 6 months after the initiation of the intervention). The difference in the timing of these two assessments was due to scheduling constraints at the school site. The demonstrated effects on this measure are noteworthy, in part, because they occurred relatively distal in time from the introduction of the intervention. (We had administered the activation measures at this time, because the treatment's performance effects appeared to persist over the course of the academic year.)

Performance Outcomes

Academic performance was calculated using end-of-term official report cards provided by the school administration.

Data analysis

Official Course Grades Data. For analyses of official grades, multiple regression was used to separately compute treatment main effects for each of the two racial groups. A dummy variable was created for experimental condition (0 = control, 1 = treatment). Two additional dummy variables were created to code for the three teachers, and still another to code student gender (0 = male, 1 = female). The tested covariates included a standardized measure of baseline (i.e., pre-intervention) in-class performance, grade point average (GPA) in core courses taken in the previous year, and a standardized measure of pre-intervention state-wide test performance. (For one student in Experiment 2, state-wide test performance was unavailable.) All covariates were obtained from the teachers' official, pre-intervention grade-books or official student transcripts. Pre-intervention state-wide test performance accounted for unique variance only in analyses of students' GPA in "non-targeted" courses (i.e., courses where the intervention was not administered) and was thus retained as a covariate in the regression model only in analyses of that outcome. Also, as the grading system used by each teacher was different, and the predictive power of baseline in-class performance sometimes varied systematically as a function of teacher, our models included the main effect of baseline in-class performance and two terms representing its interaction with each of the two teacher dummy variables.

The two-way interaction between student race and experimental condition was computed in a full regression model that included student race (0 = European American, 1 = African American), the enumerated covariates, and all main effects and 2-way interactions involving student race, student gender, and experimental condition (see Tables S1 and S2).

In the computation of the treatment's effect on the reduction of the race gap, we similarly controlled for the specified covariates and effects. Doing so permitted the most precise estimate of the treatment effect.

In both studies, the treatment effect on in-class performance was consistent across the different teachers. No interaction effect involving experimental condition and either of the two teacher dummy variables was found for either racial group [$|t\text{'s}| < 1.3$, *NS*].

The regression coefficients of the covariates differed between Experiments 1 and 2. Although we do not know with certainty the cause of this variation, we suspect that some of it can be ascribed to collinearity in the performance predictors. Estimated regression coefficients for predictors are unstable when the predictors in question are very correlated (*S6*). For instance, pre-intervention in-class performance strongly correlated with previous-year GPA both in Experiment 1 ($r = .76$, $P < 0.01$) and in Experiment 2 ($r = .60$, $P < 0.01$). This collinearity does

not affect the key coefficient associated with the treatment for each racial group. As the studies are randomized experiments, the treatment component is, by definition, uncorrelated with the other predictors.

Tertiary Split on Pre-Intervention Performance Levels. In our analysis of the effect of condition as a function of pre-intervention performance, we first standardized the two statistically significant pre-intervention performance covariates used in our primary analysis of grade in the targeted course (previous year's GPA and pre-intervention in-class performance). We then performed a tertiary split on the average of these two standardized scores separately for each racial group, so that the pre-intervention performance level (low, moderate, or high) represented students' performance level *relative* to their racial group. Computation of raw means was accomplished by examining each racial group's mean grade for each of the three pre-intervention performance levels by condition. Computation of adjusted means was accomplished by conducting separate analyses of covariance (ANCOVAs) for each of the 12 sub-groups (i.e., for each of the three pre-intervention performance groupings, for each of the four cells in the experimental design), using the covariates included in the full regression model enumerated above.

Poor Performance Rate Data. The logistic regression on the poor performance rate included the same variables previously noted for the multiple regression. However, it necessarily excluded the teacher dummy variables and interactions involving them, as some teachers' had either zero or near-zero counts for this measure.

Racial Stereotype Activation Data. Simple t-tests were used to compute treatment effects within each race. Analysis of variance (ANOVA) was used to compute the student race X experimental condition interaction effect. As neither the teacher dummy variables nor the other covariates accounted for significant variance in the outcome, F's < 1, these were excluded from the statistical model. All but 22 students in both experiments completed the activation measure; students with missing data were either absent or otherwise unavailable.

In-Class Performance-Over-Time Data. We used a straightforward protocol to code student performance on individual assignments in the fall term and then to aggregate these performances into chronological blocks. Students' performance in their class over the 10 chronological performance blocks was based on grades recorded in their teacher's gradebook on individual assignments. Our protocol created an objective standard for computing performance on individual assignments, and yielded performance scores throughout the term that were on the same metric and thus comparable across blocks. A disadvantage of this approach was that it necessarily did not take into account the relative weight of a given assignment in terms of its contribution to final course grade. This disadvantage was offset, in our view, by the gain in our ability to make objective comparisons across blocks.

For each assignment recorded in a teacher's gradebook, we determined (a) the number of points the student earned on that assignment and (b) the total number of points it was

possible to earn on that assignment. We calculated the proportion of total points students had earned on a specific assignment by dividing the first number by the second. Next, for each teacher, we clustered sequential assignments into 10 separate chronological blocks, with each block containing roughly the same number of assignments for that teacher. We then computed students' average performance on the assignments administered in each block (i.e., the average proportion of total points earned on each assignment administered during that block). Blocks 1 and 2 represented pre-intervention performance, Blocks 3-10 post-intervention performance. The ten block scores were then submitted to a repeated measures analysis, with block serving as a repeated measures factor. A total of 11 students were excluded from this analysis due to missing values. The model testing the difference in linear trends as a function of condition controlled for student gender and teacher. The model testing the difference in linear trends as a function of both condition and student race additionally included all 2-way interactions involving student race, student gender, and experimental condition.

Student gender and teacher were controlled in computing the partial correlations between the pre-intervention drop in performance (i.e., the difference in performance between Blocks 1 and 2) and post-intervention performance (i.e., mean performance across Blocks 3-10). Additionally, we controlled for the absolute level of pre-intervention performance. Doing so isolated the relationship between a pre-intervention performance *drop* (above and beyond the absolute *level* of pre-intervention performance) and subsequent in-class performance.

Supporting Text

Excerpts from Control and Treatment Exercises

African American Affirmation Condition

"My friends and family are most important to me when I have a difficult situation that needs to be talked about. My friends give me companionship and courage. My family gives me love and understanding." (female)

"Well being a great athlete and hitting the book are really the most important things in my life. I'm a great athlete when it comes to sports like basketball and football but when it comes to school I try and try to work as hard as I can to go to college and to make my family proud." (male)

"To me Independence is important to me because your parents wont always be there to baby you. You have to live your life. Athletic ability is very useful in situations. In 9/11 those people had to run down the stairways with some skill. If they didn't the would have died. Most importantly my religious values are important to me. God is the answer to every thing." (male)

"The first value that was important to me was Creativity because I like to creative and instead of everybody doing the same thing. I like to do something different than every one else. I need creativity because when we have projects instead of everybody doing the same project. I will pick a different one. I think that music is really important to me because the type of music that you listen can express by telling who you are, race, and how you feel. Some music can tell people that you are a very relaxed person. Realationships with friends and family is important to me because it is good to have a good realationship with friends and family all the time." (female)

African American Control Condition

"Athletic abilities may be important to someone who comes from an athletic family. They probably feel that everyone wants them to live up to the capabilities of your family member(s). It may be important to someone else because they are trying to live up to your dream of becoming a football player, basketball player or whatever. This is not important to me because I want to be a pediatrician or lawyer." (female)

"This value [being good at art] would be important to someone else because they might be good at that. They might best at it or the might be happy when they do it." (male)

"[Politics might be important] To John Kerry because he wants to be the presdient." (male)

“Athletic Ability would be important to Shaq because if his Atheletic Ability was bad he wouldn’t be in the NBA. Being good at Art would be important to [peer’s name] because she loves art and if she was good at it she wouldn't draw anymore.” (female)

European American Affirmation Condition

“This value [music] was important to me when I tried out for stage band or when I am at a concert. This was also important when I have to play for a grade. The reason why this is so important is because I love playing all 3 of my instruments because I picked alot of the harder instruments so it is more of a callenge. Such as my tenor saxophone I practice every night because I love the way it sounds. Same for my bass that I just started playing about 3 months ago.” (male)

“The value of having close relationships with friends and family is important during school because that’s where you are 75% of your life. Peers are a big issue. Friends mean the world to me because I always know they are there for me.” (female)

“A sense of Humor is important to me because I love to laugh. I think it sort-of lets out all of your emotions. I like jokes and I just enjoy laughing. Music is a great way to let out emotion too. If your sad you can listen to a sad song. If your happy you can listen to a happy song.” (female)

“Being Athletic to me is very important. If I weren't athletic I'd never be able to play with my friends, or even have any. We always play outsid. Games such as Football, baseball, basketball etc. Also creativity is important. Without creativity my life would be boring... very boring. Creativity is great when it comes to friends and family. If I didn't have it I'd be bored out of my mind. Lastly, a sense of humor is also great for friends and family. Making people giggle and laugh at my jokes always puts a smile on my face. It's a rejoicing feeling.” (male)

European American Control Condition

“Art may be very important to someone else because maybe that person is very artistic. They may like to draw many pictures and love the subject during the school year. They might also like the experience of learning in a totally different area. That person might also believe that Art is essential to calm them down; make them relax. They might love the feeling of how the pencil, pen, marker, or crayon feels in their palm. Art might be the best way for them to express themselves. Sometimes, that person might find it eaisier to understand themselves best with Art. They might feel drawing is just fun.” (female)

“Art would be important to someone who wanted to be an artist when they grow up. Being in a membership to a social group is if you planned helping your community all the time or if you wanted to start a club. Music would be important to someone who wanted to teach music write mosic or be a rock start. Politics would be important if you wanted to be a politican and get into that kind of stuff.” (male)

"Being good at art and Religious values may be important to someone who is very religious and always goes to church, or synagouge, or moskuel. Also artistic ability is not very important to me but may be important to someone who wants to be an artist or painter when they grow up." (male)

"Other people might want to be a athletic person when they grow up so they need to get involved in as many sports as they can. Because that's what they want to be once they grow up." (female)

Additional Analyses

The following data and analyses provide additional information concerning the nature of the intervention effect.

Did the effectiveness of the intervention vary with whether students judged "being smart or getting good grades" as their most important value (i.e., whether they selected a value relevant to the school setting)?

It did not. In Experiment 1, there was no indication of a 3-way interaction involving whether respondents chose this value as most important, their race, and their experimental condition for either grade in the targeted course [$t < 1$, $P > 0.66$] or grades in the non-targeted courses [$t < 1.18$, $P > 0.24$]. Nor, when African Americans were examined separately, was there any two-way interaction between whether respondents selected this value as most important and experimental condition [*t's* < 1, *Ps* > 0.83]. This result consistent is with prior self-affirmation research showing that bolstering self-integrity in one domain increases people's ability to endure threats in another domain (*S4*, *S5*).

Did GPA in non-targeted courses vary as a function of pre-intervention performance level?

For GPA in non-targeted courses (i.e., courses in which the intervention was not administered), there was some evidence that the intervention benefited moderate-performing students most. In an exploratory analysis, we computed post-intervention GPA in the non-targeted courses for each of three pre-intervention performance levels. We used the same tertiary split (low, moderate, and high) on pre-intervention performance employed in our analysis of the targeted course. The affirmation effect was not significant among low-performing students [$B = -06$, $| t | < 1$, *NS*], significant among moderate-performing students [$B = .45$, $t(29) = 3.31$, $P < 0.01$], and marginal among high-performing students [$B = .21$, $t(30) = 1.69$, $P = 0.10$]. As expected, European Americans displayed no treatment effect at any level of pre-intervention performance [$| t$'s $| < 1.2$, *NS*].

Specifically, among low-performing African Americans, the raw and covariate-adjusted means in the control condition were 1.53 (*SE* = .19) and 1.52 (*SE* = .17), respectively, versus 1.45 (*SE* = .18) and 1.46 (*SE* = .18) in the affirmation condition. Among

moderate-performing African Americans, the raw and covariate-adjusted means in the control condition were 2.28 (*SE* = .10) and 2.28 (*SE* = .09), respectively, versus 2.72 and 2.73 (*SE* = .09) in the affirmation condition. Among high-performing African Americans, the raw and covariate-adjusted means in the control condition were 3.26 (*SE* = .10) and 3.17 (*SE* = .08), respectively, versus 3.28 (*SE* = .11) and 3.38 (*SE* = .09) in the affirmation condition. By contrast, among low-performing European Americans, the raw and covariate-adjusted means in the control condition were 2.20 (*SE* = .21) and 2.27 (*SE* = .18), respectively, versus 2.33 (*SE* = .17) and 2.29 (*SE* = .14) in the affirmation condition. Among moderate-performing European Americans, the raw and covariate-adjusted means in the control condition were 3.18 (*SE* = .10) and 3.22 (*SE* = .08), respectively, versus 3.15 (*SE* = .16) and 3.04 (*SE* = .13) in the affirmation condition. Among high-performing European Americans, the raw and covariate-adjusted means in the control condition were 3.75 (*SE* = .09) and 3.78 (*SE* = .08), respectively, versus 3.76 (*SE* = .08) and 3.75 (*SE* = .07) in the affirmation condition.

Did lowered racial-stereotype activation mediate the condition effect on African Americans' performance?

We did not find statistical evidence that lowered racial-stereotype activation mediated the condition effect on African Americans' performance in a straightforward manner. The only noteworthy pattern was limited evidence of moderated mediation: the intervention tended to alter the relationship between activation of negative stereotypic words and academic performance (with that relationship being attenuated among African Americans in the affirmation condition).

The sensitivity of our analysis in this context is limited, as the activation measure was not administered between the intervention and the end of the fall term when the effect of the intervention on performance was assessed. Rather, the race activation measure was administered 6-18 months after the initiation of the intervention and took place several months (in Study 1, over a year) after the primary performance outcome. Additionally, race activation may have a relatively indirect and distal impact on performance, less closely related to performance decrements than the arousal, stress, and withdrawal of effort that it can induce for some individuals. In the present context, racial stereotype activation is less a direct mediator than a theoretically-relevant outcome state.

Did the intervention affect African Americans' trend in annual GPA?

It did. All groups, except for African Americans in the affirmation condition, deteriorated in their GPA. The following results echo the performance-over-time data in the fall term, which showed that intervention-treated African Americans displayed a distinctive pattern of non-deteriorating performance over time, one that differed from all other cells in the experimental design. Like those data, the following results also support the notion that, whereas the control condition had no effect on African Americans' performance, the affirmation condition benefited it.

We computed a GPA change score by subtracting students' previous-year GPA from their GPA for the term in which the intervention was administered. This change score was then used to analyze the treatment effect over time. The analysis controlled for student gender, teacher, and pre-intervention in-class performance in the computation of effects and mean estimates.

Over both studies, European Americans in both conditions, and African Americans in the control condition, showed a similar decline in GPA over time (effects did not vary by study [*t*s < 1.10, *P'*s > 0.28]). The mean decline was -.19 and -.24 for European Americans in the control condition and affirmation condition, respectively, and -.25 points for African Americans in the control condition. Each mean was significantly less than 0 (i.e., no change) [all *t'*s > 3.50, *P*s < 0.01], and none differed significantly from the other [*t'*s < 1, *NS*].

By contrast, African Americans in the affirmation condition remained stable in their GPA over time, with a change score of only -.03 points. This change score did not differ from 0 [*t* < 1, *NS*]. However, it did differ significantly from each of the three other means change scores in the experimental design [all *t'*s > 2.00, *P'*s < 0.05]. As one would expect, a regression model conducted on this change score yielded a significant treatment effect for African Americans [*B* = .20, *t*(109) = 2.32, *P* < 0.02] and a significant race X affirmation condition interaction overall [*B* = .28, *t*(229) = 2.46, *P* < 0.02].

In summary, the African American affirmation cell yielded a unique performance pattern in our experimental design, showing a distinctive pattern of non-deterioration in performance over both the short-term and the long-term.

Were there race differences in value selection patterns?

We subtracted the average number of times a value was asserted as unimportant from the number of times it was asserted as important. (In Study 2, this entailed counting the number of times a value was indicated to be important in the affirmation condition and then subtracting the number of times it was indicated to be unimportant in the control condition.) While variation existed within each study with respect to race effects on value selection, the only consistent pattern to emerge across studies was that African Americans were slightly more likely to value religion than were European Americans.

Did student gender moderate the effect of the intervention?

There was no consistent and reliable effect of gender across the two studies.

We tested the 3-way interaction between student gender, condition, and race. In Study 1, although this interaction was significant for performance in the targeted course (i.e., the one in which the intervention was administered) [*B* = .64, *t*(97) = 2.21, *P* = 0.03], it was not significant in analysis of the treatment effect on GPA in the non-targeted courses [| *t* | < 1.4, *P* > 0.19]. The interaction for performance in the targeted course was driven by European Americans, for whom there was a significant Gender X Condition interaction [*B* = -.48, *t*(51) =

-2.49, P < 0.02]. In particular, among European Americans, there was a tendency for European American girls to respond negatively to the affirmation intervention [*P < 0.05*], with European American boys displaying no significant effect [*P* > 0.11]. No such Gender X Condition interaction was evident among African Americans [*t* < 1, *NS*]. Given that these comparisons were not predicted ex ante, and given that the relevant interaction was found for only one of our two performance measures, they should be regarded with caution. Additionally, in Experiment 2, there was no 3-way interaction involving gender found either for performance in the targeted course [| *t* | < 1.6, *P* > 0.12] or for GPA in the non-targeted courses [| *t* | < 1, *P* > 0.81]. What trends existed were different from those found in Experiment 1. More definitively, when we pool the data from both experiments, we find no evidence of a 3-way interaction for performance either in the targeted course or in the non-targeted courses [| *t*'s | < 1, *NS*]. In summary, the most parsimonious account of the data is that the effect of the treatment is conditioned on participants' race/ethnicity, with no qualifying impact of gender. However, affirmation might be expected to benefit girls more than boys in a context where negative gender stereotypes could be in play (e.g., an advanced math course).

Supporting Figure

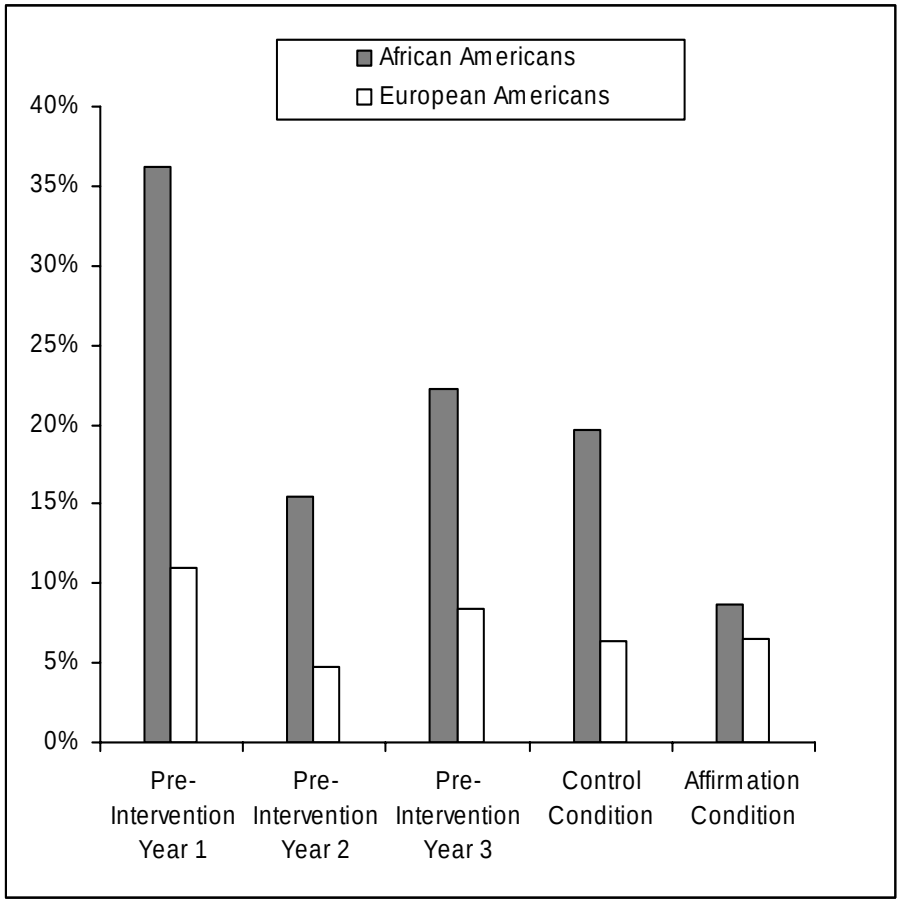

Fig. S1. Poor performance rate (i.e., percentage of students receiving a grade of D or below) in the intervention-targeted course for four cohorts of students: African Americans and European Americans in each of the three years prior to the intervention studies, in the control condition, and in the affirmation condition.

Supporting Tables

Table S1. Summary of Regression Model Predicting Grade in Course: Experiment 1

Variable	*B*	*SE*	*t*
Student Race	-.44	.14	-3.22**
Student Gender	-.11	.12	-0.89
Teacher Code 1	.66	.09	7.28**
Teacher Code 2	.51	.08	6.15**
Pre-Intervention In-Class Performance (Standardized)	1.05	.08	13.19**
GPA from Previous Year	.07	.08	0.83
Experimental Condition	.09	.12	0.73
Race X Gender	.30	.15	2.06*
Gender X Condition	-.23	.14	-1.59
In-Class Perf. X Teacher Code 1	-.06	.10	-0.59
In-Class Perf. X Teacher Code 2	-.38	.09	-4.41**
Race X Condition	.29	.14	2.00*

Note: Student race code: 0 = European American, 1 = African American; student gender code: 0 = male, 1 = female; teacher code variables were dummy-coded (0/1) variables used to designate the three participating teachers.
* $P < 0.05$. ** $P < 0.01$.

Table S2. Summary of Regression Model Predicting Grade in Course: Experiment 2

Variable	*B*	*SE*	*t*
Student Race	-.11	.17	-0.67
Student Gender	.37	.16	2.24*
Teacher Code 1	.65	.12	5.22**
Teacher Code 2	.49	.12	4.21**
Pre-Intervention In-Class Performance (Standardized)	.42	.10	4.16**
GPA from Previous Year	.79	.08	10.32**
Experimental Condition	.03	.16	0.19
Race X Gender	.02	.19	0.11
Gender X Condition	-.36	.19	-1.94
In-Class Perf. X Teacher Code 1	-.04	.12	-0.33
In-Class Perf. X Teacher Code 2	-.11	.12	-0.99
Race X Condition	.52	.19	2.80**

Note: Student race code: 0 = European American, 1 = African American; student gender code: 0 = male, 1 = female; teacher code variables were dummy-coded (0/1) variables used to designate the three participating teachers.
* $P < 0.05$. ** $P < 0.01$.

Supporting References

S1. J. Aronson, in *Improving academic achievement: Impact of psychological factors on education* (Academic Press, San Diego, CA, 2002), pp. 303-328.

S2. S. Fein, S. J. Spencer, *J. Pers. Soc. Psychol.*, **73**, 31 (1997).

S3. G. L. Cohen, J. Aronson, C. M. Steele, *Pers. Soc. Psychol. Bull.*, **26**, 1151 (2000).

S4. C. M. Steele, in *Advances in Experimental Social Psychology*, L. Berkowitz, Ed. (Academic Press, New York, 1988), pp. 261-302.

S5. D. K. Sherman, G. L. Cohen, in *Advances in Experimental Social Psychology*, M. P. Zanna, Ed. (Academic Press, San Diego, CA, 2006), pp. 183-242.

S6. F. Mosteller, J. W. Tukey. *Data Analysis and Regression* (Addison Wesley, 1977).