

# **Teacher- versus researcher-provided affirmation effects on students' task engagement and positive perceptions of teachers**

## **Supplemental Materials**

See Open Science Foundation repository <https://osf.io/ntfa2/> for data files, analysis scripts, and additional information.

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## 1) Introductory activity wording

Below you can find condition wording provided to students prior to affirmation or control activities. Wording differences across conditions are color-coded (**Teacher-Provided** vs. **Researcher-Provided**). Full materials can be found at <https://osf.io/ntfa2/>.

### **Teacher-Provided Message**

As part of this special project, 9th grade teachers at [School] are asking students to complete a writing exercise and answer questions. Please read the directions carefully.

Next, you will read a short message from your teachers before you begin.

*We, the 9th and 10th grade teachers at [School], have teamed up for this project to learn more about you and what our students think. We will read everyone's answers, but we won't know who said what (it will be anonymous). Every single student's opinion matters to us, so we hope you will do your best to answer our questions fully and honestly.*

Thank you!

-The 9th and 10th grade teaching team

### **Researcher-Provided Message**

As part of this special project, researchers from universities across the U.S. are asking students to complete a writing exercise and answer questions. Please read the directions carefully.

Next, you will read a short message from these researchers before you begin.

*Researchers from all around the country have teamed up for this project to learn more about what students think. They will read everyone's answers, but they won't know who said what (it will be anonymous). Every single student's opinion matters to them, so they hope you will do your best to answer their questions fully and honestly.*

Thank you!

-The Character Lab research team

## 2) Survey measures

### Primary Measures (analyses in manuscript)

- Teacher Broad Regard (3 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - My teachers at [School] want to get to know their students.
  - In general, my teachers at [School] care about students' lives outside of class.
  - My teachers value each student as a whole person.
- Teacher Care and Support (2 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - I feel like students can count on teachers at [School].
  - I feel like teachers at [School] care about students.
- Comfort with Disclosing to Teachers (6 items) [1 = “Not at all comfortable”; 5 = “Extremely comfortable”]
  - [Intro: “How comfortable would you feel talking about the following things with a teacher at [School] if they came up during a one-on-one conversation?”]
  - A difficulty you are having in a different class
  - A hope or goal you have for your future
  - Your physical or mental health
  - A hobby or activity that is important to you
  - A concern you have about your future
  - Your relationship with a family member

### Longitudinal Exploratory Measures (analyses below)

- Self-Integrity (5 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - On the whole, I currently feel like a capable person.
  - Right now, I feel that I have the ability and skills to deal with whatever comes my way.
  - When I think about the future, I’m confident that I can meet the challenges that I will face.
  - Even though there is always room for self-improvement, I feel a sense of completeness about who I currently am.
  - Right now, I am comfortable with who I am.
- Belonging (9 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - People at [School] accept me.
  - I feel like I belong at [School].
  - I feel like an outsider at [School]. [reverse-coded]
  - I feel comfortable in classes at [School].
  - People at [School] are a lot like me.
  - I know what I need to do to succeed at [School]
  - I do not know how to get a teacher at [School] to like me. [reverse-coded]
  - I am the kind of person that does well at [School].
  - If I wanted to, I could do very well at [School].

- Belonging Uncertainty (2 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - Sometimes I worry that I don’t belong at [School]
  - When something bad happens in school, I feel that maybe I don’t belong.

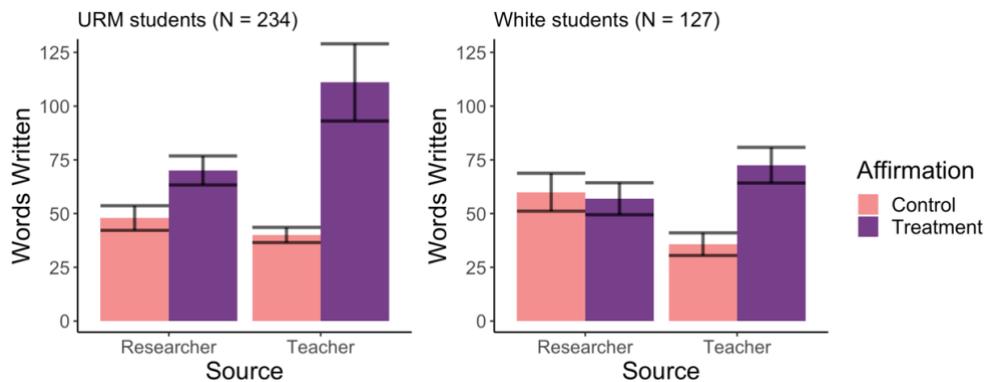
### **Fidelity Check Measures**

- Belief in others’ interest (2 items) [1 = “Strongly Disagree”; 7 = “Strongly Agree”]
  - I believe someone will carefully read what I wrote in the writing exercises from today.
  - I believe someone will care about my answers to the writing exercises from today.
- Careful completion (1 item) [1 = “Not at all carefully”; 5 = “Extremely carefully”]
  - How carefully did you answer the questions from today?

### 3) Supplemental Analyses: Moderation by Threat

We conducted supplemental analyses to test for moderation by students who are potentially under identity threat in school because of race/ethnicity or social class, even though the primary analyses focus on main effects (see manuscript for detailed rationale). We examined moderation by two indices that could indicate greater identity threat: students who belong to racial/ethnic groups underrepresented in higher education (i.e., underrepresented minority [URM] students), and students whose families earn lower income (as assessed by receiving free or reduced lunch at school; FRL). We ran two separate analyses to examine each of these potential moderators. The first test examined moderation using our primary analysis of teacher-provided affirmations (coded as  $+3/4$ ) compared to the other three conditions (each coded as  $-1/4$ ), including an interaction term with dummy coded “social identity threat” variable for each moderator (Racial-Ethnic Identity: 0 = White & 1 = Black/Latinx/Multiracial/Other; Free-Reduced Lunch Status: 0 = Paid & 1 = Free or Reduced). The second test examined whether the full 2x2 interaction model (affirmation versus control, crossed with teacher or researcher source), including an interaction term by either moderator increased model fit through an analysis of variance model.

In general, we did not find strong evidence that either demographic variable moderated the majority of effects reported in the paper. Across all 16 analyses (2 models x 2 potential moderators x 4 outcomes), we found only one significant interaction ( $p < .05$ ), which should be interpreted with caution due to the number of analyses conducted. In the primary model, we found a significant interaction between racial-ethnic identity and condition assignment on the amount students wrote ( $\beta = 0.52$ ,  $t(353) = 2.19$ ,  $p = .030$ , 95% CI [0.05, 0.99]), such that White students provided teacher-delivered affirmation activities did not write more compared to White students assigned to the other three conditions ( $\beta = 0.31$ ,  $t(353) = 1.62$ ,  $p = .11$ , 95% CI [-0.07, 0.58]). URM students provided teacher-delivered affirmation activities, in contrast, wrote 111% more (over twice as much) compared to students assigned to the other three conditions ( $\beta = 0.83$ ,  $t(353) = 5.72$ ,  $p < .001$ , 95% CI [0.54, 1.11]). See Supplemental Figure 1 below.



**Supplemental Figure 1.** Moderation effects of underrepresented minority status by condition on the number of words written during the affirmation activities. Error bars represent  $\pm 1$  standard errors of the mean.

#### 4) Supplemental Analyses: Exploratory Items

We assessed additional exploratory items to better understand how affirmation exercises may longitudinally impact students' feelings of competence and belonging in the school at large. Because we did not expect immediate effects of affirmation on these variables, and we were unable to follow-up with these students the following year as initially anticipated, we do not discuss these measures in the main manuscript. We expect that affirmation effects especially on social belonging outcomes would emerge over time as students begin to experience school, their classrooms, their peers, and their teachers differently based on condition assignment. Details on these measures can be found above.

*Self-Integrity.* Students provided teacher-delivered affirmation activities did not report greater self-integrity compared to students assigned to the other three conditions ( $\beta = -0.02$ ,  $t(356) = -0.15$ ,  $p = .88$ , 95% CI [-0.26, 0.22]). We do not find any evidence that participants reported greater self-integrity due to affirmation condition ( $\beta = -0.08$ ,  $t(356) = -0.74$ ,  $p = .46$ , 95% CI [-0.29, 0.13]), the source of the materials ( $\beta = 0.01$ ,  $t(356) = 0.14$ ,  $p = .89$ , 95% CI [-0.19, 0.22]), nor an interaction between affirmation condition and source ( $\beta = 0.04$ ,  $t(356) = 0.35$ ,  $p = .73$ , 95% CI [-0.17, 0.25]).

*Belonging.* Students provided teacher-delivered affirmation activities did not report greater belonging compared to students assigned to the other three conditions ( $\beta = -0.03$ ,  $t(355) = -0.21$ ,  $p = .84$ , 95% CI [-0.26, 0.21]). We do not find any evidence that participants reported greater belonging at school due to affirmation condition ( $\beta = 0.00$ ,  $t(355) = -0.04$ ,  $p = .97$ , 95% CI [-0.21, 0.20]), the source of the materials ( $\beta = -0.09$ ,  $t(355) = -0.87$ ,  $p = .39$ , 95% CI [-0.30, 0.12]), nor an interaction between affirmation condition and source ( $\beta = 0.06$ ,  $t(355) = 0.55$ ,  $p = .58$ , 95% CI [-0.15, 0.27]).

*Belonging Uncertainty.* Students provided teacher-delivered affirmation activities did not report less belonging uncertainty compared to students assigned to the other three conditions ( $\beta = 0.11$ ,  $t(355) = 0.90$ ,  $p = .37$ , 95% CI [-0.13, 0.35]). We do not find any evidence that participants reported less belonging uncertainty at school due to affirmation condition ( $\beta = 0.12$ ,  $t(355) = 1.11$ ,  $p = .27$ , 95% CI [-0.09, 0.32]), the source of the materials ( $\beta = 0.11$ ,  $t(355) = 1.03$ ,  $p = .30$ , 95% CI [-0.10, 0.32]), nor an interaction between affirmation condition and source ( $\beta = -0.06$ ,  $t(355) = -0.59$ ,  $p = .56$ , 95% CI [-0.27, 0.15]).