Case Report

From deficit to benefit: Highlighting lower-SES students' background-specific strengths reinforces their academic persistence

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A B S T R A C T

Students from lower-socioeconomic (SES) backgrounds have unique background-specific strengths that they have acquired from their lived experiences. We test the hypotheses that guiding students toward recognizing the strengths that they have derived from their specific background and experiences will promote their positive understandings of their identities and have positive implications for their academic motivation and psychological well-being. Specifically, we present evidence indicating that a brief experimental paradigm guiding students to reflect on their background-specific strengths leads lower-SES college students (Study 1; $N = 186$), as well as Black and Latinx middle school students from lower-SES backgrounds (Study 2; $N = 912$), to endorse the idea that they are assets to their schools and society because of their backgrounds and increases their inclinations to persist in the face of academic difficulty. These psychological consequences were significantly associated with middle school students' end-of-term grades (Study 2).

Educators and social scientists often view coming from a lower-socioeconomic status (SES) background as a disadvantage or vulnerability for students, rather than as a potential source of strength. People from lower-SES backgrounds do on average have less formal education and access to a variety of resources (e.g., Kraus & Stephens, 2012; Oakes & Rossi, 2003), worse stress and health-related outcomes (e.g., Adler et al., 1994), and are more likely to face other adverse experiences throughout their lives relative to their higher-SES counterparts (e.g., Gallo, Bogart, Vranceanu, & Matthews, 2005). Individuals from lower-SES backgrounds are also more likely to experience stigma, stereotyping, and prejudice (e.g., Croizet & Claire, 1998; Johnson, Richeson, & Finkel, 2011; Spencer & Castano, 2007) and are required to navigate institutions, educational and otherwise, that were often established without them in mind (e.g., Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). Due in part to the research highlighting the barriers that people from lower-SES backgrounds might face, people often view the backgrounds of lower-SES students through a deficit-based lens (see Dudley-Marling, 2007; Gorski, 2011; Yosso, 2005).

Yet, people from lower-SES backgrounds, like others from diverse backgrounds, gain unique characteristics, knowledge, and strengths directly from their upbringing, identity, and past experiences (e.g., community and familial support, ability to overcome adversity; Spencer,

2007; Spencer & Tinsley, 2008; Yosso, 2005). The current research takes this strengths-based perspective of background and identity and aims to investigate whether guiding lower-SES students toward recognizing their *background-specific strengths* has positive implications for their academic persistence and psychological well-being. Background-specific strengths (BSS) refer to the unique knowledge, skills, and perspectives that are acquired as a result of their marginalized backgrounds and associated experiences (e.g., adversity) and can serve as valuable resources across a variety of settings.

Aspects of students' lower-SES backgrounds—such as the diverse forms of challenges that they and their families may have faced—not only influence the development of their identities and selves (e.g., Piff, Kraus, Côté, Cheng, & Keltner, 2010), but can also confer valuable characteristics such as cooperativeness, prosociality, empathy, and resilience (e.g., Dittmann, Stephens, & Townsend, 2020; González, Moll, & Amanti, C. (Eds.)., 2006; Hatt, 2007; Kraus, Côté, & Keltner, 2010; Masten, 2001; Piff et al., 2010; Reay, Crozier, & Clayton, 2009; Yosso, 2005). These characteristics are examples of background-specific strengths that students from lower-SES backgrounds can leverage in their education and lives more broadly (e.g., González et al., 2006; Kidd & Davidson, 2007; Yosso, 2005). Students from lower-SES backgrounds, then, may be able to draw worth and value *directly* from their SES

background and identity, via recognizing their BSS, particularly in contexts that can be otherwise psychologically threatening to these students' identities.

Although research has demonstrated that lower-SES students' backgrounds are often stigmatized and viewed as incompatible with higher-SES educational contexts (Johnson et al., 2011; Stephens et al., 2012), and that such social identity threat can impair students' self-value, well-being, motivation, and achievement (Dittmann & Stephens, 2017; Harackiewicz et al., 2014; Jury et al., 2017), prior work suggests that these deleterious effects can be lessened. *Self-affirmation theory* posits that people are motivated to maintain self-integrity and value (Sherman & Cohen, 2006; Steele, 1988). Thus, one way to reduce social identity threat is to invoke a broader sense of self by drawing self-value from an alternative aspect of one's identity that is not being stigmatized in that particular context (Sherman, 2013). For example, when students from lower-SES backgrounds complete a self-affirmation exercise, reflecting upon and writing about other personally important values, they earn higher grades than their lower-SES peers who do not actively draw from other sources of worth. Invoking a broader sense of self via affirming an alternative source of their identity allows lower-SES students to maintain an overall positive global perception of their self, thereby reducing the social class achievement gap between lower- and higher-SES students (e.g., Harackiewicz et al., 2014; though see Flynn & Bordieri, 2020; Hanselman, Rozek, Grigg, & Borman, 2017; Serra-Garcia, Hansen, & Gneezy, 2020 for evidence that affirmation interventions do not always replicate effectively or produce the desired outcomes).

In another related line of research, college students from lower-SES backgrounds are exposed to information communicating that the different experiences that they face in school are due to differences between the environments that they grew up in and their current educational contexts (Townsend, Stephens, Smallets, & Hamedani, 2019). Teaching this contextual understanding of difference has been shown to reduce the academic achievement gap between students from lower- and higher-SES backgrounds (Stephens, Hamedani, & Destin, 2014; Townsend et al., 2019). Students receiving this difference-education may come to understand how diversity and difference, though not necessarily marginalized backgrounds themselves, contribute to their success in college (Townsend et al., 2019).

We extend these bodies of work by directly invoking a particular stigmatized group membership of students, naming their lower-SES background and associated difficult experiences as a source of strength. Generally, when stigmas associated with students' identities become salient in achievement-oriented contexts, their well-being and academic performance suffers (e.g., Croizet & Claire, 1998; Johnson et al., 2011). Thus, experimental approaches aimed at increasing student well-being and motivation in threatening contexts often avoid emphasizing students' stigmatized identities. In the present research, students' otherwise stigmatized identities (i.e., their lower-SES background) are directly and explicitly brought to mind and considered sources of unique knowledge and strengths. Thus, students may derive a sense of worth and self-value that is linked to their SES background. Furthermore, we highlight that students can leverage these strengths as resources and that this makes them an asset to their schools and society, demonstrating how students' otherwise stigmatized backgrounds may be congruent with educational and societal contexts (see Oyserman & Destin, 2010). In turn, we predict that students will exhibit increased inclinations toward academic persistence and psychological well-being.

When a student's identity is linked positively to education, they are more likely to exhibit academic persistence (Browman, Destin, Carswell, & Svoboda, 2017; Destin, Castillo, & Meissner, 2018; Oyserman, Destin, & Novin, 2015). Further, when students reflect on and recognize their background-specific strengths, they are identifying "concrete" resources that they can leverage to overcome difficult experiences. Additionally, evidence suggests that individuals' positive feelings about belonging to a group with a historically marginalized background are associated with greater well-being (e.g., Ghavami, Fingerhut, Peplau, Grant, & Wittig,

2011; Rivas-Drake et al., 2014). There is also evidence that the more certain students are about the meaning and value attached to their SES, the greater psychological well-being they experience (Destin, Rheinschmidt-Same, & Richeson, 2017).

The current research presents a brief (less than 10 minutes) proof-of-concept experimental paradigm designed to support students to view their lower-SES backgrounds as sources of strengths that make them an asset to their schools and society. Two randomized-controlled experiments examine whether guiding students from lower-SES backgrounds toward recognizing their background-specific strengths (i.e., the unique knowledge and skills that they have gained as a factor of their backgrounds) has positive implications for their inclinations to persist in the face of academic difficulty and psychological well-being. Across two studies, we hypothesized that students who complete a novel BSS experimental paradigm would: 1) endorse the idea that they have unique strengths due to their backgrounds and that this makes them an asset to their schools and society; 2) display greater inclinations to persist in the face of academic difficulty; and 3) display greater psychological well-being than students in control conditions.

1. Study 1

The aim of Study 1[1] was to test our brief experimental paradigm and the primary hypotheses among a sample of undergraduate college students from lower-SES backgrounds.

1.1. Method

1.1.1. Participants and procedure

Two hundred undergraduate students from universities in the United States were recruited online from Prolific. The study was available only to participants who reported a family household income of $70,000 or less. Following prior research guidelines and other brief social psychological experiments targeting similar processes (e.g., Browman et al., 2017; Simmons, Nelson, & Simonsohn, 2013), we aimed to recruit 200 students, giving us flexibility to still reach the desired sample size after accounting for incomplete data or exclusions. One participant failed an attention check and was excluded from analyses leaving a final sample of 199 undergraduate students ($M_{age} = 22.64$, $SD_{age} = 4.18$; 46.2% women; 52.3% White, 14.1% Asian/Asian-American, 14.1% Latinx, 7.5% Black, 7.0% multiracial, 1.0% Middle Eastern/Arab, 0.5% American Indian/Native American/Alaska Native, 0.5% Pacific Islander, and 3.0% did not indicate a race/ethnicity).

1.1.1.1. Background-specific strengths manipulation. Participants were randomly assigned to one of three conditions prior to completing the questionnaire portion of the study. Participants in the *background-specific strengths condition* ($n = 57$) were exposed to a multiphase experimental paradigm. Students participated in this research and completed the experiment between the months of March and April, toward the end of the academic term. Students received the instructions via an online survey and the experimental paradigm was completed independently and completely online. First, students were asked to read a brief description of background-specific strengths, including information about how students from lower-SES backgrounds have acquired these strengths as a result of their lived experiences, and how these unique strengths can serve as assets that can help students succeed.

Key excerpts from the background-specific strengths condition include, "You may have heard or come to believe that certain people have advantages and are more likely to do better in school and in life, like maybe people who have more money or a higher socioeconomic

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status. Actually … students from lower socioeconomic status backgrounds have acquired a lot of knowledge, skills, and abilities from their lived experiences (e.g., as a result of adversity). Collectively, we can call these 'background-specific strengths'… acquired from lived experiences and these unique strengths can serve as assets that can help in school, that can benefit schools, and that can benefit society. We acknowledge the multiple strengths of these students and want to learn more about them."

Second, students were asked to reflect and write for 5 minutes about their own BSS and how they can leverage them as resources. Third, students were asked to explain what they learned from the activity to another student. This is a brief version of a "saying-is-believing" exercise intended to increase students' commitment to an idea by giving them another opportunity to internalize the message (see Study 1 in Supplemental Material for the full manipulation materials and sample responses). In the *active control condition* ($n = 66$), participants were asked to write for 5 minutes about their daily schedule. Participants in a *passive control condition* ($n = 76$), were not exposed to any information before the questionnaire portion of the study.

1.2. Measures

1.2.1. Endorsement of background-specific strengths

Students' endorsement of BSS was measured using a 10-item scale developed for this program of research (see Supplemental Material for full list of items). Participants responded to items (e.g., "The background-specific strengths that I have learned growing up have a lot of value that can benefit my school") on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Together, these 10 items showed strong reliability ($\alpha = 0.89$, $M = 4.46$, $SD = 0.73$).

1.2.2. Academic persistence

Students' inclinations to persist in the face of academic difficulty were measured using a 4-item scale that has been used in previous identity-based motivation research examining how students interpret and respond to academic difficulty (Browman et al., 2017; Destin et al., 2018; Oyserman et al., 2015; see Supplemental Material for full list of items). Participants responded to items (e.g., "Finding a school task really difficult tells me that I can't complete it successfully") on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). A strong endorsement of these items indicates that people are likely to interpret difficult academic tasks as being impossible for them to successfully complete. Accordingly, they show low levels of motivation to persist in the face of academic difficulty; Oyserman, Elmore, Novin, Fisher, & Smith, 2018; Smith & Oyserman, 2015). In the current paper, for ease of interpretation we reverse-code this difficulty-as-impossibility measure such that higher scores indicate greater inclinations to persist in the face of academic difficulty. Together, these 4 items showed strong reliability ($\alpha = 0.89$, $M = 4.64$, $SD = 0.97$).

1.2.3. State self-esteem

Students' state self-esteem was measured using a 3-item scale (adapted from Heatherton & Polivy, 1991) as an indicator of psychological well-being (see Supplemental Material for full list of items). Participants responded to items (e.g., "I am satisfied with myself") on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Together, these 3 items showed strong reliability ($\alpha = 0.83$, $M = 4.12$, $SD = 1.07$).

1.3. Results

1.3.1. Analysis plan

We first sought to establish baseline equivalence between conditions on key demographic and achievement variables. We did not find any significant differences among the conditions on any of these variables (see Study 1, Table 1 S1, in Supplemental Material). Therefore, we did not include any of these variables as covariates in our analyses. Thus, the

models predicting the effect of condition on participants' endorsement of background-specific strengths, inclinations toward academic persistence, and state self-esteem only included two orthogonal contrasts, providing conservative estimates of our condition effects. The first contrast (C1) opposed the BSS condition (coded $+1$) to both passive and active control conditions combined (both coded -0.5). The residual contrast (C2) opposed the passive control condition (coded $+0.5$) to the active control condition (coded -0.5), with the BSS condition coded as 0.

1.3.2. Endorsement of background-specific strengths

These analyses showed a significant effect of C1, $F(2,196) = 22.33$, $p < .001$, $\beta = 0.32$, 95% CI [0.19, 0.45] and no significant effect of C2, $F(2,196) = 1.39$, $p = .241$, $\beta = -0.08$, 95% CI [-0.21, 0.05]. This analysis had 99% power to detect an effect size of $\beta = 0.32$ or similar. Participants randomly assigned to the BSS condition displayed significantly greater endorsement of background-specific strengths than participants in the control conditions (Figs. 1–3). Participants in the passive and active control conditions did not differ from one another in their endorsement of BSS.

1.3.3. Academic persistence

These analyses showed a significant effect of C1, $F(2,191) = 4.62$, $p = .033$, $\beta = 0.15$, 95% CI [0.01, 0.29] and no significant effect of C2, $F(2,191) = 0.47$, $p = .491$, $\beta = 0.05$, 95% CI [-0.09, 0.19]. This analysis had 65% power to detect an effect size of $\beta = 0.15$ or similar. Results indicate that participants randomly assigned to the background-specific strengths condition displayed significantly greater inclinations to persist in the face of academic difficulty than participants in the control conditions. Participants in the two different control conditions did not differ from each other in their inclinations toward academic persistence.

1.3.4. State self-esteem

These analyses showed a significant effect of C1, $F(2,195) = 4.00$, $p = .047$, $\beta = 0.14$, 95% CI [0.002, 0.28] and no significant effect of C2, $F(2,195) = 0.86$, $p = .356$, $\beta = 0.07$, 95% CI [-0.07, 0.20]. This analysis had 61% power to detect an effect size of $\beta = 0.14$ or similar. Participants randomly assigned to the background-specific strengths condition displayed significantly greater state self-esteem than participants in the control conditions. Participants in the two different control conditions did not differ from each other in their state self-esteem.

Study 1 indicated that college students from lower-SES backgrounds who reflected on their background specific-strengths were significantly more likely to: 1) endorse the idea that they have gained unique strengths from their backgrounds and that they are an asset to their schools and society, 2) be inclined to persist in the face of academic difficulty, and 3) display greater state self-esteem compared with students in the active and passive control conditions.

2. Study 2

Study 2[2] sought to replicate findings from Study 1 in a sample of younger students who might benefit from viewing their background as a strength earlier in their educational trajectories.[3]

2.1. Method

2.1.1. Participants and procedure

1063 Black ($n = 427$) and Latinx ($n = 633$[4]) 8th grade students

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[2] In this study, we report all measures, manipulations and exclusions that are relevant and any additional information can be found in the Supplemental Material.

[3] The pre-registration for this study can be found at https://osf.io/7dh3m.

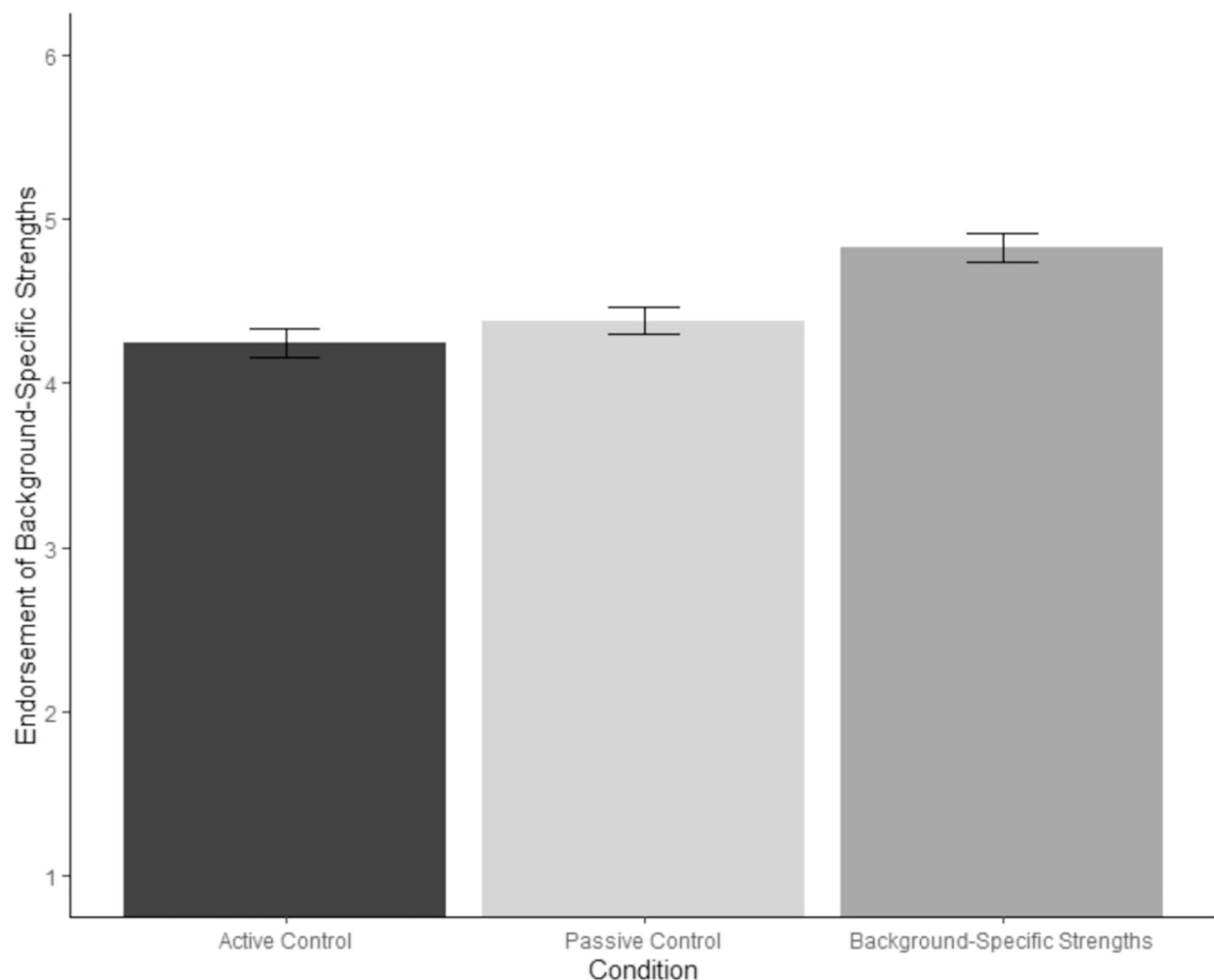[4] Three participants in this sample identified as being both Black and Latinx.

Fig. 1. The influence of condition on endorsement of background-specific strengths in Study 1. Error bars represent $-/+$ 1 *SE* of the mean of endorsement of background-specific strengths.

(47.7% girls) who qualified for free or reduced-price lunch were recruited from middle schools in the southeast region of the United States. Materials were adapted for middle school-aged students and were pilot tested to allow us to conduct power analyses for a sufficiently powered study. Effect sizes from a pilot study ranged between 0.10 and 0.20, supporting the expectation for small-medium effects. A power analysis using the G*Power program indicated that a total sample of about 900 participants would be needed to detect small-medium effects (effect size $f = 0.14$) with 80% power using an *F* test between means with alpha at 0.05. We aimed to recruit approximately 1000 students giving us flexibility to reach desired power after accounting for incomplete data or exclusions.

2.1.2. Background-specific strengths manipulation

Participants were randomly assigned to one of two conditions[5] (i.e., BSS condition vs. passive control condition) at the individual student level. Students participated in this research and completed the experiment in January (i.e., toward the beginning of the third term of their academic year). They received the instructions via an online survey and the experimental paradigm was completed independently and completely online. Participants in the *background-specific strengths condition* were exposed to a multiphase experimental paradigm similar to that in Study 1. First, students read a brief description of BSS, including information about how students from Black, Latinx, and/or lower-SES backgrounds have acquired these strengths as a result of their lived experiences, and how these unique strengths can serve as assets that can help students succeed in school and benefit their schools and societies. Second, students were asked to reflect and write for 5 minutes about their own BSS and how they can leverage them as resources. Third, students were asked to explain what they learned from the activity to another student (see Study 2 in Supplemental Material for the full manipulation materials). Participants in the *passive control condition* were not exposed to any information before the questionnaire portion of the study.

The experimental paradigm implemented with middle school students in the current Study 2 was nearly identical to the one implemented with college students in Study 1 with minor modifications for language comprehension. In previous studies with similar samples, we have found that not all middle school students complete the experiments fully or as intended, perhaps because the students are significantly younger than college students or because they have completed the experimental paradigms independently online without additional instruction from instructors or researchers. Consequently, we anticipated the possibility that not all of the middle school students would successfully complete the current experiment as intended. Thus, we expected the experimental treatment to be particularly effective for those students who completed all phases of the manipulation successfully (i.e., we did not expect to find

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[5] Participants were supposed to be randomly assigned to the same three conditions as in Study 1. However, due to a technical computer error, participants were only randomly assigned to one of two conditions (BSS condition vs. passive control condition). In Study 1, the two control conditions (passive control vs. active control) did not significantly differ from each other.
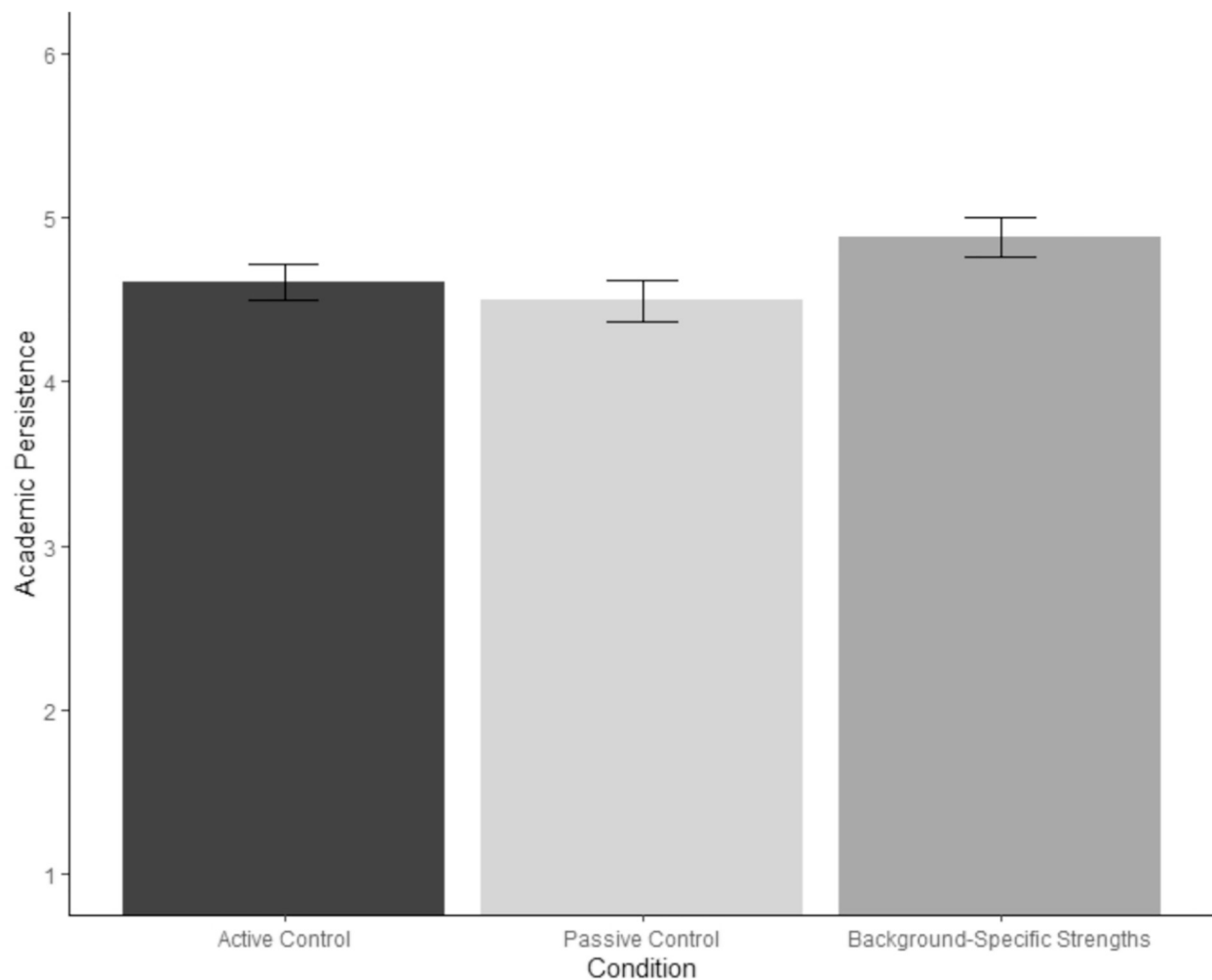
Fig. 2. The influence of condition on students' inclinations to persist in the face of academic difficulty in Study 1. Error bars represent $-/+$ 1 *SE* of the mean of academic persistence.

a strong treatment effect for students who did not complete the treatment). As pre-registered, we report analyses among all students who participated in the study (i.e., *intent-to-treat analyses*) and also *per-protocol analyses* where we analyze data among students who successfully completed the manipulation as intended (see more details below).[6]

2.2. Measures

2.2.1. Endorsement of background-specific strengths

Students' endorsement of background-specific strengths was measured using a 12-item scale developed for this program of research (see Supplemental Material for full list of items). Participants responded to items (e.g., "I have certain street smarts[7] that can benefit [my school/society]") on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Together, these 12 items showed strong reliability ($\alpha = 0.78$, $M = 4.40$, $SD = 0.68$).

2.2.2. Academic persistence

Students' inclinations to persist in the face of academic difficulty were measured using the same 4-item perceived academic difficulty as

impossibility scale as in Study 1. Together, these 4 items showed strong reliability ($\alpha = 0.83$, $M = 3.99$, $SD = 1.14$). Responses were reverse-coded for ease of interpretation such that higher scores on this measure indicate greater inclinations to persist in the face of academic difficulty.

2.2.3. State self-esteem

Students' state self-esteem was measured using the same 3-item scale as in Study 1 on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Together, these 3 items showed strong reliability ($\alpha = 0.84$, $M = 4.63$, $SD = 1.15$).

2.3. Results

2.3.1. Intent-to-treat analyses

2.3.1.1. Analysis plan. As in Study 1, we first sought to establish baseline equivalence between conditions on key demographic and achievement variables. There were no significant differences between students randomly assigned to the background-specific strengths condition and those in control conditions on any potential covariate variables (e.g., demographics or prior academic achievement; see Study 2, Table 1 S2, in Supplemental Material).

To test whether students who were randomly assigned to the background-specific strengths condition were more likely to endorse greater BSS beliefs, display greater inclinations to persist in the face of academic difficulty, and higher state self-esteem, we regressed students'

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[6] See Study 2 Supplemental Material for an alternative complier average treatment effects (CACE) causal analysis.

[7] In study 2, we use the term, "street smarts" instead of "background-specific strengths" for a more developmentally appropriate approach (See Supplemental Material for a discussion).
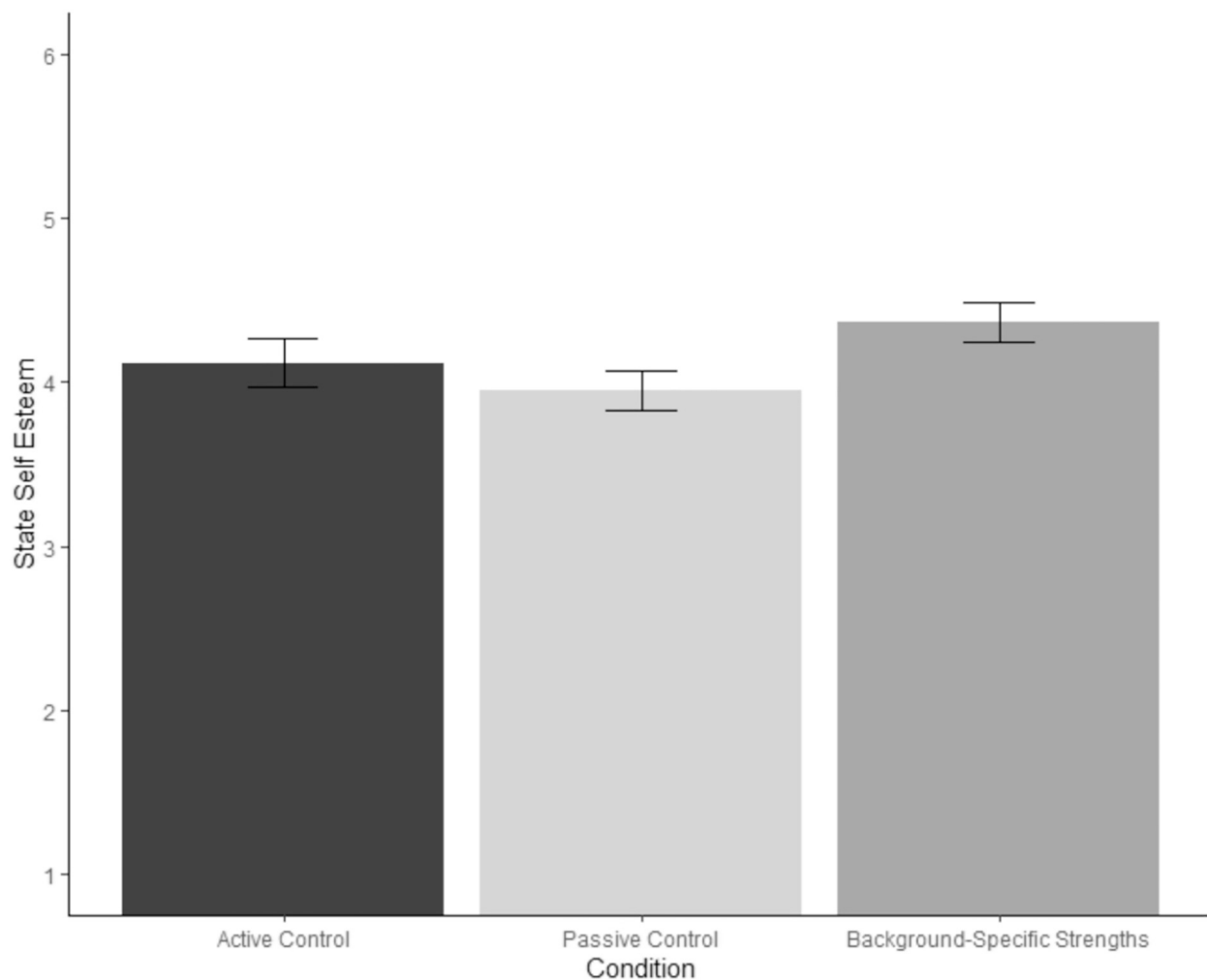
Fig. 3. The influence of condition on state self-esteem in Study 1. Error bars represent $-/+$ 1 *SE* of the mean of state self-esteem.

endorsement of BSS, inclinations to persist in the face of academic difficulty, and state self-esteem onto the condition that they were randomly assigned (with BSS and control conditions contrast coded as $+0.50$ and -0.50, respectively).

2.3.1.2. Endorsement of background-specific strengths. This analysis yielded a significant main effect of condition, such that students who were randomly assigned to the BSS condition displayed significantly greater endorsement of background-specific strengths than students in the control condition, $F(1, 1057) = 31.07$, $\beta = 0.17$, 95% CI [0.11, 0.23], $p < .001$. This analysis had 99% power to detect an effect size of $\beta = 0.17$ or similar. Results indicate that students were significantly more likely to endorse the idea that they had gained unique strengths that could make them an asset to their school and society after completing the BSS exercise.

2.3.1.3. Academic persistence. This analysis did not yield a significant main effect of condition, such that students who were randomly assigned to the background-specific strengths condition did not display greater inclinations to persist in the face of academic difficulty than students in the control condition, $F(1, 1010) = 0.55$, $\beta = 0.02$, 95% CI [-0.04, 0.08], $p = .459$. This analysis had 10% power to detect an effect size of $\beta = 0.02$ or similar.

2.3.1.4. State self-esteem. This analysis did not yield a significant main effect of condition; students randomly assigned to the background-specific strengths condition did not display significantly greater state

self-esteem than students in the control condition, $F(1, 975) = 0.57$, $\beta = 0.02$, 95% CI [-0.04, 0.09], $p = .450$. This analysis had 10% power to detect an effect size of $\beta = 0.02$ or similar.

2.4. Per-protocol analyses

2.4.1. Coding manipulation responses

Two independent coders reviewed and coded responses to the reflection essay mentioned above in which students were asked to reflect on their BSS and how they could leverage them to benefit their school or society. Essays were blindly coded on a 0–2 scale, with 0 indicating that the student did not engage with the activity at all (e.g., left the text box empty), 1 indicating that the student did not reflect on every aspect of the prompt (e.g., wrote a single word, like "resilience"), and 2 indicating that the student reflected as intended (see Study 2 in Supplemental Material for an example of a response coded as a 2). The percent agreement on coding was 85.8% and any discrepancies were resolved through discussions between the two coders. We first sought to examine whether there were differences between students who reflected as intended and those who did not (i.e., those participants who were excluded from the following analyses) within the BSS condition. Analyses indicate that participants who reflected as intended were more likely to be girls ($\chi^2 = 16.74$, $p < .001$) and had higher levels of prior achievement than participants who did not complete the reflection as intended ($d = 0.62$, $p < .001$; see Study 2, Table 2 S2, in Supplemental Material for these analyses). As pre-registered, we then removed participants who did not complete the manipulation as intended to conduct

the per-protocol analyses. The final sample included 912 Black (39.6%) and Latinx (60.4%) 8th grade students (50.1% girls) who qualified for free or reduced-price lunch (BSS, $n = 162$; passive control, $n = 750$).

2.4.2. Analysis plan

We first sought to establish baseline equivalence between conditions on key demographic and achievement variables (see Study 2, Table 3 S2, in Supplemental Material). There was a significant difference between students randomly assigned to the background-specific strengths condition and those in the control condition on prior academic achievement ($\beta = 0.13$, $p < .001$), such that students in the BSS condition had higher grades than students in the control condition prior to participating in our study. To account for this difference, we included prior achievement as a covariate in our analyses.

To test whether students who were randomly assigned to the background-specific strengths condition adopted greater endorsement of BSS, inclinations to persist in the face of academic difficulty, and state self-esteem, we regressed students' endorsement of BSS, inclinations to persist in the face of academic difficulty, and state self-esteem onto the condition they were randomly assigned to (with the BSS and control conditions contrast coded as +0.50 and − 0.50, respectively).

2.4.3. Endorsement of background-specific strengths ($\alpha = 0.78$, $M = 4.41$, $SD = 0.67$)

This analysis yielded a significant main effect of condition, such that students who were randomly assigned to the BSS condition displayed significantly greater endorsement of background-specific strengths than students in the control condition, $F(2, 891) = 49.56$, $\beta = 0.23$, 95% CI [0.16, 0.29], $p < .001$. This analysis had 99% power to detect an effect size of $\beta = 0.23$ or similar. Students were significantly more likely to endorse the idea that they had gained unique strengths that could make them an asset to their school and society after completing the BSS exercise.

2.4.4. Academic persistence ($\alpha = 0.83$, $M = 4.03$, $SD = 1.12$)

This analysis also yielded a significant main effect of condition, such that students who were randomly assigned to the background-specific strengths condition displayed greater inclinations to persist in the face of academic difficulty than students in the control condition, $F(2, 854) = 5.10$, $\beta = 0.08$, 95% CI [0.01, 0.14], $p = .024$. This analysis had 88% power to detect an effect size of $\beta = 0.08$ or similar. Results indicate that students were significantly more inclined to persist in the face of academic difficulty after completing the BSS exercise.

2.4.5. State self-esteem ($\alpha = 0.84$, $M = 4.62$, $SD = 1.14$)

This analysis did not yield a significant main effect of condition; students randomly assigned to the background-specific strengths condition did not display significantly greater state self-esteem than students in the control condition, $F(2, 828) = 0.44$, $\beta = 0.02$, 95% CI [−0.05, 0.09], $p = .505$. The analysis had 12% power to detect an effect size of $\beta = 0.02$ or similar.

2.4.6. End-of-term grades exploratory analyses ($M = 82.20$, $SD = 8.51$; scale from 0% to 100%)

We acquired student grades at the end of the academic term after participating in this experiment. We explored correlations investigating the relationship between our primary psychological outcome variables and students' achievement at the end of the academic term (see Table 1). Analyses indicate that both students' psychological inclinations to persist in the face of academic difficulty ($r = 0.24$, $p < .001$) and their endorsement of background-specific strengths ($r = 0.22$, $p < .001$) were significantly associated with students' grades at the end of the academic term.

We explored and did not find a direct effect of our brief background-specific strengths experimental paradigm on student end-of-term grades, $F(2, 828) = −0.64$, $\beta = −0.02$, 95% CI [−0.06, 0.03], $p = .425$; analysis

Table 1

Correlations reflecting the relationship between end-of-term student grades and psychological outcomes that were influenced by the background-specific strengths paradigm.

Variable measured	End-of-term student grades (%)
Endorsement of background-specific strengths	0.22*** [0.16, 0.28]
Academic persistence	0.24*** [0.18, 0.30]

Note: Numbers in [] represent 95% confidence intervals. *$p < .05$, **$p < .01$, ***$p < .001$.

had 12% power to detect an effect size of $\beta = 0.02$ or similar). However, the primary analyses showed the predicted effects of the BSS experimental treatment on psychological processes related to achievement. Further, the pattern of relationships between the psychological variables of interest and student end-of-term grades suggest possible indirect effects, so we conducted exploratory tests of the potential indirect effects of the BSS experimental treatment on end-of-term grades through both the endorsement of background-specific strengths and inclinations to persist in the face of academic difficulty variables, controlling for prior achievement at both the *a* (condition to psychological outcome) and *b* (psychological outcome to grades) pathways, using 5000 bootstrapped samples in the mediation package (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014) in R v3.6.2.

2.4.7. Indirect effect analyses

Analyses did not indicate an indirect effect of experimental condition on students' end-of-term grades through students' inclinations to persist in the face of academic difficulty (indirect effect $\beta = 0.01$, $p = .158$, 95% CI [−0.002, 0.02]). The indirect effect of experimental condition on students' end-of-term grades through their endorsement of background-specific strengths was also not significant but was in the general direction that would be expected given our theoretical model (indirect effect $\beta = 0.03$, $p = .063$, 95% CI [−0.002, 0.05]; see Fig. 4).

In Study 2, we conducted two sets of statistical analyses examining the influence of the BSS condition on key psychological outcome variables. In both sets of analyses, results indicated that Black and Latinx students from lower-SES backgrounds who reflected on their background-specific strengths were significantly more likely to endorse the idea that they have unique strengths due to their backgrounds and that they are an asset to their schools and society compared with students in a control condition. Among students who completed the experimental paradigm successfully, the background-specific strengths manipulation also significantly increased their inclinations to persist in the face of academic difficulty. In this sample, we also found that both of these psychological factors were significantly and positively associated with students' grades at the end of the academic term.

3. General discussion

The aim of the present research was to investigate whether guiding lower-SES students to reflect on the unique background-specific strengths that they have acquired from their otherwise stigmatized identities and associated experiences would have positive implications for their academic persistence and psychological well-being. Among college students from lower-SES backgrounds, a novel experimental paradigm guiding students to reflect on their background-specific strengths successfully increased their endorsement of the idea that they had unique strengths as a factor of their background and that they were an asset to their schools and society. This experimental paradigm also increased students' inclinations to persist in the face of academic difficulty and their state self-esteem (Study 1). Middle school students from lower-SES backgrounds who completed the BSS experimental paradigm as intended also displayed greater endorsement of BSS, as well as greater inclinations to persist in the face of academic difficulty, compared with their peers in the control condition (Study 2). In turn,
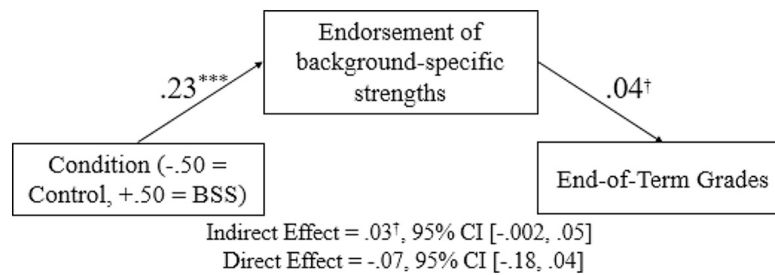
Fig. 4. Analysis of indirect effect of experimental condition on end-of-term grades through students' endorsement of background-specific strengths in Study 2.

these important psychological outcomes, and key predictors of student success (Browman et al., 2017; Oyserman et al., 2015), were positively associated with students' achievement at the end of their academic term (Study 2). The present studies provide support for some of the proposed psychological processes and may have important implications for future research and theory but are not without limitations.

For the purposes of this series of experiments, we created a scale in order to assess students' endorsement of their beliefs about their background-specific strengths. However, a limitation is that we did not follow traditional scale construction processes, and future research should aim to establish psychological construct validation before continuing to apply the scale more broadly. However, the current measure did effectively allow students to construe background-specific strengths in ways that were personally relevant and associated with other positive psychological outcomes, as suggested by other areas of research (e.g., Canning & Harackiewicz, 2015; see also Destin & Hernandez, 2020).

Additionally, we did not find evidence among a sample of Black and Latinx adolescent students from lower-SES backgrounds that guiding them to reflect on their BSS positively affected their state self-esteem at statistically significant levels. Although we predicted that the treatment would affect psychological well-being, the state self-esteem outcome measure in the current studies may not be a sufficient assessment of psychological well-being, particularly among a sample of Black and Latinx middle school students (see Hope, Chavous, Jagers, & Sellers, 2013; Hughes, Kiecolt, Keith, & Demo, 2015; Oyserman & Lewis Jr, 2017). Also, middle school students in Study 2 displayed higher levels of state self-esteem on average than college students in Study 1. One possibility for inconsistent findings is that the self-esteem of marginalized students in a college context may be more vulnerable than that of younger students. Further, it is possible that highlighting the strengths associated with students' lower-SES backgrounds has positive implications for their goal-pursuit rather than self-esteem among students at that age level. That is, the experimental paradigm in the present research may be activating motivational processes and not directly making younger students feel positively about themselves.

Alternatively, the state self-esteem measure may not capture the actual phenomena of interest as it relates to positive feelings about oneself in academic spaces that can otherwise be stigmatizing and oppressive. For example, items included in the state self-esteem scale in the present research included an item assessing satisfaction with one's physical appearance, which is not the target of the manipulation nor the goal of the current studies. Future research might include more in-depth evaluations as well as more nuanced and/or traditional measures of psychological well-being (e.g., stress, anxiety) that could be sensitive to the activation of one's background-specific strengths. Further, future research should investigate the longitudinal effects of BSS paradigms on students' well-being. For example, it is possible that positive effects may develop and unfold over time, or alternatively, that exerting greater persistence for students from marginalized backgrounds may lead to reduced psychological well-being over time (e.g., Destin, 2019).

Another limitation of the current research is that the results of the experimental paradigm among younger adolescent students may be

illustrating psychological phenomena that might be occurring for only a subset of these students. Student responses in Study 2 in the background-specific strengths condition were coded for indicators that students were actually engaging with the experimental material and completing it successfully. As there was no equivalent writing task for which we coded or excluded participants in the control condition, we cannot eliminate the possibility that certain students were systematically excluded from our analyses (e.g., less conscientious or poorer performing students)—though this might have been partially controlled for as we included prior achievement as a covariate in all models. Equivalency analyses indicate that students who were excluded from analyses in Study 2 had significantly lower levels of prior academic achievement than those who completed the paradigm successfully and were retained in the analyses. It is possible that the findings from the current research may only generalize to students above a certain threshold of achievement, as shown in other research (e.g., Destin & Oyserman, 2009) or that the analysis may be subject to selection bias. Future research would benefit from conducting a within-person version of Study 2 that would allow for tests of effect heterogeneity (see Whitsett & Shoda, 2014).

Finally, these studies did not fully assess potential variables related to psychological mechanism. Continued investigation of the key psychological mechanisms will add to our understanding of the nuances between the current work and prior research on self-affirmation and difference-education, for example. Future research might also investigate whether reflecting on BSS remains helpful for academic persistence and well-being in the face of actual psychological threat or challenge.

While prior work has shown the negative effects of making students' stigmatized identities salient in threatening contexts (e.g., Croizet & Claire, 1998; Johnson et al., 2011), the current research demonstrates that attaching unique strengths to those identities through highlighting the value of students' backgrounds can support students to instead see their identities as assets in those same threatening contexts. Directly highlighting the unique knowledge and strengths that students have acquired from their lived experiences and backgrounds (e.g., Bernal, 2002; Yosso, 2005) has important positive consequences and can be a primary pathway by which students can feel value and integrity, experiencing a positive link between their lower-SES backgrounds and education.

Given that this paradigm is grounded in the idea that students from certain groups often receive deficit-based messages about their backgrounds in school, future research may investigate how this work can be expanded beyond SES to study whether this paradigm can improve outcomes among other marginalized groups in contexts where their identities are stigmatized. The paradigm presented in the current research is highly flexible to students' identities and the challenges that they may have faced. This paradigm allows students to individually self-generate content, making it particularly relevant and powerful. Although the current research focuses on students from lower-SES backgrounds, this work expands the possibilities for effective approaches to support positive outcomes among students from a variety of backgrounds. Another avenue for this research may focus on conveying strengths-based messages at the contextual rather than individual student level. Context-level changes, for example through teacher

professional-development and strengths-based educational materials, may better encourage students to consider their unique strengths and how they can be used in a variety of situations.

The experimental methods in the current work can help to transform strong theories into practice and add to a growing body of research studies that incorporate strengths-based approaches to investigate psychological and educational outcomes among students from historically marginalized backgrounds (see Covarrubias, Valle, Laiduc, & Azmitia, 2019; Jehangir, 2010; Moll, Amanti, Neff, & Gonzalez, 1992; Rendon, 1994; Rios-Aguilar & Kiyama, 2012). In the current paper, we present a novel proof-of-concept experimental paradigm that successfully guided students from lower-SES backgrounds to reflect on the unique knowledge, skills, and perspectives that they have acquired as a result of their lived experiences. In turn, these students were more likely to endorse the idea that they have unique strengths as a factor of their background which serve as valuable resources across a variety of settings, and had greater inclinations to persist in the face of academic difficulty. The current research demonstrates the importance of making students more cognizant of their unique background-specific knowledge and skills, making them feel valued and valuable in academic contexts. Given the continuously increasing number of students from lower-SES backgrounds in higher levels of education and the diversity of the demographic landscape of the U.S. (Espinosa, Turk, Taylor, & Chessman, 2019; Fry & Cilluffo, 2019), this research has theoretical and practical implications for policy and interventions aimed at supporting the identities and academic achievement of a significant portion of the U.S. population.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2020.104080.

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