



Thoughts about a successful future encourage action in the face of challenge

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Abstract

College environments can put lower socioeconomic status (SES) female students at particular risk of withdrawing during challenging academic situations. However, thinking about reaching a successful future identity may encourage these students to take action rather than withdraw. In a laboratory experiment, we tested the hypothesis that imagining a successful future identity would help lower SES female students to actively and successfully confront challenging tasks (i.e., a mock student–faculty interaction and difficult academic test). As predicted, when future identities were cued rather than past identities, lower SES female students demonstrated greater action readiness. Specifically, they showed more expansive body posture during the mock interaction and more attempts to complete the academic test, which led to better performance. The motivation to take action among higher SES and male students, who are at lower risk of vulnerability in college environments, was not influenced by future identities.

Keywords Future identity · Action readiness · Socioeconomic status · Student–faculty interactions

Introduction

College can be a time of great opportunity, but it can also be a time of great stress. For many students, college is their first experience away from the consistent support of family and friends as they gradually transition into adulthood (Arnett 2000; Lapsley et al. 1989). College can also be characterized by new academic challenges, such as difficult courses, novel academic standards, and unclear norms and protocols for seeking help (Chemers et al. 2001). As students confront demanding situations, they can either take action to mobilize effort and pursue success or withdraw from challenging tasks and avoid discomfort (Aspinwall and Taylor 1992). Students from social groups that tend to experience

marginalization and a lack of social support in higher education can be especially wary and hesitant to take action during academic challenges (Nolen-Hoeksema 2001; Ostrove and Long 2007). The theory of identity-based motivation suggests that one way to encourage productive action during such situations is to think about a successful future or bring to mind a *future identity* (Oyserman and Destin 2010; Oyserman et al. 2015). In the current research, we build on previous studies of future identities (e.g., Higgins et al. 1990; Oyserman et al. 2015) to examine whether having students think about their own successful futures enables those who are at risk of withdrawing to instead take action in challenging academic situations.

Socioeconomic status and gender in college

Students from lower socioeconomic status (SES) backgrounds (lower SES students) tend to experience more challenges at 4-year colleges and universities than students from higher SES backgrounds (higher SES students, see Walpole 2003). In addition to having greater financial burdens (Bozick 2007), lower SES students also face additional psychological challenges during college compared to their higher SES counterparts (Stephens et al. 2012). Even with high levels of academic preparation, lower SES students can

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feel stereotyped as academically inferior or feel that they do not belong or fit in on college campuses, which are often unfamiliar, foreign, and predominantly inhabited by higher SES students (Croizet and Claire 1998; Johnson et al. 2011; Rheinschmidt and Mendoza-Denton 2014). Indeed, subtle cues that one's university devalues or deprioritizes socioeconomic diversity (vs. encourages and supports socioeconomic diversity), can weaken lower SES students' academic motivation and perception of themselves as high achieving students (Browman and Destin 2016). These chronic psychological risks may decrease the likelihood that lower SES students feel prepared to take swift and appropriate action in response to everyday academic challenges during college.

Lower SES female students face unique circumstances that make them particularly likely to withdraw and not take necessary action during challenging academic situations. In a national survey of over 150,000 college freshmen from over 1500 institutions, female students were more likely than male students to express concern about their ability to finance their college education than men (69.5 vs. 58.7%) and to report having felt "overwhelmed by all I had to do" (45.3 vs. 20.5% ; Eagan et al. 2016). In addition, women are more likely to seek social support (vs. other coping strategies) than men in response to an achievement-related stressor (Ptacek et al. 1994), and perceptions of social support are a stronger predictor of women's mental health than men's (Bildt and Michélsen 2002; Elliott 2001; Nolen-Hoeksema 2001; Olstad et al. 2001; Schraedley et al. 1999). Thus, the lack of support often experienced by lower SES college students may be particularly detrimental for lower SES female students (Wilkins 2016), leaving them less likely to take action in the face of challenging academic situations during college than their lower SES male counterparts. As a result, we theorize that lower SES female students may be more likely than lower SES male students to benefit from an approach to increase action that targets vulnerable students.

Future identities as a catalyst for action

The theory of identity-based motivation proposes that activating a focus on a successful future identity may be especially powerful in motivating students who are vulnerable during challenging academic situations (Oyserman and Destin 2010; Oyserman et al. 2015). A successful future identity (subsequently shortened to "future identity") refers to a vivid and salient image of the self after reaching some long-term goal. Indeed, a future orientation, future possible selves, and a salient future identity all increase the likelihood that people will engage in goal-directed behaviors to improve their health, wealth, and education (e.g., Ersner-Hershfield et al. 2009; Hoyle and Sherrill 2006; Markus and Nurius 1986; Oyserman et al. 2015). When salient, future identities are theorized to facilitate motivation by helping people

develop a sense of *action readiness*, which involves feeling ready and able to take appropriate action when confronting difficulty (Frijda 1988; Oyserman and Destin 2010; Suri et al. 2015). However, studies have not directly investigated whether activating a future identity prior to a challenging experience encourages action readiness. Further, previous studies have focused on membership in individual social groups (e.g., SES *or* gender) rather than adopting the intersectional approach to identity (see Cole 2009) that we take here. This approach acknowledges how a person's sense of self is constructed by a unique and dynamic combination of multiple social categories (e.g., SES *and* gender). For example, Purdie-Vaughns and Eibach (2008) describe that individuals who are members of specific combinations of marginalized groups (e.g., black women) face experiences that are unique to the combination of those identities and distinct from members of any single marginalized group identity (e.g., black men or white women). As such, it is essential to take into account how particular situations are experienced differently based on multiple relevant group memberships. In the current research, we examine whether activating future identities may be primarily beneficial for members of the group at greatest risk within particular challenging academic situations during college (i.e., lower SES female students).

Future identities lead to action readiness (see Oyserman 2015) in part by drawing attention to the discrepancy between an individual's current standing in a particular domain and a desired future standing in the domain (for a review, see Higgins 1987). When salient, the contrast motivates the individual to take action to reduce the discrepancy between current and desired circumstances (Higgins et al. 1990). Given this, we theorize that future identities provide a well-aligned tool for increasing the action readiness among students from groups that are particularly vulnerable and the most likely to withdraw during challenging academic situations.

Research on fantasies and mental contrasting provides further evidence that thoughts about the future can encourage action, goal commitment, and goal-directed effort (Oettingen et al. 2001, 2009; Wright 2008). A focus on future identities, however, more squarely emphasizes thoughts about the future that are inherently connected to an individual's dynamic sense of self (Markus and Wurf 1987). Future identities lead to action in whatever form is relevant for a given goal or domain (e.g., health; King 2001; Ouellette et al. 2005; or education, Oyserman et al. 2006, 2015), and they may be especially likely to motivate those who are at greatest risk for inaction or withdrawal from a difficult situation.

Challenging academic situations

Two of the most common and consequential challenging situations for college students are exams (Chapell et al. 2005; Hancock 2001; Hannon 2012) and interactions with faculty (Cox et al. 2010; Kuh and Hu 2001; Pascarella and Terenzini 1977). Positive student–faculty interactions predict a number of desirable outcomes for college students, including improved cognitive skills, higher academic achievement, and even reduced attrition (Anaya and Cole 2001; Kim and Sax 2011; Lamport 1993; Pascarella and Terenzini 1977). However, many students find them uncomfortable or avoid such interactions altogether, especially female students from lower SES backgrounds (Hurtado et al. 2011; Kim and Sax 2009; Sax et al. 2005; Wilson et al. 1974). Therefore, we utilize student–faculty interactions as the overarching context for our study.

Current research

We take a novel intersectional approach to examine how male and female students from higher and lower SES backgrounds respond to these challenging academic situations (i.e., a mock faculty interaction and an academic test) and to evaluate a strategy for enhancing action readiness (i.e., bringing to mind a future identity). Given the evidence that lower SES female students are particularly vulnerable to challenging academic situations during college, we theorize that they may be most likely to benefit from a salient future identity.

In two laboratory experiments, participants engage in challenging academic situations, during which we measure action readiness through participants' behavior (i.e., their posture during a mock interaction with faculty and their effort on a test). In the first study, we test the hypothesis that for female students from lower SES backgrounds, bringing to mind a salient future identity will lead to greater action readiness during challenging academic situations compared to bringing to mind a salient past identity or no specific identity.

Study 1

To test our first prediction, we designed a laboratory experiment, recruited female students to participate, and randomly assigned them to bring to mind a future identity (future identity condition), a past identity (past identity condition), or to think about the layout of a local grocery store (control condition). Subsequently, participants engaged in a challenging mock student–faculty interaction and academic test. We investigated whether bringing to mind a future identity (vs. past identity or control) increased action readiness as

indicated by more active posture and greater academic effort among female students from lower SES backgrounds but not those from higher SES backgrounds.

Method

Participants

Informed consent was obtained from all participants.¹ We recruited 93 female undergraduate students from a selective, private, Midwestern university (66.7% White or Asian/Asian American). Prior to the study, participants completed a demographic questionnaire, and indicated their family household income by selecting one out of nine annual income groups: (1) below \$25,000, (2) \$25,001–\$40,000, (3) 40,001–\$70,000, (4) \$70,001–\$90,000, (5) \$90,001–\$120,000, (6) 120,001–\$150,000, (7) \$150,001–\$200,000, (8) \$200,001–\$300,000, (9) \$300,001 or more. Although SES is often conceptualized as a continuous variable, we did not hypothesize a linear effect whereby participants' responses to the experimental paradigm would vary according to whether they selected, for example, a family income of “1”, “2”, or “3”. Instead, our conceptualization and hypothesis characterizes participants within these lower SES (“1”–“3”) vs. higher SES (“9”) categories as members of two distinct groups, as observed in other research with similar populations (e.g., Johnson et al. 2011), and therefore we coded and analyzed them as such. Given the median family income at the university was \$171,200 (Aisch et al. 2017), we considered participants who had family incomes of \$100,000 less than the median to be lower SES ($N=53$; $N_1=18$, $N_2=14$, $N_3=21$) and those who had family incomes of \$100,000 more than the median to be higher SES ($N_9=40$) within the university context.²

Procedures

Participants arrived at the laboratory where first they were randomly assigned, between-subjects, to consider either their *future identity*, their *past identity*, or “no identity”. Next, all participants then engaged in a challenging mock student–faculty interaction task, where they were instructed

¹ All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

² In Study 1, we also recruited participants from all other income groups, in order to empirically validate our assumption that the effects would be stronger and more meaningful among students who were objectively lower SES and higher SES and parallel in their distance from the median income within the university context. As shown in supplemental materials, analyses including participants from other income groups supported our assumption and approach.

to speak aloud to an experimenter and video camera as if asking a professor for help during office hours for 3 min. Finally, participants completed difficult questions from the Graduate Record Examination (GRE) before they were debriefed, thanked for their participation, and dismissed from the lab.

Experimental manipulations

The manipulations were adapted from previous studies where future identities of college students were made salient (Landau et al. 2014; Ruvolo and Markus 1992; Smith et al. 2014). They were specifically designed to cue aspects of status related to future or past identities in order to activate a motivating contrast for lower SES female students who were randomly assigned to bring their future identity to mind. In the future identity condition, participants responded to the following prompt:

First we would like for you to imagine yourself a few years after college graduation as a middle to upper class professional. How will your living situation change from what it is now in terms of money and finances? How do you think your money, finances, and/or status will shape or influence how you will be perceived by others? Be as descriptive as possible include any thoughts, feelings etc., that come to mind.

In the past identity condition, the prompt said:

First we would like for you to imagine yourself before you began seriously planning for and applying for college (during your freshmen and sophomore years of high school) when you lived with your family and hometown friends. What was your family's living situation like at that time in terms of money and finances? How do you think your family's money, finances, and/or status shaped or influenced how you were perceived by others? Be as descriptive as possible include any thoughts, feelings etc., that come to mind.

In the "no identity" control condition, students wrote about the layout of their local grocery store (Slotter et al. 2014). As intended, participants brought to mind very different types of identities based on whether they were assigned to the future or past identity condition (see Appendix for sample responses).

Mock student–faculty interaction

After completing the experimental manipulation, participants prepared for a mock interaction that was similar to that which would be experienced during a visit to office

hours. We developed this task based on a standardized task designed to elicit moderate psychosocial stress (Kirschbaum et al. 1993). The instructions were as follows:

First, imagine that you are having trouble in one of your university courses and that you must approach the professor of this course during his/her office hours to seek help. Think about a specific issue in a particular class and what you would say to the professor in a one-on-one meeting. After taking 3 min to prepare, we will be asking you to speak aloud to the experimenter and video camera as if you were speaking to the professor at this office visit for about 3 min. What you say will be recorded and evaluated for the quality of your argument and articulation.

Academic task

Following the mock interaction, participants completed a version of the GRE that included questions rated by the Princeton Review and Educational Testing Services as high in difficulty. The experimenter informed participants that they would have an allotted period of time to complete as many questions as they could, and allowed each participant 7 min to work on the items.

Measures

We examined participants' action readiness throughout the course of the challenging academic situation in their body posture and academic effort.

Body posture During the interaction, we measured action readiness by examining participants' body posture. Expansive body posture is an overarching behavioral manifestation of whether participants are active or withdrawn that provides an objective behavioral measure of nonverbal action readiness that is less influenced by interpretation bias than other more subjective assessments (Dael et al. 2012; Wallbott 1998). It is related to other indicators such as eye contact and fidgeting, but broader and has been both manipulated and assessed in prior research as a consequential indicator of nonverbal presence (Cuddy et al. 2015; Hall et al. 2005; Huang et al. 2011; Riskind 1984). An undergraduate research assistant who was unaware of participant SES, condition, and study hypothesis watched the recorded speech tasks on mute and coded participants' expansive body posture on a scale from 1 to 7 (see Fig. 1). A rating of one indicated that the participant's posture was not at all open for the duration of the video, with primarily clasped hands or hands behind back, shoulders slouched, shuffling feet, etc. A rating of four indicated that the participant was somewhat open for the duration of the video, with displays

(a) Non-expansive posture **(b) Expansive posture****Fig. 1** Examples of participants who were rated low and high in expansive body posture

of some signs of closed posture mixed with some more confident open expansive postures. A rating of seven indicated that the participant was extremely open for the duration of the video, primarily standing straight and tall while speaking, usually displaying palms or hands open while speaking and not shuffling feet ($M = 3.87$, [3.55, 4.18]).³ Eight videos encountered recording errors and could not be analyzed.

Academic effort We also indexed participants' action readiness as the number of items attempted on a difficult, 16-question GRE ($M = 8.96$, [8.29, 9.62]). The test included eight math and eight verbal questions presented in alternating order by subject. Such difficult, timed tasks provide a measure of action because the challenge of answering difficult questions can lead students to withdraw rather than to efficiently progress from question to question (e.g., Nussbaum and Steele 2007). Similar to related motivational tasks with difficult questions, we did not expect a future identity to increase students' ability to answer them correctly (Nussbaum and Steele 2007). However, we did examine the number of questions students answered correctly, in order to ensure that our measure of action readiness did not inadvertently measure guessing or speeding through the items without care.

Results

Analysis plan

In preliminary analyses, we test whether the two comparison conditions ("no identity" control condition and past identity condition) lead to different responses in the dependent

variables in order to determine whether they should be collapsed into a single control condition. Next, in our main analyses, we conduct planned contrasts to determine whether the future identity condition leads to an increase in action readiness (expansive posture and academic effort) for female students from lower SES backgrounds, but not those from higher SES backgrounds. To increase the precision of our analyses, we include baseline student characteristics that are likely to influence student responses to the faculty interaction and academic task as covariates, including participant race and Scholastic Achievement Test (SAT) scores ($M = 2124.63$, [2081.35, 2167.91]; Kao and Thompson 2003; Steele 1997). Analyses excluding covariates show the same pattern of results (see Supplemental Materials).

First, we tested whether the "no identity" control and past identity conditions had different effects on action readiness. We found no significant differences in expansive posture [lower SES $F(1, 72) = 1.11$, $p = .295$, higher SES $F(1, 72) = 1.65$, $p = .203$] or academic effort [lower SES $F(1, 79) = 0.63$, $p = .431$, higher SES $F(1, 79) = 0.24$, $p = .627$] between participants in these two conditions, regardless of SES. Therefore, we collapsed participants into one control condition and compared them to participants in the future identity condition.

Main analyses

Next, we conducted our main analyses to determine the effect of a future identity for lower SES participants. As expected, planned contrasts among lower SES participants revealed a significant effect of experimental condition on expansive body posture, $F(1, 74) = 5.91$, $p = .017$, $d = 0.85$, and on academic effort, $F(1, 81) = 7.30$, $p = .008$, $d = 0.94$. Specifically, for participants from lower SES backgrounds, cueing a future identity led to a large increase in expansive body posture during the mock student–faculty interaction and in the number of questions answered on the GRE task (see Table 1). There were no significant effects of identity condition on the action readiness of higher SES participants, posture $F(1, 74) = 0.14$, $p = .709$, effort $F(1, 81) = 0.01$, $p = .937$.

There were also no effects of cueing a future identity on the number of correct answers provided on the GRE task for lower or higher SES participants, respectively, $F(1, 81) = 0.16$, $p = .693$, $F(1, 81) = 0.08$, $p = .776$. Number of questions attempted was, however, positively correlated with number of correct answers, suggesting that more attempts were an indicator of genuine effort and action readiness, $r(93) = .58$, $p < .001$.

³ For Study 1, only one research assistant coded most videos, so a measure of inter-rater reliability could not be calculated. For Study 2, two coders rated most videos and reached strong agreement ($\kappa = 0.73$).

Table 1 Study 1 Estimated marginal means and 95% confidence intervals (CI) for expansive body posture and number of questions attempted on GRE by experimental condition and SES

	Experimental condition	<i>M</i> , 95% CI	Contrast <i>p</i> value	95% CI for difference	Cohen's <i>d</i> effect size
Lower SES					
Expansive posture	Control conditions	3.79, [3.26, 4.32]	.017	0.21, 2.08	0.85
	Future identity condition	4.94, [4.15, 5.72]			
Attempted GRE questions	Control conditions	8.46, [7.37, 9.54]	.008	0.72, 4.72	0.94
	Future identity condition	11.18, [9.47, 12.88]			
Higher SES					
Expansive posture	Control conditions	3.36, [2.70, 4.01]	.709	−0.79, 1.15	0.13
	Future identity condition	3.54, [2.80, 4.27]			
Attempted GRE questions	Control conditions	8.91, [7.56, 10.26]	.937	−1.94, 2.10	0.02
	Future identity condition	8.99, [7.44, 10.54]			

For race, White or Asian/Asian American (not underrepresented in higher education) were coded as 1, while members of other racial groups (underrepresented in higher education) were coded as 0 (see Stephens et al. 2014). Six participants who did not report their race or SAT score were not included in analyses including covariates

Discussion

As hypothesized, Study 1 provided initial evidence that cueing a future identity prior to a mock student–faculty interaction readied lower SES female students to take greater action during a challenging mock student–faculty interaction and on a difficult academic task, compared to cueing a past identity or no identity. Study 1 sought initial evidence focused on observing the predicted pattern among the specifically targeted group (lower SES female students), and the positive effects of a future identity were large in practical significance ($d_s > 0.85$). Higher SES female students were not expected to and did not show different levels of action readiness depending on the identity that was cued. However, Study 1 did not recruit a sample with adequate statistical power to systematically test the interaction that would determine whether the effect of cueing a future identity was different for low SES female students vs. high SES female students.⁴ Further, Study 1 only recruited women and was not able to examine the assumed role of gender. Therefore, for Study 2, we sought a larger sample in order to attempt to replicate the large effects in Study 1. Additionally, we recruited greater numbers of both male and female participants in order to test whether both male and female students from lower income backgrounds would benefit from bringing to mind a future vs. past identity or if, as predicted, the action readiness benefits would be limited to lower SES female students.

⁴ In an underpowered test of the interaction effect in ANCOVA, the overall interaction does not reach statistical significance, posture $F(1, 74) = 2.00, p = .161$; effort $F(1, 81) = 3.38, p = .070$.

Study 2

Method

Participants

We recruited one hundred eighty-five undergraduate students (101 women; 81.1% White or Asian/Asian American) to participate for partial course credit. We planned to terminate data collection after recruiting between 180 and 190 participants with roughly equal amounts of lower and higher SES participants per condition for the main analyses of our 2 (experimental condition) \times 2 (SES) \times 2 (gender) factorial design. We defined lower and higher SES in the same way as in Study 1 (groups including students at least \$100,000 below and above the median family income at the university). Those indicating a family income of the third category or lower were categorized as lower SES ($N = 93$; $N_1 = 32$, $N_2 = 30$, $N_3 = 31$), and those indicating a family income of the top category were categorized as higher SES ($N = 92$).

Procedures

Study 2 followed the same general procedures as Study 1, however we did not include a “no identity” condition. In Study 1, participants in a “no identity” control condition had levels of action readiness in response to a mock student–faculty interaction that were indistinguishable from those of participants in the more meaningful past identity control condition. Further, a true “no identity” control condition does not exist because people dynamically construct their current and salient identities from moment to moment based on a virtually unlimited combination of experiences

Table 2 Study 2 Three-way factorial ANCOVAs predicting expansive body posture and number of questions attempted on GRE followed by two-way ANCOVAs for female students and male students

	Expansive body posture			Questions attempted on GRE		
	<i>F</i>	<i>p</i>	η_p^2	<i>F</i>	<i>p</i>	η_p^2
SAT score	0.24	.628		0.01	.936	
Race	0.51	.475		0.07	.788	
Condition	0.00	.984		0.10	.754	
SES	1.72	.192		2.45	.120	
Gender	0.27	.603		9.03	.003	0.053
Condition × SES	0.89	.347		1.68	.197	
Condition × gender	0.87	.351		1.85	.176	
SES × gender	0.02	.878		1.70	.194	
Condition × SES × gender	4.55	.034	0.028	4.56	.034	0.028
Female students						
SAT score	0.13	.719		0.10	.749	
Race	0.91	.342		0.71	.401	
Condition	0.57	.451		0.72	.399	
SES	0.84	.363		0.01	.933	
Condition × SES	5.44	.022	0.059	6.54	.012	0.070
Male students						
SAT score	0.09	.763		0.09	.759	
Race	0.00	.992		0.33	.570	
Condition	0.27	.608		0.87	.355	
SES	0.90	.347		5.43	.023	0.071
Condition × SES	0.61	.439		0.32	.573	

For expansive body posture, $N=168$, $N_{\text{women}}=92$, $N_{\text{men}}=76$. For questions attempted on GRE, $N=170$, $N_{\text{women}}=93$, $N_{\text{men}}=77$. Fifteen participants who did not report their race or SAT score were not included in analyses including covariates. In supplemental materials, we also report analyses excluding covariates, which show the same pattern of results

and situational cues (Markus and Wurf 1987; Oyserman and Destin 2010). A salient past identity draws a meaningful and controlled comparison with a salient future identity because it compels participants to consider a different and distinct component of their identity, and also involves moving through time. Therefore, in order to preserve statistical power and the ability to test a three-way interaction between condition, SES, and gender, we only included the past identity control condition and the future identity condition in Study 2.

Measures

We examined the same measures of behavioral action readiness: body posture (expansive posture during the interaction; $M=4.14$, [3.93, 4.35])⁵ and academic effort (questions attempted during the GRE test; $M=8.91$, [8.40, 9.43]).

⁵ Two coders reached strong agreement on ratings of expansive body posture ($\kappa=0.73$) so we used ratings made by the research assistant who coded the complete set of videos in our analyses. Three videos encountered recording errors and could not be analyzed.

Results

Analysis plan

In our analyses, we entered experimental condition, SES, and gender into three-way factorial ANCOVAs for each behavioral indicator of action readiness. We again included baseline characteristics of participant race and SAT scores ($M=2124.63$, [2081.35, 2167.91]) as covariates to increase statistical power.

Main analyses

First, we examined body posture during the mock faculty interaction. As shown in Table 2, we did not find any significant main or two-way interaction effects on body posture. However, as expected, the three-way interaction effect between experimental condition, SES, and gender was significant, $F(1, 158)=4.55$, $p=.034$. Next, to examine the pattern of results, we decomposed the three-way interaction by analyzing the data for female and male students separately. Consistent with our hypotheses, we found a significant condition × SES interaction effect among female students (the

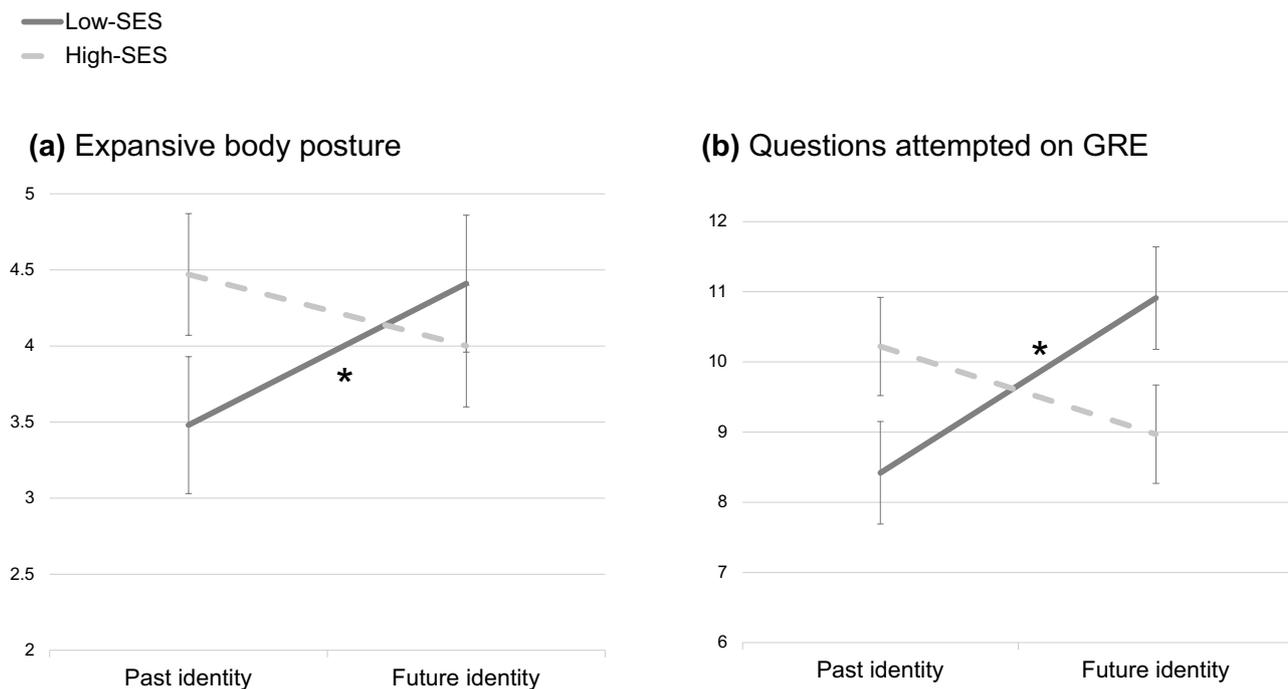


Fig. 2 Study 2 Lower SES female students showed greater action readiness during the mock student–faculty interaction and on an academic task when a future identity was salient rather than a past iden-

tity. Female students only. Bars indicate standard errors and asterisks indicate significant simple effects, $*p < .05$

Table 3 Study 2 Estimated marginal means and 95% CI for expansive body posture and number of questions attempted on GRE by experimental condition, SES, and gender

	Female students		Male students	
	Past identity	Future identity	Past identity	Future identity
Expansive body posture				
Lower SES	3.48* [2.87, 4.09]	4.41* [3.75, 5.07]	4.25 [3.62, 4.88]	3.81 [3.09, 4.53]
Higher SES	4.47 [3.88, 5.06]	4.00 [3.44, 4.56]	4.32 [3.70, 4.94]	4.40 [3.67, 5.14]
Questions attempted on GRE				
Lower SES	8.42* [6.93, 9.91]	10.91* [9.34, 12.48]	7.69 [6.25, 9.12]	6.54 [4.91, 8.17]
Higher SES	10.22 [8.78, 11.67]	8.97 [7.59, 10.36]	9.10 [7.73, 10.47]	8.81 [7.14, 10.48]

Means that are notated with an asterisk in the same row indicate a significant pairwise contrast at $p < .05$

main effects were not significant), $F(1, 86) = 5.44, p = .022$. Specifically, as predicted, post-hoc pairwise comparisons revealed that cueing a future identity led to significantly more expansive body posture during the mock faculty interaction than cueing a past identity for lower SES, but not higher SES, female students, lower SES $F(1, 86) = 4.35, p = .040, d = 0.66$; higher SES $F(1, 86) = 1.36, p = .247$ (Fig. 2, panel a). In addition, and also as predicted, neither experimental condition, SES, nor their interaction significantly affected male participants' body posture during the mock interaction (see Tables 2, 3).

Second, we examined participants' academic effort on the GRE test. As shown in Table 2, the three-way

interaction effect on academic effort between experimental condition, SES, and gender was also significant, as expected, $F(1, 160) = 4.56, p = .034$.⁶ As above, to examine the pattern of results, we decomposed the three-way interaction by analyzing the data for female and male students separately. Consistent with our theorizing, the two-way

⁶ Results for questions attempted on the GRE are interpreted cautiously due to a violation of the assumption of homogeneity of variances in Study 2, Levene's test $F(7, 177) = 3.42, p = .002$. However, results were consistent across Study 1, Study 2, and the test of moderated mediation using 5000 bootstrap samples.

Table 4 Study 2 Significant moderated mediation effect among female students with significant indirect effect of a future identity (compared to a past identity) on GRE performance, which was mediated by increased engagement for lower SES, but not higher SES female students

	Questions attempted (M)		
	<i>b</i>	<i>p</i>	95% CI
SAT score	0.01	0.749	−0.01, 0.01
Race	0.97	0.401	−1.32, 3.26
Condition (X)	2.49	0.023	0.35, 4.63
SES (W)	1.81	0.091	−0.29, 3.90
Condition × SES	−3.74	0.012	−6.65, −0.83
	Correct answers (Y)		
SAT score	−0.01	0.506	−0.01, 0.01
Race	0.54	0.226	−0.34, 1.41
Questions attempted	0.36	0.001	0.28, 0.44
Condition	0.04	0.888	−0.53, 0.61
	Conditional indirect effect of condition on correct answers through questions attempted for low- and high-SES female students		
	<i>b</i>		95% CI
Lower SES	0.89		0.15, 1.76
Higher SES	−0.45		−1.25, 0.24
Index of moderated mediation	−1.34		−2.60, −0.29

N = 93. Female students only

condition × SES interaction effect was significant among female students, $F(1, 87) = 6.54$, $p = .012$. As predicted, post-hoc pairwise comparisons revealed that cueing a future identity led lower SES female students to attempt significantly more GRE items than cueing a past identity, $F(1, 87) = 5.37$, $p = .023$, $d = 0.73$ (see Fig. 2, panel b). Among higher SES female students, experimental condition did not affect the number of GRE questions attempted, $F(1, 87) = 1.58$, $p = .212$. For male students, there was a main effect of SES such that higher SES male students attempted more GRE questions than lower SES male students. As predicted, however, the effect of experimental condition and the condition × SES interaction on academic effort were not significant.

We did not expect or find any direct effects on students' performance on the academic task (number of correct GRE items). In order to bolster our interpretation of number of GRE questions attempted as an index of action readiness, as opposed to guessing or withdrawal, we examined the indirect effect of academic effort (i.e., number attempted) on GRE performance among lower SES female students in the future identity condition. As shown in Table 4, a model generated with 5000 bootstrap samples indicated significant moderated mediation in the predicted pattern (Preacher and Hayes 2008).

Discussion

Study 2 replicated and extended the effects of Study 1 with a larger sample of participants. The significant three-way interaction effects between experimental condition, SES, and gender on expansive posture and academic effort provided further evidence that a salient future identity has a significant effect on action readiness for female students from lower SES backgrounds who are most vulnerable during difficult situations and challenging tasks. The test of the indirect effect extends the implications to demonstrate that the positive effects of a future identity on action readiness can subsequently lead to improved performance on academic tasks.

General discussion

Being a successful college student requires feeling prepared to take action in the face of academic challenges. In particular, interactions with faculty members and performance on academic tests are challenging situations that require taking several forms of productive action. However, vulnerable students often withdraw during such high-stakes situations (Chapell et al. 2005; Cox et al. 2010). In particular, lower SES female students are at greater risk of withdrawing during challenging academic situations, such as faculty

interactions and exams, than male and higher SES students (Hurtado et al. 2011; Kim and Sax 2009). We theorized that cueing a future identity serves as a call for action (Higgins et al. 1990) for students who are at risk of withdrawing and encourages lower SES female students to actively confront the challenges at hand. Consistent with this theorizing, our results show that cueing a successful future identity can prevent female students from lower SES backgrounds from withdrawing during challenging academic situations. Specifically, lower SES female students who wrote about their future identity displayed greater action readiness throughout the study compared with those who wrote about their past identity. The increased action readiness to attempt to answer more GRE questions translated into an indirect positive effect on performance on the difficult task.

Our findings contribute to social psychological theory and research concerning identity and socioeconomic disparities in academic achievement (Croizet and Claire 1998; Harackiewicz et al. 2014; Johnson et al. 2011; Rheinschmidt and Mendoza-Denton 2014; Stephens et al. 2014, 2015). Activating imagined successful future identities appears to provide another potential pathway to enable vulnerable students to effectively navigate everyday stressors. The findings suggest that certain students may benefit from strategies that remind them to visualize their successful futures prior to any difficult and important task that they might otherwise be likely to avoid.

Limitations and future directions

The mock student–faculty interaction provided a controlled environment in which to assess the direct effect of a salient future identity on action readiness measured in participants’ behaviors, however, it possesses certain limitations. A real interaction is likely to include elements that unfold over longer periods of time and were not captured within our lab paradigm. Future research should investigate creative ways to maintain or reinforce the strategic activation of a future identity in order to change student trajectories over time. A longitudinal approach might also measure students’ physiological responses during challenging academic situations to examine hormonal or cardiovascular markers of action readiness.

Moreover, future work should examine the interaction between successful future identities and processes such as negative future identities, social identity threat, and cultural mismatch. In order to continue the advancement of an intersectional approach to the study of future identity, future studies should also recruit a larger sample of men and examine contexts in which men and higher SES students experience increased vulnerability making them more likely to benefit from the motivating contrast brought to mind by a successful future identity. Finally, there may be unexplored

psychological benefits to bringing to mind past identities in a guided manner, perhaps building on insight from narrative psychology (see McAdams and McLean 2013). Indeed, a salient future identity may serve as a bridge for certain students, which links their past, current, and future identities to inspire motivation.

The current research builds on an understanding of how imagining a successful future can promote action readiness. We show that even amidst challenging circumstances, thoughts about the self in a successful future state can be powerfully leveraged as a resource to promote productive action. In particular, doing so serves as a resource for those students who have the most to gain and are most likely to feel threatened, disadvantaged, and at risk of withdrawing from crucial interactions and opportunities.

Appendix: Sample student responses

Low SES/future identity

“I think others will be able to associate with me in a very different way. It sucks when your friends want to go on a ski trip or live in an apartment but you cannot because of money. In that regard I think that I would be able to do more things with friends and they will see this change. I think my living situation would improve because I can now take care of my parents and their health issues. I also think that it would be beneficial because no necessities would be lacking. I would obviously have more money, and with that comes trying new things, and venturing into different activities that actually do cost money. My children would be provided for and they would not have to worry about bills. I would experience less stress.”

Low SES/past identity

“During my freshman and sophomore year of high school I lived in a single-parent home with my mother and brother. My mom worked hard to create the image that we were doing fine when in reality we weren’t, because I had been accepted into a “decent” high school, I had several wants and needs that were not being met. Because I was going from home, where not too many people were well off or even decent, and to school, where most of the kids I associated with came from upper-middle class families, my mood and self-image pretty much sucked.”

High SES/future identity

“I’ve grown up in a family that has been generally well-off. Both of my parents are doctors so money is never really an issue. After I graduate though, I will have to manage my

own finances. It might be difficult because I have never had to do so before on my own, except for managing my own birthday money or something like that. In terms of status, I want to be successful and have a respectable career to be the best person I can be. I want to prove to others my talents by achieving the best that I can. I really hope to become a doctor 1 day. That would make me”.

High SES/past identity

“Both my parents are tenured professors in the sciences, so we had plenty of money. I attended a boarding school that had a lot of wealthy kids, but also some students there on scholarship. My family’s money was only important insofar as it gave me the chance to attend that school. Once there, parents wealth didn’t affect much and didn’t really matter. The community was very tight, and I felt like everyone was judged based on their personality and merits, rather than on status.”

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