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Publication/Completion Date—(if *In Press,* enter year accepted or completed) 2017

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Journal of Experimental Social Psychology, Vol 72

DOI or URL to published work (if available) https://www.sciencedirect.com/science/article/pii/S0022103116

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"This work was supported by U.S. Department of Education **[Office name]** NCER through **[Grant number]** R305B1400 to **Institution]** Northwestern U. The opinions expressed are those of the authors and do not represent views of the **[Office name]** NCER or the U.S. Department of Education.

Journal of Experimental Social Psychology 72 (2017) 45–52

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

Case Report

Perceptions of socioeconomic mobility influence academic persistence among low socioeconomic status students☆

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ARTICLE INFO

Keywords:
Socioeconomic mobility
Socioeconomic status
Academic persistence

ABSTRACT

Despite facing daunting odds of academic success compared with their more socioeconomically advantaged peers, many students from low socioeconomic status (SES) backgrounds maintain high levels of academic motivation and persist in the face of difficulty. We propose that for these students, academic persistence may hinge on their perceptions of socioeconomic mobility, or their general beliefs regarding whether or not socioeconomic mobility—a powerful academic motivator—can occur in their society. Specifically, low-SES students' desire to persist on a primary path to mobility (i.e., school) should remain strong if they believe that socioeconomic mobility can occur in their society. By contrast, those who believe that socioeconomic mobility generally does not occur should be less motivated to persist academically. One correlational and two experimental studies provide support for this hypothesis among low (but not high) SES high school and university students. Implications for future intervention efforts are discussed.

Across all levels of education, students from family backgrounds with fewer financial resources face daunting odds of academic success compared with their more socioeconomically advantaged peers (Johnson, Richeson, & Finkel, 2011; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Phinney & Haas, 2003; Sirin, 2004). Despite these challenges, many students from low socioeconomic status (SES) backgrounds maintain high levels of academic motivation and persist in the face of academic difficulty—tendencies that can ultimately contribute positively to students' academic outcomes (see Oyserman, 2013). In exploring the numerous factors that can be conducive to low-SES students' academic resilience, prior research has found that one key psychological contributor is the perception that school is connected to reaching a desirable future, characterized by stable employment and a respectable income. In survey research of over 141,000 incoming university students, for example, those from low-SES backgrounds emphasized the ability to improve their earning power as a critical motive underlying their decision to pursue higher education (CIRP, 2015). Furthermore, in a field experiment, low-SES middle school students were more motivated to complete current school tasks if they were made aware of the strong positive correlation between education and income than if they were made aware of routes to high income that are not directly related to education (Destin & Oyserman, 2010). Ultimately, then, this motivational pathway may rest on an important but unexplored broader assumption about society at-large: the perception of socioeconomic mobility, or the general belief that socioeconomic mobility can occur.

In the current research, we examine whether low-SES students' perceptions of socioeconomic mobility predict how they respond to experiences of academic difficulty. We build on established social-psychological theories of identity and motivation that explain how

☆ Portions of this research were submitted by Alexander S. Browman to Northwestern University in partial fulfillment of the degree of Doctor of Philosophy, and were presented at the 2016 Annual Meeting of the Society for Personality and Social Psychology (SPSP) in San Diego, California; at the 2016 Annual Meeting of the Midwestern Psychological Association in Chicago, Illinois; and at the 2017 Biennial Meeting of the Society for Research in Child Development in Austin, Texas. This research was supported by grants awarded to Alexander S. Browman by the Society for the Psychological Study of Social Issues and The Graduate School at Northwestern University. Alexander S. Browman was supported by fellowships from the Fonds de recherche du Québec – société et culture and the Social Sciences and Humanities Research Council of Canada, Kathleen L. Carswell was supported by a fellowship from the Social Sciences and Humanities Research Council of Canada, and Ryan C. Svoboda was supported by a fellowship from the Institute of Education Sciences. The authors thank Wendi Gardner, Eli Finkel, Daniel Molden, and Galen Bodenhausen for their helpful comments.

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http://dx.doi.org/10.1016/j.jesp.2017.03.006
Received 3 September 2016; Received in revised form 20 March 2017; Accepted 25 March 2017
Available online 05 May 2017
0022-1031/ © 2017 Published by Elsevier Inc.

students' thoughts about the future influence academic persistence (Markus & Nurius, 1986; Oyserman, Bybee, & Terry, 2006; Smith & Oyserman, 2015). Specifically, students are motivated to persist during difficult academic experiences when school feels connected or congruent with their future identities, or the futures they envision for themselves (Oyserman, 2007; Oyserman & Destin, 2010). However, the extent to which school feels congruent with a student's future identity—and their corresponding tendency to persist academically—is dynamic, meaning that it shifts from moment to moment depending upon cues available in the salient context. In one experiment, for example, university students whose successful future identities were salient were more likely to perceive experiences of academic difficulty as a signal that their schoolwork warranted persistence if the university felt congruent with success rather than if the university felt like a place where failure was likely (Oyserman, Destin, & Novin, 2015). Building on this framework, we propose that low-SES students' perceptions of socioeconomic mobility reflect an overarching and powerful but as-yet unexplored contextual cue that influences their psychological inclination to persist when faced with academic difficulty. Specifically, because educational attainment is frequently touted as the primary pathway to future socioeconomic success (Bowen, Kurzweil, & Tobin, 2006; Rosenbaum, 2001), low-SES students who believe that socioeconomic mobility generally does not occur in their society should be less motivated to persist academically. By contrast, if low-SES students believe that socioeconomic mobility can occur, their desire to persist on the primary path to mobility (i.e., school) should remain strong.

Contextual cues regarding socioeconomic mobility are ever-present in society and mixed in their messages. On one hand, the idea that people can experience socioeconomic mobility is strongly inscribed into the very ethos of American life in the form of the American dream (McNamee & Miller, 2009)—a belief that has long been heavily propagated in mass media and politics (Foster, 2005; Ghosh, 2013) and is recognized by many low-SES individuals (Carter-Black, 2001; López, 2001).[1] By contrast, record high levels of national and global economic turmoil have had negative effects on youth and young adults' perceptions of their potential economic futures (Chambers, Swan, & Heesacker, 2015; Silvia, Quinlan, & Seydl, 2011). In 1998, for example, 65% of young working American adults were very or extremely confident that they could find another job if they lost or left their current job. In 2009, however, this figure plummeted to just 25% (Pew Research Center, 2012). In addition, youth who grow up in low-SES contexts are commonly exposed to role models who have been unsuccessful at improving their socioeconomic standing over the course of their lives, which can make socioeconomic mobility seem unlikely (Oyserman et al., 2006; Roderick, 2003; Thomas, Townsend, & Belgrave, 2003). Because youth and young adults are therefore likely to be familiar with cues that both support and erode the belief that socioeconomic mobility can occur, we examine the implications of their perceptions of socioeconomic mobility for academic persistence as both a chronic individual difference variable and as an experimentally cued situational variable.

In three studies, we examine the consequences of perceptions of socioeconomic mobility for low-SES students' persistence during experiences of academic difficulty. Study 1 provided an initial correlational examination of this relationship in a ubiquitously low-SES student population. Studies 2 and 3 then aimed to provide causal evidence for this relationship by manipulating students' perceptions of socioeconomic mobility and examining the direct consequences for low-SES students' self-reported and behavioral tendencies to persist on difficult academic tasks. In addition, the designs of Studies 1 and 3 also provided opportunities to collect exploratory data regarding academic performance (i.e., official GPAs); however, we note that the aim of these studies was to provide simple proofs of concept and thus they were not intended to have long-term effects on performance.

Because people's thoughts about mobility tend to center on the prospect of moving up (versus moving down) the socioeconomic ladder (Davidai & Gilovich, 2015; Kraus & Tan, 2015), the prospect of socioeconomic mobility should be more consequential for those at the lower end of the socioeconomic ladder than for those at the upper end. As such, we hypothesized that academic persistence among lower-SES students would be more contingent on their beliefs about whether or not socioeconomic mobility can occur than among their higher-SES counterparts. In other words, we predicted that when more socioeconomically diverse populations were examined (Studies 2 and 3), the links between students' perceptions of socioeconomic mobility and their academic persistence would be moderated by SES (perceptions of socioeconomic mobility × SES interaction), with simple effects of mobility beliefs emerging among lower (but not higher) SES students. In addition, because our hypotheses center on students' reactions to academic difficulty, we examine two educational levels at which experiences of academic difficulty and socioeconomic achievement gaps are especially prominent: high school (e.g., Reyes, Gillock, Kobus, & Sanchez, 2000) and university (e.g., National Center for Education Statistics, 2010). We report all measures, manipulations, and exclusions associated with these studies, which represent all of the data we have collected to date on the associations of perceptions of socioeconomic mobility with academic persistence. All materials, data, and analytic syntax relevant to present studies can be found either in the supplementary materials or at https://github.com/abrowman/psm-jesp2017. Analyses were not conducted prior to collection of the full samples in each study.

1. Study 1

Study 1 provides an initial examination of the relationship between low-SES students' perceptions of socioeconomic mobility and their inclinations to persist when faced with academic difficulty. In addition, the sample examined in this study has several important characteristics for the present framework. Specifically, the school district examined was one with predominantly low achievement rates, and the student body of the school we focused on came from almost ubiquitously minority (99.1% Black, 0.9% Hispanic) and low-SES backgrounds (98.4% of students were either eligible for free or reduced-price lunches, lived in substitute care, or came from families that receive public aid). This is therefore a critical population in which to test our hypotheses. Finally, as a supplementary analysis, Study 1 also employed a longitudinal design to examine the potential links between low-SES students' perceptions of mobility and inclinations to persist at the beginning of an academic quarter and their official grades at the end of the quarter.

1.1. Method

Participants were 9th–11th grade, low-SES students from a small public high school in a major American metropolitan area. Students completed the study as part of a larger online study during science class about 2 weeks into the academic quarter. The larger study centered on students' interest in science, technology, engineering, and mathematics and included four conditions that did not influence our variables of interest (see supplementary materials). Because high school schedules are very restrictive, sample size was determined by the number of consented and assenting students who completed the study on a single day pre-arranged with school staff. Our final sample consisted of 200 students (112 male, 85 female, 3 undisclosed), and no data were excluded.

[1] While the goal of reaching a future characterized by stable employment and a respectable income may be seen as an extrinsic and self-focused aspiration (Deci & Ryan, 1987; Kasser & Ryan, 1993), in the case of many low-SES students, such goals are in fact adopted for intrinsic and communal reasons—for example, helping out their families and giving back to their communities (Harackiewicz et al., 2014; Somers & Cofer, 1997; Stephens et al., 2012; Ziskin, Fischer, Torres, Pellicciotti, & Player-Sanders, 2014).

1.1.1. Assessing perceptions of socioeconomic mobility

Students' perceptions of whether socioeconomic mobility generally can or cannot occur were assessed using a six-item scale that we developed. Scale items consisted of three strong mobility belief items (e.g., "No matter who you are, you can significantly change your status a lot") and three reverse-scored weak mobility belief items (e.g., "You can do things differently, but you can't really change your status in society"), and participants responded using a 1–7 scale ranging from "strongly disagree" to "strongly agree" (M = 4.92, SD = 0.98, α = 0.69). See the supplementary materials for scale construction studies.

1.1.2. Assessing students' psychological inclination to persist academically

To capture students' psychological inclinations to persist when faced with academic difficulty, participants completed a four-item measure, culled from prior research, examining the degree to which students perceive the normative experience of encountering difficulty in school as a signal that their schoolwork is not worth persisting on (Oyserman et al., 2015). Items included "When I feel stuck on a school task, it's a sign that my effort is better spent elsewhere," and participants responded using a 1–7 scale ranging from "strongly disagree" to "strongly agree." Responses were then reverse-scored, such that students with lower scores were less inclined to persist when faced with academic difficulty (M = 3.98, SD = 1.47, α = 0.87).

1.1.3. Assessing academic performance

At the end of the academic quarter—about 7 weeks after the in-class sessions—students' official cumulative GPAs were collected from the school administration (M = 2.19, SD = 0.95).

1.1.4. Control variable

To examine the contributions of perceptions of socioeconomic mobility above and beyond those of established social-psychological predictors of academic persistence and performance, we also measured students' lay theories of intelligence (Yeager & Dweck, 2012), which had a small but significant relationship with perceptions of socioeconomic mobility in our scale construction study (see supplementary materials). The six-item measure included, "You can always greatly change how intelligent you are" (see Dweck, 1999), and responses were given using a 1–7 scale, ranging from "strongly disagree" to "strongly agree" (M = 4.50, SD = 0.96, α = 0.68).[2]

1.2. Results

The results are displayed in Table 1. Supporting our main hypothesis, a significant positive correlation emerged between students' perceptions of mobility and their inclinations to persist academically. In other words, low-SES students with stronger beliefs in socioeconomic mobility reported greater psychological inclinations to persist when faced with academic difficulty than those with weaker beliefs in mobility. These results held when controlling for lay theories of intelligence.

In addition, secondary analyses revealed that both perceptions of mobility and inclinations to persist academically were significantly positively correlated with students' GPAs. In other words, low-SES students with stronger beliefs in socioeconomic mobility and those with stronger inclinations to persist when faced with academic difficulty at the beginning of the academic quarter earned higher GPAs at the end of the academic quarter than those with weaker beliefs in socioeconomic mobility or inclinations to persist.[3] However, no potentially causal pathways emerged between these variables, as inclinations to persist did not mediate the relationship between perceptions of socioeconomic mobility and quarter-end-GPAs, b = 0.03 [-0.02, 0.09], p = 0.252 (test of mediation with 5000 bootstrapped samples; Preacher & Hayes, 2008).[4]

Table 1
Bivariate correlations (below the diagonal) and partial correlations controlling for lay theories of intelligence (above the diagonal) in Study 1.

	(1)	(2)	(3)
(1). Perceptions of socioeconomic mobility	–	0.17* [0.03, 0.31]	0.17* [0.03, 0.31]
(2). Academic persistence	0.33*** [0.19, 0.45]	–	0.14† [0.00, 0.28]
(3). Academic performance	0.18* [0.04, 0.31]	0.14* [0.002, 0.28]	–
(4). Lay theories of intelligence	0.43*** [0.30, 0.54]	0.43*** [0.30, 0.54]	0.06 [−0.08, 0.20]

Square brackets denote 95% confidence intervals.
*** $p < 0.001$.
* $p < 0.05$.
† $p = 0.052$.

2. Study 2

Study 1 thus provided evidence of a relationship between low-SES students' perceptions of socioeconomic mobility and their inclinations to persist when faced with academic difficulty. Of course, Study 1 was correlational in nature and therefore could neither establish the direction of causation between our variables of interest nor determine whether students' perceptions of socioeconomic mobility and corresponding tendency to persist in school could be situationally shifted, as our dynamic identity framework predicts (Oyserman, 2013; Oyserman & Destin, 2010). In Study 2, we therefore manipulated students' momentary perceptions of socioeconomic mobility and subsequently administered a persistence-based academic task in order to determine whether these beliefs can be situationally altered and to examine the immediate causal implications of these beliefs for academic persistence among low-SES students. In addition, extending Study 1's focus on objectively low-SES students, both Studies 2 and 3 examined these effects among students who were relatively low and high in SES in more socioeconomically diverse samples.

2.1. Method

Participants in Study 2 were 102 undergraduate students (58 male, 44 female) enrolled at a diverse range of colleges and universities in the United States who completed the study on Amazon's Mechanical Turk (www.mturk.com). Forty-nine additional responses were excluded from our analyses: 34 from participants who did not identify as undergraduate students; 13 from participants who failed at least one attention check (see supplementary materials for details); and 2 from participants who began the study twice. Following an a priori guideline of 50 participants per condition (Simmons, Nelson, & Simonsohn, 2013), recruitment was terminated soon after 100 usable data points had been collected.

2.1.1. Manipulating perceptions of socioeconomic mobility

Students' momentary perceptions of socioeconomic mobility were manipulated using a forced-agreement paradigm (Petrocelli, Martin, & Li, 2010). Specifically, participants were randomly assigned

[2] A complete list of all the variables assessed in the larger datasets used in Studies 1 and 3 (which were not relevant to the present hypotheses) can be found in the supplementary material.

[3] An additional study (see supplementary materials) replicates this correlation relationship between perceptions of socioeconomic mobility and academic performance among low-SES students.

[4] For all studies where applicable, the supplementary materials provide exploratory analyses testing the potential moderating effects of race and gender.

to respond to four scale items, one at a time, that supported either a weak (N = 49) or strong belief in socioeconomic mobility in general (N = 53) using a 6-point forced-agreement scale, ranging from "slightly agree" to "strongly agree." All items were based on our perceptions of socioeconomic mobility scale discussed in Study 1. A manipulation check using additional items from our scale confirmed that participants in the strong mobility condition had significantly higher mobility belief scores (M = 5.17, SD = 1.09) following manipulation than those in the weak mobility condition (M = 4.56, SD = 1.35), $t(99) = 2.51$, $p = 0.014$, $d = 0.50$.

2.1.2. Assessing academic persistence

We examined the immediate effects of the manipulation on students' academic persistence by having them complete a common persistence-based academic task: anagrams (Nussbaum & Steele, 2007; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). Specifically, participants were told that they would be completing an academic task that has been used with university students in the past. They were then told to unscramble seven letters to form as many words as possible (L C R A E K G; Clarkson, Hirt, Jia, & Alexander, 2010; Egan, Clarkson, & Hirt, 2015). All participants were forced to work on this task for a fixed amount of time (3 min). Scores on this task were therefore contingent on sustained meaningful persistence, as all participants had an equal amount of time in which they could either persist and work to provide high quality responses (i.e., struggle through multiple failed attempts to recombine letters until successful; Apfelbaum, Stephens, & Reagans, 2016; Baumeister, Bratslavsky, Muraven, & Tice, 1998) or disengage and provide low quality responses. To capture meaningful persistence on this task, we divided each participant's total number of correct responses by their total number of attempts (Clarkson et al., 2010; Vohs et al., 2008) and administered a logarithmic transformation to correct for skew before conducting analyses (Ratcliff, 1993).

2.1.3. Assessing SES

As in prior research on SES and academic outcomes (Browman & Destin, 2016; Johnson et al., 2011; Rheinschmidt & Mendoza-Denton, 2014), SES was operationalized as family income. Specifically, participants indicated their family's household income from a list of nine categories used in prior research: (1) $25,000 or less, (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, and (9) $300,001 or more ($M$ = 3.30, SD = 1.98; Browman & Destin, 2016). There were no between-condition differences in SES (weak mobility belief condition: M = 3.37, SD = 2.19; strong mobility belief condition: M = 3.25, SD = 1.79), $t(100) = 0.31$, $p = 0.757$.[5]

2.1.4. Control variable

Lay theories of intelligence were assessed with three items from the scale used in Study 1. Responses were given using a 1–7 scale, ranging from "strongly disagree" to "strongly agree" (M = 4.38, SD = 1.44, $\alpha = 0.88$). The manipulation procedures did not significantly influence students' lay theories of intelligence (weak mobility condition: M = 4.16, SD = 1.49; strong mobility condition: M = 4.58, SD = 1.38), $t(100) = -1.49$, $p = 0.140$.

[5] While SES is a multidimensional construct, we focused on income because it provides a direct assessment of an individual's ability to access to valued material resources (e.g., healthy food, safe neighborhoods; see Diemer et al., 2013; Kraus & Stephens, 2012) and therefore represents a valuable index of how motivating the prospect of socioeconomic mobility should be for them. In addition, income has emerged as an important SES index in prior psychological research on academic outcomes (e.g., Johnson et al., 2011; Rheinschmidt & Mendoza-Denton, 2014) and large representative studies find that income is often highly correlated with other objective dimensions of SES, including education and occupational prestige (e.g., Singh-Manoux, Adler, & Marmot, 2003; see also Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012). Finally, following best-practice recommendations (Kraus & Stephens, 2012), students' subjective SES was also assessed. See the supplementary materials for details and analyses.

2.2. Results

To test how manipulating perceptions of socioeconomic mobility influenced the academic persistence of lower- and higher-SES students, anagram scores were regressed on condition (with the weak and strong mobility beliefs conditions coded −1 and +1, respectively), SES (continuous and mean-centered), and their interaction. A significant SES × condition interaction predicting anagram scores emerged, and this effect was driven by significant positive effects of condition among lower-SES students (i.e., simple effect of condition assessed at −1 SD of SES; see Table 2 and Fig. 1). In other words, lower-SES students who were led to hold stronger perceptions of socioeconomic mobility displayed significantly greater persistence than those led to hold weaker such perceptions. There was no significant effect of condition among higher-SES students (i.e., simple effect of condition assessed at +1 SD of SES), and all results held when lay theories of intelligence were included as a control variable (see Table 2). Study 2 therefore confirmed that perceptions of socioeconomic mobility have immediate causal implications for the academic persistence of relatively low (but not high) SES students.

3. Study 3

The primary goal of Study 3 was to conceptually replicate Study 2. As such, we again manipulated lower- and higher-SES students' perceptions of socioeconomic mobility and examined the influence on their subsequent inclinations to persist when faced with academic difficulty. In addition, we also extended Study 2 in three ways. First, Study 3 tested this causal pathway in a real-world academic setting: a socioeconomically and racially diverse high school. Second, to isolate whether strengthening or weakening perceptions of socioeconomic mobility has a greater influence on academic persistence, Study 3 also included a control condition. Finally, to complement our exploratory analyses in Study 1, official grades were collected at the end of the school year.

3.1. Method

Participants were 9th-grade students from a large, diverse high school just outside of a major American metropolitan area. Forty-four percent of students at the school were eligible for free or reduced lunch. Students completed the study as part of a larger online study during a study hall period about 1 month into the school year. Again, sample size was determined by the number of consented and assenting students who completed the study on a single day pre-arranged with school staff. Our final sample consisted of 170 students (93 male, 76 female, 1 non-binary). An additional 32 responses were excluded because we could not obtain administrative data (i.e., SES and official grades) for those students.

3.1.1. Manipulating perceptions of socioeconomic mobility

Near the beginning of the school year, participants were randomly assigned to one of three conditions. Participants in the weak (N = 57) and strong mobility beliefs conditions (N = 55) were presented with a figure adapted from a report on socioeconomic mobility in the United States (The Pew Charitable Trusts, 2012) that depicted either a very low level of socioeconomic mobility or a much greater level. To ensure that participants understood the manipulation materials, in both conditions, participants were required to answer two comprehension questions correctly before proceeding to the next page of the study. Participants in the control condition (N = 58) did not view a figure.

3.1.2. Assessing inclination to persist academically

To assess students' post-manipulation inclinations to persist when

Table 2
Overall and simple effects of regressing academic persistence on condition (primed weak (− 1) or strong (+ 1) perceptions of socioeconomic mobility), SES, and their interaction, and complementary analyses including lay theories of intelligence as a control variable (all mean-centered; Study 2).

	Without control variable				With control variable			
	b [95% CIs]	*t*	*df*	*p*	*b* [95% CIs]	*t*	*df*	*p*
Condition	0.05 [− 0.05, 0.14]	0.96	98	0.342	0.04 [− 0.06, 0.13]	0.75	96	0.453
SES	0.02 [− 0.03, 0.07]	0.71	98	0.478	0.02 [− 0.03, 0.07]	0.98	96	0.330
Condition × SES	− 0.06 [− 0.11, − 0.02] $\beta_{interaction}$ = − 0.26	− 2.626	98	0.010	− 0.06 [− 0.11, − 0.02] $\beta_{interaction}$ = − 0.26	− 2.633	96	0.0099
Lay theories of intelligence					0.06 [− 0.01, 0.13]	1.66	96	0.099
Lay theories of intelligence × SES					− 0.01 [− 0.04, 0.02]	− 0.58	96	0.560
Simple effect of condition among lower-SES students (− 1 *SD*)	0.17 [0.04, 0.31]	2.55	98	0.012	0.16 [0.03, 0.30]	2.42	96	0.017
Simple effect of condition among higher-SES students (+ 1 *SD*)	− 0.08 [− 0.22, 0.05]	− 1.20	98	0.233	− 0.09 [− 0.23, 0.05]	− 1.33	96	0.187

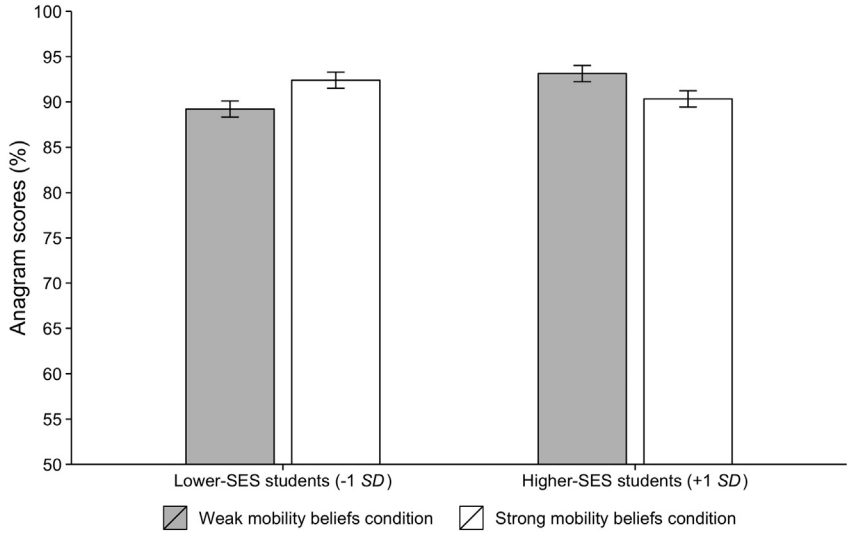

Fig. 1. The relationship between condition and academic persistence (untransformed) among lower- and higher-SES students in Study 2. Points are plotted at ± 1 *SD* for SES, and error bars represent ± 1 *SE* of the mean of academic persistence (untransformed).

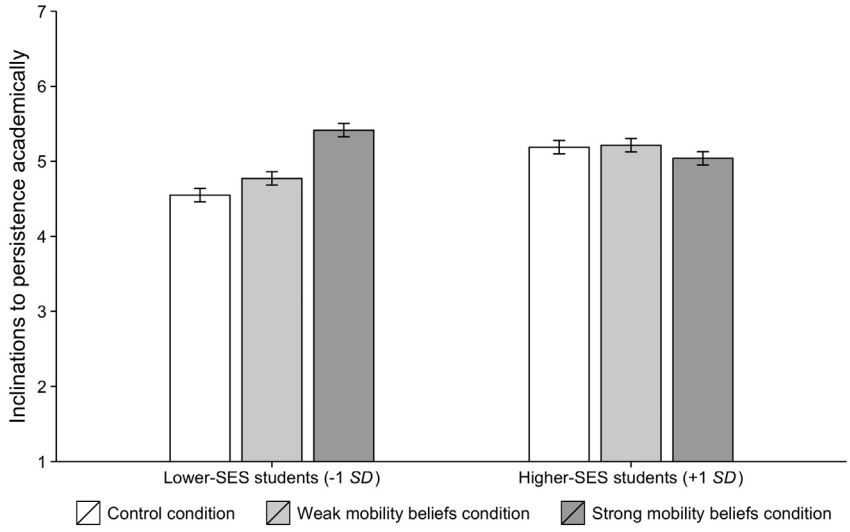

Fig. 2. The relationship between condition and academic persistence among lower and higher-SES students in Study 3. Points are plotted at ± 1 *SD* for SES, and error bars represent ± 1 *SE* of the mean of academic persistence.

faced with academic difficulty, participants completed a six-item version of the measure used in Study 2 (Oyserman et al., 2015). Participants responded using a 1–7 scale ranging from "strongly disagree" to "strongly agree," and responses were again reverse-scored, such that students with lower scores were less inclined to persist when faced with academic difficulty (M = 5.04, SD = 1.16, α = 0.88).

3.1.3. Assessing academic performance

At the end of the school year—7 months after they were exposed to the manipulation materials—participants' official cumulative GPAs

Table 3
Interaction and simple effects of regressing inclinations to persist academically on condition (primed perceptions of socioeconomic mobility), SES (mean-centered), and their interaction (Study 3).

	Weak (0) vs. strong mobility (1)				Control (0) vs. strong mobility (1)				Control (0) vs. weak mobility (1)			
	b [95% CI]	*t*	*df*	*p*	*b* [95% CI]	*t*	*df*	*p*	*b* [95% CI]	*t*	*df*	*p*
Condition × SES	−0.41 [−0.84, 0.03] $\beta_{interaction} = -0.21$	−1.85	164	0.066	−0.51 [−0.92, −0.09] $\beta_{interaction} = -0.26$	−2.43	164	0.016	−0.10 [−0.53, 0.34] $\beta_{interaction} = -0.05$	−0.45	164	0.657
Simple effect of condition on lower-SES students (−1 *SD*)	0.64 [0.03, 1.26]	2.07	164	0.040	0.86 [0.29, 1.44]	2.98	164	0.003	0.22 [−0.40, 0.85]	0.70	164	0.483
Simple effect of condition on higher-SES students (+1 *SD*)	−0.17 [−0.78, 0.43]	−0.57	164	0.573	−0.15 [−0.75, 0.46]	−0.48	164	0.632	0.03 [−0.56, 0.61]	0.09	164	0.930

were collected from the school administration ($M = 3.62$, $SD = 0.72$).

3.1.4. Assessing SES

Because students of this age cannot reliably report family household income (Diemer, Mistry, Wadsworth, López, & Reimers, 2013), we obtained participants' home addresses from the school administration and used the U.S. Census American FactFinder tool to determine their census block group's median income ($M = \$87{,}179.35$, $SD = \$40{,}855.37$). These summed incomes were then sorted into one of nine family household income categories used in Study 2 ($M = 4.36$, $SD = 1.73$). There were no between-condition differences in SES, $F(2, 167) = 0.74$, $p = 0.478$.

3.2. Results

To test how strengthening, weakening, and not manipulating perceptions of socioeconomic mobility influenced academic persistence among lower- and higher-SES students, inclinations to persist when they experienced academic difficulty were regressed on condition, SES (continuous and mean-centered), and their interaction. The omnibus condition × SES interaction was significant, $F(2, 164) = 3.27$, $p = 0.041$ (see Fig. 2). As shown in Table 3, examining the various contrasts revealed significant and marginal condition × SES interactions between the control and strong mobility beliefs conditions and between the weak and strong mobility beliefs conditions, respectively, but not between control and weak mobility beliefs conditions. Breaking down these interactions revealed that lower-SES students (−1 *SD* in SES) in the strong mobility beliefs condition were significantly more inclined to persist when faced with academic difficulty than those in both the weak mobility beliefs and control conditions (see Table 3). Thus, compared to baseline (i.e., the control condition), only strengthening lower-SES students' perceptions of socioeconomic mobility had a notable effect on lower-SES students' inclinations to persist academically. By contrast, no between-condition differences in psychological inclinations to persist emerged among higher-SES students (+1 *SD* in SES; see Table 3), and no significant main effects of condition, $F(2, 164) = 1.43$, $p = 0.243$, or SES, $F(1, 165) = 1.77$, $p = 0.185$, emerged in predicting students' inclinations to persist. These results therefore replicate and extend Study 2 by demonstrating that compared to both weakening and not manipulating perceptions of socioeconomic mobility, strengthening these beliefs among low (but not high) SES students can enhance their psychological inclinations to persist when they encounter academic difficulty.

In addition, complementary secondary analyses were conducted to examine students' GPAs. However, neither condition, $F(2, 164) = 0.27$, $p = 0.762$, SES, $F(1, 165) = 2.17$, $p = 0.143$, nor their interaction, $F(2, 164) = 1.04$, $p = 0.355$, significantly predict students' year-end GPAs. In other words, Study 3 did not replicate the direct relationship between perceptions of socioeconomic mobility and long-term academic performance found in Study 1. However, replicating a different result from Study 1, across conditions, the correlation between post-manipulation inclinations to persist academically and year-end GPAs was significant and positive, $r(168) = 0.34$, $p < 0.001$.

4. General discussion

Educational attainment is widely touted and recognized as the most effective means by which socioeconomic mobility can be achieved, and many financially disadvantaged students thereby draw academic perseverance from the belief that school will enable them to attain a desirable socioeconomic future (e.g., CIRP, 2015; Rosenbaum, 2001). The present studies extend our understanding of this motivational pathway by targeting perceptions of socioeconomic mobility—beliefs about whether socioeconomic mobility generally can or cannot occur—as important but unexplored assumptions with potential implications for the academic persistence of low-SES students. Specifically, these studies collectively demonstrate that perceptions of socioeconomic mobility have causal implications for these students' inclinations to persist during normative experiences of academic difficulty. Our findings therefore illuminate a novel pathway through which perceptions of the broader societal context can influence the academic tendencies of disadvantaged students.

Our results highlight the importance of believing that one can have a financially successful future for sustaining academic resilience. As discussed, the ability to reach financial stability is often a critical motive underlying low-SES students' decision to pursue higher education (e.g., CIRP, 2015; Destin & Oyserman, 2010). While theorists have proposed the importance of people's personal socioeconomic backgrounds in determining whether school feels congruent with desired future identities such as these (see Jury et al., 2017; Oyserman, 2013; Stephens, Brannon, Markus, & Nelson, 2015), our studies are the first to fully connect students' perceptions of the broad socioeconomic contexts they inhabit to their inclination to persist when faced with academic difficulty. In other words, consistent with an identity-based perspective on academic motivation (Oyserman, 2007; Oyserman & Destin, 2010), our results suggest that low-SES students' perceptions of socioeconomic mobility may be important to their academic resilience because this construal of the surrounding context dynamically influences the extent to which school feels congruent with their desired socioeconomic futures.

It is also important to note that our results emerged both among students who were objectively low-SES in society at large (Study 1) and those who were relatively low-SES in more socioeconomically diverse samples (Studies 2 and 3). As such, our findings among objectively low-SES students contribute to the growing recognition that subtle psychological factors can influence the academic outcomes of students from the most objectively disadvantaged backgrounds (Croizet & Claire, 1998; Harackiewicz et al., 2014; Rheinschmidt & Mendoza-Denton, 2014; Smeding, Darnon, Souchal, Toczek-Capelle, & Butera, 2013; Stephens, Hamedani, & Destin, 2014; Stephens et al., 2012). In addition, our results from the more socioeconomically diverse samples complement recent research demonstrating that even being from back-

grounds that might not be labeled as objectively low-SES in society at large but are relatively low in a given academic context can have negative consequences for students' academic outcomes (Browman & Destin, 2016; Johnson et al., 2011; Rheinschmidt & Mendoza-Denton, 2014).

The present research also highlights opportunities and suggestions for future intervention efforts and research. Foremost, while Study 3's manipulation effectively influenced academic persistence in a field setting, we caution against using this approach as a general intervention method. Like the rest of the studies we present, the results of Study 3 represent a proof of concept, supporting the general hypothesis that perceptions of socioeconomic mobility are a psychologically meaningful construct with regard to low-SES students' academic persistence. As such, while the results of Study 3 (and Study 2) suggest that encouraging low-SES students to hold strong mobility beliefs can enhance academic persistence, these specific manipulations were only designed to test this concept in a few specific student samples, not to instill long-lasting change across all student populations. We therefore echo Yeager and Walton's (2011) recommendation that practitioners should not simply use experimental materials such as these without considering whether they would convey the intended meaning—that attaining socioeconomic mobility is possible for them—to their targeted population of interest, which our specific manipulations may not provide for all students. Indeed, given that our simple belief strengthening manipulation did not influence long-term academic performance (Study 3), future research should aim to identify and test approaches that can help tie thoughts about mobility to students' own life opportunities in more impactful and enduring ways.

Finally, while no effects emerged among higher-SES students, future research should consider the potential influences of these students' beliefs regarding different types of mobility. While thoughts about mobility tend to center on the prospect of moving up the socioeconomic ladder (Davidai & Gilovich, 2015; Kraus & Tan, 2015), high-SES individuals could potentially be focused either on upward mobility (i.e., attaining an even higher place on the socioeconomic ladder) or on downward mobility (i.e., losing ground compared to where they currently stand socioeconomically). Being more concerned about moving down the socioeconomic ladder could make educational attainment seem more important for high-SES individuals, thereby enhancing academic persistence compared to those who are less concerned with downward mobility.

In summary, the present findings highlight perceptions of socioeconomic mobility as a powerful but as-yet overlooked psychological contributor to low-SES students' academic persistence, and demonstrate a novel, identity-based motivational pathway through which academic resilience may emerge.

Open Practices

The studies in this article earned Open Materials and Open Data badges for transparent practices. Materials and data for these studies are available at https://github.com/abrowman/psm-jesp2017.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jesp.2017.03.006.

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