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**Caught Up in Red Tape:
Bureaucratic Hassles Undermine Sense of Belonging in College
Among First Generation Students**

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Dedication

I dedicate this thesis to my grandmother, Carol Lobdell. Thank you so much for your unconditional love, support, and encouragement.

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Abstract

Caught Up in Red Tape: Bureaucratic Hassles Undermine Sense of Belonging in College Among First Generation Students

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Research has shown that institutional cues can create experiences of social identity threat, or the concern that one might be devalued or excluded on the basis of their group membership - among underrepresented and stigmatized students (e.g. first-generation college students). However, previous work focuses on cues relevant to stereotypes or group membership, and that are aversive only to stigmatized students. We hypothesized that even cues that are aversive to *all* students - specifically *bureaucratic difficulties* – might trigger identity threat. In study 1, students completed a university form online that was manipulated to be frustrating (or not). The frustrating web form reduced self-reported sense of belonging and perceived probability of success among first-generation college students. Study 2, a multi-session field study, conceptually replicated this finding with a different type of bureaucratic challenge – a straightforward or confusing course selection task. A third correlation study (conducted as part of the larger field study reported in study 2), revealed that experiences of bureaucratic challenges in

students' naturalistic settings predicted reduced sense of belonging Moreover, these perceived bureaucratic challenges influenced the retention rates of students who were more uncertain about their belonging at college. Discussion focuses on the implications of these findings for policies aimed at reducing social class disparities in higher education.

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INTRODUCTION

“When I first arrived at school as a first-generation college student, I didn’t know anyone on campus except my brother. I didn’t know how to pick the right classes or find the right buildings. I didn’t even bring the right size sheets for my dorm room bed. I didn’t realize those beds were so long. So I was a little overwhelmed and a little isolated. “

- Michelle Obama, College Opportunity Summit, 2014

Interacting with institutions—schools, governments, healthcare providers—is a fundamental aspect of modern human society. Through successful engagement in institutions, people receive resources that shape many important life outcomes, including furthering education, advancing in careers, and maintaining good health (Kramer & Cook, 2004). Yet in the United States and many other post-industrial nations, there are large disparities in the extent to which individuals from different social groups thrive in such institutions and reap the accompanying benefits (Stoops, 2004; Smith & Medalia, 2014; Carter & Reardon, 2014; Picketty, 2014). In the United States, for instance, adults with lower levels of education are less likely to access quality healthcare, and when they do, they less-successfully negotiate with insurance companies to finance it (Vollandes & Paasche-Orlow, 2007); racial and ethnic minority adults are less likely to secure home mortgages, and when they do, they are more likely to acquire high-cost ones (Bayer, Ferreira & Ross, 2014); individuals who are the first in their families to attend college are less likely to earn college degrees than their peers, and when they do, they take on more high-interest debt (Soria, Weiner & Lu, 2014). Why might these differences in outcomes occur? One explanation is that the people in institutions are biased in favor of certain groups over others. But even when institutions make efforts to reduce overt bias

and prejudice these inequalities sometimes persist (For a review, see Murphy & Walton, 2013). What then can institutions do to close these gaps and promote equal opportunities across social groups?

This thesis takes a social-psychological perspective, based on a growing body of research suggesting that subtle cues within institutions can send messages to stigmatized individuals regarding what type of person thrives there (Murphy & Walton, 2013; Emerson & Murphy, 2014). Although such cues are observable by all members of the institution, they create aversive experiences specifically for stigmatized individuals and, in doing so, trigger *social identity threat*—or the worry that one could be devalued or excluded on the basis of his or her group membership (Steele, 1997; Steele, Spencer & Aronson, 2002) For example, prior research has shown that female STEM (science, technology, engineering, and math) students may feel that their identity is under threat when they perceived a male-only STEM setting (Murphy, Steele & Gross, 2007).

The present thesis proposes that even subtler cues from institutions could create social identity threat and contribute to group-based inequalities in institutional success. Specifically I propose that experiences that are objectively frustrating to *all* individuals—such as bureaucratic or procedural hassles—may be viewed through the lens of social identity, and interpreted as diagnostic of one’s ability to belong and succeed. This may propagate disadvantage over time (Garcia & Cohen, 2012; Walton & Cohen, 2007).

This thesis examines these possibilities in the context of one important social problem: underperformance among students who are the first in their families to attend college, that is, *first generation college students* (Pascarella, Pierson, Wolniak & Terenzini, 2004; Ishitani, 2006;

The White House, 2014). More first generation students than ever before are attending college (Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007), yet there are still large disparities in achievement and persistence once these students arrive at college. First-generation college students earn lower grades, complete fewer courses, and are less likely to graduate, even with the same high school credentials (Sirin, 2005). These disparities pose a threat not only for educational equality, but also for intergenerational social class mobility more generally (Reardon, 2011; 2013; OECD, 2010; Picketty, 2014). Understanding and addressing the causes of the social class achievement gap is therefore a pressing concern for both social science research and public policy efforts (The White House, 2014; Hoxby & Turner, 2013).

The central claim of this thesis is that *bureaucratic hassles in college contribute to social class-based achievement gaps in part because they undermine sense of belonging among first generation students*. How might this be possible? As I explain below, first generation college students—those whose parents do not have a college degree—have been underrepresented and marginalized in higher education (Engle, 2007), and are therefore at risk of experiencing social identity threat. First-generation students may thus view the seeming impossibility of successfully navigating a college bureaucracy—selecting courses, acquiring financial aid—through the lens of this potentially stigmatized social identity. This could lead them to interpret hassles not as normal aspects of the transition to college, but rather as diagnostic of their lack of belonging and potential (Murphy et al., 2007; Purdie-Vaughns, Steele, Davies, Ditlman & Crosby, 2008). This inference may start a cycle of disengagement that may ultimately culminate in students leaving without getting what they came for: a post-secondary degree (c.f. Cohen, Garcia, Purdie-Vaughns, Apfel, Brzustoski, 2009; Wilson & Linville, 1982; Walton & Cohen, 2007; 2011). I explain the research that led to this theoretical account, followed by a description of my empirical strategy.

Social Identity Threat and Belonging Uncertainty

There are many structural factors that contribute to the social class achievement gap in college. For instance, relative to continuing generation students, first generation students often face greater financial strain, attend lower quality high schools, and are more likely to work to support their education (Pascarella et al., 2004). However, research increasingly suggests that additional psychological factors may undermine achievement. Perhaps most prominent among these is *social identity threat*, which as noted is the concern that one might be devalued or excluded on the basis of one's group membership (Steele, 1997; Steele et. al., 2002; Major & O'Brien, 2005). In academic settings, students from negatively stereotyped or historically marginalized groups, including students of color, low-income students, and women in STEM, often face chronic social identity threat (Steele & Aronson, 1995; Croizet & Claire, 1998; Spencer, Steele & Quinn, 1999). Hundreds of studies now show that this "threat in the air" can undermine learning, motivation, and performance (Schmader, Johns & Forbes, 2008; Inzlicht & Schmader, 2012; Walton & Spencer, 2009; Steele et al., 2002; Steele 1997,2011).

This happens in part because, over time, exposure to social identity threat can undermine one's sense of social fit or belonging in school (Walton & Cohen, 2007). The need to belong has been characterized as a fundamental human motivation (Baumeister & Leary, 1995). Indeed, a secure sense of belonging is predictive of many important outcomes including physical health, job performance, and general well being (Hale, Hannum & Espelage, 2005; Podolny & Baron, 1997; Bolger, Zuckerman, & Kessler, 2000). In academic settings, social connectedness is a strong predictor of achievement and persistence (Tinto, 1987). Walton and Cohen (2007) posit that one consequence of social identity threat is to cause individuals to question the quality of

their social ties in school—that is, to form a broad hypothesis that “people like me do not belong here.” In this state of *belonging uncertainty* – students can interpret even subtle forms of adversity as evidence that they do not belong and are unlikely to be successful in college (Walton & Cohen, 2007). For instance, ambiguous interpersonal experiences such as difficulty forming a close group of friends or receiving critical feedback from a professor—experiences that are common to all students irrespective of their social group—may be interpreted as diagnostic of their lasting potential to belong and succeed (Walton & Cohen, 2007, Cohen, Steele & Ross, 1999). As a result, students’ everyday college experiences can become chronically threatening to their sense of belonging and, over time, lead to underperformance (Walton & Cohen, 2007; 2011).

Although research on social identity threat and belonging uncertainty has focused mostly on women in STEM and students of color, some evidence suggests that first-generation students face similar concerns. For instance, one study found that students of low socioeconomic status performed worse when an academic test was framed as diagnostic of intellectual ability—raising the possibility that their performance could confirm stereotypes of their group as intellectually limited—than when the test was framed as non-diagnostic of ability (Croizet & Claire, 1998). Other work suggests that first generation students often feel out of place in college and struggle to take advantage of the resources available to them (Stephens, Fryberg, Markus, Johnson & Covarrubias, 2012; Ostrove & Long, 2007). Furthermore, interventions designed to reduce social identity threat have successfully closed the social class achievement gap (Harackiewicz et al., 2014; Stephens, Hamedani & Destin, 2014). Taken together, these findings provide indirect evidence of social identity threat among first-generation students.

Less is known, however, about the specific aspects of first-generation students' experiences that make them susceptible to social identity threat. The literature suggests there may be at least three complementary sources of social identity threat for first-generation students. One possible source is stereotypes about individuals of low socioeconomic status. First generation students often come from families with fewer financial resources, and prior research suggests that there are negative cultural stereotypes about the intellectual abilities of lower-income individuals (Croizet & Claire, 1998). Second, first-generation students often experience a *cultural mismatch* that may produce social identity concerns (Stephens et al., 2012). Because first-generation students often endorse *interdependent* values, they may experience a sense of mismatch when they are exposed to the *independent* cultural norms of universities in the United States (Stephens et al., 2012).

Without denying the importance of these two sources of identity threat, I propose that first-generation students may also be perceived as lacking "insider knowledge," and this may pose an additional source of threat. Because first generation students are the first in their families to attend college, they often face difficulties adapting to the norms and procedures of college (Deil-Amen & Rosenbaum, 2003; Housel & Harvey, 2009). For instance, first-generation students often struggle with tasks like selecting a major, acquiring internships, and writing resumes (Reay, Crozier, & Clayton, 2009). Qualitative research suggests that first-generation students are aware that they lack this knowledge and this awareness can undermine their motivation and persistence in college (Deil-Amen & Rosenbaum, 2003). For instance, one student described her experiences with college counseling as follows: "... When you go to a counselor, many times you don't really know what you're going to talk about. You have an idea,

but you don't know what questions to ask ... It's hard. There are things we don't know.” (Deil-Amen & Rosenbaum, 2003, p. 129). In recent work conducted with first-year students at an elite private university, an intervention designed to, in part, normalize this perceived lack of insider knowledge reduced the gap in first year GPA between first-generation students and continuing generation students (Stephens et al., 2014). All of these findings provide initial justification for the claim that awareness of lack of “insider knowledge” about how to navigate the institution of college may be an important source of social identity threat among first generation students.

Bureaucratic Hassles as Triggers of Identity Threat

If first-generation students are at risk of experiencing social identity threat, arising from their perceived lack of “insider knowledge,” how might such threat be activated in the social context? As noted earlier, I propose that bureaucratic hassles may be a meaningful cue of social identity threat for first-generation students, undermining their sense of belonging.

Partial support for this claim comes from a large number of studies showing that even subtle cues in the social environment can reduce belonging among potential targets of social identity threat. These cues have been shown to be *interpersonal* in nature (Walton & Cohen, 2007; Cohen et al., 1999, Logel et al., 2009), but increasingly research shows that they may be *institutional* in nature – that is, embedded in the structures of the institution itself, and not attributable to any particular individual’s beliefs or biases (Murphy & Walton, 2013). For instance, in one study female STEM majors who perceived a hypothetical STEM conference in which women were underrepresented showed reduced sense of belonging, lower interest in participating in the conference, and psychophysiological patterns consistent with a state of threat (Murphy et al., 2007). Other research has shown that STEM environments consistent with

cultural stereotypes about the field can create identity-threatening experiences for women (Cheryan, Plaut, Davies & Steele, 2009). Among first-generation students, institutional messages about the importance of independence in college can create a sense of cultural mismatch and undermine their belonging and performance (Stephens et al. 2012). Importantly, such cues create objectively aversive experiences only among stigmatized or underrepresented students. For instance, in one study, both first-generation students and continuing generation students were exposed to independent messages from universities, but these messages lead to an increase in negative emotion only among first-generation students (Stephens, Townsend, Markus & Phillips, 2012). In contrast, I propose that bureaucratic hassles—hassles that apply to *all* students regardless of their social group—might trigger social identity threat specifically among first generation students.

Bureaucracies are defined as the strict rules, procedures, and policies within an institution (Gajduschek, 2003). The term bureaucracy carries with it mostly negative connotations – bureaucracies are often thought of as overly complex and inefficient, creating more challenges than they solve. Colleges and universities, in particular, consist of many complicated bureaucratic hurdles – ranging from complicated financial aid forms, to confusing course choices, to complex websites, all of which can make the path to graduation seem daunting. Such difficulties, although frustrating, are objectively neutral. That is, they are not grounded in any bias toward one group over another, they do not explicitly convey any information about what type of person is likely to be successful in the setting, and they are frustrating for everyone.

Why then might bureaucratic hassles differentially affect first-generation students? I predict that although such difficulties will be aversive to both first generation and continuing

generation students, they will be interpreted as identity-relevant only among first-generation students, leading to reduced sense of belonging and achievement in college. As suggested above, in past research, first-generation students often reporting feeling as though they do not know the “rules of the game” and lack the “insider knowledge” that is crucial to successfully navigating the college experience (Deil-Amen & Rosenbaum, 2003). This perceived lack of knowledge may lead them to worry that they do not have what it takes to successfully navigate the college experience and they may subsequently monitor the environment for evidence that either confirms or disconfirms these worries (Murphy et al., 2007). As they encounter bureaucratic hassles, they may view them *not* as frustrations faced by all students, but rather as evidence that they do not belong in college and cannot be successful in college.

The Present Research

The present thesis uses three studies with both experimental and correlational methods to test the hypotheses that bureaucratic hassles will trigger social identity threat – as indicated by reduced sense of sense of belonging and achievement - among first-generation but not continuing-generation students.

First, I conducted a laboratory experiment among first generation and continuing generation freshman attending two large public universities. This study tested the effects of a novel manipulation of bureaucratic challenge—a university financial aid web form that was manipulated to be frustrating (or not)—on students’ self-reported sense of belonging and perceived ability to succeed in college. I chose financial aid as the domain of the manipulation because it is commonly described as one of the most challenging bureaucratic tasks that students face as they transition to college (Bettinger, Long, Oreopoulos & Sanbonmatsu, 2012).

A second, multi-session field study examined the effects of college bureaucracies among an even more vulnerable college setting, and one that disproportionately serves first-generation students (Bailey, Jenkins & Leinbach, 2005)—a community college study skills course. This study used a different manipulation of bureaucratic challenge—a simple or complicated course selection task. Confusing choices regarding which courses to take can pose a considerable challenge for students (Deil-Amen & Rosenbaum, 2003), and research suggests that simplifying degree paths can improve completion rates (Jenkins & Cho, 2012). In addition, a large amount of research suggests that providing individuals with more choices can sometimes have paradoxical effects, including increased anxiety, reduced cognitive resources, and ultimately, poorer decision making (Schwartz, 2004; Vohs et al., 2005). These findings led us to choose course selection as the domain for our second manipulation of bureaucratic challenge. In this study, students first completed a simple or confusing course selection task, and then reported their sense of belonging in college.

My third and final study was a longitudinal, correlational study that examined whether students' self-reported experiences with naturalistic bureaucratic challenges at their college predicted sense of belonging over time, and ultimately, college persistence.

STUDY 1

Method

PARTICIPANTS

145 total participants at two large public universities participated in exchange for course credit, or for ten dollars in addition to course credit. Three participants were dropped due to technical difficulties and three were dropped because they expressed suspicion about the cover story. Our final sample consisted of 43 first generation students and 96 continuing generation students (74% female).

The sample size was determined as follows: My initial goal was to recruit 50 first generation college students and 50 continuing generation college students. I was unable to prescreen based on generation status, so I instead used race/ethnicity (black or Latino vs. white), a known correlate. With this method, I came close to the pre-registered goal for first generation students; however, I ultimately ended up oversampling continuing generation students. The stopping rule, the primary outcomes (belonging and perceptions of potential to succeed), and the moderator (first-generation status) were pre-registered here: osf.io/f8pc.

PROCEDURES

Participants were recruited to participate in a study on “students’ experiences in college,” and were run in individual lab sessions by a white female experimenter who was blind to condition and participant first-generation status. Participants were told that they would be participating in two separate studies. The first purportedly involved piloting a new financial aid advising program for their university. The second purportedly involved their perceptions and experiences in college.

The experimental manipulation of bureaucratic challenge was included in the ostensible first study. Specifically, participants were told that they would be piloting part of a new financial aid program that their university would be implementing the following year. They were told that the program was in the final development stage, and that the university wanted students' feedback on the visual layout of the program. Participants were then instructed to open a link to a survey that included baseline questions, the bureaucratic challenge manipulation, and manipulation checks. Students were then debriefed and probed for suspicion.

Web form manipulation

The manipulation of bureaucratic challenge consisted of a three-page web form adapted from previous research for our purposes (Hoque & Picard, 2011). The web form included questions about biographical information including birthdate, as well as academic information including current year in school. Participants were randomly assigned to complete either a *frustrating web form* or a *non-frustrating web form*. In both conditions, participants saw a basic web form, in their university's colors. (See Figure 1) For each page, they entered the appropriate information in fields and when all information was filled in, they attempted to move to the next page by clicking on a button at the bottom of the form. In the non-frustrating web form condition, participants could navigate to each page with no errors.

In the frustrating web form condition, each time participants filled out all of their information and attempted to move on to the next page, they would receive an error message. The first error message was "Please correct the following error(s): Invalid Password. Your password must include a minimum of 15 characters, one or more upper case letters, one or more numerical digits, and one or more of the following symbols: . , / *#@%&!'" and another error

message was “Please correct the following error(s): Year in school is in wrong format. Please enter your current year in school as a number from 1-4.” (Figure 1) The frustrating condition contained a total of 4 messages, and each time they received one of these error messages, all of their previously inputted information was deleted. At the end of the form, participants were asked to complete an impossible CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart). The non-frustrating condition would accept their first answer to the CAPTCHA regardless of what they entered, whereas in the frustrating condition, participants were told they had entered an invalid answer a total of three times before their answer was accepted. At the end of the study, students were asked an open-ended question about their thoughts on the web form.

Dependent measures

After they completed the web form, students answered a series of filler questions regarding the visual layout of program (e.g. “What did you think about the color scheme?”), along with manipulation check items (e.g. “This web form was frustrating”). After participants completed the manipulation checks, the experimenter told them that they had finished the first study and would be moving on to the second study, which focused on students’ experiences in college. Students were then instructed to fill out a paper survey containing questions regarding their sense of belonging in college and their perceived potential to succeed in college. After students completed the survey they were probed for suspicion (as noted above 3 participants expressed suspicion about the cover story and were thus dropped from our analyses), ¹debriefed

¹ Participants were dropped if they explicitly said that they thought the web form manipulation was fake (i.e. not part of a financial aid program being developed by their university) or if they said that they thought the web form was intentionally frustrating.

regarding the true nature of the study, and thanked for their time.

MEASURES

Manipulation checks

As a manipulation check, participants answered two questions assessing their level of frustration with the web form (“This web form was frustrating”; “This form is easy to fill out and I had no problems”; 1 = *Strongly agree*, 6 = *Strongly disagree*).

Belonging

Sense of belonging was assessed with the following 10 items: “I feel like I belong at [college name]”; “People at [college name] accept me”; “I feel like an outsider at [college name]”; “I feel comfortable in classes at [college name]”; “I know what I need to do to succeed at [college name]”; “I do not know how to get a teacher at [college name] to like me”; “I am the kind of person that does well at [college name]”; “I can count on people at [college name]”; 1 = *Strongly agree* to 7 = *Strongly disagree*. These include a combination of items used in previous research among middle school students (Cook, Purdie-Vaughns, Garcia & Cohen, 2012), adapted for use with college students, as well as some unpublished items. In a preliminary exploratory factor analysis conducted with a separate sample, two items showed low loadings on the common factor (loadings < 0.52); these items were thus not used here. The remaining eight items were combined by taking an unweighted average, with higher scores signifying higher belonging.

Perceived potential to succeed in college

Students answered five questions assessing their perceptions about whether they would succeed in college. Items included “How likely or unlikely are you to earn a bachelor’s degree

from [college name]?”; “How likely or unlikely are you to earn a degree in 4 years?”; “How likely or unlikely is it that some major obstacle will keep you from graduating from UT Austin?”; “How likely or unlikely are you to get into the graduate program or the career of your choice right out of college?”; “How likely or unlikely are you to have one of the top 15% of GPAs in your major when you graduate?”; 1 = *Very likely* to 7 = *Very unlikely*. A composite was formed by taking an unweighted average of the items, with higher scores indicating greater perceived potential to succeed.

Debt

To rule out the possibility that our manipulation made students feel like they would have greater difficulty paying for college, they were asked to estimate the amount of debt they would have when they graduated. Specifically, students were asked: “If you had to guess, how much debt do you think you will have when you graduate? (Please write the total dollar amount).” This item was coded as a continuous numerical value ranging from 0 to X; $M = 22280.58$, $SD = 31932.45$.

Pre-experimental covariates

Three measures were assessed before the experimental manipulation to be used as covariates and to check for the effectiveness of randomization. These were: *belonging uncertainty* (e.g. “Sometimes I feel like I belong at [college name] and sometimes I feel like I don’t belong at [college name]”, Walton & Cohen, 2007), *implicit theories of intelligence* (e.g. “You have a certain amount of intelligence and you really can’t do much to change it,” Dweck, 1999) and *implicit theories about navigating college* (e.g. “You either know how to do well in college or not and there isn’t much you can do to change it,” adapted from Dweck, 1999).

RESULTS

MANIPULATION CHECK.

The frustrating form was perceived as more frustrating and difficult to complete ($M = 4.57$, $SD = 1.29$) than the non-frustrating form ($M = 1.72$, $SD = 0.85$), $F(1,135) = 230.9$, $p < .001$, $d = 2.60$. Neither the main effect of generation status nor the generation by condition interaction was significant ($ps > .1$).

Next, participants' open-ended responses further confirmed that the form was eliciting the emotion of frustration as expected. Those in the non-frustrating condition commented on irrelevant surface features, such as "I think the financial aid website is simple, clean and easy to fill out" or "The font was a little too small, but not illegible. It seemed repetitive to hear the instruction, then read them again. I also think a little more attention could be given towards aesthetics."

Those in the frustrating condition, by contrast, wrote responses that clearly illustrated their frustration:

"It was very frustrating that when you entered something wrong the system deleted everything on the page instead of just the box you entered wrong."

"The financial aid questionnaire became frustrating because if you didn't fill in a blank or filled one in that didn't meet the required format it would erase all the input you already put in and make you fill it out again. Instead of making the applicants go through the tedious process. It would be easier if underneath the question there [were] guidelines such as MM-DD-YYYY instead of making them guess. And if they still input something

wrong it should just erase that one comment box not the entire page of information.”

“Very bad: 1) 2nd site erased ALL my input if it felt I left something out. 2) I was required to have 250 characters of questions about financial aid? 3) I hate it whenever I have to have capital and lower case letters in a password. If it is my password why do you care—unless someone else could receive my financial aid, I know I don't care.”

SENSE OF BELONGING.

Sense of belonging was analyzed with a 2 (Generation status: First-generation vs. Continuing-generation) \times 2 (Web form condition: Frustrating vs. Non-frustrating) ANCOVA.² As a preliminary, two main effects appeared. First, participants in the frustrating condition showed lower sense of belonging ($M = 5.33$, $SD = 0.74$, 95% CI: 5.11 – 5.54) than participants in the non-frustrating condition ($M = 5.80$, $SD = 1.08$, 95% CI: 5.58 – 6.02), $F(1, 133) = 9.35$, $p = .005$, $d = .51$. There was a significant main effect of generation status such that first generation students had lower sense of belonging ($M = 5.39$, $SD = 1.13$, 95% CI: 5.14 – 5.64) than continuing generation students ($M = 5.75$, $SD = 0.81$, 95% CI: 5.59– 5.92, $F(1,133) = 5.80$, $p = .012$, $d = .37$).

Our primary test of the hypothesis, however, concerned the generation status by condition interaction. This interaction was significant $F(1,133) = 5.47$, $p = .02$. First generation students in the frustrating condition showed reduced sense of belonging in college ($M = 4.95$, $SD = 1.33$, 95% CI: 4.59 - 5.31) relative to those in the non-frustrating condition ($M = 5.79$, $SD = 0.85$, 95%

² These models controlled for baseline belonging uncertainty and implicit theories of navigating college. These were significant predictors: uncertainty: $F(1,133) = 9.20$ $p = (.003)$; implicit theories $F(1,133)$, $p = .005$. However, when removing these covariates, the effect of condition was still significant among first-generation students a $p = .005$.

CI: 5.42 – 6.15), $F(1,133) = 10.53, p = .001, d = .75$. There were no differences by condition among continuing generation students, non-frustrating: $M = 5.82, SD = 0.79, 95\% CI: 5.58 – 6.06$; frustrating: $M = 5.17, SD = 0.84, 95\% CI: 5.47 – 5.95, F(1,133) = .42, p = .52, d = 0.16$. Therefore, the frustrating web form reduced sense of belonging among first generation students, but not continuing generation students.³ These findings are consistent with our hypothesis that bureaucratic difficulties, although frustrating for all, would reduce sense of belonging only among those students who would have reason to see them as diagnostic of their fit in college: that is, first generation college students.

PERCEIVED POTENTIAL TO SUCCEED IN COLLEGE

As above, the primary test of our theory was whether the frustrating web form reduced perceived potential to succeed among first-generation students. First, a 2 (Generation status) \times 2 (Web form condition) ANCOVA revealed a marginally significant main effect of condition (Frustrating: $M = 5.37, SD = 1.02, 95\% CI: 5.17-5.58$; Non-frustrating: $M = 5.66, SD = 0.68, 95\% CI: 5.45-5.86$), $F(1,133) = 3.75, p = .055, d = .33$, and a significant main effect generation status (First-generation: $M = 5.31, SD = 1.14, 95\% CI: 5.07 – 5.56$; Continuing generation: $M = 5.72, SD = .70, 95\% CI: 5.55 – 5.88$), $F(1, 133) = 7.37, p = .008, d = 0.43$.

As above, these main effects were qualified by a significant generation status by condition interaction, $F(1,133) = 4.65, p = .033$, which is consistent with our primary theoretical hypothesis. A simple effects test revealed that among first generation students, those in the

³ These results use the 8-item belonging composite because two items were poor fits for the common factors, as described in the methods. However, as a robustness check, I conducted a supplementary analysis that allowed a structural equation model to estimate a latent variable in which factor loadings for the 10 items, as opposed to the unweighted average. When this was done, all of the primary findings were reproduced: main effect of first generation status ($p = 0.007$), main effect of condition ($p = 0.009$), generation status \times condition interaction ($p = 0.006$), and simple effect among first generation students ($p = <0.001$).

frustrating condition showed less perceived potential ($M = 5.01$, $SD = 1.33$, 95% CI: 4.67 – 5.35) than those in the non-frustrating condition ($M = 5.61$, $SD = 0.85$, 95% CI: 5.27 – 5.96), $F(1,133) = 6.06$, $p = .02$, $d = .56$. There was no effect of condition among continuing generation students, non-frustrating: $M = 5.7$, $SD = 0.61$, 95% CI: 5.47-5.93, frustrating: $M = 5.73$, $SD = 0.84$, 95% CI: 5.47 – 5.95, $F(1,133) = .04$, $p = .84$, $d = .04$. Thus, a brief exposure to a frustrating web form not only reduced first generation students' overall sense of belonging, but also their perceptions of their potential to succeed in college in general. Students who had at least one parent with a college degree, however, were unaffected by the web form.

SUBJECTIVE ESTIMATES OF DEBT

Our theory was that the frustrating university web form was a threat that, on its face, was group-irrelevant. However one concern was the possibility that the topic of the form—obtaining advice about financial aid—would have cued first generation students' concerns about taking on student debt. That is, the form may have led students to feel that they would have to take on too much debt in college, which may have in turn reduced their estimates of their ability to successfully complete a degree.

I therefore examined whether the web form caused students to believe that they would have more debt. It did not: there was no main effect of the frustrating web form on estimates of student debt ($F(1,133) = 0.04$, $p = .85$), and no simple effect within the first-generation sub-group ($F(1,133) = 0.24$, $p = 0.62$). This is inconsistent with the alternative explanation noted above.

STUDY 2

Consistent with our theory, Study 1 found that a brief exposure to a bureaucratic challenge—a frustrating university web form—reduced sense of belonging and perceived potential for success in college among first generation but not continuing generation college students. However, a limitation of Study 1 concerned the relevance of the financial aid web form manipulation for students’ perceived ability to finance their education. As noted above, a potential alternative explanation of our findings is that the web form manipulations made first generation students believe they would have been unable to finance college. Although this possibility seems unlikely given the non-significant effects of condition on estimated debt, as reported above, I wanted to further address this limitation in Study 2. Thus, Study 2 included a manipulation of bureaucratic challenge that was unrelated to finances.

A second limitation of Study 1 is that it was conducted at two selective public universities, with relatively high graduation rates. In order to fully understand the experiences of first generation college students – it is important to extend these findings to settings where first generation students are most likely to attend college – that is, community colleges (Bailey et al., 2005). In addition, community colleges typically have extremely high dropout rates and, as such, understanding the psychological barriers to persistence is especially important in such settings.

Study 2 therefore extended Study 1 in two ways. First, it extended the findings of Study 1 to community college developmental (remedial) education students – a population with traditionally low college persistence (Bailey, Jeong, Cho, 2010). In addition, I used a different manipulation of bureaucratic challenge—a confusing or simple course selection task. Because

this is a sensitive but important population to study, it can be difficult to obtain data from these students. I therefore took advantage of an opportunity to embed experimental and correlational measures within the control group of an intervention study that I was invited by the college to conduct. Study 2 reports the experimental results and Study 3 reports the correlational results (the intervention is not discussed here).

Method

PARTICIPANTS

152 first-generation community college developmental education students (62% female) who were enrolled in a study skills course were recruited to participate in the study as an online homework exercise for partial course credit. After participants who failed a trap question (“In order to ensure that our survey is working correctly, please choose slightly agree below”; Oppenheimer, Meyvis & Davidenko, 2009) were excluded, 98 participants remained. The ages of our participants ranged from 17 – 62, $M = 21.89$, $SD = 6.97$. The racial/ethnic breakdown of the sample was as follows: 11.1% white; 21.5% Hispanic/Latino; 7.8% black; 3.3% Asian; 1% Native; 1.9% other.

PROCEDURES

Participants were invited to participate in a study regarding their experiences during the transition to college. All of the study materials were sent to students via email from their course instructors. Participants completed each study activity online outside of their regular class hours. Participants first completed a series of baseline questions including belonging uncertainty, implicit theories of intelligence, and perceptions of bureaucratic challenges in college (discussed in Study 3). After completing the baseline questions participants received a manipulation of

bureaucratic challenge.⁴ Specifically, participants were randomly assigned to complete either a simple or a complicated course selection task.

COURSE SELECTION TASK MANIPULATION

All participants were shown a hypothetical math course requirement flowchart, which was described as typical of degree requirement flowcharts used at many colleges, including their own. They then had to list in five minutes or less all of the courses that they would need in order to graduate. In the simple version, they had to complete this task using a clear and simple flowchart, whereas in the complicated version they had to complete the task using a complicated flowchart. The complicated version was modeled after examples of course requirement flowcharts that I found on many community college websites, and it was thus representative of students' naturalistic experiences (See Figure 2). Although, both flowcharts contained the same total number of courses required for graduation, the simple flowchart differed from the complicated flowchart on several important dimensions. First, the simple flowchart included a very simple path to degree completion, with relatively few course options, whereas the complicated flowchart included a complex path to degree completion, with many course choices. In addition, the simple flowchart provided both course names and numbers in the same location, whereas the complicated flowchart had course names in a separate location. Furthermore, the complicated flowchart included symbols next to some courses, indicating that these courses needed to be taken concurrently or required instructor approval, whereas the simple flowchart did not include these symbols. Finally, the simple flowchart included labels for different major

⁴ At the request of the community college administrative partners who facilitated this field study, I included an additional condition in which students received an adapted version of an implicit theories of intelligence intervention (Paunesku et al., 2015). This was administered prior to the bureaucratic challenge manipulation. I explored whether this intervention might mitigate the effects of the bureaucratic difficulties on social belonging, and it did not ($t(145) = .56, p = .58$). Therefore I excluded it from the analyses.

requirements, whereas the complicated flowchart used different types of lines to indicate the major requirements and included a key with the meanings of the lines on the side. After participants completed the course selection task manipulation, they answered two manipulation check questions and completed a series of survey measures including sense of belonging in college and perceived potential to succeed in college.

MEASURES

Manipulation checks

As a manipulation check, two items were included to assess perceived difficulty of the course selection task (e.g. “How confusing was the flowchart?” 1 = *Extremely confusing*, 5 = *Not at all confusing*).

Sense of belonging

Sense of belonging was assessed with the eight items used in Study 2 (adapted from Cook et al., 2012, e.g. “I feel like I belong at [college name]”, 1 = *Strongly agree*, 7 = *Strongly disagree*). A composite was formed by taking an unweighted average of the items, with higher scores indicating greater sense of belonging.

Perceived potential to succeed in college

Perceived potential to succeed in college was assessed with five items, adapted from those used in Study 1 for use with community college participants. Examples of items included “How likely or unlikely are you to earn the college degree or certificate that you are seeking from [college names]?” (1 = *Very likely* and 7 = *Very Unlikely*) and “How committed are you to earning the degree or certificate that you are seeking?” (1 = *Extremely committed*, 5 = *Not at all*

committed). After reversing and z-scoring each item, a composite was then created by taking an unweighted average of the five items (higher scores = greater perceived potential).

Pre-experimental Covariates

Belonging uncertainty was assessed with the same items used in study 1 (e.g. “Sometimes I feel like I belong at [college name] and sometimes I feel like I don’t belong at [college name]”, Walton & Cohen, 2007), and implicit theories of intelligence was assessed with the following item: “You have a certain amount of intelligence and you really can’t do much to change it” (Dweck, 1999). Because of the large age range among community college participants, age was also assessed as a covariate.

Results

MANIPULATION CHECK

As expected, participants in the complicated condition rated the task as more difficult ($M = 3.750$, $SD = .153$, 95% CI: 3.447 – 4.053) than participants in the simple condition ($M = 2.188$, $SD = .156$, 95% CI: 1.878 – 2.497), $F(1,96) = 51.277$, $p < .001$.⁵

SENSE OF BELONGING

A one-way ANCOVA revealed a significant effect of condition such that those in the difficult condition showed reduced sense of belonging ($M = 5.42$, $SD = 0.85$, 95% CI: 5.22 – 5.62) relative to those in the simple condition ($M = 5.75$, $SD = 0.77$, 95% CI: 5.55 – 5.96), $F(1, 93) = 5.27$, $p = 0.024$, $d = 0.41$.⁶

⁵ Degrees of freedom varied due to participant non-response.

⁶ These results use the 8-item belonging composite as described in the methods section. However, these findings held when I analyzed all 10 items using a latent variable model $p = .02$.

PERCEIVED POTENTIAL TO SUCCEED IN COLLEGE

There were no differences by condition for perceived potential to succeed in college, $F(1,93) = 0.133, p = 0.72$. This null finding was unexpected. One possible explanation is that because, unlike the web form manipulation used in Study 1, the course selection task manipulation here was not framed as something that was actually created by their college. Rather it was framed as something that was typical to what is used at many colleges. It is thus possible that this manipulation did not seem relevant to their likelihood of succeeding at their college.

STUDY 3

Study 2 provided further support for our theory regarding the link between bureaucratic hassles and sense of belonging. First generation community college students who completed the confusing course selection task showed reduced sense of belonging relative to those who completed the simple task. In addition to conceptually replicating the findings of Study 1, Study 2 further rules out the potential alternative explanation of Study 1 – that is, that the manipulation reduced students’ perceived ability to finance college. Finally, Study 2 extends the findings of Study 1 to an even more vulnerable population – first generation community college students.

A limitation of the first two studies is that the effects of the bureaucratic manipulations were limited to the two hassles I selected (web forms and course selection) and outcomes were limited to students’ self-reports. I therefore conducted a third, correlational analysis examining the relationship between perceived naturalistic bureaucratic challenges, feelings of belonging in college, and actual behavior: college persistence.

Study 3 extends the first two studies in two ways. First, it includes measures of a variety of real-world bureaucratic hassles that students commonly experience during the transition to college, thereby increasing ecological validity of my hypotheses. In addition, I examine how experiences with these hassles relate not only to self-reported sense of belonging in college, but also college retention. This correlational study was conducted as part of a larger field study initially reported in Study 2 (the complicated course selection manipulation did not affect any of the outcomes reported here). I hypothesized that greater perceptions of bureaucratic challenges at the beginning of the term would predict reduced short term sense of belonging in college, and, ultimately, college persistence. Because belonging uncertainty is a key predictor of over-

interpretation of adversity during the transition to college (Walton & Cohen, 2007), I further hypothesized that baseline belonging uncertainty would moderate the long-term effects of bureaucracies on college persistence. I tested these hypotheses in a two-session study completed as part of students' course requirements for a mandatory study skills course.

Method

PARTICIPANTS AND PROCEDURE

Two hundred and twenty-eight⁷ first-generation community college students (63% female) enrolled in a mandatory study skills course participated in the study in exchange for partial course credit. They were recruited to participate in a study on their experiences during the transition to college. All of the study materials were sent to students via email from their course instructors. Participants completed each study activity online outside of their regular class hours. The study consisted of two sessions. Session one was administered during the second week of class and consisted of a questionnaire assessing belonging uncertainty and perceptions of bureaucratic challenges at their college, an experimental manipulation (discussed in Study 2), and measures of sense of belonging and perceived potential to succeed in college. Session 2 was administered during the 5th week of the class, and consisted of questionnaires assessing sense of belonging in college and perceived potential to succeed in college.

⁷ To increase statistical power, this study included participants who were given the implicit theories intervention. The intervention had no effect on any of the findings reported below (no main effects and no interaction effects, $ps > .1$), except for completion of the second study session (the treatment increased the rate at which participants completed it). Therefore participants who received the implicit theories intervention are excluded from analysis of social belonging self-reports from that session. In addition, because this study did not include experimental analyses, the participants who failed the trap question in Study 2 are retained.

MEASURES

Belonging uncertainty

Belonging uncertainty was assessed using the 3 items used in studies 1 and 2 (Walton & Cohen, 2007), including “Sometimes I feel like I belong at my college, and sometimes I feel like I don’t belong at my college,” 1 = *Strongly agree*, 7 = *Strongly disagree*. Each item was reverse scored and a composite was formed by averaging across the three items (higher scores = higher belonging uncertainty).

Perceptions of bureaucratic challenges

Students answered eight questions regarding their perceptions of bureaucratic tasks that were common at their college. Specifically, students were asked to indicate how simple or complicated they found common bureaucratic tasks such as including choosing courses, registering for courses, completing financial aid paperwork, and making academic advising appointment, (1 = *Extremely simple* to 7 = *Extremely complicated*). To conserve time, each participant completed a random subset of four of the eight total items. Three items were excluded based on a factor analysis. A composite score was created for each participant by taking an unweighted average of the remaining items they completed.

Sense of belonging in college

Sense of belonging was assessed both during session 1 (first week of the semester) and again at session 2 (fifth week of the semester) using the same the eight items used in studies 1 and 2 (adapted from Cook et al., 2012, “I feel like I belong in my school,” 1 = *Strongly agree*, 7 = *Strongly disagree*). The items were combined by taking an unweighted average of the eight items, with higher scores indicating higher belonging.

Achievement Data

Second term retention data (i.e. whether students returned to college in the second term) were collected from the university registrar.

Results

SENSE BELONGING IN COLLEGE

As expected, there was a significant effect of initial perceptions of bureaucratic hassles on short-term sense of belonging in college, such that students who experienced more bureaucratic hassles had lower sense of belonging both at time 1, $b = -0.21$, $t(223) = -3.80$, $p < 0.001$, and time 2 ($b = -0.21$, $t(161) = -2.66$, $p = 0.009$). Thus, the effects were not limited to manipulated bureaucratic challenges, but extended to naturalistic bureaucratic challenges as well.

COLLEGE RETENTION

The main effect of bureaucratic difficulties on first semester retention was non-significant, $b = -0.10$, $z(219) = -0.59$, $p = 0.56$. However, there was a significant baseline belonging uncertainty by bureaucratic challenge interaction for retention, $b = 0.46$, $z(219) = 2.58$, $p = 0.0098$. Among student high in baseline belonging uncertainty (+1 *SD*), perceived bureaucratic challenged predicted lower likelihood of retention, $b = -0.60$, $z(219) = -2.17$, $p = 0.03$. Among participants low in baseline belonging uncertainty, bureaucratic challenge did not predict retention, $b = 0.32$, $z(219) = 1.34$, $p = 0.18$. Therefore, students' perceptions of naturalistic bureaucratic challenges were predictive of their term 1 college retention, but only among those participants who were uncertain of belonging in college at the beginning of the term. This is consistent with the theoretical model laid out at the outset: belonging uncertainty among individuals under social identity threat can lead to over-interpretation of commonplace bureaucratic difficulties and

undermine institutional success, despite real potential to succeed.

GENERAL DISCUSSION

Can institutional cues that are aversive to all individuals nevertheless contribute to group-based inequalities within the institution? This thesis reports two experimental studies and one correlational study suggesting that they can. Manipulated bureaucratic challenges led first generation students to feel like they did not belong and were unlikely to succeed in college (Studies 1 and 2). In addition, experiences with real world bureaucratic hassles early in the semester predicted reduced sense of belonging in college and, among students who were questioning their belonging in college, college persistence (Study 3). Taken together, these findings suggest that bureaucratic hassles are not simple frustrations faced by all college students – they may in fact be important contributors to social-class based disparities in higher education.

In Study 1, students at two competitive four-year universities completed a university financial aid web form that was manipulated to be either frustrating or not. Although the frustrating condition was perceived as more frustrating and difficult to complete by all students, it led to reduced sense of belonging only among first-generation college students. Study 2 extended these findings to an even more vulnerable population and one in which first-generation students are especially likely to be overrepresented (Bailey et al., 2005) – a community college study skills course. First generation community college students completed a different bureaucratic challenge manipulation – a simple or confusing course selection task. Students who completed the confusing condition showed reduced sense of belonging relative to those who completed the simple condition. Finally, the third study found that first generation students' self-reported experiences with bureaucratic challenges at their college predicted reduced sense of belonging up to three weeks later. In addition, among students who were high on belonging uncertainty at baseline, perceived bureaucratic challenges predicted lower likelihood of returning to college in the second semester. In sum, the present body of research demonstrates the causal

effect of a bureaucratic hassle on sense of belonging, and offers correlational data suggesting that this may extend to behavioral outcomes.

Study 1 also found evidence that the effects of the web form manipulation were not limited to students' sense of belonging in college – first generation students in the frustrating condition also perceived themselves as less likely to succeed in college. These effects, however, were not replicated in the second study, and should thus be treated with caution. I do not believe the difference in results across studies threatens the theory, however. Unlike the web form manipulation, the course selection flowcharts used in Study 2 were not described as actually coming from students' college, but rather as reflecting what is typical of many colleges, including their own. Thus, it is possible that the course selection manipulation seemed relevant to students' overall feelings of belonging in their college, but not their estimated potential of succeeding in their college. Nevertheless, it will be important to replicate and extend the present findings.

These findings have implications for previous studies that found links between bureaucracies and academic outcomes, but were not framed in terms of the *psychological* impact of bureaucracies. For instance, previous research has found that providing personal assistance with a notoriously complicated bureaucratic challenge – the FAFSA (Free Application for Federal Student Aid) form – led to increases in FAFSA completion, and college enrollment the following fall (Bettinger et al., 2012). These findings suggest that these outcomes may have occurred, in part, because providing students with personal assistance buffered them from the psychological toll of the complicated form.

Most crucially, this work advances theories of how institutional contexts can trigger social identity threat among members of stigmatized groups. Previous research has shown that contextual cues that create negative objective experiences specifically for the stigmatized can trigger social identity threat among these individuals (Murphy et al., 2007; Stephens et al. 2012b,

for a review see Murphy & Walton, 2013). However, this thesis suggests that institutional cues need not create *objectively* different experiences for stigmatized individuals to differently affect their *subjective* experiences. Indeed, I found that bureaucratic hassles that were perceived as frustrating by both first generation and continuing generation students, created identity-threatening experiences only among first generation students.

These findings also advance theories of identity threat and underperformance among first generation college students, a group that has often been overlooked in the identity threat literature, except in some rare cases (Johnson, Richeson & Finkel, 2011; Stephens et al., 2012a). This work supports the few studies that have examined social identity threat among first generation students, and provides additional evidence that first generation students experience identity concerns similar to those to other stigmatized groups. I extend these previous findings by showing, specifically, the role of bureaucracy in triggering experiences of threat among first generation students.

The gap in college achievement between first generation students and continuing generation students is an increasingly important social problem, garnering much attention in both social science research and public policy efforts. These findings suggest that bureaucratic hassles may be an important contributor to this gap. Although many policies designed to reduce social class based disparities have focused on providing first generation students with more financial resources or increased academic support (Stephens & Townsend, 2013; Institute for Higher Education Policy, 2013), this work suggests these efforts may be insufficient. To the extent that college bureaucracies represent an additional psychological barrier for first generation college students, social class based inequalities may persist despite such efforts.

This work raises interesting questions for peoples' interactions with institutions more broadly. That is, do bureaucratic hurdles affect peoples' interactions with other types of institutions, such as governments or healthcare providers? Might a complicated healthcare

application form compound group-based disparities in health care access, and ultimately, health? Such questions hold important implications for social programs specifically designed to serve disadvantaged populations.

Limitations and Future Directions

One limitation of this work is that the specific identity-relevant beliefs that make first generation students susceptible to the effects of bureaucratic hassles are unknown. Because bureaucracies are especially pertinent to navigating the institution of college in general, insider knowledge seems an especially likely candidate. On the other hand, it is possible that there is no singular aspect of first generation students' experience that predisposes them to threat – but rather the confluence of many different factors including negative stereotypes, cultural mismatch, and insider knowledge. Future research should test these possibilities.

An additional limitation concerns the potential behavioral and psychological mediators that might lead from measured belonging to college persistence. As of now, these mediating pathways are unknown. Previous work suggests that students' tendency to engage with institutional resources may be a possible candidate (Stephens et al., 2014). For instance, bureaucratic hassles might lead students to feel like they do not belong in college which in turn might make them less likely to attend professor's office hours, to seek out academic advising, or to form study groups with other students. Over time, this cycle of disengagement may ultimately lead students to leave college. Testing this potential mediating pathway is an important task for future research.

This research raises a number of interesting questions for future research. One such question is whether bureaucratic hassles might affect other stigmatized groups and in other institutional contexts. For instance, might bureaucratic challenges in college affect other stigmatized groups such as women in STEM or students of color? And might bureaucracies

associated with other types of institutions, such as law enforcement or healthcare produce similar outcomes?

Conclusion

Although bureaucratic hassles in institutions are typically thought of as simple frustrations that *all* students face, this thesis suggests that they may in fact be more than this. Indeed, this work suggests that although bureaucracies all aversive to all students, they create identity-threatening experiences specifically for first generation students, and in doing so, may contribute to social class disparities in college achievement. This thesis has practical implications for institutional policies aimed at reducing group-based inequalities. Specifically, this research underscores the importance of attending to cues like bureaucracies that, from an outsider's perspective, may seem objectively neutral. To the extent that such cues create different *subjective* experiences for members of stigmatized group, they will reinforce disadvantage over time.

APPENDIX

Figure 1: Web form manipulation. Information completed with no errors (left) and then deleted in the frustrating version (right).

Center for Student Financial Services
A free online guide to financial aid, scholarships, and more.

Biographical Information

- Last Name: Reeves
- First Name: Stephanie
- Date of Birth: 5/5/55
- Email Address: slreeves@utexas.edu
- Confirm Email Address: slreeves@utexas.edu
- Phone Number: 555-555-5555
- Please Choose a Username: slreeves
- Password: *****
- Confirm Password: *****
- State of Residence: Texas
- Did you become a resident of this state before January 1, 2008?: No

Continue

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Please correct the following error(s):
Invalid Password. Your password must include a minimum of 15 characters, one or more upper case letters, one or more numerical digits, and one or more of the following symbols: ., / *#%&!

Biographical Information

- Last Name: [Empty]
- First Name: [Empty]
- Date of Birth: [Empty]
- Email Address: [Empty]
- Confirm Email Address: [Empty]
- Phone Number: [Empty]
- Please Choose a Username: [Empty]
- Password: [Empty]
- Confirm Password: [Empty]
- State of Residence: ...
- Did you become a resident of this state before January 1, 2008?: ...

Continue

Figure 2: Study 1 Results: Frustrating web form reduces sense of belonging among first generation students attending a selective public four-year college. No effects among condition generation students. Error bars correspond to ± 1 standard error of the mean.

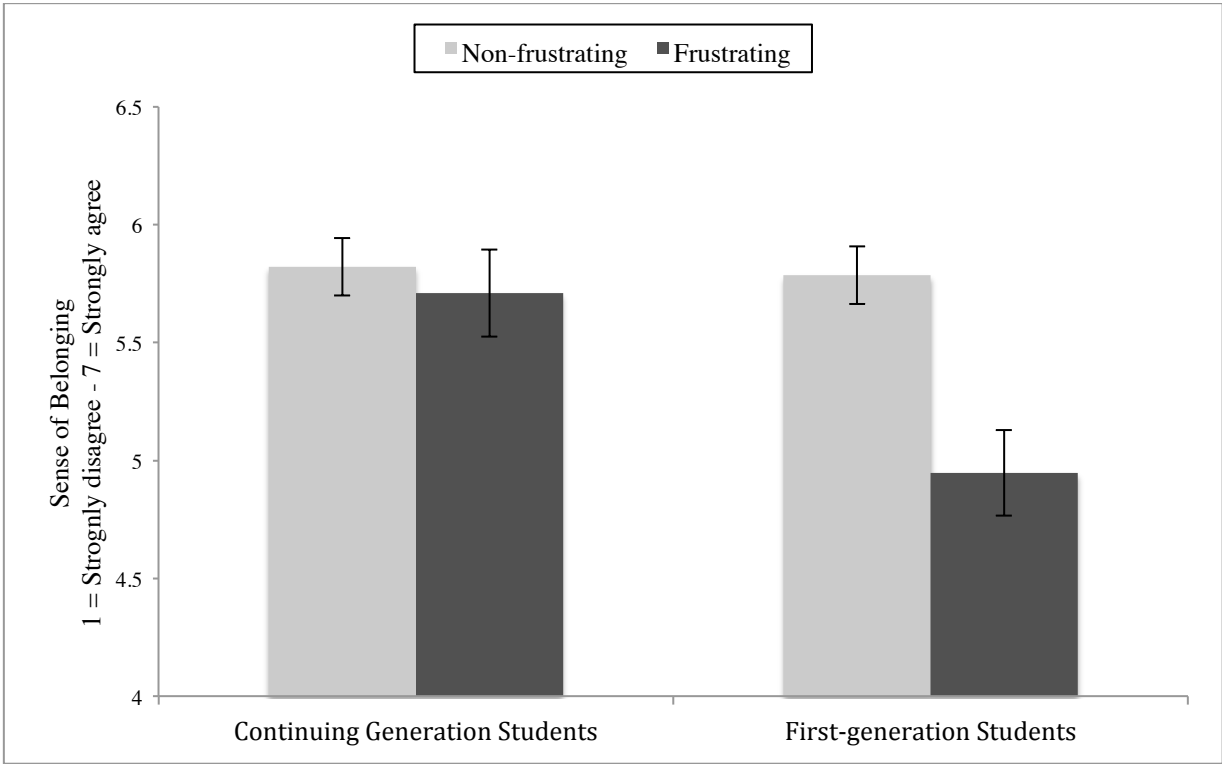


Figure 3: Web Form Manipulation. Easy version (left) and complicated version (right).

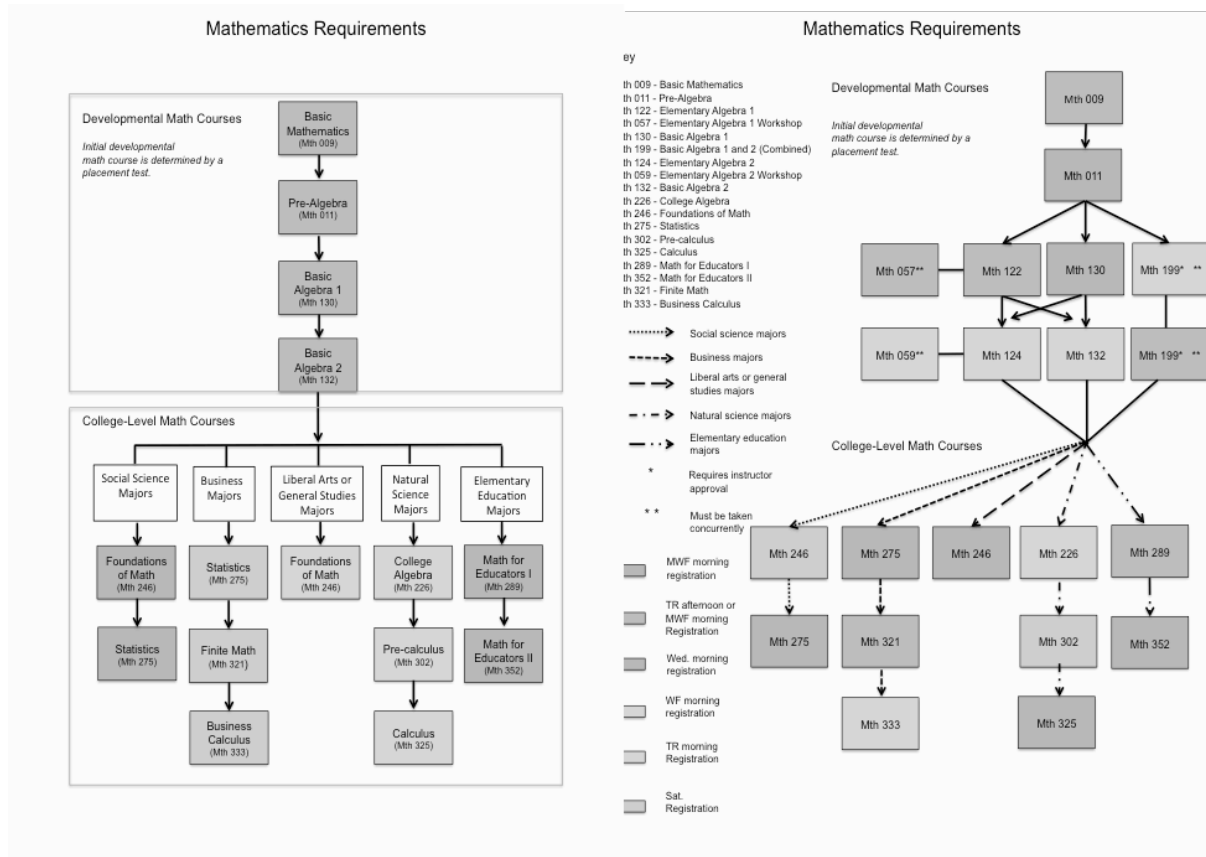


Figure 4: Study 2 results. A complicated web form reduced sense of belonging among first-generation community college students. Error bars correspond to ± 1 standard error of the mean.

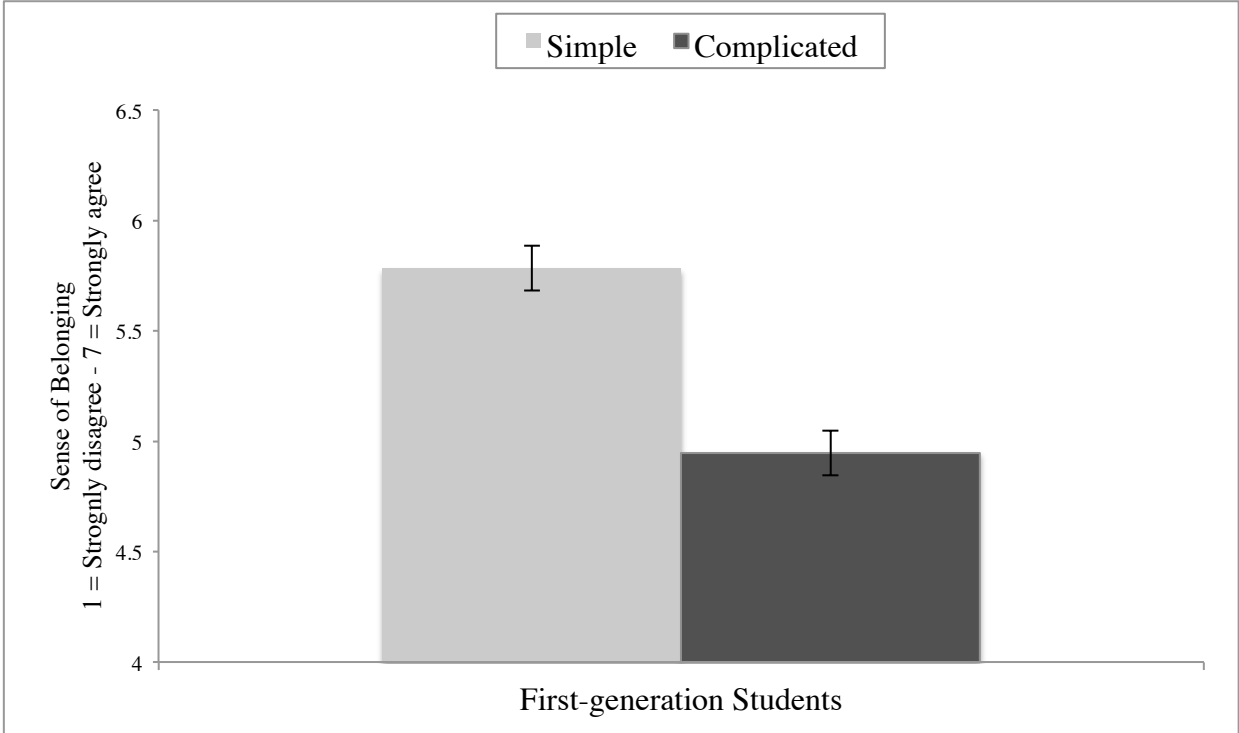


Figure 5 : Study 3 results: Self-reported bureaucratic hassles during the beginning of the term predict lower sense of belonging (estimated from a self-report measure) in second week of the term (left) and up to fifth week of the term (right) among first-generation community college students. Error bars correspond to ± 1 standard error of the mean.

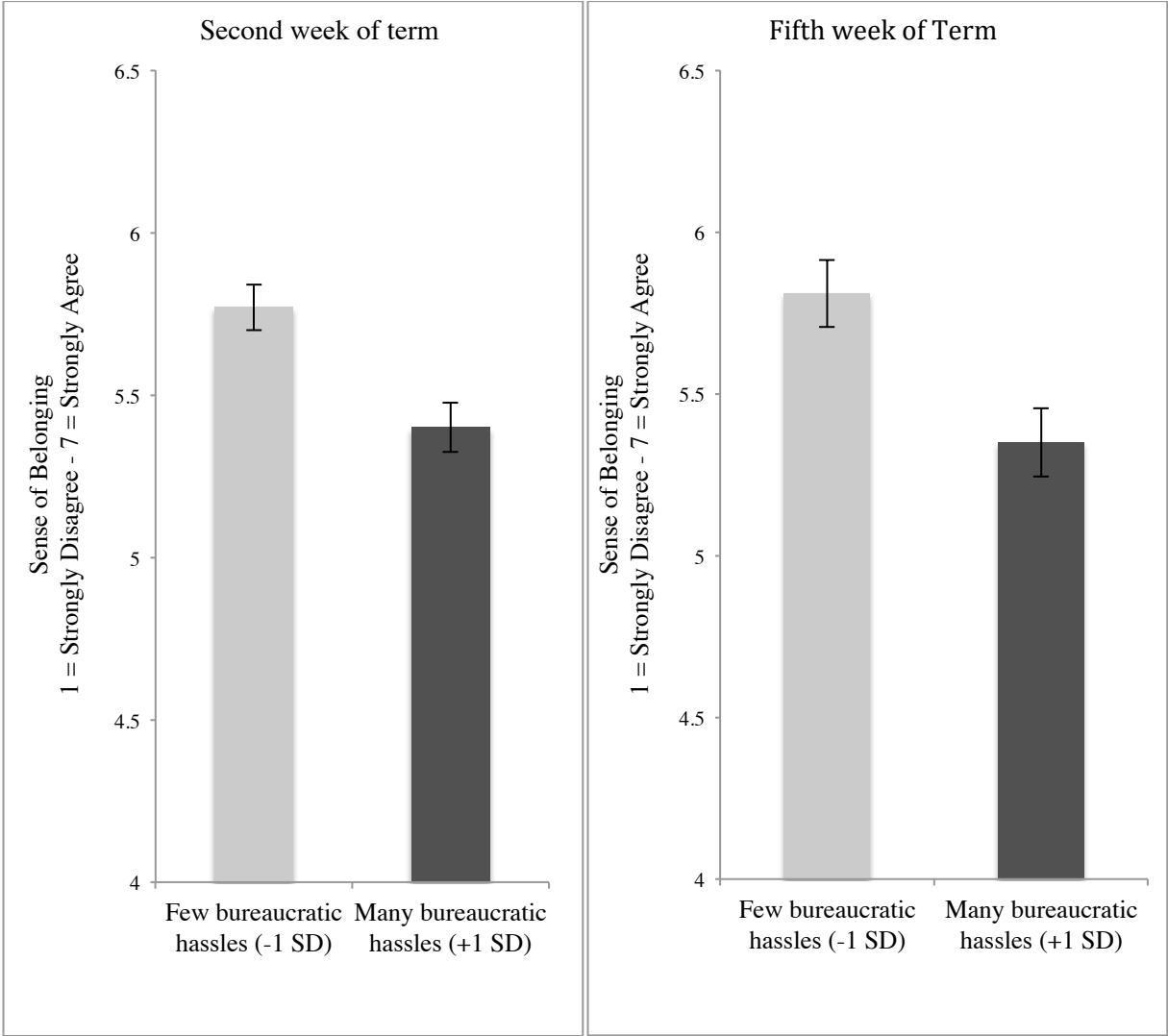
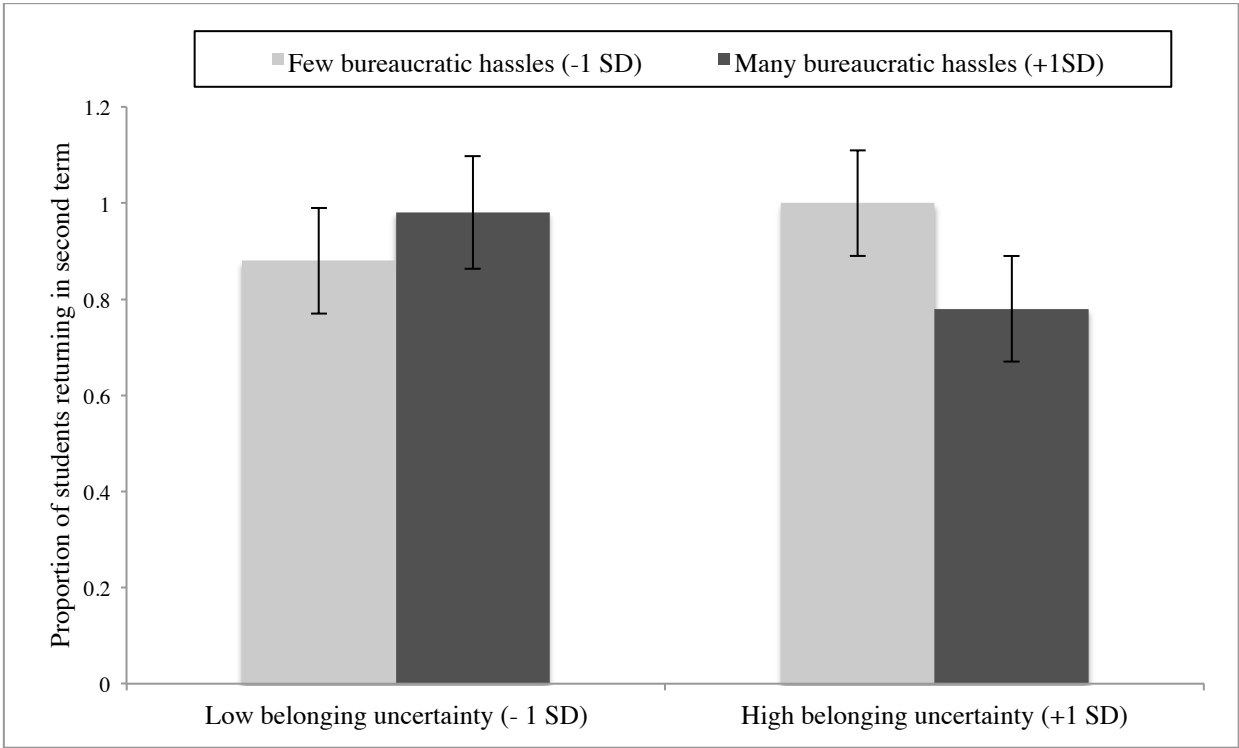


Figure 6: Study 3 results: Among students uncertain of their belonging in second week of term, bureaucratic hassles predicted lower likelihood of returning in the second term. Error bars correspond to ± 1 standard error of the mean.



REFERENCES

- Bailey, T., Jenkins, D., & Leinbach, T. (2005). What we know about community college low-income and minority student outcomes: Descriptive statistics from national surveys. *Community College Research Center*.
- Bailey, T., Jeong, D. W., & Cho, S. W. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review, 29*, 255-270.
- Bayer, P., Ferreira, F., & Ross, S. L. (2014). Race, ethnicity and high-cost mortgage lending. *National Bureau of Economic Research*.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the h&r block fafsa experiment *The Quarterly Journal of Economics, 127*, 1205-1242.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology, 79*, 953-961.
- Carter, P. L., & Reardon, S. F. (2014). Inequality Matters. *William T. Grant Foundation Paper, New York: William T. Grant Foundation*.

- Cheryan, S., Plaut, V. C., Davies, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology*, *97*, 1045-1060.
- Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science*, *324*, 400-403.
- Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin*, *25*, 1302-1318.
- Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingent belonging: Protective benefits of values affirmation on identity development. *Journal of Personality and Social Psychology*, *102*, 479-496.
- Croizet, J. C., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin*, *24*, 588-594.
- Deil-Amen, R., & Rosenbaum, J. E. (2003). The social prerequisites of success: Can college structure reduce the need for social know-how? *The Annals of the American Academy of Political and Social Science*, *586*(1), 120-143.
- Dweck, C. S. (1999). *Self-Theories: Their role in motivation, personality and development*. Philadelphia: Taylor and Francis/Psychology Press.

- Emerson, K. T. U. & Murphy, M.C. (2014). Identity threat at work: How social identity threat and situational cues contribute to racial and ethnic disparities in the workplace. *Cultural Diversity and Ethnic Minority Psychology, 20*, 508-520.
- Engle, J. (2007). Postsecondary access and success for first-generation college students. *American Academic, 3*(1), 25-48.
- Gajduschek, G. (2003). Bureaucracy: Is it efficient? Is it not? Is that the question? Uncertainty reduction: An ignored element of bureaucratic rationality. *Administration & Society, 34*(6), 700-723.
- Garcia, J., & Cohen, G. L. (2012). A social psychological perspective on educational intervention. In E. Shafir (Ed.), *Behavioral foundations of policy* (pp. 329–350). New York, NY: Russell Sage.
- Hale, C. J., Hannum, J. W., & Espelage, D. L. (2005). Social support and physical health: The importance of belonging. *Journal of American College Health, 53*, 276-284.
- Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., & Hyde, J. S. (2014). Closing the social class achievement gap for first-generation students in undergraduate biology. *Journal of Educational Psychology, 106*, 375-389.
- Hoque, M., & Picard, R. W. (2011). Acted vs. natural frustration and delight: Many people smile in natural frustration. In *Automatic Face & Gesture Recognition and Workshops (FG 2011), 2011 IEEE International Conference on* (pp. 354-359). IEEE.
- Housel, T. H., & Harvey, V. L. (2009). *The invisibility factor: Administrators and faculty reach out to first-generation college students*. Universal-Publishers.

- Hoxby, C., & Turner, S. (2013). Expanding college opportunities for high-achieving, low income students. *Stanford Institute for Economic Policy Research Discussion Paper*, (12-14).
- Institute for Higher Education Policy. (2013). *Supporting first-generation college students through classroom-based practices*. Washington DC.
- Inzlicht, M., & Schmader, T. (2012). *Stereotype threat: Theory, process, and application*. Oxford University Press.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education*, 861-885.
- Jenkins, D., & Cho, S. W. (2012). Get with the program... and finish it: Building guided pathways to accelerate student completion. *New Directions for Community Colleges*, 2013(164), 27-35.
- Johnson, S. E., Richeson, J. A., & Finkel, E. J. (2011). Middle class and marginal? Socioeconomic status, stigma, and self-regulation at an elite university. *Journal of Personality and Social Psychology*, 100, 838-852.
- Kramer, R. M., & Cook, K. S. (Eds.). (2004). *Trust and distrust in organizations: Dilemmas and approaches*. Russell Sage Foundation.
- Logel, C., Walton, G. M., Spencer, S. J., Iserman, E. C., Von Hippel, W., & Bell, A. E. (2009). Interacting with sexist men triggers social identity threat among female engineers. *Journal of Personality and Social Psychology*, 96, 1089- 1103
- Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of Psychology*, 56, 393-421.

- Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat how situational cues affect women in math, science, and engineering settings. *Psychological Science, 18*, 879-885.
- Murphy, M. C. & Walton, G. M. (2013). From prejudiced people to prejudiced places: A social-contextual approach to prejudice. In Stangor, C. & Crandall, C. (Eds.) *Frontiers in Social Psychology Series: Stereotyping and Prejudice*. New York, NY: Psychology Press.
- OECD. (2010). Intergenerational Social Mobility across OECD Countries.
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology, 45*, 867-872.
- Ostrove, J. M., & Long, S. M. (2007). Social class and belonging: Implications for college adjustment. *The Review of Higher Education, 30*, 363-389.
- Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *Journal of Higher Education, 75*, 249-284.
- Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge: Harvard University Press.
- Podolny, J. M., & Baron, J. N. (1997). Resources and relationships: Social networks and mobility in the workplace. *American Sociological Review, 62*, 673-693.
- Purdie-Vaughns, V., Steele, C. M., Davies, P. G., Dittmann, R., & Crosby, J. R. (2008). Social identity contingencies: How diversity cues signal threat or safety for African Americans in mainstream institutions. *Journal of Personality and Social Psychology, 94*, 615-630.

- Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. *Whither Opportunity*, 91-116.
- Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership*, 70(8), 10-16.
- Reay, D., Crozier, G., & Clayton, J. (2009). 'Strangers in paradise'? Working-class students in elite universities. *Sociology*, 43, 1103-1121.
- Saenz, V. B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). *First in my family: A profile of first-generation college students at four-year institutions since 1971*. Los Angeles, CA: Higher Education Research Institute.
- Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype threat effects on performance. *Psychological Review*, 115, 336.
- Schwartz, B. (2004). *The paradox of choice: Why more is less*. New York: Harper Perennial.
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75, 417-453.
doi:10.3102/00346543075003417
- Smith, J. C., & Medalia, C. (2014). Health insurance coverage in the United States: 2013. *US Department of Commerce, Economics and Statistics Administration, Bureau of the Census*.
- Soria, K. M., Weiner, B., & Lu, E. C. (2014). Financial decisions among undergraduate students from low-income and working-class social class backgrounds. *Journal of Student Financial Aid*, 44(1), 2.

- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology, 35*, 4-28.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*, 613.
- Steele, C. (2011). *Whistling Vivaldi: And other clues to how stereotypes affect us (issues of our time)*. New York, NY: WW Norton & Company.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*, 797.
- Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. *Advances in Experimental Social Psychology, 34*, 379-440.
- Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology, 102*, 1178-1197.
- Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap a difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological Science, 25*, 943-953.
- Stephens, N. M., & Townsend, S. S. (2013). Rank is not enough: Why we need a sociocultural perspective to understand social class. *Psychological Inquiry, 24*(2), 126-130.

- Stephens, N. M., Townsend, S. S., Markus, H. R., & Phillips, L. T. (2012). A cultural mismatch: Independent cultural norms produce greater increases in cortisol and more negative emotions among first-generation college students. *Journal of Experimental Social Psychology, 48*, 1389-1393.
- Stoops, N. (2004). Educational Attainment in the United States: 2003. Population Characteristics. *US Department of Commerce*.
- The White House. (2014). Increasing college opportunity for low-income students. *Executive Office of the President*.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
- Vohs, K. D., Baumeister, R. F., Schmeichel, B. J., Twenge, J. M., Nelson, N. M., & Tice, D. M. (2014). Making choices impairs subsequent self-control: A limited-resource account of decision making, self-regulation, and active initiative. *Motivation Science, 1*(S), 19-42.
- Volandes, A. E., & Paasche-Orlow, M. K. (2007). Health literacy, health inequality and a just healthcare system. *The American Journal of Bioethics, 7*(11), 5-10.
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82-96.
- Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331*, 1447-1451.

Walton, G. M., & Spencer, S. J. (2009). Latent ability grades and test scores systematically underestimate the intellectual ability of negatively stereotyped students. *Psychological Science, 20*, 1132-1139.

Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: Attribution therapy revisited. *Journal of Personality and Social Psychology, 42*, 367- 376.