Access is Not Enough: Cultural Mismatch Persists to Limit First-Generation Students’ Opportunities for Achievement Throughout College

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Abstract

American higher education prioritizes independent models of self as the cultural ideal. Early in college, this produces a mismatch for first-generation students (neither parent has four-year degree), who are guided by relatively interdependent models of self. However, less is known about how first-generation students interact with college institutions over time. Using cross-sectional and longitudinal approaches, we find that cultural mismatch persists until graduation. First, social class differences in models of self remain stable throughout college: first-generation students continue to endorse more interdependence than do continuing-generation students. Second, interdependence at entry, which mismatches college cultures of independence, predicts reduced sense-of-fit in college four years later. Third, lower sense-of-fit predicts lower grades and subjective status upon graduation. We suggest providing access is not sufficient to reduce social class inequality: colleges need more inclusive institutional environments to ensure that diverse students can reap similar rewards from the college experience.

Keywords: social class, inequality, culture, institutions / organizations, higher education

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Social class mobility, or the lack thereof, increasingly occupies the minds of citizens, pundits, and policymakers across the political spectrum in the U.S. Among developed nations, the U.S. has the lowest rate of intergenerational mobility (OECD, 2010). For instance, social class background constrains students’ access to education: the opportunity to earn a college degree varies sharply by social class, particularly between first-generation students (neither parent has a four-year college degree) and continuing-generation students (at least one parent has a four-year degree). First-generation students are 35% less likely to matriculate and 51% less likely to graduate college in four years (Astin & Oseguera, 2004; Ishitani, 2006).

Disparities in access matter because higher education is a gateway institution for social class mobility (Ridgeway & Fisk, 2012; Stephens, Markus, & Phillips, 2014). College graduates can expect a lifetime of benefits, while those who do not graduate face more limited prospects (Reardon, 2011). Given the myriad benefits it confers, higher education is often presented as “the great equalizer.” This common perspective suggests that if first-generation students access college and persist to graduation, then they will adjust over time and reap the rewards a college education has to offer. Thus, the reasoning goes, the college experience will expose such students to middle-class “rules of the game”, molding them into adults virtually indistinguishable from their continuing-generation peers. Alternatively, as we suggest here, initial differences between first-generation and continuing-generation students may lead the two groups to experience the same institution differently over time. As a result, students may access different
opportunities and reap different institutional rewards *during* college, allowing social class gaps to persist all the way to graduation.

In the current research, we investigate the extent to which social class differences among students change or remain the same from college entry to graduation. Specifically, we ask two novel questions. First, after four years, does the college experience change first-generation students’ models of self to match those of their continuing-generation peers? Second, how do these changes, or lack thereof, affect first-generation students’ experiences and institutional rewards during college? To capture institutional rewards, we focus on the objective outcome of grade point average (GPA) and the subjective outcome of social status (SSS).

**Social Class: Homogenous Institutions, Diverse Selves**

Colleges are not neutral gateway institutions; rather, they promote culture-specific ideals (Adams et al., 2008; Croizet, 2008; Croizet & Millet, 2012; Stephens et al., 2014; Schneider, Smith, & Goldstein, 2000). U.S. colleges expect, socialize, and reward *independence* as the cultural ideal for how to be a good student or person (Fryberg & Markus, 2007; Kim & Sherman, 2007; Kim & Markus, 2002; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). For instance, colleges reward students who express their individual needs and opinions by offering them more attention and better grades (Kim & Markus, 2002; see also Anyon, 1980; Calarco, 2011).

Despite institutional preferences for independence, students who enter these institutions are not culturally homogenous. Indeed, a growing body of research suggests that students’ social class backgrounds are an important source of variation in models of self.¹ First-generation

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¹Three indicators of social class are commonly used: educational attainment, income, and occupation (Galobardes et al., 2006; Kraus & Stephens, 2012). Previous work suggests parental educational attainment is an especially good indicator of students’ social class background (e.g., Sirin, 2005), because educational attainment affords both material and cultural resources.
students, who are from working-class backgrounds, are often guided by an *interdependent* model of self, one that emphasizes connections and relationships with others (Fiske & Markus, 2012; Kusserow, 2012; Snibbe & Markus, 2005). In contrast, continuing-generation students, who are from middle- and upper-class backgrounds, are more often guided by an *independent* model of self, one that emphasizes individuality and self-expression (Kim & Markus, 2002; Lareau, 2003; Stephens, Markus, & Fryberg, 2007). Although people have the potential to access both independent and interdependent selves, the cultural contexts people inhabit shape which selves are most elaborated and likely to guide behavior (Markus & Kitayama, 2010). Because these models of self provide foundational beliefs about how to feel, think, and act, they affect people’s expectations, motivations, and behaviors. For instance, reflecting an interdependent model of self, first-generation students more often endorse interdependent motives for completing college (e.g., to help their families; Stephens et al., 2012a) compared to continuing-generation students.

Previous research reveals that college cultures of independence produce a *cultural mismatch* for first-generation students. This mismatch is associated with a range of negative consequences during early college years, including worse academic performance and increased likelihood of dropping out (Harackiewicz et al., 2014; Ishitani, 2006; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Phinney & Haas, 2003; Pike & Kuh, 2005; Stephens et al., 2012a; Stephens, Townsend, Markus, & Phillips, 2012; Tibbetts et al., 2016; see also Johnson, Richeson, & Finkel, 2011). But what happens as students from different class backgrounds, 

(Bourdieu, 1984; Williams, 2012). Regarding material resources, people who hold a four-year degree earn higher incomes and obtain more prestigious jobs than those who do not hold a four-year degree (Lubrano, 2010; Pascarella & Terenzini, 1991; Reardon, 2011). Regarding cultural resources, a four-year degree is the best predictor of a range of behaviors, beliefs, and ideals (Davis, 1994; Housel & Harvey, 2009; Fiske & Markus, 2012; Kohn & Schooler, 1983; Lareau, 2003; Snibbe & Markus, 2005). As such, we follow existing research and refer to first-generation students as from working-class contexts, and continuing-generation students as from middle- and upper-class contexts.
guided by different models of self, interact with the university culture *throughout* their four years? If students naturally adapt to the college environment and mismatch declines over time, then intervention may be unnecessary. However, if mismatch persists, then institutional change may be necessary to interrupt a cycle of mismatch and enable students from all backgrounds to gain comparable institutional rewards.

Here, we investigate how students interact with the college culture *over time*. We consider whether and to what degree initial social class differences in students’ selves and performance change versus stay the same during college. Importantly, we also investigate how this process unfolds, focusing on students’ sense-of-fit as a mediating mechanism.

**Do Students Change or Stay the Same?**

Findings from a range of literatures suggest two perspectives on how students from different class backgrounds will experience institutions of higher education over time. Both perspectives recognize the role of mismatch during early college experiences, but diverge in their implications for students’ responses to college *over time*. The *cultural change* perspective suggests that, over four years, college will shape first-generation students in ways that shift them away from interdependence and toward independence, thus providing access to similar rewards as their continuing-generation peers by the end of college. A *cultural mismatch* perspective suggests that college will *not* shift first-generation students away from interdependence or toward independence. Instead, differences in social class backgrounds and associated models of self will lead students to have different institutional interactions throughout college, and as a result, reap different rewards (GPA and SSS) by the end.

**Cultural Change**
For most college students, attending university comes during an important life stage known as emerging adulthood, during which people are particularly malleable as they explore previously held identities, values, and beliefs (Arnett & Tanner, 2006). Thus, for these students, college years represent a life period marked by broad and even intense change. The potential for change in emerging adulthood is further heightened in contexts like college, in which students are fully immersed and spend their daily lives interacting with the same institutional culture, via classes, residential life, and clubs (Armstrong & Hamilton, 2013; Sam & Berry, 2010; Weidman, 1989).

In fact, college experiences may be considered “strong situations” especially likely to change students’ cultural norms, beliefs, and attitudes via intensive acculturation processes (Alwin, Cohen, & Newcomb, 1991; Astin, 1993; Pascarella & Terenzini, 1991; see also Mischel, 1977). Colleges actively teach students how to be effective and successful: institutions offer coursework and activities designed to socialize students toward the institutional ideal of independence (Fryberg & Markus, 2007; Mophew & Hartley, 2006). And, as people become more familiar with new environments, they often adjust to the new cultural norms. For instance, work on acculturation shows that immigrants with support in their new culture environment often elaborate additional models of self and become bicultural (Mok, Morris, & Cheng, 2010; Sam & Berry, 2010; Ward & Kennedy, 2001). In turn, as people engage in these new environments and develop new selves, their sense-of-fit can increase over time (Saks, Uggerslev, & Fassina, 2007; Ward & Kennedy, 2001).

Altogether, colleges provide strong institutional environments that actively socialize students towards independence, and, for many students, this occurs during a life stage in which change is especially likely. By persisting in such an institutional environment, first-generation
students may shift away from interdependence and toward independence. As a result, they may experience increased fit in the college environment, thereby providing access to similar rewards (improved GPA and SSS) by the end of college.

**Cultural Mismatch**

Critically, however, mismatch between college culture and first-generation students’ interdependent selves can fuel social class gaps in social experiences and academic achievement early in college (Ishitani, 2006; Pascarella et al., 2004; Phinney & Haas, 2003; Pike & Kuh, 2005; see also person-environment fit: Schneider et al., 2000). The difference between the cultural change and cultural mismatch perspectives hinges on divergent predictions for how students respond to such obstacles. The cultural change perspective suggests students will overcome these early obstacles as the institution socializes them with models of self that match the college culture; eventually, students will enjoy a sense-of-fit and associated social and academic benefits. In contrast, we propose the cultural mismatch perspective, positing that the experience of mismatch itself will blunt these socialization processes and lead to the persistence of low sense-of-fit over time (Markus & Kitayama, 2010; Stephens et al., 2014).

Initial mismatch may prevent students from experiencing the socialization and engagement that would facilitate cultural change. First, when college activities do not match the norms of interdependent students, then these activities may not socialize students as intended (Fryberg et al., 2013; Weidman, 1989). For example, during classroom discussions intended to cultivate students’ independence, students guided by interdependent models of self are more likely to show deference to authority than to express their personal opinions (Kim & Markus, 2002; Lareau, 2003; Mok, Cheng, & Morris, 2010). Second, cultural mismatch can leave first-generation students feeling marginalized early in college (Johnson et al., 2011; Ostrove & Long,
2007; Stephens et al., 2014). When in such devalued positions, people are less likely to engage in the prevailing culture, and thus may miss socialization opportunities altogether (Gelfand & Harrington, 2015; Phinney & Haas, 2003; Sam & Berry, 2010; Ward & Kennedy, 2001). Like immigrants marginalized in their new countries (Ward & Chang, 1997; Ward & Kennedy, 2001), first-generation students may instead turn to home communities for support, which could further reinforce their interdependent selves (e.g., Alwin et al., 1991; Covarrubias & Fryberg, 2014; Vasquez-Salgado et al., 2014).

Consequently, students may not develop a sense-of-fit over time. Sense-of-fit, however, is critical for both academic and social success (Brannon et al., 2017; Cheryan et al., 2009; Ostrove & Long, 2007; Pascarella et al., 2004; Schneider et al., 2000; Ward & Kennedy, 2001). For instance, students who feel a low sense-of-fit in college are more likely to experience academic difficulty and social stress (Croiset & Claire, 1998; Croiset & Millet, 2012; Johnson et al., 2011; Stephens et al., 2012b; Tibbetts et al., 2016). Further, reduced fit may even create a self-reinforcing cycle over time, in which low fit leads to disengagement, which further diminishes fit (Walton & Cohen, 2011). Thus, taking a cultural mismatch perspective, we argue that initial social class differences in students’ models of self—and associated gaps in fit and college outcomes—will in fact persist throughout college to graduation.

**Current Research**

Employing cross-sectional (Study 1) and longitudinal (Study 2) methods, we examine how students’ social class backgrounds affect their college experiences and outcomes over time. We have three key goals. First, in Studies 1 and 2, we address a previously unexamined question: to what extent do social class differences in students’ models of self persist from college entry to graduation? As reviewed above, we hypothesize that first-generation students’ relatively more
interdependent and less independent models of self will persist, leading to continued experiences of mismatch over time.

Second, in Study 2, we seek to illuminate the *processes* by which students’ selves may change or stay the same, focusing on the previously untested role of the experience of fit. Following organizational behavior theories of person-environment and person-organization fit (Kristof-Brown, Zimmerman, & Johnson, 2005; Edwards, 2006; Schneider et al., 2000), we use the term *sense-of-fit* to refer to the feelings of inclusion, belonging, and comfort in a particular institutional environment. We hypothesize that the early mismatch between the college culture of independence and first-generation students’ interdependent selves will be associated with persistent low sense-of-fit for first-generation students, compared to continuing-generation peers.

Third, in both Studies 1 and 2, we consider the impact of this early mismatch on students’ long-term college outcomes. If, as we suggest, cultural mismatch prevents the socialization processes that would provide students with a path to change, then we should find persistent social class differences in both objective and subjective outcomes. Accordingly, we hypothesize that social class gaps in college outcomes (GPA and SSS) will persist over time, and further, that these persistent gaps will be fueled by reduced sense-of-fit. We test sense-of-fit as a mediator directly in Study 2.

We focus on GPA and SSS as our critical outcome variables. GPA is an objective measure of academic achievement, and is a key predictor of important life outcomes, including future employment and earnings (Destin et al., 2012; Jones & Jackson, 1990). Research has found that cultural mismatch predicts worse GPAs early in college (Stephens et al., 2012a; but see Tibbetts et al., 2016). We move beyond this work by considering whether (a) early mismatch between the college culture and students’ models of self leads to GPA gaps that persist to
graduation, or (b) exposure to the college environment of independence leads students’ models of selves (and GPAs) to change over time.

SSS is a subjective measure of individual social status, and is also a key predictor of important life outcomes, including health and life satisfaction (Adler et al., 2000; Singh-Manoux, Marmot, & Adler, 2005). We go beyond previous work focused on objective academic outcomes by examining this important subjective social outcome, using SSS as a proxy for students’ perceived success and belief that they have joined a higher social class. That is, now that students are objectively equipped with a college degree at graduation, do they feel like members of their new social class and report a high rank?

We make two key theoretical contributions. First, since cultural mismatch theory has remained silent on the question of change over time, we aim to fill this gap by documenting the effects of social class background on students’ experiences throughout their four years in college. Specifically, we propose that mismatch and its negative effects will persist over time.

Second, we directly test students’ sense-of-fit as a mediator of our proposed mismatch effects. Prior work on cultural mismatch has not examined fit, but instead examined students’ perceived difficulty with academic tasks in a laboratory setting (Stephens et al., 2012a, 2012b). Here, we theorize that reduced sense-of-fit plays a crucial role in undermining first-generation students’ social and academic outcomes. Given mismatch is likely to prevent the socialization processes that would provide first-generation students with a path to change, we propose and test the hypothesis that their sense-of-fit is likely to remain low, thus allowing the negative effects of mismatch to persist over time.

**Study 1: Cross-Sectional Design**
Study 1 investigates whether different models of self guide first-generation students throughout college. We hypothesized that first-generation students would be guided by more interdependent and less independent models of self, and also report lower SSS, compared to their continuing-generation peers. Further, despite students’ navigating their way through college and ultimately earning a four-year college degree, we expected that these social class differences in models of self and SSS would be present at both the beginning and end of college.

**Method**

**Participants.** We recruited students from a competitive (Top 100-200 U.S. News & World Report Ranking, 2016), Catholic liberal arts college, located in the Midwest, with a large undergraduate population (15,000), including many commuters and part-time enrollees. Using a conservative effect size estimate of $f^2=.03$, we needed a total sample of 322 participants to achieve power=.8. We recruited until the college semester ended, for a sample of 409. We investigate U.S. social class contexts, and so removed 57 international students. We also removed two who had remained in college beyond four years, and nine who did not report social class background, for a final sample $N=341$.

**Survey.** Research assistants, unaware of hypotheses, asked on campus passers-by (irrespective of demographics) if they wanted to complete a “15-minute study for current freshmen or seniors” in exchange for a $5 giftcard. After completing measures of interdependence and independence, SSS, and demographics, participants were told they could also select a gift pen (see below).

**Measures**

Given mainstream U.S. contexts emphasize independence as the cultural ideal, previous research suggests that indirect, context-specific self-construal measures can more reliably assess
differences in independence and interdependence among U.S. participants compared to direct and global measures (Snibbe & Markus, 2005; Stephens, Markus, & Townsend, 2007). Therefore, we used two such measures that have been shown to reliably capture variation in models of self among U.S. participants: motives for completing college (Harackiewicz et al., 2014; Stephens et al., 2012a), and a behavioral pen choice task (Stephens et al., 2007).

**Motives for Completing College.** First, we used an attitudes measure that is specific to the college context. Previous research has shown that independent versus interdependent motives for completing college reflect culture-specific assumptions about the purpose of college (Stephens et al., 2012a) and can be used to assess underlying models of self.

Participants responded to six items representing relationship-oriented reasons for completing college (e.g., “I want to give back to my community”; α=.81; SOM), shown to reflect an interdependent model of self, and 6 items representing individual-focused reasons (e.g., “I want to become an independent thinker;” α=.82), shown to reflect an independent model of self (Stephens et al., 2012a). Items were intermixed, and participants responded using a scale, 1 (strongly disagree) to 7 (strongly agree). Responses were averaged to create composite measures of interdependence and independence.

Consistent with previous research (Stephens et al., 2012a), principal components analysis (varimax rotation) of all 12 items revealed that the 6 independent items loaded onto one factor (range [.59,.81], Eigenvalue=4.06, 28% variance explained) and 6 interdependent items loaded onto a second factor (range [.62,.74], Eigenvalue=2.36, 25% variance explained). No items loaded highly onto the opposite factor (range [-.09,.39], all other Eigenvalues<1).

**Pen Choice.** Second, we used a behavioral task—choice between unique or common pen—that captures people’s preferences for independence or interdependence. Indeed, previous
research has shown that this choice reflects culture-specific preferences for uniqueness (independence) versus similarity (interdependence; Kim & Markus, 1999; Kim & Sherman, 2007), and can be used to assess underlying models of self.

Following previous research (Kim & Markus, 1999; Stephens et al., 2007), we asked students to choose a pen (unique vs. common) from a set. The experimenter randomly drew five pens from a bag containing orange and green pens. If the experimenter drew five of the same color, one was replaced with the opposite color. This created a set with either three or four pens of one color (majority color), and two or one pen of the other color (minority color). The pens were then presented to the participant, whose choice was recorded. If the participant chose a minority pen color – unique in the set – this was recorded as an independent choice (coded 1). If the participant chose a majority color pen – conforming in the set – this was recorded as an interdependent choice (coded -1).

**SSS.** Using a standard measure, participants used a ladder image “representing where people stand in the United States” to self-identify where they ranked compared to “other people in the United States” (1=Lowest Status; 10=Highest Status; Adler et al, 2000).

**Social Class Background.** Participants were considered first-generation if neither parent had a 4-year college degree, and continuing-generation if at least 1 parent had a 4-year college degree (self-reported: First-Generation=-1, Continuing-Generation=1; Housel & Harvey, 2009).

**Year.** We recruited self-reported first- and fourth-year students; however, 32 second- and third-year students were accidentally given the chance to participate. We therefore treat year as a continuous variable (4-point scale); results persist if we retain only first- and fourth-year participants (SOM).
Demographics. Participants’ gender (Female=-1; Male=1) and race were self-reported (Table 1). Given that non-Asian minorities face underrepresentation and worse social and academic outcomes in U.S. colleges compared to Whites and Asians (Harackiewicz et al., 2016; Kao, 1995, 2003; Steele, 2010). Following this previous research, we therefore code race using underrepresented minority status (underrepresented minority: Black, Latino/a, Native, Other=-1; White/Asian=1).

Results

Table 2 presents means and standard deviations. We present results of linear regressions, in which each dependent variable is regressed on social class, year (centered), gender, and race.\(^2\) Then, we present results from the same regression models, but including an interactive effect of social class and time (Table 3).\(^3\)

Interdependent Motives. As hypothesized, first-generation students were significantly more likely to endorse interdependent motives than were continuing-generation students, \(b=-.23, 95\%-CI=[-.40, -.06], SE=.09, t(328)=-2.69, p=.007, f^2=.02.\) We found no effect of year on students’ endorsement of interdependent motives, \(b=.03, 95\%-CI=[-.07, .14], SE=.05, t(328)=.61, p=.54, f^2=.001,\) and no interactive effect of social class and year on interdependent motives, \(b=.05, 95\%-CI=[-.06, .17], SE=.06, t(327)=.89, p=.38, f^2=.002,\) indicating consistent endorsement of interdependent motives across college years.

\(^2\)Research has established associations between race and social class, social fit in college, and academic performance (e.g., Fischer, 2007; Harackiewicz et al., 2016; Johnson et al., 2011; Kao, 1995; Steele, 2010). Gender is also associated with academic performance (Conger & Long, 2010), and both race and gender can be associated with models of self (Markus & Kitayama, 2010). To isolate effects of social class, we control for race and gender across studies. However, results persist without controls (SOM).

\(^3\)We also probed for intersectional effects; however, we found no significant social class X race interactions in Study 1 or Study 2 (SOM).
Independent Motives. As hypothesized, first-generation students were significantly less likely to endorse independent motives than were continuing-generation students, $b=.22$, 95%-CI=[.10, .34], $SE=.06$, $t(328)=3.61$, $p<.001$, $f^2=.04$. First-generation students were less likely to endorse independent motives than were continuing-generation students. We found no effect of year on students’ endorsement of independent motives, $b=.01$, 95%-CI=[-.06, .09], $SE=.04$, $t(328)=.35$, $p=.73$, $f^2=.0004$, and no interactive effect of social class and year on independent motives, $b=.03$, 95%-CI=[-.05, .12], $SE=.04$, $t(327)=.83$, $p=.41$, $f^2=.002$, indicating consistent endorsement of independent motives across college years.

Pen Choice. Using a binomial logistic model, we regressed pen choice on social class, year (centered), gender, and race. As hypothesized, first-generation students were significantly less likely to choose a unique pen than were continuing-generation students, log-odds=.28, 95%-CI=[.01, .55], $SE=.14$, $z(331)=2.02$, $p=.04$, odds-ratio=1.32, such that.

However, this effect was qualified by a significant interaction of social class and year on pen choice, log-odds=.25, 95%-CI=[.05, .45], $SE=.10$, $z(330)=2.45$, $p=.01$, odds-ratio=1.28. Early in college, contrary to expectations, first-generation and continuing-generation students were similarly likely to choose a unique pen, log-odds=-.07, 95%-CI=[-.45, .31], $SE=.19$, $z(330)=-.37$, $p=.71$, odds-ratio=.93. At the end of college, we did find the expected social class difference: first-generation students were significantly less likely than continuing-generation students to choose a unique pen, log-odds=.59, 95%-CI=[.22, 1.00], $SE=.20$, $z(330)=3.02$, $p=.003$, odds-ratio=1.80. Decomposed differently, among first-generation students, students were significantly less likely to choose a unique pen at the end of college compared to the beginning, log-odds=-.39, 95%-CI=[-.75, -.06], $SE=.18$, $z(330)=-2.22$, $p=.03$, odds-ratio=.68.
Among continuing-generation students, there was no effect of year, log-odds=.10, 95%-CI=[-.09, .30], SE=.10, z(330)=1.07, p=.28, odds-ratio=1.11.

**SSS.** As hypothesized, first-generation students reported significantly lower SSS than did continuing-generation students, $b=.51$, 95%-CI=[.32, .70], $SE=.10$, $t(323)=5.28$, $p<.001$, $f^2=.09$. We found no effect of year on students’ SSS, $b=-.03$, 95%-CI=[-.15, .09], $SE=.06$, $t(324)=-.45$, $p=.66$, $f^2=.001$, and no interactive effect of social class and year on SSS, $b=-.02$, 95%-CI=[-.15, .11], $SE=.06$, $t(323)=-.31$, $p=.76$, $f^2=.0003$, indicating consistent SSS across college years.

**Discussion**

Study 1 finds that, early in college, first-generation students are guided by more interdependent and less independent models of self than are continuing-generation students, replicating previous research. Going beyond previous work, and supporting our proposed mismatch perspective, we also found that these differences remain largely consistent at the end of college.

Indeed, we found converging evidence of the expected social class differences in selves: across three attitudinal and behavioral measures of selves at two different time points (six total tests), only one did not show expected social class differences (pen choice, early in college). We speculate that one reason for this null finding is that the dichotomous nature of the behavioral task could make it challenging to reliably detect differences in independence versus interdependence. Moreover, recent work has found that the pen choice measure is especially sensitive to situational cues (Yamagishi, Hashimoto, & Schug, 2008).

Further, Study 1 shows that first-generation students report lower SSS during their first year, and that this difference also exists among students in their final year. Although first-generation students are about to graduate with the same college degree as their continuing-
generation peers (objectively indicating middle-class status; Lareau, 2003), they do not gain the same benefits of self-perceived social standing.

Altogether, Study 1 provides initial evidence that first-generation students’ models of self and SSS remain the same at the beginning and end of college. They continue to experience cultural mismatch, and likely its negative effects, throughout college.

**Study 2: Longitudinal Design**

While Study 1 suggests first-generation students’ models of self do not change throughout college, the cross-sectional design does not allow us to disentangle effects of time from cohort. Further, Study 1 does not examine the consequences of this mismatch over time—neither for objective (academic performance) or subjective (social status) outcomes. To replicate Study 1’s findings and extend to a different university context, Study 2 employs a longitudinal design, tracking students from college entry (Time-1) to graduation four years later (Time-2).

Study 2 also tests students’ sense-of-fit as a mediator of persistent mismatch experiences over time. As discussed above, a cultural change perspective assumes that students’ sense-of-fit will increase over time, enabling change in students’ selves and outcomes. Alternatively, a mismatch perspective suggests that *lacking* a sense-of-fit will hinder engagement and socialization, and thus limit change in students’ selves and outcomes. Building on Study 1, we expected in Study 2 that cultural mismatch would characterize first-generation students’ experience throughout college:

Hypothesis-1. Social class differences in independent and interdependent selves upon entering college (Time-1) will persist throughout college (Time-2).

Hypothesis-2. Social class differences in sense-of-fit upon entering college (Time-1) will persist throughout college (Time-2).
Hypothesis-3. Social class differences in college outcomes (GPA, SSS) will persist throughout college (Time-2).

Lastly, we use structural equation modeling to test a conceptual model specifying our theorized relationships between social class, models of self, sense-of-fit, and college outcomes:

Hypothesis-4. The relationship between students’ social class backgrounds and outcomes (Time-2) will be mediated by social class differences in models of self (Time-1) and sense-of-fit (Time-2; Figure 1):

a. First-generation students will endorse more interdependent and less independent models of self than continuing-generation students (Time-1).

b. More interdependent and less independent models of self will predict diminished sense-of-fit (Time-2).

c. Lower sense-of-fit will predict lower GPA and SSS (Time-2).

Method

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4Our theory also predicts additional cross-temporal effects: initial mismatch in selves should reduce initial sense-of-fit, which should cause persisting mismatch in selves. We find evidence supporting this extended path (SOM).
Participants. We recruited students from a highly competitive (Top 10 U.S. News & World Report Ranking, 2016), elite research institution, located on the West Coast, with a small undergraduate population (6,000), all of whom are full-time and live on campus.

Time-1 Survey. Prior to beginning their first year in college, the entire incoming student population was asked to participate in a university-administered, online survey. Participants completed measures of sense-of-fit, interdependence and independence, and demographics. We included only those who reported their social class information, and were U.S. citizens or permanent residents, leaving a final sample of N=1372.

Time-2 Survey. During their fourth year of college, we emailed Time-1 participants to participate in a two-part online survey. Effect size estimates from Study 1 ($f^2$-range=[.02-.09]; estimated-$f^2$.05) showed a total sample of 193 participants would achieve power=.8. We aimed to recruit approximately equal samples of first-generation and continuing-generation students; therefore, we emailed all first-generation students and a subset of continuing-generation students (59% response rate). To ensure our sample of continuing-generation students reflected the racial diversity of the population, we divided these students into self-identified racial/ethnic groups, then randomly selected 15% of each group to receive recruitment emails.

The first part of the survey was administered halfway through the fourth year (N=212), and measured interdependence, independence, sense-of-fit, and demographics. The second part was administered at the end of the fourth year (N=211), and measured graduation GPA, SSS, and demographics.

Participants received $8 for each part of the survey. One hundred and fifty-six students completed both parts of the Time-2 survey. Some completed only one part; we kept all students
in our sample who participated in either the first or second part of the Time-2 survey, leaving us a total $N=265$.

**Measures**

**Motives for Completing College.** Following Study 1, we measured interdependent ($\alpha_{T1}=.73, \alpha_{T2}=.72$) and independent ($\alpha_{T1}=.74, \alpha_{T2}=.77$) motives. Participants indicated whether they endorsed each of the 6 items using a binary scale (1=Yes; 0=No; SOM), which were summed to create two composite measures.

**Sense-of-fit.** Follow person-environment fit theories (Edwards, 2006), we conceptualize sense-of-fit as students’ subjective feelings of inclusion, belonging, and comfort in the college environment. That is, we focused on students’ *self-reported* sense-of-fit in college (cf. “mismatch”, comparing students’ actual models of self to college ideal). Drawing from previous research (e.g., Harackiewicz et al., 2014; Stephens, Hamedani, & Destin, 2014; Walton & Cohen, 2005, 2007), we measured sense-of-fit with 12 items focused on belonging and comfort being oneself in the college environment (e.g., “I feel like I belong as a student at [university name]”). These items were reliable as a scale ($\alpha_{T1}=.65; \alpha_{T2}=.82$), and dropping any item would have reduced the overall alpha. Students indicated agreement with these items on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Item wording was adjusted for time (e.g., “I expect…” versus “I am”; SOM).

**GPA.** At Time-1, students’ official cumulative GPA for their first year in college was provided by the university (0-4.3 scale). At Time-2, given final grades were unavailable from the university, we relied on students’ self-reported cumulative GPAs. Previous work suggests undergraduates’ GPA self-reports are highly accurate when compared to actual grades (Cassady, 2001).
SSS. We measured SSS only at Time-2, using three items (“Please mark…where you would place yourself in relation to… your fellow seniors at [university name]”; “…other people in America”; “…your peers at home;” α=.87). Following Study 1, participants responded to each item using a vertical ladder image (1=Lowest Status; 10=Highest Status). Results persist when we analyze each of the three items independently (SOM).

Social Class Background was measured following Study 1.

Time was indicated by survey wave (college entry/Time-1=-1, college end/Time-2=1).

Demographics. The university provided participants’ gender (Female=-1; Male=1) and race (underrepresented minority: Black, Latino/a, Native, Other=-1; White/Asian=1) from self-reported admissions data (Table 1). Race was unreported for 99 participants; when available, we used their self-reported race from the Time-1 survey.

Results

Analytic Strategy. Table 4 presents means and standard deviations. We used a linear mixed-effects modeling package (lme4, lmerTest) to regress dependent variables on predictor and control variables (Tables 5-6). We treated dependent variables as repeated measures in our analyses, using time, along with social class, race, and gender, as fixed effects. Participant was treated as a random-intercept. Following Study 1, rather than excluding participants with missing data from the entire sample, missing cases were removed listwise from individual analyses.

Finally, we fitted structural equation models using a RAM path method in OpenMx (Neale et al., 2015). Because we were interested in relationships among our variables over time, we restricted our data set for SEM analyses to those who completed the Time-2 survey. Missing data were found to be missing-completely-at-random (MCAR; non-parametric test of

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5In both studies, results persist without race and gender controls, and when we code race using a majority/minority status method instead of underrepresented minority status (SOM).
homoscedasticity $p>.41$) and were removed listwise, leaving $N=116$ (GPA model) and $N=112$ (SSS model). Error varied freely for all variables. Continuous variables were centered, and categorical variables were contrast-coded as described.

**Hypothesis-1.**

*Interdependent Motives.* As hypothesized, and consistent with Study 1, first-generation students endorsed significantly more interdependent motives than continuing-generation students., $b=-.65$, 95%-CI=[-.78,-.52], $SE=.07$, $t(1193)=-9.55$, $p<.001$, ML-$\chi^2(1)=88.16$. We found no effect of time on students’ endorsement of interdependent motives, $b=.06$, 95%-CI=[-.05,.17], $SE=.06$, $t(346)=1.05$, $p=.29$, ML-$\chi^2(1)=1.11$, indicating consistent interdependence over time. Additional analysis yielded no interactive effect of social class and time on interdependent motives, $b=-.01$, 95%-CI=[-.12,.11], $SE=.06$, $t(330)=-.11$, $p=.91$, ML-$\chi^2(1)=.01$.

*Independent Motives.* We found no effect of social class on students’ endorsement of independent motives, $b=.04$, 95%-CI=[-.08,.17], $SE=.06$, $t(1161)=.72$, $p=.47$, ML-$\chi^2(1)=.52$. We found a significant effect of time, such that students endorsed fewer independent motives at Time-2 than at Time-1, $b=-.14$, 95%-CI=[-.26,-.02], $SE=.06$, $t(538)=-2.38$, $p=.02$, ML-$\chi^2(1)=5.65$. Additional analysis yielded no interactive effect of social class and time on independent motives, $b=-.04$, 95%-CI=[-.16,.08], $SE=.06$, $t(497)=-.67$, $p=.50$, ML-$\chi^2(1)=.45$.

**Hypothesis-2.**

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6Probing further, we found that continuing-generation students’ independent motives fell ($b=-.21$, $SE=.08$, $t(1278)=-2.53$, $p=.01$), while first-generation students’ did not ($b=-.09$, $SE=.12$, $t(267)=-.77$, $p=.44$). This is inconsistent with Study 1, and previous research (Harackiewicz et al., 2014; Stephens et al., 2012a). This may reflect the fact that our Time-2 population volunteered to participate, and thus could be less independent, compared to the population in Time-1, who were all required by the university to participate. Alternatively, despite the prevailing university culture of independence, unique features of the environment for that particular cohort (e.g., emphasis on inclusion) could have contributed.
**Sense-of-fit.** As hypothesized, first-generation students reported significantly less fit than did continuing-generation students, $b=.17$, 95%-CI=[.08,.18], $SE=.03$, $t(1370)=6.23$, $p<.001$, ML-$\chi^2(1)=29.97$. We also found that students reported significantly more fit at Time-2 than at Time-1 $b=.11$, 95%-CI=[.08,.18], $SE=.02$, $t(589)=4.41$, $p<.001$, ML-$\chi^2(1)=26.34$.

However, additional analysis found these effects were qualified by an interaction of social class and time on sense-of-fit, $b=.07$, 95%-CI=[.02,.12], $SE=.02$, $t(1477)=4.03$, $p<.001$. At Time-2, this gap was even larger, $b=.24$, 95%-CI=[.15,.33], $SE=.05$, $t(1192)=5.36$, $p<.001$. Decomposed differently, time had no effect on first-generation students’ sense-of-fit, $b=.04$, 95%-CI=[-.04,.11], $SE=.04$, $t(496)=.95$, $p=.34$. However, for continuing-generation students, time was positively associated with sense-of-fit, $b=.17$, 95%-CI=[.11,.24], $SE=.03$, $t(789)=5.87$, $p<.001$.

**Hypothesis-3.**

**GPA.** As hypothesized, first-generation students had lower GPAs than did continuing-generation students, $b=.05$, 95%-CI=[.03,.08], $SE=.01$, $t(1285)=4.03$, $p<.001$, ML-$\chi^2(1)=16.15$. We also found that students had significantly higher GPAs at graduation than at the end of their first year, $b=.05$, 95%-CI=[.03,.07], $SE=.01$, $t(195)=5.88$, $p<.001$, ML-$\chi^2(1)=32.53$. Additional analysis yielded no interactive effect of social class and time on GPA, $b=-.005$, 95%-CI=[-.02,.01], $SE=.01$, $t(190)=-.53$, $p=.60$, ML-$\chi^2(1)=.28$.

**SSS.** Because SSS was measured only at Time-2, we regressed SSS on social class, gender, and race (fixed effects). As hypothesized, first-generation students at graduation reported significantly lower SSS than did continuing-generation students, $b=.62$, 95%-CI=[.32,.93],
Access is Not Enough 25

SE=.15, \( t(150)=4.07, p<.001, f^2=.11 \). Because GPA and SSS were correlated (\( r_{T1}=.14, p=.08 \); \( r_{T2}=.26, p<.001 \)), we additionally controlled for Time-1 and Time-2 GPA (both centered), finding that social class differences in SSS persist, \( b=.53, 95\%\text{-CI}=[.22,.85], SE=.16, t(147)=3.34, p=.001, f^2=.08 \).

**Hypothesis-4.** We hypothesized that early (Time-1) social class differences in models of self (interdependence and independence) would predict different experiences of fit even after four years in college (Time-2). In turn, these different experiences of fit in the college environment should predict different college outcomes, including GPA and SSS. To evaluate these hypotheses, we tested separate models for GPA and SSS (Figures 2-3, Tables 7-8).

**GPA (Time-2).** Results demonstrated that our model did not differ significantly from the data, \( \chi^2(13)=20.92, p=.07 \), indicating good fit. In addition, three other indices also indicated good fit: RMSEA=.07, 95\%CI=[.00,.13]; CFI=.95; TLI=.91.

Path coefficients revealed that social class was not associated with independent motives (Time-1), \( b=.04, SE=.17, 95\%\text{-CI}=[-.30,.38] \). Further, independent motives (Time-1) were not associated with sense-of-fit (Time-2), \( b=.03, SE=.04, 95\%\text{-CI}=[-.05,.11] \).

However, we found that social class was negatively associated with interdependent motives (Time-1), \( b=-.50, SE=.17, 95\%\text{-CI}=[-.83,-.16] \). First-generation students endorsed more interdependent motives than did continuing-generation students upon entering college. In turn, endorsement of interdependent motives (Time-1) was negatively associated with sense-of-fit (Time-2), \( b=-.12, SE=.04, 95\%\text{-CI}=[-.20,-.04] \). Those who endorsed interdependent motives more at the beginning of college reported lower levels of fit four years later at the end of college. Finally, sense-of-fit (Time-2) was marginally but positively associated with GPA (Time-2),
Those who reported higher fit at Time-2 reported higher GPAs upon graduation.

**SSS (Time-2).** Results demonstrated that our model did not differ significantly from the data, $\chi^2(16)=21.96$, $p=.14$, indicating good fit. In addition, three other indexes also indicated good fit: RMSEA=.06, 95%-CI=[.00,.11]; CFI=.97; TLI=.94.

Following the GPA-model, path coefficients revealed that social class was not associated with independent motives (Time-1), $b=.06$, $SE=.17$, 95%-CI=[.29,.40], and independent motives (Time-1) were not associated with sense-of-fit (Time-2), $b=.03$, $SE=.04$, 95%-CI=[.06,.11].

However, paralleling the GPA-model, we found that social class was negatively associated with interdependent motives (Time-1), $b=-.46$, $SE=.18$, 95%-CI=[.81,-.12]. In turn, endorsement of interdependent motives (Time-1) was negatively associated with sense-of-fit (Time-2), $b=-.12$, $SE=.04$, 95%-CI=[-.20,-.04]. Finally, sense-of-fit (Time-2) was positively
associated with SSS (Time-2), $b=.72$, $SE=.20$, $95\%\text{-CI}=[.34,1.11]$. Those who reported higher fit at Time-2 reported higher SSS upon graduation.

**Discussion.** Extending results from Study 1, we found that first-generation students endorse more interdependent models of self than do continuing-generation students upon entering college. Consistent with our proposed cultural mismatch perspective, these differences in selves persist until graduation, four years later. Unexpectedly, we found no significant social class differences in independent models of self upon entering college, nor at graduation.

Further, we found these early differences in interdependence, but not independence, are associated with important consequences extending all the way to graduation. For instance, interdependence is associated with divergent trajectories in students’ sense-of-fit: continuing-generation students’ sense-of-fit increases over time, while first-generation students’ does not change. This suggests the gap in fit is not solely due to early differences in familiarity with college; otherwise, students from different social class backgrounds would converge in their
sense-of-fit as they become familiar with the college environment. Rather, consistent with cultural mismatch theory, the social class gap in sense-of-fit widens over time. This implies that, throughout college, students continue to experience the same institution differently as a function of their social class backgrounds.

Together, these results demonstrate the mediating role of fit: mismatch reduces sense-of-fit early on, and reduced sense-of-fit in turn fuels the persistence of outcome gaps over time.\(^7\)

By graduation, students had spent similar amounts of time on an elite college campus with access to ample resources. A cultural change perspective suggests students would learn the “rules of the game” and catch up to their peers over time; however, consistent with our cultural mismatch perspective, the social class gap in GPA persisted, even when controlling for early differences in academic preparation.

Beyond objective academic differences, we also found a social class gap for a subjective outcome—SSS—which has important implications for students’ health and well-being (Adler et al., 2003). First-generation and continuing-generation students attain equivalent degrees from an elite university. Yet, first-generation students reported lower SSS at graduation than did continuing-generation students, even when they compared themselves to society-at-large.

Although they graduate marked as equally elite in terms of objective indicators, continuing-generation students continue to feel more elite than first-generation students.

Together, our results demonstrate that time in college does not erase initial social class differences students. Rather, these differences set students on divergent college trajectories, fostering different college experiences and outcomes. Specifically, early social class differences

\(^{7}\)In more saturated models, we find that T1-mismatch in selves reduces T1-sense-of-fit, which increases T2-mismatch in selves, which reduces T2-sense-of-fit, and T2-outcomes. SOM reports additional analyses regarding fit as mediating mechanism.
in interdependence, but not independence, drive gaps in sense-of-fit, GPA, and SSS that extend to graduation. That is, we find that in spite of first-generation and continuing-generation students’ comparable levels of independence in Study 2, their differences in interdependence continue to drive reduced sense-of-fit. Thus, our results suggest an important new facet of mismatch theory: in a college culture of independence, students’ interdependence is sufficient to create the negative experiences of mismatch. Conversely, students’ independence is insufficient to overcome these mismatch effects. Relatively speaking, higher endorsement of interdependent models of self, as compared to lower endorsement of independence, may be especially injurious when the institutional culture promotes independence as the cultural ideal.

**General Discussion**

For the first time, we ask to what extent social class differences among college students change or remain the same over time. Across two different college settings, and using both cross-sectional and longitudinal approaches, we examined how social class background affects students’ experiences throughout their four years in college. While a cultural change perspective suggests first-generation students would be shaped over time to become more similar to their continuing-generation peers, our results support a cultural mismatch perspective instead. Even when first-generation students gain access to college and persist to graduation, mismatch shapes their experiences and outcomes throughout college.

When first-generation students enter college, they are guided by relatively interdependent models of self, which mismatch the college culture of independence (Studies 1 and 2). As a result, first-generation students experience lower sense-of-fit than continuing-generation students (Study 2). Further, these differences in models of self and sense-of-fit persist over students’ time in college, and are associated with lower grades and subjective status even at graduation (Study
2). College undoubtedly provides students a wide range of valuable opportunities. Yet, our results suggest that students’ social class backgrounds systematically inform the quality of their interactions with institutions of higher education, maintaining social class gaps in important outcomes (GPA, SSS).

**Theoretical Contributions**

The current work advances our understanding of cultural mismatch, and related theories of person-environment fit, in four important ways. First, previous research has focused primarily on first-generation students' transitional experiences (college entry; but see Tibbetts et al., 2016). Instead, we develop theory regarding how first-generation students are affected by mismatch dynamically over time, as they persist all the way to graduation. Second, we go beyond the laboratory to examine students’ ongoing interactions with the college environment, thus illuminating the experiences of first-generation students as they progress through this gateway institution.

Third, these results provide direct evidence of sense-of-fit as the psychological mechanism underlying mismatch effects. We find that mismatch—specifically, more interdependence—reduces positive outcomes in college by undermining students’ sense-of-fit. Further, we find that social class gaps in sense-of-fit increase throughout college; initial cultural mismatch sets students up on divergent trajectories that may self-reinforce over time, likely via daily cognitions, experiences, and interactions. On the one hand, given the college environment itself does not change, first-generation students may expect subsequent mismatch experiences, which then reinforce early feelings of exclusion (and related consequences for performance) in a recursive cycle. On the other hand, we find that continuing-generation students, who are less interdependent, have experiences that buffer them against any early difficulties, allowing their
sense-of-fit (and performance) to grow over time. By shaping whether students feel a sense-of-fit at their institution, mismatch contributes to social class gaps in academic and social outcomes, even among students who graduate.

Fourth, our findings suggest that endorsing more versus less interdependence may be more crucial to students’ outcomes than endorsing more versus less independence. This implies that mismatch effects may be driven by different elements of self as individuals experience institutions over time (cf. Edwards, 2006). For instance, displaying the right cultural signals of “fit” can drive entry to gateway institutions via an advantaging process – the more signals of fit that an applicant has, the more likely they are to gain entry (Rivera, 2015). But once inside an institution, having these signals may no longer be enough; at this stage, experiencing a lack of support for an important component of one’s self may be particularly disadvantaging, even if other components of the self do fit. Thus, merely having or training independence may not be enough to overcome the disadvantage of interdependence (cf. Tibbetts et al., 2016).

Limitations

Previous work has found first-generation students to be more interdependent and less independent than continuing-generation students upon entering college (Harackiewicz et al., 2014; Stephens et al., 2012a). Using multiple measures to assess models of self, we find first-generation students are more interdependent than continuing-generation students, both when they enter college and four years later (Studies 1 and 2). However, whereas in Study 1 first-generation students endorsed less independence in both early and later years of college, in Study 2, students were similarly independent at both time points. One explanation for these inconsistent results is that first-generation students’ independence may take a different form than the independence common among continuing-generation students (Kusserow, 2012; see also Schaumberg & Flynn,
2016; Stephens et al., 2014). Future work on the effects of mismatch might take a fine-grained approach, considering different dimensions and forms of independence and interdependence. Intersectional perspectives should also be considered when exploring change over time: cultural mismatch effects may differ in intensity by race, in part due to underrepresented minorities being even more likely to endorse interdependence (Harackiewicz et al., 2016).

Future work should also consider a broader range of institutions. For instance, norms of interdependence may prevail in institutions that are especially likely to serve first-generation students (e.g., community colleges), potentially attenuating mismatch (Astin & Oseguera, 2004; Carnevale & Rose, 2004; Stephens et al., 2012a). At the same time, status may moderate mismatch effects: while continuing-generation students may mismatch such interdependent institutions, independence is still valued by society at large, which may protected them against negative effects. Future work should also consider the role of mismatch pre- (K-12) and post-college (Stephens et al., 2014; see also O’Reilly & Chatman, 1996; Schein, 1990; Schneider et al., 2000). Just as classed college cultures can perpetuate inequality among equally qualified students, so too might classed work cultures perpetuate inequality among equally qualified employees (Coté, 2011; Dittmann, Stephens, & Townsend, 2017; Gray & Kish-Gephart, 2013; Kohn, 2010; Lareau, 2015; Rivera, 2015).

Implications: Classed Selves Interacting with Classed Institutions

Most existing theories of how social class shapes psychological functioning (Belmi & Laurin, 2015; Coté, Piff, & Willer, 2013; Croizet & Claire, 1998; Fiske & Markus, 2012; Kraus & Stephens, 2012; Phillips & Lowery, 2016; Stephens et al., 2014) do not address the question of change (Destin et al., 2017). Our results begin to address this gap by considering how individuals experience social class change over time. As students enter college – a gateway institution for
upward mobility – we find that cultural mismatch shapes the trajectory of their sense of fit over time, in turn shaping their social and academic outcomes (cf. Edwards, 2006). Thus, while some argue that higher education provides students the chance to gain middle- and upper-class cultural capital, our results suggest that mismatch experiences can, at least in part, thwart this opportunity (Coleman, 1988; Goudeau & Croizet, 2017; Lamont & Lareau, 1988; Lareau & Calarco, 2012; Reay, Crozier, & Clayton, 2009).

Our results also highlight acculturation as an important lens, for understanding not only national mobility experiences (Sam & Berry, 2010; Ward & Kennedy, 2001), but also class mobility experiences. We find that class acculturation may be a relatively slow process: students’ social class backgrounds continue to shape their selves and experiences, even as their current social class standing objectively increases (obtaining an elite degree). This fits developmental perspectives, which suggest early experiences often exert strong imprinting effects, especially on models of selves (Alwin et al., 1991; Bradley & Corwyn, 2002; Kish-Gephardt & Campbell, 2014; Lareau, 2003). However, more research should consider experiences of social class change and associated acculturation processes. For instance, dovetailing with immigrant acculturation work, our results suggest intergenerational class mobility may be complicated by parents’ gaining and passing on some forms of middle-class capital (e.g., economic resources) but not others (e.g., ways of being).

Although cultural change may be slow, selves are malleable and can change over time, especially if individuals have support for their existing norms while learning new ones (Markus & Kitayama, 2010; Sam & Berry, 2010; Ward & Kennedy, 2001). Thus, to address social class disparities, institutions might work to value both interdependence and independence, and reduce the experience of mismatch. In such an inclusive environment, first-generation students may
have the opportunity to elaborate their independent selves over time and become bicultural (e.g., Herrman & Varnum, 2016; Pascarella et al., 2004). Indeed, Tibbetts et al. (2016) found that providing first-generation students an opportunity to affirm their independence increased their sense of inclusion and academic performance (see also Brannon, Markus, & Taylor, 2015). Moreover, by accepting students’ diverse selves, and helping them leverage the assets that these different selves can provide (e.g., increased pro-social behavior, persistence, and performance), inclusive college environments may reduce the need for students to change in the first place (Cross & Vick, 2001).

**Conclusion**

Higher education serves as a gateway institution, awarding degrees that provide class mobility and associated life opportunities. It is widely believed that, as long as students from different social class backgrounds are given access to college, then they will be provided similar experiences and rewards in college, molding them into the middle- and upper-classes. However, we document persisting social class gaps in cultural mismatch and its negative consequences throughout students’ years in college. Thus, while access to this gateway institution is clearly necessary, it is not sufficient. By differentially providing mismatch experiences, colleges fail to provide first-generation graduates equal opportunities for academic and social benefits enjoyed by continuing-generation graduates. Rather than equalizing opportunity, colleges may help maintain class inequality, even among those who ultimately graduate.
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References


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Paris: OCED.


Bass.


Table 1. Demographics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study 1</th>
<th>Study 2</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Continuing-Generation</td>
<td>First-Generation</td>
</tr>
<tr>
<td>1. N</td>
<td>256</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender (Female, Male)</td>
<td>28%, 72%</td>
<td>34%, 66%</td>
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<td></td>
</tr>
<tr>
<td>3. Race:</td>
<td></td>
<td></td>
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<tr>
<td>Asian/Asian American</td>
<td>6%</td>
<td>7%</td>
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<td>Black/African-American</td>
<td>7%</td>
<td>9%</td>
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<td>Latino/Latino-American</td>
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<td>White/European-American</td>
<td>71%</td>
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<td>Multiracial or Other Race</td>
<td>11%</td>
<td>13%</td>
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<td>Unknown</td>
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<tr>
<td>4. Year in School ($M, SD$)</td>
<td>1.89 (1.30)</td>
<td>2.24 (1.42)</td>
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Note: For Study 2, university admissions data did not include multiracial option at the time.
Table 2. Study 1 Means (Standard Deviations).

<table>
<thead>
<tr>
<th>Condition</th>
<th>Year 1</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continuing-Generation</td>
<td>First-Generation</td>
</tr>
<tr>
<td>Variable (Scale)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Interdependent Motives (1-7)</td>
<td>4.13 (1.35)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.93 (1.51)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>2. Independent Motives (1-7)</td>
<td>5.81 (.94)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.47 (.87)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>3. Unique Pen Choice (0-100%)</td>
<td>43.7 (.50)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>45.7 (.50)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>4. Subjective Social Status (1-10)</td>
<td>6.56 (1.26)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.33 (1.57)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: Excludes 32 participants self-reported as Year 2 or Year 3. Within variables, those marked with “a” are significantly different than those marked with “b”.
Table 3

Study 1: Summary of Regression Analyses

<table>
<thead>
<tr>
<th>Variable (Fixed)</th>
<th>Interdependent Motives</th>
<th>Independent Motives</th>
<th>Pen Choice (binary)</th>
<th>Subjective Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>t (df)</td>
<td>p</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.63</td>
<td>.09</td>
<td>52.14 (328)</td>
<td>&lt;.001</td>
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<tr>
<td>Social Class</td>
<td>-.22</td>
<td>.08</td>
<td>-2.56 (328)</td>
<td>.01</td>
</tr>
<tr>
<td>Year</td>
<td>.01</td>
<td>.05</td>
<td>.10 (328)</td>
<td>.92</td>
</tr>
<tr>
<td>Race</td>
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<td>.08</td>
<td>-6.87 (328)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Gender</td>
<td>.26</td>
<td>.08</td>
<td>3.34 (328)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Social Class X Time</td>
<td>.02</td>
<td>.06</td>
<td>.39 (327)</td>
<td>.69</td>
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</tbody>
</table>

Note: Social Class (-1=First-Generation; 1=Continuing-Generation), Race (-1=URM; 1=White/Asian), Gender (-1=Female; 1=Male). Year centered at its mean.
Table 4. Study 2. Means (Standard Deviations).

<table>
<thead>
<tr>
<th>Condition</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continuing-Generation</td>
<td>First-Generation</td>
</tr>
<tr>
<td>Variable (Scale)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Interdependent Motives (0-6)</td>
<td>2.26 (1.81)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.62 (1.83)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>2. Independent Motives (0-6)</td>
<td>4.52 (1.64)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.39 (1.82)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>3. Fit (1-7)</td>
<td>4.57 (.60)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.36 (.54)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>4. GPA (0-4.3)</td>
<td>3.48 (.35)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.35 (.39)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>5. Subjective Status (1-10)</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

Note: Within variables, those marked with "a" are significantly different than those marked with "b" or "c", and so on.
### Table 5

**Study 2: Summary of Mixed-Model Regression Analyses**

<table>
<thead>
<tr>
<th>Variable (Fixed)</th>
<th>Interdependent Motives</th>
<th>Independent Motives</th>
<th>Fit</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>t (df)</td>
<td>p</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.06</td>
<td>.08</td>
<td>39.12 (1527)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Social Class</td>
<td>-.65</td>
<td>.07</td>
<td>-9.55 (1193)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Time</td>
<td>.06</td>
<td>.06</td>
<td>1.05 (346)</td>
<td>.29</td>
</tr>
<tr>
<td>Race</td>
<td>-.26</td>
<td>.05</td>
<td>-5.04 (1338)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Gender</td>
<td>.01</td>
<td>.05</td>
<td>.13 (1348)</td>
<td>.90</td>
</tr>
<tr>
<td>Social Class X Time</td>
<td>-.01</td>
<td>.06</td>
<td>-.11 (330)</td>
<td>.91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable (Random)</th>
<th>SD²</th>
<th></th>
<th></th>
<th></th>
<th>SD²</th>
<th></th>
<th></th>
<th></th>
<th>SD²</th>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Participant</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>.11</td>
<td></td>
<td></td>
<td>.09</td>
</tr>
</tbody>
</table>

*Note: Social Class (-1=First-Generation; 1=Continuing-Generation), Time (-1=Time-1; 1=Time-2), Race (-1=URM; 1=White/Asian), Gender (-1=Female; 1=Male).*
Table 6

*Study 2: Summary of Linear Regression Analyses*

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE</th>
<th>t (df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.28</td>
<td>.17</td>
<td>43.55 (150)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Social Class</td>
<td>.62</td>
<td>.15</td>
<td>4.07 (150)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Race</td>
<td>-.02</td>
<td>.16</td>
<td>-.13 (150)</td>
<td>.90</td>
</tr>
<tr>
<td>Gender</td>
<td>.11</td>
<td>.15</td>
<td>.76 (150)</td>
<td>.45</td>
</tr>
<tr>
<td>GPA (T1)</td>
<td>-.96</td>
<td>.65</td>
<td>-1.47 (147)</td>
<td>.14</td>
</tr>
<tr>
<td>GPA (T2)</td>
<td>2.02</td>
<td>.75</td>
<td>2.70 (147)</td>
<td>.008</td>
</tr>
</tbody>
</table>

*Note:* Social Class (-1=First-Generation; 1=Continuing-Generation), Race (-1=URM; 1=White/Asian), Gender (-1=Female; 1=Male). GPA (T1) and GPA (T2) centered at their means.
Table 7

Study 2: Covariance (and Correlation) Matrix for SEM Analyses (GPA Model)

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SES</td>
<td>.97</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Interdependent Motives (T1)</td>
<td>-.48 (-.26)</td>
<td>3.50</td>
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</tr>
<tr>
<td>3. Independent Motives (T1)</td>
<td>.04 (.02)</td>
<td>.74 (.22)</td>
<td>3.27</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Fit (T2)</td>
<td>.26 (.30)</td>
<td>-.48 (-.30)</td>
<td>.02 (.01)</td>
<td>.75</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5. GPA (T2)</td>
<td>.10 (.35)</td>
<td>-.13 (-.22)</td>
<td>-.01 (-.02)</td>
<td>.08 (.30)</td>
<td>.09</td>
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<td></td>
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<tr>
<td>6. GPA (T1)</td>
<td>.11 (.30)</td>
<td>-.14 (-.20)</td>
<td>.04 (.07)</td>
<td>.08 (.26)</td>
<td>.09 (.78)</td>
<td>.14</td>
<td></td>
<td></td>
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<tr>
<td>7. Race</td>
<td>.15 (.07)</td>
<td>-.16 (-.09)</td>
<td>.14 (.09)</td>
<td>.06 (.07)</td>
<td>.05 (.19)</td>
<td>.15 (.33)</td>
<td>.88</td>
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<tr>
<td>8. Gender</td>
<td>.06 (.16)</td>
<td>.16 (.09)</td>
<td>-.14 (-.08)</td>
<td>-.06 (-.08)</td>
<td>.00 (.00)</td>
<td>.06 (.02)</td>
<td>.08 (.09)</td>
<td>.96</td>
</tr>
</tbody>
</table>

Note. Social Class (-1=First-Generation; 1=Continuing-Generation), Race (-1=URM; 1=White/Asian), Gender (-1=Female; 1=Male). All others centered at their means.
### Table 8

*Study 2: Covariance (and Correlation) Matrix for SEM Analyses (SSS Model)*

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SES</td>
<td>.95</td>
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<tr>
<td>2. Interdependent Motives (T1)</td>
<td>-.44 (.24)</td>
<td>3.48</td>
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</tr>
<tr>
<td>3. Independent Motives (T1)</td>
<td>.05 (.03)</td>
<td>.80 (.24)</td>
<td>3.22</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Fit (T2)</td>
<td>.29 (.33)</td>
<td>-.51 (-.31)</td>
<td>.00 (-.00)</td>
<td>.76</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. SSS (T2)</td>
<td>.57 (.31)</td>
<td>-.23 (-.06)</td>
<td>.13 (.04)</td>
<td>.65 (.40)</td>
<td>3.56</td>
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<tr>
<td>6. GPA (T1)</td>
<td>.13 (.35)</td>
<td>-.14 (-.21)</td>
<td>.02 (.03)</td>
<td>.08 (.24)</td>
<td>.12 (.17)</td>
<td>.13</td>
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</tr>
<tr>
<td>7. GPA (T2)</td>
<td>.12 (.40)</td>
<td>-.13 (-.24)</td>
<td>-.03 (-.05)</td>
<td>.08 (.29)</td>
<td>.16 (.27)</td>
<td>.09 (.77)</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Race</td>
<td>.14 (.16)</td>
<td>-.11 (-.06)</td>
<td>.07 (.04)</td>
<td>.06 (.07)</td>
<td>-.07 (-.04)</td>
<td>.11 (.32)</td>
<td>.06 (.18)</td>
<td>.85</td>
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</tr>
<tr>
<td>9. Gender</td>
<td>.07 (.07)</td>
<td>.13 (.07)</td>
<td>-.17 (-.09)</td>
<td>-.06 (-.07)</td>
<td>-.02 (-.01)</td>
<td>.01 (.02)</td>
<td>-.06 (.01)</td>
<td>.08 (.09)</td>
<td>.96</td>
</tr>
</tbody>
</table>

*Note.* Social Class (-1=First-Generation; 1=Continuing-Generation), Race (-1=URM; 1=White/Asian), Gender (-1=Female; 1=Male). All others centered at their means.