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

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United States higher education prioritizes independence as the cultural ideal. As a result, first-generation students (neither parent has a four-year degree) often confront an initial cultural mismatch early on in college settings: they endorse relatively interdependent cultural norms that diverge from the independent cultural ideal. This initial cultural mismatch can lead first-generation students to perform less well academically compared with continuing-generation students (one or more parents have a four-year degree) early in college. Yet, what happens as first-generation students experience the university culture *throughout* their time in college? Using cross-sectional and longitudinal approaches, we find that initial cultural mismatch is associated with psychological and academic costs that persist until graduation. First, at college entry, we find social class differences in cultural norms: first-generation students endorse more interdependent cultural norms than their continuing-generation peers. Second, endorsing interdependence at college entry predicts reduced subjective sense of fit in college four years later. Third, lower subjective sense of fit predicts lower grade point average and subjective social status upon graduation. Together, these results suggest that initial cultural mismatch contributes to worse experiences and academic outcomes among first-generation students, and that these disparities persist even until graduation. Further, we find that social class differences in cultural norms remain stable throughout college: first-generation students continue to endorse more interdependence than do continuing-generation students. We suggest providing access is not sufficient to reduce social class inequity; colleges need to create more inclusive environments to ensure that students from diverse backgrounds can reap similar rewards.

Keywords: first-generation students, social class achievement gap, inequality/inequity, person-environment fit, belonging

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In the United States, social class mobility, or the lack thereof, continues to be a cause for great concern. Compared with other developed nations, the United States has among the lowest rates of intergenerational mobility (OECD, 2018). For instance, social class background constrains students' access to education: the opportunity to earn a college degree differs sharply 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; OECD, 2018). Even after defying the odds and gaining admission to college, first-generation students still confront additional obstacles as they transition into college, including lower matriculation and increased stress and marginalization (Covarrubias & Fryberg, 2015; Croizet & Claire, 1998; Croizet & Millet, 2012; Fryberg et al., 2013; Fryberg & Markus, 2007; Ishitani, 2006; Johnson, Richeson, & Finkel, 2011; Tibbetts et al., 2016). As a result, compared with their continuing-generation peers, first-generation students perform less well academically, and are ultimately 51% less likely to graduate college in four years (Astin & Oseguera, 2004; Ishitani, 2006; Sirin, 2005).

These disparities are important because higher education is a critical gateway institution that makes social class mobility possi-

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ble (Belmi & Laurin, 2016; Phillips & Lowery, in press; Ridgeway & Fisk, 2012; Rivera, 2015; Stephens, Markus, & Phillips, 2014).[1] People who attain a four-year degree can expect a lifetime of benefits, including higher income and better health and well-being, while those without a four-year degree 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 manage not only to gain access to college but also to persist through graduation, then they will adjust to middle- and upper-class cultural norms over time and reap the rewards a college education has to offer. Accordingly, the college experience should foster middle- and upper-class psychological tendencies and behaviors.

Alternatively, in the current research, we suggest that access is not enough. In doing so, we ask two novel questions. First, do first-generation students' cultural norms upon entering college continue to shape their experiences, and important institutional rewards like grade point average (GPA) and subjective social status (SSS), *throughout* their four years in college? Second, does the college experience change first-generation students, such that they shift over time toward the middle- and upper-class cultural norms of their continuing-generation peers? In particular, we consider whether social class differences in initial cultural norms affect students' development of a subjective sense of fit in college. If these initial norms fuel social class gaps in fit, then students may reap different institutional rewards during college, allowing social class gaps in academic (GPA) and social (SSS) outcomes to persist all the way to graduation.

Classed Institutions, Classed Selves: Institutions and Students Are Not Culturally Neutral

Colleges are not neutral gateway institutions; rather, they promote culture-specific norms for how to think, feel, and act as a "good" college student (Adams, Biernat, Branscombe, Crandall, & Wrightsman, 2008; Croizet, 2008; Croizet & Millet, 2012; Schein, 1990; Schneider, Smith, & Goldstein, 2000; Stephens, Hamedani, & Destin, 2014). U.S. colleges expect, socialize, and reward *independence* as the cultural ideal (e.g., Fryberg & Markus, 2007; Kim & Sherman, 2007; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). For instance, when students communicate their individual needs and express their opinions, colleges reward them by offering more attention (e.g., help from a professor) and better grades (e.g., for participating in class; Kim & Markus, 2002; see also Anyon, 1980; Calarco, 2011). University administrators also endorse independence, reporting a greater expectation for students to develop personal opinions or challenge group rules, rather than to appreciate others' opinions or respect group rules (Stephens, Fryberg, et al., 2012; Tibbetts, Priniski, Hecht, Borman, & Harackiewicz, 2018).

Despite institutional cultural norms that prioritize independence, students enter these institutions endorsing a diverse range of cultural norms (Belmi & Laurin, 2016; Fiske & Markus, 2012; Herrmann & Varnum, 2018; Kraus, Horberg, Goetz, & Keltner, 2011; Miyamoto, 2017; Miyamoto et al., 2018; Piff, 2014; Snibbe & Markus, 2005). These diverse norms stem in part from students' diverse *models of self*, or implicit understandings of how the self relates to the social context (Markus & Kitayama, 2010). Although people have the potential to access multiple selves, social class background shapes which selves are most elaborated, and in turn, foster culture-specific norms for behavior (e.g., Stephens, Fryberg, et al., 2012). For instance, first-generation students, who are from working-class backgrounds, are often guided by an *interdependent* model of self, one that emphasizes cultural norms such as adjusting to others and respecting group preferences (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 cultural norms such as standing out from others and expressing personal preferences (Kim & Markus, 2002; Lareau, 2003).

Given this variation in the models of self that students bring with them to college, and the different cultural norms they afford, students' cultural norms can either match or mismatch the college environment. In the case of first-generation students, their motives for attending college often reflect interdependent cultural norms (e.g., to give back to their communities) that do not match the ideal cultural norms of independence that tend to be prioritized in higher education (Stephens, Fryberg, et al., 2012). As a result, first-generation students often experience what previous research has referred to as a *cultural mismatch* in college (Harackiewicz et al., 2014; Stephens, Fryberg, et al., 2012; Tibbetts et al., 2016).

Prior work has shown that this cultural mismatch—endorsing interdependent motives in an independent context—can produce negative academic and social outcomes for first-generation students as they transition to college (Stephens, Fryberg, et al., 2012; Stephens, Townsend, Markus, & Phillips, 2012; Tibbetts et al., 2016; see also Fryberg et al., 2013; Ishitani, 2006; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Phinney & Haas, 2003; Pike & Kuh, 2005).[2] In one study, students who endorsed more interdependent motives (versus fewer interdependent motives) performed worse academically early in college (Stephens, Fryberg, et al., 2012; see also Fryberg et al., 2013; Hamedani, Markus, & Fu, 2013; Tibbetts et al., 2016, 2018). Moreover, when first-generation

[1] Three indicators of social class are commonly used: educational attainment, income, and occupation (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006; Kraus & Stephens, 2012; Loignon & Woehr, 2018). Parental educational attainment is an especially good indicator of students' social class background (e.g., Sirin, 2005) because it affords both material and cultural resources (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 (Lubrano, 2004; Pascarella & Terenzini, 1991; Reardon, 2011). Regarding cultural resources, a four-year degree is the best predictor of a range of behaviors, beliefs, and ideals (e.g., self-construal, religious views, and consumer product preferences; Davis, 1994; Fiske & Markus, 2012; Housel & Harvey, 2009; Kohn & Schooler, 1983; Lareau, 2003; Snibbe & Markus, 2005). As such, we follow existing research standards and refer to first-generation students as from working-class contexts, and continuing-generation students as from middle- and upper-class contexts.

[2] Previous research on cultural mismatch theorized that first-generation students underperform early in college because their working-class *inter*dependent norms constitute a mismatch with middle- and upper-class independent norms prevalent in universities (Fryberg et al., 2013; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al. 2012; Tibbetts et al., 2016). However, previous work has measured both interdependent and independent norms among students. As such, we focus our theorizing on the interdependence component of mismatch (i.e., students' endorsing interdependence in an independent context), while still measuring both interdependence and independence in our studies.

students, who tend to endorse more interdependent motives, were exposed to a typical message that framed the college experience in terms of independence (a cultural mismatch), they showed more physiological stress during a difficult academic task than did their continuing-generation peers (Stephens, Townsend, et al., 2012; see also Covarrubias, Gallimore, & Okagaki, 2018; Covarrubias, Herrmann, & Fryberg, 2016; Levine, Atkins, Waldfogel, & Chen, 2016).

Together, this work suggests that initial cultural mismatch is one important source of social class disparities in academic and social rewards early in college. Moving beyond this prior work, we investigate first-generation students' ongoing interaction with the college culture *over time*. We suggest that initial cultural mismatch will decrease first-generation students' subjective sense of fit relative to their continuing-generation peers', and that these social class differences in fit will persist over time. In addition, we theorize that this persistent lower sense of fit may help to explain the relationship between first-generation students' cultural mismatch (i.e., endorsing interdependent motives in an independent context) and their reduced institutional rewards.

Subjective Sense of Fit

To understand whether and how initial cultural mismatch might affect students over time, it is important to first consider how cultural mismatch produces negative consequences early in college. Previous work has suggested that cultural mismatch exerts its negative effects via academic discomfort on specific tasks. For example, Stephens and colleagues (2012) theorize that cultural mismatch increases students' discomfort, leading them to construe academic tasks (e.g., solving a puzzle) as difficult, which ultimately leads to worse performance early in college.

We theorize that discomfort associated with initial cultural mismatch may not only shape how students experience specific academic tasks, but *also* affect how students experience their own fit in the college environment more generally. While we operationalize cultural mismatch objectively as endorsing interdependent motives in an independent culture, this divergence may lead students to *subjectively* doubt their fit with the college environment. Indeed, students are sensitive to a variety of cues that may signal a lack of fit or belonging (Cheryan, Plaut, Davies, & Steele, 2009; Pickett & Gardner, 2005). Accordingly, cultural mismatch may guide students' subjective experience. For instance, when college students endorse interdependent cultural norms, which mismatch the college culture of independence, they report increased self-consciousness about their social class background (Tibbets et al., 2016, 2018; see also Harackiewicz et al., 2014).

A separate body of work has documented the importance of subjective sense of fit for academic, social, and workplace success (Brannon, Higginbotham, & Henderson, 2017; Cheryan et al., 2009; Ostrove & Long, 2007; Pascarella et al., 2004; Schneider et al., 2000). In workplaces, employees who feel lower sense of fit also perform worse and turnover faster (Goldberg, Srivastava, Manian, Monroe, & Potts, 2016; Kristof-Brown, Zimmerman, & Johnson, 2005; Edwards, 2008; O'Reilly et al., 1996; Schneider et al., 2000; Srivastava, Goldberg, Manian, & Potts, 2018). In schools, students who subjectively *feel* lower fit also experience more social stress and academic difficulty (Croizet & Claire, 1998; Croizet & Millet, 2012; Johnson et al., 2011; Stephens, Townsend, et al., 2012). For example, underrepresented racial minorities often report lower sense of fit, which in turn can undermine their academic performance in middle school, high school, and college (Shnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013; Walton & Cohen, 2007, 2011).[3] Likewise, among female students in STEM fields, lower sense of fit is associated with less persistence and worse performance (Good, Rattan, & Dweck, 2012; Smith, Lewis, Hawthorne, & Hodges, 2013). Lower subjective sense of fit can also lead students to make more dispositional attributions in the face of difficulty (e.g., "I don't fit in here because I'm not smart enough"; Smith et al., 2013), which can decrease help-seeking or connecting to others (Johnson et al., 2011; Stephens et al., 2014). This can create a self-reinforcing cycle over time, in which a lower sense of fit leads to more disengagement, which further diminishes sense of fit (Walton & Cohen, 2011).

Taken together, this work suggests that subjective sense of fit is an important psychological experience that fuels academic success. In the current research, we theorize that subjective sense of fit is an integral part of the process by which cultural mismatch exerts negative effects on academic performance. We examine how this process unfolds as students persist in the college environment over time. Specifically, we ask: do initial experiences of cultural mismatch (i.e., endorsing interdependent motives in an independent context) continue to exert negative effects on first-generation students' institutional rewards (GPA and SSS) over time? And if so, does lower subjective sense of fit help to explain these negative effects?

Do Students Change or Stay the Same?

Findings from a range of literatures suggest two perspectives on how students from different social class backgrounds are likely to experience institutions of higher education over time. Both perspectives recognize the role of cultural mismatch during early college experiences. However, they diverge in their answer to the question of how cultural mismatch affects first-generation students over time: do they change or stay the same?

The *cultural change* perspective would imply that, over four years in college, first-generation students may progressively shift away from cultural norms of interdependence and toward independence, and naturally develop a subjective sense of fit over time. In turn, this sense of fit should benefit their academic performance (GPA) and social status (SSS). Thus, in this scenario, the negative effects of initial cultural mismatch—such as worse academic and social outcomes—should diminish over time.

A *cultural mismatch* perspective suggests that initial cultural mismatch will instead prevent first-generation students from shifting away from cultural norms of interdependence, and also hinder their development of a subjective sense of fit, maintaining social

[3] Following organizational behavior theories of cultural, person-environment, and person-organization fit (i.e., the subjective experience of fitting with a specific organizational environment), we use the term *subjective sense of fit* to refer to subjective feelings of comfort, inclusion, and compatibility with a particular institutional environment (i.e., college; Edwards, Cable, Williamson, Lambert, & Shipp, 2006; Edwards, 2008; Schmader & Sedikides, 2018). This is in contrast to the related term "social belonging" (Walton & Cohen, 2011), which emphasizes positive interpersonal relationships, rather than compatibility with the institutional environment.

class gaps in fit over time. In turn, students from different social class backgrounds would reap different institutional rewards (GPA, SSS) even at the end of college. Thus, in this case, the negative consequences of initial cultural mismatch should extend *beyond* students' transition to college, and fuel social class gaps that persist all the way to graduation.

Cultural Change

In support of the cultural change perspective, our review of literature suggests two processes by which first-generation students may overcome initial cultural mismatch and develop a subjective sense of fit over time: increasing familiarity and socialization. First, as people persist in new environments, they often become more familiar with and adjust to new cultural norms over time (Saks, Uggerslev, & Fassina, 2007). For instance, work on acculturation shows that immigrants who have social support in their new cultural environment often develop new cultural ways of being and may become bicultural (Mok, Cheng, & Morris, 2010; Sam & Berry, 2010; Ward & Kennedy, 2001). Similarly, organizational behavior research on newcomer socialization finds that new employees may feel lower subjective sense of fit at first, but that their sense of fit increases as they persist in the organization over time (Edwards, 2008).

Second, beyond increasing familiarity over time, college students may be especially likely to develop a subjective sense of fit over time via socialization. Indeed, college is a "strong situation," offering intensive socialization and acculturation processes (Alwin, Cohen, & Newcomb, 1991; Astin, 1993; Pascarella & Terenzini, 1991; see also Mischel, 1977). College students are fully immersed in their new environments 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). Colleges actively teach students how to be effective and successful: colleges offer coursework and activities designed to socialize students toward independent cultural norms, which represent the institutional ideal (Fryberg & Markus, 2007; Morphew & Hartley, 2006).

Altogether, colleges provide strong institutional environments that actively socialize students, who themselves are most often experiencing a life stage in which change is especially likely. By persisting in such an institutional environment, first-generation students may shift away from interdependent cultural norms and toward independent cultural norms. Moreover, they may develop a greater subjective sense of fit over time. As a result, they may have better academic performance and social outcomes as they spend more time in college.

Cultural Mismatch

The key difference between the cultural change and cultural mismatch perspectives lies in whether they predict that students will change or stay the same. This prediction hinges on their divergent assumptions about how students are likely to respond to the initial experience of cultural mismatch. Our cultural mismatch perspective posits that initial cultural mismatch will undermine students' chances of developing a subjective sense of fit. As a result of this continued lower subjective sense of fit, social class gaps in academic and social outcomes should persist over time. Below we review literature supporting this perspective, focusing on how a lack of social support and ineffective socialization can prevent the development of new cultural norms and a sense of fit.

First, prior work on both organizational socialization and immigrant acculturation has demonstrated that beyond mere familiarity, social support is critical for a subjective sense of fit to emerge: newcomers need to feel that they, and their own cultural norms, are welcomed and emotionally supported (Edwards, 2008; Sam & Berry, 2010; Ward & Kennedy, 2001). When people's cultural norms from their home environments are *not* welcomed in the new cultural context, they are unlikely to develop a sense of fit over time (Gelfand & Harrington, 2015; Phinney & Haas, 2003; Sam & Berry, 2010; Ward & Kennedy, 2001). As reviewed above, colleges prioritize independent cultural norms and often exclude the interdependent norms more common among first-generation students (Stephens, Fryberg, et al., 2012). As such, colleges do not provide the kind of social support that first-generation students likely need to adjust as newcomers. Indeed, first-generation compared with continuing-generation students report higher levels of marginalization in college (Johnson et al., 2011; Ostrove & Long, 2007; Stephens et al., 2014). And, absent intervention, they report feeling less included in college even in the fourth year (Tibbetts et al., 2016). Similar to immigrants who are marginalized in their new countries (Ward & Chang, 1997; Ward & Kennedy, 2001), first-generation students may even turn away from the unsupportive college context and turn toward their home communities instead for social support, which could further reinforce their lower sense of fit in college (e.g., Alwin et al., 1991; Covarrubias & Fryberg, 2015; Vasquez-Salgado, Greenfield, & Burgos-Cienfuegos, 2015).

Second, even when first-generation students engage in socialization activities in their new environments, colleges often design these socialization activities with an assumption of independence. Given the initial cultural mismatch between college norms of independence and first-generation students' endorsement of interdependence, these activities may not socialize students as intended (Fryberg et al., 2013; Weidman, 1989; see also Batruch, Autin, Bataillard, & Butera, 2019). For example, during classroom discussions intended to cultivate students' independence by asking them to express themselves, students guided by interdependent models of self often do not engage in the independent, self-expressive behaviors expected of them. Instead, they are more likely to show deference to authority than to express their personal opinions (Kim & Markus, 2002; Lareau, 2003; Mok et al., 2010). As a result, college socialization activities may not help first-generation students develop a subjective sense of fit over time.

In summary, taking a cultural mismatch perspective, we argue that first-generation students' initial mismatch experience will prevent them from shifting toward independent cultural norms; instead, they will maintain their interdependent cultural norms over time. We further suggest that this initial mismatch will hinder students' chances to develop a subjective sense of fit over time. As a result, we expect social class gaps in important institutional rewards (GPA and SSS) will in fact *persist* throughout college to graduation.

Current Research

Using cross-sectional (Study 1) and longitudinal (Study 2) methods, we examine how students' social class backgrounds

affect their college experiences and outcomes over time. In doing so, we make three contributions. First, research has not yet explored how cultural mismatch, and its negative consequences, change or stay the same over time. In particular, we explore whether initial cultural mismatch (endorsing interdependence in an independent context) persists *throughout* first-generation students' four years in college. In doing so, we push cultural mismatch theory toward a more temporally dynamic approach.

Second, we consider whether initial cultural mismatch exerts negative effects on students' *long-term* institutional rewards. We focus on GPA (an academic reward) and SSS (a social reward) as our critical outcomes of interest. GPA is a relatively objective measure of academic achievement, and also a key predictor of important life outcomes, including future employment and earnings (Destin, Richman, Varner, & Mandara, 2012; Jones & Jackson, 1990). SSS is a relatively subjective measure of individuals' social status, and also a key predictor of important life outcomes, including health and life satisfaction (Adler, Epel, Castellazzo, & Ickovics, 2000; Singh-Manoux, Marmot, & Adler, 2005).

Third, we illuminate the *process* by which initial cultural mismatch may drive social class gaps in institutional rewards. Specifically, we focus on the previously untested role of subjective sense of fit with the college environment.

Based on the theorizing above, we propose the following hypotheses: First, we hypothesize that first-generation students will continue endorsing more interdependent motives over time, compared with continuing-generation students. Second, we hypothesize that initial mismatch (endorsing interdependent motives in an independent context) will prevent first-generation students from developing a subjective sense of fit over time. Third, we predict that the persistence of social class disparities in subjective sense of fit will in turn fuel the persistence of disparities in academic and social institutional rewards (GPA, SSS).

Study 1: Cross-Sectional Design

Using a cross-sectional design, Study 1 investigates whether first-generation students at the end of college are similar to first-generation students at the beginning of college (as hypothesized), or if they have shifted toward the cultural norms of their continuing generation peers. Specifically, among both first-year and fourth-year students, we examine whether first-generation students endorse more interdependent and fewer independent motives, compared with their continuing-generation peers. Among both first-year and fourth-year students, we also investigate whether first-generation students report lower subjective social status (SSS; Adler et al., 2000) than continuing-generation students. We expected that social class differences in college motives and SSS would be present at both the beginning *and* end of college, despite all students navigating through college and ultimately earning a four-year college degree.

Method

Participants. We recruited students from a competitive (top 100–200; U.S. News & World Report, 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. Because our focus is on social class in the United States, we removed 57 international students. We also removed 33 students who were not in their first or fourth years in college, and 10 who did not report social class background, for a final sample $N = 309$.[4] See Table 1 for participants' demographics.

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

Measures

Motives for attending college. Following previous research (Harackiewicz et al., 2014; Stephens, Fryberg, et al., 2012; Tibbetts et al., 2018), we assessed students' culture-specific norms regarding college, using a measure of motives for attending college. Given the college culture of independence, we operationalize the endorsement of interdependent motives as an indication of cultural mismatch. Further, this measure predicts important early college outcomes, including academic performance (Stephens, Fryberg, et al., 2012; Tibbetts et al., 2016, 2018).

Participants responded to six items representing relationship-oriented reasons for attending college (e.g., "I want to give back to my community"; $\alpha = .81$; online supplemental materials), shown by previous research to reflect *inter*dependent motives, and six items representing individual-focused reasons (e.g., "I want to become an independent thinker;" $\alpha = .82$), shown to reflect *in*dependent motives (Stephens, Fryberg, et al., 2012). 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, Fryberg, et al., 2012), principal components analysis (varimax rotation) of all 12 items revealed that the six independent items loaded onto one factor (range [.61, .81], Eigenvalue = 4.06, 28% variance explained) and six interdependent items loaded onto a second factor (range [.64, .74], Eigenvalue = 2.35, 25% variance explained). No items loaded highly onto the opposite factor (range [−.11, .37], all other Eigenvalues <1).

Just as students may decide their college major no longer fits their preferences and goals, students may also see college itself fitting into their plans differently over time. That is, at the end of college, students may understand themselves as having different reasons for attending college (e.g., secure a good job) than they did upon entry (e.g., explore the world).[5]

Pen choice. In addition to the motives measure, we used a behavioral task—choice between unique or common pen—designed to capture people's preferences for independence or inter-

[4] Results persist if we retain students who accidentally participated in the study, despite not being in the first or fourth years (online supplemental materials).

[5] Indeed, in our longitudinal results (Study 2), we do find evidence that this measure is sensitive to change over time (Time 1 to Time 2 difference score range: interdependence [−4, 5], independence [−6, 6]).

Table 1
Demographics

Variable	Study 1		Study 2	
	Continuing-generation	First-generation	Continuing-generation	First-generation
1. *N*	232	77	1,185 (T1) 155 (T2)	187 (T1) 110 (T2)
2. Gender (female, male)	27%, 73%	35%, 65%	50%, 50% (T1) 59%, 41% (T2)	51%, 49% (T1) 60%, 40% (T2)
3. Race			(T1), (T2)	(T1), (T2)
Asian/Asian American	7%	8%	24%, 28%	37%, 43%
Black/African American	7%	10%	11%, 8%	12%, 12%
Native American	0%	1%	5%, 3%	6%, 5%
Latino/a / Latino/a American	4%	25%	14%, 15%	27%, 25%
White/European American	71%	42%	45%, 43%	17%, 15%
Multiracial or Other race	11%	14%	—	—
Unknown	—	—	1%, 4%	1%, 0%
4. Year (first, fourth)	73%, 27%	60%, 40%	—	—

Note. For Study 2, university admissions data did not include multiracial option at the time.

dependence. Indeed, previous research has shown that this choice reflects culture-specific norms for uniqueness (independence) versus similarity (interdependence; Kim & Markus, 1999; Kim & Sherman, 2007), and can be used to assess underlying models of self. Because pen choice indicates whether students act on interdependent norms, measuring pen choice in the college context may be useful as an additional indicator of cultural mismatch.

Following previous research (Kim & Markus, 1999; Stephens, Markus, & Townsend, 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).

Subjective social status (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 with "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 four-year college degree, and continuing-generation if at least one parent had a four-year college degree (self-reported: first-generation = −1, continuing-generation = 1; Housel & Harvey, 2009).

Year. Year in college was self-reported (first-year = −1, fourth-year = 1).

Demographics. Participants' gender (female = −1, male = 1) and race were self-reported (see Table 1). Research finds that non-Asian minorities face underrepresentation and report worse social and academic outcomes in U.S. colleges compared with Whites and Asians (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016; Kao, 1995; Kao & Thompson, 2003; Steele, 2010). Accordingly, we code race using underrepresented minority status (underrepresented minority: Black, Latino/a, Native, Other = −1; White/Asian = 1).

Results

Table 2 presents correlations, and Table 3 presents means and standard deviations for Study 1. We present results of linear regressions, in which each dependent variable is regressed on social class background, year, gender, and race.[6] Then, we present results from the same regression models, but including an interactive effect of social class and year (see Table 4).[7]

Interdependent motives. As hypothesized, first-generation students were significantly more likely to endorse interdependent motives than were continuing-generation students, $b = -.22$, 95% confidence interval (CI) [−.40, −.05], $SE = .09$, $t(296) = -2.47$, $p = .01$, $f^2 = 02$. We found no effect of year on students' endorsement of interdependent motives, $b = .04$, 95% CI [−.12, .20], $SE = .08$, $t(296) = .49$, $p = .62$, and no interactive effect of social class background and year on interdependent motives, $b = .09$, 95% CI [−.09, .26], $SE = .09$, $t(295) = .95$, $p = .34$, indicating consistent endorsement of interdependent motives across students in the first or fourth year of college.

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, .35], $SE = .06$, $t(296) = 3.50$, $p < .001$, $f^2 = 04$. We found no effect of year on students' endorsement of independent motives,

[6] 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, our results persist both without race and gender covariates, and when we code race using a majority/minority status method instead of underrepresented minority status (online supplemental materials).

[7] We also probed for intersectional effects; however, we found no significant Social Class × Race interactions nor Social Class × Gender interactions in Study 1 or Study 2 (online supplemental materials).

Table 2
Studies 1 and 2: Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Social class background	—													
2. Interdependent motives (T1)	S1. −.23*	—												
	S2. −.25*													
3. Interdependent motives (T2)	S1. –	S1. –	—											
	S2. −.34*	S2. .57*												
4. Independent motives (T1)	S1. .18*	S1. .27*	S1. –	—										
	S2. .03	S2. .20*	S2. −.03											
5. Independent motives (T2)	S1. –	S1. –	S1. –	S1. –	—									
	S2. −.01	S2. .10	S2. .29*	S2. .38*										
6. Subjective sense of fit (T1)	S1. –	S1. –	S1. –	S1. –	S1. –	—								
	S2. .12*	S2. .01	S2. −.10	S2. .09*	S2. .17*									
7. Subjective sense of fit (T2)	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	—							
	S2. .28*	S2. −.25*	S2. −.20*	S2. .09	S2. .18*	S2. .40*								
8. SSS (T1)	S1. .37*	S1. −.18*	S1. –	S1. .12*	S1. –	S1. –	S1. –	—						
	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –							
9. SSS (T2)	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	—					
	S2. .33*	S2. −.13	S2. −.09	S2. −.03	S2. .17	S2. .10	S2. .40*	S2. –						
10. GPA (T1)	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	—				
	S2. .12*	S2. −.16*	S2. −.13†	S2. .07*	S2. .06	S2. .00	S2. .29*	S2. –	S2. .14					
11. GPA (T2)	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	S1. –	—			
	S2. .27*	S2. −.22*	S2. −.22*	S2. −.03	S2. −.09	S2. .08	S2. .31*	S2. –	S2. .26*	S2. .78*				
12. Race	S1. .30*	S1. −.35*	S1. –	S1. −.01	S1. –	S1. –	S1. –	S1. .21*	S1. –	S1. –	S1. –	—		
	S2. .11*	S2. −.16	S2. −.07*	S2. .03	S2. .15*	S2. .00	S2. .11	S2. –	S2. .03	S2. .21*	S2. .14			
13. Gender	S1. .08	S1. .13*	S1. –	S1. .13*	S1. –	S1. –	S1. –	S1. −.13*	S1. –	S1. –	S1. –	S1. .11†	—	
	S2. .00	S2. .01	S2. −.02	S2. −.05†	S2. −.02	S2. −.01	S2. .00	S2. –	S2. .10	S2. −.07*	S2. −.02	S2. .00		
14. Year	S1. −.12*	S1. .06	S1. –	S1. .01	S1. –	S1. –	S1. –	S1. −.05	S1. –	S1. –	S1. –	S1. −.05	S1. −.05	—
	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	
15. Pen choice	S1. .09	S1. −.01	S1. –	S1. −.02	S1. –	S1. –	S1. –	S1. .02	S1. –	S1. –	S1. –	S1. −.02	S1. −.05	S1. .00
	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –	S2. –

Note. Social class background (−1 = first generation, 1 = continuing generation); race (−1 = URM, 1 = White/Asian); gender (−1 = female, 1 = male); year (−1 = first year in college, 1 = fourth year in college); pen choice (1 = independent, −1 = interdependent).
† $p < .06$. * $p < .05$.

Table 3
Study 1 Means (Standard Deviations)

Variable (scale)	Year 1		Year 4	
	Continuing generation	First generation	Continuing generation	First generation
1. Interdependent motives (1–7)	4.13 (1.35)[a]	4.93 (1.51)[b]	4.27 (1.41)[a]	4.92 (1.30)[b]
2. Independent motives (1–7)	5.81 (.94)[a]	5.47 (.87)[b]	5.93 (.79)[a]	5.42 (1.14)[b]
3. Unique pen choice (0–100%)	43.7 (.50)[a]	45.7 (.50)[a]	54.0 (.50)[a]	22.6 (.43)[b]
4. SSS (1–10)	6.56 (1.26)[a]	5.33 (1.57)[b]	6.60 (1.63)[a]	5.19 (1.49)[b]

Note. SSS = subjective social status. Within variables, those marked with "a" are significantly different than those marked with "b".

$b = .03$, 95% CI [−.08, .14], $SE = .06$, $t(296) = .51$, $p = .61$, and no interactive effect of social class background and year on independent motives, $b = .05$, 95% CI [−.07, .18], $SE = .06$, $t(295) = .82$, $p = .42$, indicating consistent endorsement of independent motives across students in the first or fourth year of college.

Pen choice. Using a binomial logistic model, we regressed pen choice on social class background, year, gender, and race. As hypothesized, first-generation students were marginally less likely to choose a unique pen than were continuing-generation students, log-odds = .26, 95% CI [−.01, .53], $SE = .14$, $z(299) = 1.77$, $p = .08$.

However, this effect was qualified by a significant interaction of social class background and year on pen choice, log-odds = .36, 95% CI [.07, .67], $SE = .15$, $z(298) = 2.39$, $p = .02$, odds ratio (OR) = 1.44. Among those in the first year of college, contrary to expectations, first-generation and continuing-generation students were similarly likely to choose a unique pen, log-odds = .02, 95% CI [−.32, .36], $SE = .17$, $z(298) = .09$, $p = .93$. Among those in the fourth year 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 = .74, 95% CI [.25, 1.27], $SE = .26$, $z(298) = 2.87$, $p = .004$. Decomposed differently, among first-generation students, students in the fourth year of college were significantly less likely to choose a unique pen compared with those in the first year of college, log-odds = −.54, 95% CI [−1.08, −.04], $SE = .26$, $z(298) = -2.04$, $p = .04$. Among continuing-generation students, there was no effect of year, log-odds = .19, 95% CI [−.11, .48], $SE = .15$, $z(298) = 1.24$, $p = .22$.

Subjective social status (SSS). As hypothesized, first-generation students reported significantly lower SSS than did continuing-generation students, $b = .60$, 95% CI [.41, .79], $SE = .10$, $t(293) = 6.17$, $p < .001$, $f^2 = 13$. We found no effect of year on students' SSS, $b = -.03$, 95% CI [−.20, .15], $SE = .09$, $t(293) = -.30$, $p = .77$, and no interactive effect of social class background and year on SSS, $b = -.01$, 95% CI [−.20, .18], $SE = .10$, $t(292) = -.08$, $p = .94$, indicating consistent SSS differences across students in the first or fourth year of college.

Discussion

Study 1 finds that, early in college, first-generation students are guided by more interdependent and fewer independent motives than are continuing-generation students, replicating previous research. Going beyond previous work, and supporting our proposed cultural 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 cultural norms: across three attitudinal and behavioral measures 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 may be especially sensitive to situational cues present in the surrounding environment (Yamagishi, Hashimoto, & Schug, 2008).

Further, Study 1 shows that first-generation students report lower SSS during their first year in college, *and* that this difference also exists among students in their final year. Altogether, Study 1 provides initial evidence that first-generation students' culture-specific motives and SSS remain the same at the beginning and end of college.

Study 2: Longitudinal Design

In Study 2, we investigate whether first-generation students stay the same or shift toward middle- and upper-class cultural norms as they persist in the college environment over time. We aim to build on Study 1 in several ways. First, we disentangle effects of time and cohort by moving from a cross-sectional design to a longitudinal design, in which we track the same cohort of students from college entry (Time 1) to graduation four years later (Time 2). Second, we recruit participants from a different university, allowing us to consider whether findings from Study 1 replicate in a different college context.

Third, in Study 2, we explore both relatively objective (academic performance) and subjective (social status) outcomes, to investigate whether social class disparities persist over time. Finally, we also test students' subjective sense of fit as a factor that may fuel the effect of initial cultural mismatch (interdependent motives in an independent context) on academic and social disparities over time. In Study 2, we expected:

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

Hypothesis 2: Social class differences in subjective sense of fit upon entering college (Time 1) will persist throughout college (Time 2).

Hypothesis 3: Social class differences in college outcomes (GPA, SSS; Time 1) will persist throughout college (Time 2).

Table 4
Study 1: Summary of Regression Analyses

Variable (fixed)	Interdependent motives				Independent motives				Pen choice (binary)				SSS			
	b	*SE*	*t* (*df*)	*p*	*b*	*SE*	*t* (*df*)	*p*	*b*	*SE*	*z* (*df*)	*p*	*b*	*SE*	*t* (*df*)	*p*
Intercept	4.63	.10	47.23 (296)	<.001	5.64	.07	81.96 (296)	<.001	−.27	.15	−1.76 (299)	.08	5.95	.11	56.46 (293)	<.001
Social class background	−0.22	.09	−2.47 (296)	.01	0.22	.06	3.50 (296)	<.001	.26	.14	1.77 (299)	.08	0.60	.10	6.17 (293)	<.001
Year	0.04	.08	0.49 (296)	.62	0.03	.06	0.51 (296)	.61	−.03	.10	−0.05 (299)	.96	−0.03	.09	−0.30 (293)	.77
Race	−0.52	.09	−5.92 (296)	<.001	−0.11	.06	−1.68 (296)	.10	−.13	.14	−0.95 (299)	.34	0.20	.10	2.11 (293)	.04
Gender	0.28	.08	3.34 (296)	<.001	0.13	.06	2.15 (296)	.03	−.12	.13	−0.93 (299)	.35	−0.28	.09	−3.17 (293)	.002
Intercept	4.63	.10	47.21 (295)	<.001	5.64	.07	81.90 (295)	<.001	−.30	.16	−1.87 (298)	.06	5.95	.11	56.37 (292)	<.001
Social class background	−0.20	.09	−2.13 (295)	.03	0.24	.07	3.59 (295)	<.001	.38	.16	2.38 (298)	.02	0.60	.10	5.95 (292)	<.001
Year	0.004	.09	0.049 (295)	.96	0.01	.06	0.12 (295)	.90	−.18	.15	−1.16 (298)	.24	−0.02	.10	−0.23 (292)	.82
Race	−0.53	.09	−5.96 (295)	<.001	−0.11	.06	−1.72 (295)	.09	−.16	.14	−1.11 (298)	.27	0.20	.10	2.11 (292)	.04
Gender	0.28	.08	3.41 (295)	<.001	0.13	.06	2.22 (295)	.03	−.09	.13	−0.70 (298)	.48	−0.28	.09	−3.16 (292)	.002
Social Class Background × Year	0.09	.09	0.95 (295)	.34	0.05	.06	0.82 (295)	.42	.36	.15	2.39 (298)	.02	−0.01	.10	−0.08 (292)	.94

Note. We include degrees of freedom for *z*-statistic only in order to indicate sample size after listwise deletions. Social class background (−1 = first-generation, 1 = continuing-generation); race (−1 = URM, 1 = White/Asian); gender (−1 = female, 1 = male), year (−1 = first year in college, 1 = fourth year in college).

Lastly, we use structural equation modeling to test a conceptual model specifying our theorized relationships between social class background, culture-specific motives, subjective sense of fit, and college outcomes:

> *Hypothesis 4:* The relationship between students' social class backgrounds and outcomes (Time 2) will be fueled by social class differences in culture-specific motives (Time 1) and subjective sense of fit (Time 2; Figure 1):
>
> a. First-generation students will endorse more interdependent and fewer independent motives than continuing-generation students (Time 1).
>
> b. More interdependent and fewer independent motives will predict lower subjective sense of fit (Time 2).
>
> c. Lower subjective sense of fit will predict lower GPA and SSS (Time 2).

Method

Participants. We recruited students from a highly competitive (top 10; U.S. News & World Report, 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. See Table 1 for participants' demographics.

Time 1 survey. Before beginning their first year in college (Time 1), the entire incoming student population was asked to participate in a university-administered, online survey. Participants completed measures of subjective sense of fit, interdependent and independent motives, and demographics. We included only those who reported information on their social class backgrounds, and were U.S. citizens or permanent residents, leaving a final sample of $N = 1{,}372$.

Time 2 survey. During their fourth year of college, we emailed a subset of Time 1 participants to ask them to participate in a two-part online survey (Time 2). Across the interdependent motives, independent motives, and SSS measures in Study 1, effect size estimates for social class differences ranged from $f^2 = [.02–.13]$. Thus, we used an estimated $f^2 = .05$ to determine sample size for our Time 2 survey, which 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, and then randomly selected 15% of each group to receive recruitment emails.

The first part of the Time 2 survey was administered halfway through the fourth year ($N = 212$), and measured interdependent and independent motives, subjective sense of fit, and demographics. The second part of the Time 2 survey was administered at the very end of the fourth year ($N = 211$), and measured graduation GPA, SSS, and demographics. Virtually all students at this university graduate on time (>95%); as such, their self-reported GPA at the end of the fourth year reflects students' GPA upon graduating with a bachelor's degree.

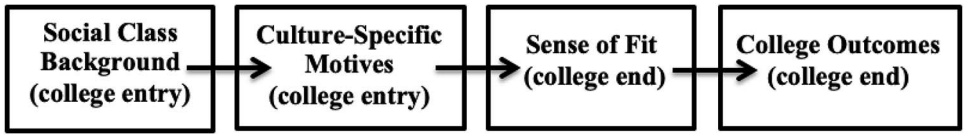

Figure 1. Conceptual model of Hypothesis 4.

Participants received $8 for each part of the survey. Some completed only one part of the Time 2 survey, and 156 students completed both parts; 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 attending 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 six items using a binary scale (1 = Yes; 0 = No; online supplemental materials), which were summed to create two composite measures.

Subjective sense of fit. As described earlier, we follow the literature on person-environment fit (e.g., Edwards et al., 2006; Edwards, 2008) to conceptualize subjective sense of fit as students' self-reported feelings of comfort, inclusion, and compatibility with the college environment. To capture students' subjective sense of fit with the broad college environment, we adapted 12 items from previous research (e.g., Stephens et al., 2014; Walton & Cohen, 2007, 2011; Tibbets et al., 2016). Specifically, we adapted items to focus on both comfort being oneself in the college environment (e.g., "I feel comfortable as a student at [university name]") and sense of compatibility with the college environment (e.g., "My personal values are compatible with the values that are common at [university name]."). These items were reliable as a scale ($\alpha_{T1} = .65$; $\alpha_{T2} = .82$), and we kept all of the items because dropping any of the items 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 . . ." vs. "I am"; online supplemental materials).

Grade point average (GPA). For Time 1, students' official cumulative GPA for their first year in college was provided by the university (0–4.3 scale). For Time 2, given the university declined to provide final grades, we relied on students' self-reported cumulative GPAs. Previous work suggests undergraduates' GPA self-reports are highly accurate when compared with actual grades (Cassady, 2001).

Subjective social status (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;" $\alpha = .87$). 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 (online supplemental materials).

Social class background. We measured social class background following Study 1 (first-generation = −1, continuing-generation = 1).

Time. Time was indicated by survey wave. Time 1 (coded −1) represents the college entry survey wave, and Time 2 (coded 1) represents the college end survey wave (both parts 1 and 2).

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 (see 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 2 presents correlations, and Table 5 presents means and standard deviations. We used a linear mixed-effects modeling package (R packages lme4, lmerTest; Bates, Mächler, Bolker, & Walker, 2015; Kuznetsova, Brockhoff, & Christensen, 2017) to regress dependent variables on predictor and control variables (Tables 6 and 7). We treated dependent variables as repeated measures in our analyses, using time, along with social class background, race, and gender, as fixed effects.[8] 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 R package lavaan (Rosseel, 2012). Because we were interested in relationships among our variables over time, we restricted our data set for SEM analyses to those who completed at least one part of the Time 2 survey. Missing data were found to be missing-completely at-random (MCAR; nonparametric test of homoscedasticity $p > .41$). To retain power despite missing data, and because our data were MCAR, we used a multiple imputation method to produce five complete imputed data sets (for each $N = 265$; predictive mean matching, R package mice; van Buuren & Groothuis-Oudshoorn, 2011). We then fit our structural equation models, producing pooled results from the multiply imputed data sets. Error varied freely for all variables. Continuous variables were centered, and categorical variables were contrast-coded as described. When we use an alternative approach to handling missing data—listwise deletion—we find similar results ($N = 116$ GPA model; $N = 112$ SSS model; for details and covariance, see online supplemental materials).

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], $SE = .07$, $t(1,193) = -9.55$, $p < .001$, ML $\chi^2(1) = 88.16$. We found no effect of time on students'

[8] In both studies, results persist both without race and gender controls, and when we code race using a majority/minority status method instead of underrepresented minority status (online supplemental materials).

Table 5
Study 2: Means (Standard Deviations)

Variable (scale)	Time 1		Time 2	
	Continuing generation	First generation	Continuing generation	First generation
1. Interdependent motives (0–6)	2.26 (1.81)[a]	3.62 (1.83)[b]	2.35 (1.78)[a]	3.65 (1.84)[b]
2. Independent motives (0–6)	4.52 (1.64)[a]	4.39 (1.82)[a]	4.15 (1.87)[b]	4.18 (1.79)[a,b]
3. Subjective sense of fit (1–7)	4.57 (0.60)[a]	4.36 (0.54)[b]	4.93 (0.87)[c]	4.43 (0.81)[b]
4. GPA (0–4.3)	3.48 (0.35)[a]	3.35 (0.39)[b]	3.63 (0.27)[c]	3.45 (0.34)[a,b]
5. SSS (1–10)	—	—	7.92 (1.53)[a]	6.62 (2.20)[b]

Note. GPA = grade point average; SSS = subjective social status. Within variables, those marked with "a" are significantly different than those marked with "b" or "c", and so on.

endorsement of interdependent motives, $b = .06$, 95% CI [−.05, .17], $SE = .06$, $t(346) = 1.05$, $p = .29$, ML $\chi^2(1) = 1.11$. Additional analysis yielded no interactive effect of social class background and time on interdependent motives, $b = -.01$, 95% CI [−.12, .11], $SE = .06$, $t(330) = -.11$, $p = .91$, ML $\chi^2(1) = .01$, indicating consistent endorsement of interdependent motives over time.

Independent motives. We found no effect of social class background on students' endorsement of independent motives, $b = .04$, 95% CI [−.08, .17], $SE = .06$, $t(1,161) = .72$, $p = .47$, 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 background and time on independent motives, $b = -.04$, 95% CI [−.16, .08], $SE = .06$, $t(497) = -.67$, $p = .50$, ML $\chi^2(1) = .45$.[9]

Hypothesis 2.

Subjective sense of fit. As hypothesized, first-generation students reported significantly lower subjective sense of fit than did continuing-generation students, $b = .17$, 95% CI [.08, .18], $SE = .03$, $t(1,370) = 6.23$, $p < .001$, ML $\chi^2(1) = 29.97$. We also found that students reported significantly higher subjective sense of fit at Time 2 than at Time 1, $b = .11$, 95% CI [.08, .17], $SE = .02$, $t(589) = 4.41$, $p < .001$, ML $\chi^2(1) = 26.34$.

However, additional analysis found these effects were qualified by an interaction of social class background and time on subjective sense of fit, $b = .07$, 95%CI [.02, .12], $SE = .02$, $t(595) = 2.92$, $p = .004$, ML $\chi^2(1) = 8.55$. Decomposing the interaction revealed that, at Time 1, continuing-generation students reported more subjective sense of fit than did first-generation students, $b = .10$, 95% CI [.05, .15], $SE = .03$, $t(1,477) = 4.03$, $p < .001$. At Time 2, this gap was even larger, $b = .24$, 95% CI [.15, .33], $SE = .05$, $t(1,192) = 5.36$, $p < .001$. Decomposed differently, time had no effect on first-generation students' subjective 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 subjective sense of fit, $b = .17$, 95% CI [.11, .24], $SE = .03$, $t(789) = 5.87$, $p < .001$.

Hypothesis 3.

Grade point average (GPA). As hypothesized, first-generation students had lower GPAs than did continuing-generation students, $b = .05$, 95% CI [.03, .08], $SE = .01$, $t(1,285) = 4.03$, $p < .001$, 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 background and time on GPA, $b = -.005$, 95% CI [−.02, .01], $SE = .01$, $t(190) = -.53$, $p = .60$, ML $\chi^2(1) = .28$, indicating a persistent social class gap in GPA over time.

Subjective social status (SSS). Because SSS was measured only at Time 2, we regressed SSS on social class background, 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], $SE = .15$, $t(150) = 4.07$, $p < .001$, $f^2 = .11$. 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% CI [.22, .85], $SE = .16$, $t(147) = 3.34$, $p = .001$, $f^2 = .08$.

Hypothesis 4. We hypothesized that initial (Time 1) social class differences in culture-specific motives (interdependence and independence) would predict differences in students' subjective sense of fit even throughout their time in college (Time 2). In turn, these differences in subjective sense of fit should predict different college outcomes, including GPA and SSS. To evaluate these hypotheses, we tested separate models for GPA and SSS (Figures 2 and 3).

GPA (Time 2). Overall, three indices indicated that our model fit the data well: root mean square error of approximation (RMSEA) = .09, 95% CI [.06, .12]; comparative fit index (CFI) = .89; Tucker-Lewis Index (TLI) = .77.

Path coefficients revealed that social class background was not associated with independent motives (Time 1), $b = .01$, $SE = .13$, 95% CI [−.23, .26]. Further, independent motives (Time 1) were not associated with subjective sense of fit (Time 2), $b = .05$, $SE = .03$, 95% CI [−.02, .12].

[9] Probing further, we found that continuing-generation students' independent motives decreased over time ($b = -.21$, $SE = .08$, $t(1,278) = -2.53$, $p = .01$), while first-generation students' independent motives did not change ($b = -.09$, $SE = .12$, $t(267) = -.77$, $p = .44$). This finding is inconsistent with Study 1, and previous research (Harackiewicz et al., 2014; Stephens, Fryberg, et al., 2012). This may reflect the fact that our Time 2 sample volunteered to participate in the survey, compared with the sample 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; Eagan et al., 2017) could have contributed to this finding.

Table 6
Study 2: Summary of Mixed-Model Regression Analyses

Variable	Interdependent motives				Independent motives				Subjective sense of fit				GPA			
	b	*SE*	*t* (*df*)	*p*	*b*	*SE*	*t* (*df*)	*p*	*b*	*SE*	*t* (*df*)	*p*	*b*	*SE*	*t* (*df*)	*p*
Intercept	3.06	.08	39.12 (1,527)	<.001	4.31	.07	58.92 (1,458)	<.001	4.57	.03	162.09 (1,385)	<.001	3.45	.02	226.78 (1,474)	<.001
Social class background	−0.65	.07	−9.55 (1,193)	<.001	0.04	.06	0.72 (1,161)	.47	0.13	.02	5.52 (1,144)	<.001	0.05	.01	4.03 (1,285)	<.001
Time	0.06	.06	1.05 (346)	.29	−0.14	.06	−2.38 (538)	.02	0.12	.02	5.16 (665)	<.001	0.05	.01	5.88 (195)	<.001
Race	−0.26	.05	−5.04 (1,338)	<.001	0.07	.05	1.40 (1,357)	.16	0.004	.02	0.20 (1,347)	.84	0.07	.01	7.15 (1,331)	<.001
Gender	0.01	.05	0.13 (1,348)	.90	−0.09	.04	−2.07 (1,370)	.04	−0.01	.02	−0.64 (1,349)	.53	−0.02	.01	−2.66 (1,331)	.008
Participant (random)			$SD^2 = 1.69$				$SD^2 = .99$				$SD^2 = .11$				$SD^2 = .09$	
Intercept	3.06	.08	39.05 (1,527)	<.001	4.30	.07	58.78 (1,459)	<.001	4.57	.03	162.31 (1,390)	<.001	3.45	.02	226.58 (1,471)	<.001
Social class background	−0.65	.07	−8.46 (1,521)	<.001	0.02	.07	0.28 (1,440)	.78	0.17	.03	6.23 (1,370)	<.001	0.05	.01	3.39 (1,472)	<.001
Time	0.06	.06	1.05 (328)	.29	−0.13	.06	−2.18 (491)	.03	0.11	.02	4.41 (589)	<.001	0.05	.01	5.82 (190)	<.001
Race	−0.26	.05	−5.04 (1,338)	<.001	0.07	.05	1.40 (1,357)	.16	0.01	.04	0.18 (1,346)	.86	0.07	.01	7.14 (1,330)	<.001
Gender	0.01	.05	0.13 (1,348)	.90	−0.09	.04	−2.07 (1,370)	.04	−0.02	.03	−0.63 (1,348)	.53	−0.02	.01	−2.66 (1,330)	.008
Social Class Background × Time	−0.01	.06	−0.11 (330)	.91	−0.04	.06	−0.67 (497)	.50	0.07	.02	2.92 (595)	.004	−0.005	.01	−0.53 (190)	.60
Participant (random)			$SD^2 = 1.68$				$SD^2 = .99$				$SD^2 = .11$				$SD^2 = .09$	

Note. GPA = grade point average. Social class background (−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 7
Study 2: Summary of Linear Regression Analyses

Variable	SSS			
	b	*SE*	*t* (*df*)	*p*
Intercept	7.28	.17	43.55 (150)	<.001
Social class background	0.62	.15	4.07 (150)	<.001
Race	−0.02	.16	−0.13 (150)	.90
Gender	0.11	.15	0.76 (150)	.45
Intercept	7.31	.17	43.64 (147)	<.001
Social class background	0.53	.16	3.34 (147)	.001
Race	−0.01	.17	−0.07 (147)	.94
Gender	0.12	.15	0.82 (147)	.42
GPA (T1)	−0.96	.65	−1.47 (147)	.14
GPA (T2)	2.02	.75	2.70 (147)	.008

Note. SSS = subjective social status; GPA = grade point average. Social class background (−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.

However, we found that social class background was negatively associated with interdependent motives (Time 1), $b = -.67$, $SE = .13$, 95% CI [−.92, −.41]. 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 subjective sense of fit (Time 2), $b = -.10$, $SE = .03$, 95% CI [−.16, −.03]. 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, subjective sense of fit (Time 2) was marginally associated with GPA (Time 2), $b = .03$, $SE = .02$, 95% CI [−.006, .06]. Those who reported higher subjective sense of fit at Time 2 reported marginally higher GPAs upon graduation.

Finally, we compared this model to a direct effect only model, removing the paths from social class background to interdependent motives (Time 1), interdependent motives (Time 1) to sense of fit (Time 2), and sense of fit (Time 2) to GPA (Time 2). This allows us to test whether the inclusion of the indirect effect of social class background on GPA (Time 2) through interdependent motives (Time 1) and sense of fit (Time 2), is a better fit than a direct effect only model; this approach can be used to probe for mediation within SEM analyses (Kenny, 2018; see also Yzerbyt, Muller, Batailler, & Judd, 2018). Indeed, we find that the indirect effect model (Bayesian Information Criterion, BIC = 5197.69) offers an improvement over the direct effect only model (BIC = 5230.36), which suggests a significant indirect effect of social class background (Time 1) on GPA (Time 2), via interdependent motives (Time 1) and subjective sense of fit (Time 2).

SSS (Time 2). Given SSS was only measured at Time 2, we cannot include Time 1 SSS as a control variable; however, we do include GPA Time 1 and GPA Time 2, following our analyses in Hypothesis 3 above. Overall, three indices indicated that our model fit the data well: RMSEA = .09, 95% CI [.05, .10]; CFI = .90; TLI = .78.

Following the GPA-model, path coefficients revealed that social class background was not associated with independent motives (Time 1), $b = .01$, $SE = .14$, 95% CI [−.25, .28], and independent motives (Time 1) were not associated with subjective sense of fit (Time 2), $b = .05$, $SE = .04$, 95% CI [−.03, .12].

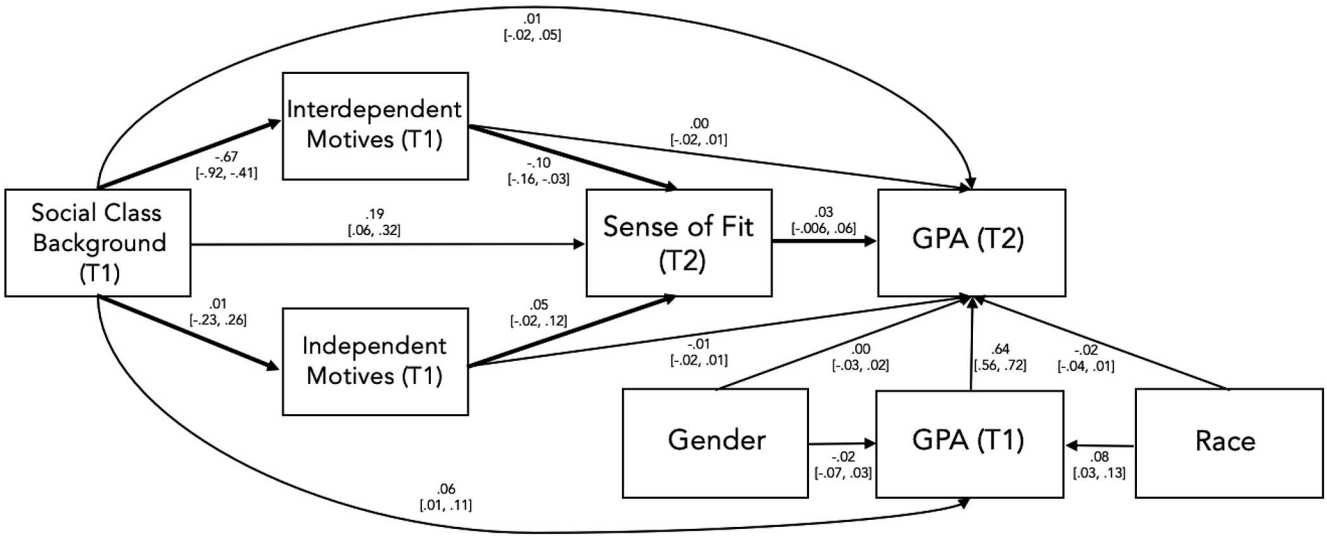

Figure 2. Structural equation model (GPA Time 2). Path coefficients and confidence intervals, pooled across imputed datasets. Bold arrows represent indirect path of interest.

However, paralleling the GPA-model, we found that social class background was negatively associated with interdependent motives (Time 1), $b = -.67$, $SE = .14$, 95% CI [−.94, −.39]. In turn, endorsement of interdependent motives (Time 1) was negatively associated with subjective sense of fit (Time 2), $b = -.10$, $SE = .04$, 95% CI [−.17, −.03]. Finally, subjective sense of fit (Time 2) was positively associated with SSS (Time 2), $b = .74$, $SE = .15$, 95% CI [.39, 1.09]. Those who reported higher subjective sense of fit at Time 2 reported higher SSS upon graduation.

Finally, we compared this model to a direct effect only model, removing the paths from social class background to interdependent motives (Time 1), interdependent motives (Time 1) to sense of fit (Time 2), and sense of fit (Time 2) to SSS (Time 2). Indeed, we find that the indirect effect model (BIC = 6279.31) offers an improvement over the direct effect only model (BIC = 6311.95), which suggests a significant indirect effect of social class background (Time 1) on SSS (Time 2), via interdependent motives (Time 1) and subjective sense of fit (Time 2).

Discussion

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

Despite students' comparable endorsements of independent motives, first-generation students' greater endorsement of interdependent motives was associated with reduced sense of fit. Social class background also shaped how fit changed over time: continuing-generation students' subjective sense of fit increased over time, while first-generation students' sense of fit remained stagnant. Thus, our results suggest an important new facet of mismatch theory: in a college culture of independence, endorsing interdependent cultural norms is sufficient to create the negative experiences of mismatch. Conversely, endorsing independent cultural norms is insufficient to overcome these mismatch effects.[10]

Our results further suggest the social class gap in subjective sense of fit is not solely the result of initial differences in first- and continuing-generation students' familiarity with the college environment; if that were the case, we would expect the social class gap in subjective sense of fit to decrease over time. Rather, consistent with cultural mismatch theory, the social class gap in subjective sense of fit actually widens over time. This implies that, throughout their time in college, students from different social class backgrounds continue to experience the same institution differently.

By graduation, students had spent similar amounts of time on an elite college campus with access to ample resources. A cultural change perspective suggests that students would learn the "rules of the game" and that the early social class gap in GPA would diminish over time; however, consistent with our cultural mismatch perspective, the social class gap in GPA persists, even when controlling for early differences in academic preparation (Time 1 GPA). Furthermore, beyond objective academic differences, we also found a social class gap for a subjective outcome—SSS—that has important implications for students' health and well-being (Adler et al., 2000).

[10] We also tested whether interdependent and independent motives might interact to predict subjective sense of fit. We regressed subjective sense of fit (T2) on interdependent motives (T1), independent motives (T1), and their interaction. We find a significant main effect of interdependent motives on subjective sense of fit, $b = -.13$, $SE = -.03$, $t(177) = -3.80$, $p < .001$. However, we find no effect of independent motives ($p = .13$), and no interaction ($p = .77$). This suggests that even high independent motives may not protect against the negative consequences of cultural mismatch. Instead, the mismatch between students' interdependent motives and the college context of independence may be sufficient to depress students' subjective sense of fit.

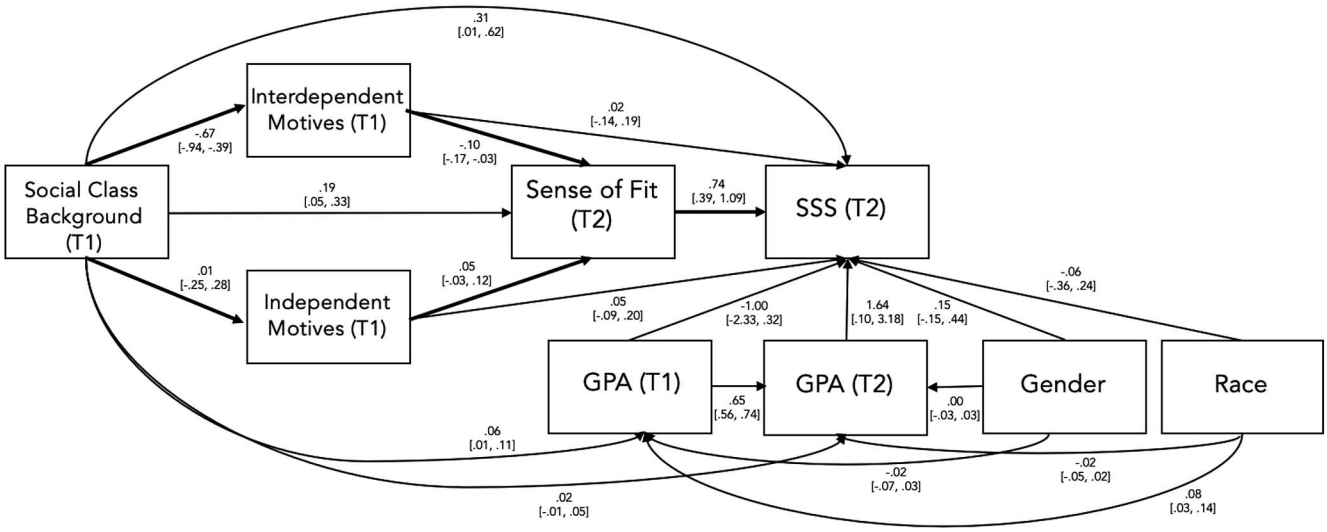

Figure 3. Structural equation model (SSS Time 2). Path coefficients and confidence intervals, pooled across imputed datasets. Bold arrows represent indirect path of interest.

Together, these results demonstrate the critical role of subjective sense of fit: initial cultural mismatch (interdependent motives in an independent context) reduces subjective sense of fit, which in turn fuels the persistence of social class gaps in institutional rewards (GPA, SSS) over time.[11] As such, our findings suggest that time and experience navigating college do not mitigate initial social class differences, nor shift first-generation students toward the independent cultural norms of their middle- and upper-class peers. Rather, students' social class backgrounds set them on divergent college trajectories, fostering social class disparities in students' college experiences and outcomes all the way to graduation.

General Discussion

Across two different college settings, and using both cross-sectional and longitudinal approaches, we examined how social class background affects students' college experiences over time. While a cultural change perspective suggests first-generation students would naturally develop a subjective sense of fit over time, our results instead support a cultural mismatch perspective. Even when first-generation students gain access to college and persist to graduation, initial cultural mismatch (interdependent motives in an independent context) shapes their experiences and outcomes throughout their time in college.

College undoubtedly provides students a wide range of valuable opportunities not only to develop as a person, but also to improve their financial and health outcomes in the long run. Yet, our results suggest that social class background systematically informs the quality of students' interactions with their college environments and their opportunities to capitalize on these rewards. Over time, these experiences maintain social class gaps in important institutional rewards, including GPA and SSS, rather than reduce them. When first-generation students enter college, they are guided by more interdependent motives than are their continuing-generation peers (Studies 1 and 2). These interdependent motives diverge form the college culture of independence. As a result of this cultural mismatch, first-generation students experience lower subjective sense of fit than continuing-generation students (Study 2). These differences in interdependent motives and subjective sense of fit persist throughout students' time in college, and are associated with lower GPA and subjective status even at graduation (Study 2).

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 on cultural mismatch has focused on first-generation students' transitional experiences as they begin college. Here, we develop theory regarding how first-generation students are affected by cultural mismatch dynamically over time, as they persist all the way to graduation. Second, we go beyond the laboratory to illuminate students' ongoing, naturalistic experiences with the college environment, as they navigate through this critical gateway institution (Edwards, 2008).

Third, these results provide direct evidence of subjective sense of fit as a key psychological mechanism underlying the negative consequences of cultural mismatch. Specifically, we find that initial cultural mismatch undermines students' subjective sense of fit, such that first-generation students report lower fit. In fact, this social class gap in students' sense of fit *increases* throughout college. Thus, initial cultural mismatch sets students up on divergent trajectories that may become self-reinforcing over time, perhaps through daily cognitions, experiences, and interactions. On the one hand, given the college environment itself continues to prioritize independence as the cultural ideal, first-generation stu-

[11] Our theory also predicts additional cross-temporal effects: initial mismatch in motives should reduce initial subjective sense of fit, which should cause persisting differences in dependent measures. Online supplemental materials reports additional analyses regarding this extended path, as well as fit as a general mechanism.

dents can expect to face continued cultural mismatch. Such expectations and experiences then reinforce early experiences of lower subjective fit (and related consequences for performance). On the other hand, we find that continuing-generation students more closely match the college culture from the beginning of college, which may buffer them against any early difficulties and allow their subjective sense of fit (and academic performance) to improve over time. By shaping whether students feel a sense of fit with their college environment, cultural mismatch contributes to social class gaps in both academic and social institutional rewards (GPA, SSS), not only during the college transition, but also as students persist to graduation.

Fourth, our findings suggest that endorsing more versus fewer interdependent motives may be more crucial to students' outcomes than endorsing more versus fewer independent motives. Indeed, while previous work found social class differences in both interdependent and independent motives (Stephens, Fryberg, et al., 2012), this work also found that effects were stronger for interdependent (vs. independent) motives, and at times merely marginal for independent motives. As such, our results provide new theoretical insights, revealing an important facet of cultural mismatch processes: we find that endorsing more interdependent motives can depress students' outcomes, regardless of their endorsement of independent motives. This suggests that the negative effects of mismatch may be driven, in particular, by colleges' failure to include or value *inter*dependent cultural norms. Thus, from the perspective of universities, merely training students to develop independent cultural norms may not be enough to overcome the disadvantage of interdependence (cf. Tibbetts et al., 2016).

Limitations

One limitation is that we do not find consistent effects of social class background on independent cultural norms. Previous work has found first-generation students endorse more interdependent motives *and* fewer independent motives than continuing-generation students upon entering college (Stephens, Fryberg, et al., 2012). Here, we find first-generation students endorse more interdependent motives than continuing-generation students—both at college entry and upon graduation (Studies 1 and 2). However, whereas in Study 1 first-generation students endorsed fewer independent motives than continuing-generation students in both early and late college, in Study 2 first-generation students endorsed independent motives to the same extent as continuing-generation students. While this may have occurred by chance, there are a few other possibilities. First, it is possible that the cohort was unique compared to cohorts in previous research. More generally, it is also possible that cultural norms have shifted over time (Eagan et al., 2017), such that first-generation students today are more likely to endorse independent cultural norms than they were in previous research (see similar result in Tibbetts et al., 2018).

Second, the inconsistent differences we observed in independent norms may be because of the relatively general measures (pen choice and motives) that we used in this research. These measures tap into people's endorsement of independent cultural norms in general, as opposed to their endorsement of more specific kinds of independence (e.g., vertical vs. horizontal; Triandis & Gelfand, 1998). However, given broad emphasis on independence in the United States, emerging work suggests that those from working-class backgrounds may not endorse independence less, but rather endorse different *features* of independence (e.g., grit, self-reliance), compared with those from middle- and upper-class backgrounds (e.g., uniqueness, self-expression; Chang, Wang, Mancini, McGrath-Mahrer, & Orama de Jesus, 2019; Kusserow, 2012; Stephens et al., 2014; Tibbets et al., 2016; see also Schaumberg & Flynn, 2017). As such, we speculate that general measures of independence may be somewhat less reliable for detecting social class differences in U.S. settings. Future work on the effects of cultural mismatch might consider social class differences in specific features of independence (Vignoles et al., 2016).

Another limitation of the current research is that our studies focused on first-generation college students attending four-year universities. These university environments may be especially likely to idealize independent cultural norms compared with institutions that serve a higher proportion of first-generation students (e.g., community colleges; Tibbetts et al., 2018). To the extent an institution places greater emphasis on interdependence, first-generation students' experiences of cultural mismatch may be attenuated (Astin & Oseguera, 2004; Carnevale, Rose, & Kahlenberg, 2004; Stephens, Fryberg, et al., 2012; Tibbetts et al., 2018). At the same time, it is also possible that social status may moderate the effects of cultural mismatch in such institutions. Even if continuing-generation students' independent norms were to present a cultural mismatch in a relatively interdependent setting, independence is still valued by society at large, which may protect these students from potential psychological and academic costs.

While we focus here on colleges in the United States, we would expect cultural mismatch to operate in a similar fashion in contexts outside of the United States. That is, we expect that institutions in a given setting would similarly idealize the cultural norms that are most highly valued by the middle- and upper-classes. Consequently, those from working-class backgrounds, who may diverge from those idealized cultural norms, should confront a cultural mismatch and its negative consequences. Supporting this perspective, a preregistered study in France conceptually replicates our results: early in college, first-generation students report more interdependence and lower sense of fit compared with continuing-generation students, and these social class gaps persist among students later in college as well (Goudeau, Alexopoulos, & Sanitioso, 2019).

Relatedly, the current work is limited by its focus on social class alone, as opposed to considering intersections of social class by race and gender. While we do probe for such intersectional effects, we do not have sufficient statistical power to conduct robust intersectional analyses. Future work should consider intersectional perspectives when exploring change over time. For instance, cultural mismatch effects likely differ in intensity by students' race, in part because underrepresented minorities are more likely to endorse interdependence than Whites (Fryberg et al., 2013; Harackiewicz et al., 2016; Redford & Hoyer, 2017; see also Brannon et al., 2017). At the same time, cultural mismatch effects may be mitigated for some groups. For instance, although women and Asian American students on average endorse higher interdependence than other groups (e.g., Cross & Vick, 2001), these students are also known to benefit from protective factors (e.g., increased representation in college; Kao & Thompson, 2003) that may help students attain a higher sense of fit despite their interdependence.

In summary, the question of how the intersecting effects of social class, gender, and race shape mismatch over time warrants additional research.

Implications

Most theories of how social class shapes psychological functioning (Belmi & Laurin, 2016; Côté, Piff, & Willer, 2013; Croizet & Claire, 1998; Kraus & Stephens, 2012; Phillips & Lowery, in press; Shah, Mullainathan, & Shafir, 2012; Stephens et al., 2014) do not address the question of change (Destin, Rheinschmidt-Same, & Richeson, 2017). Our results begin to address this gap by considering how individuals from different social class backgrounds change, or not, over time. As students enter college—a critical gateway institution for upward mobility—we find that social class background shapes the trajectory of their sense of fit over time, in turn shaping their social and academic outcomes (cf. Edwards, 2008; Goldberg et al., 2016). 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). Future work might explore other gateway institutions. For instance, if cultural mismatch operates similarly in professional workplaces, work organizations may perpetuate inequity among otherwise equally qualified employees (Belmi & Laurin, 2016; Côté, 2011; Dittmann, Stephens, & Townsend, 2020; Gray & Kish-Gephart, 2013; Lareau, 2015; Rivera, 2015; Stephens et al., 2014; Stephens, Dittmann, & Townsend, 2017).

Our results also highlight acculturation as an important lens for understanding not only the experiences of immigrants moving to a new national culture (Sam & Berry, 2010; Ward & Kennedy, 2001), but also the experiences of social class migrants undergoing upward mobility (Martin & Côté, 2019; Williams, 2012). We find that social class acculturation may be a relatively slow process: students' social class backgrounds continue to shape their experiences throughout college, even as their *current* social class standing objectively increases (obtaining an elite degree). This finding fits with developmental perspectives in psychology, which suggest early childhood experiences often exert strong imprinting effects, especially on cultural norms and models of self, and especially absent support in new contexts (Alwin et al., 1991; Bradley & Corwyn, 2002; Kish-Gephart & Campbell, 2014; Lareau, 2003; Marquis & Tilcsik, 2013).

Future research should more directly consider experiences of social class change and associated acculturation processes. For instance, dovetailing with research on immigrants' acculturation experiences, our theorizing presents the possibility that intergenerational class mobility may be complicated by parents' gaining and passing on some forms of capital (e.g., economic resources) but not others (e.g., cultural resources). That is, first-generation students who graduate from college may have access to better labor outcomes, but we find that they do not necessarily shift toward the cultural norms of the middle and upper classes. Future work should consider how this partial acquisition of capital may then affect the types of interactions that first-generation college graduates have with their own children, thus tracking class mobility and acculturation processes over multiple generations (see also Lareau, 2003).

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 in social and academic outcomes, institutions might work to incorporate and value *both* interdependent and independent cultural norms (e.g., Brannon, Markus, & Taylor, 2015). In such an inclusive environment, first-generation students may have the opportunity to develop and elaborate their independent selves over time and become bicultural (e.g., Herrmann & Varnum, 2018; 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. Moreover, to the extent that colleges include and truly value different cultural models of self, college environments may reduce the need for students to change in the first place (Cross & Vick, 2001).

Conclusion

Higher education is a critical gateway institution, offering entry into the middle- and upper-classes. It is widely assumed that, upon gaining access to college, students from different social class backgrounds will have similar experiences and institutional rewards if they persist through college. The current work challenges this idea; we document the persistence of cultural mismatch, and its negative consequences, throughout first-generation students' time in college. Thus, while access to college is clearly important for class mobility and life opportunities, access is not enough on its own. By failing to make room for diverse cultural norms, colleges also fail to provide first-generation students the academic and social benefits enjoyed by their continuing-generation peers. Rather than equalizing opportunity, colleges may instead maintain social class inequity, even among those who make it to graduation. For students from all backgrounds to gain comparable opportunities, colleges need to interrupt the cycle of cultural mismatch.

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