

Unseen Disadvantage: How American Universities' Focus on Independence Undermines the Academic Performance of First-Generation College Students

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American universities increasingly admit first-generation college students whose parents do not have 4-year degrees. Once admitted, these students tend to struggle academically, compared with continuing-generation students—students who have at least 1 parent with a 4-year degree. We propose a cultural mismatch theory that identifies 1 important source of this social class achievement gap. Four studies test the hypothesis that first-generation students underperform because interdependent norms from their mostly working-class backgrounds constitute a mismatch with middle-class independent norms prevalent in universities. First, assessing university cultural norms, surveys of university administrators revealed that American universities focus primarily on norms of independence. Second, identifying the hypothesized cultural mismatch, a longitudinal survey revealed that universities' focus on independence does not match first-generation students' relatively interdependent motives for attending college and that this cultural mismatch is associated with lower grades. Finally, 2 experiments at both private and public universities created a match or mismatch for first-generation students and examined the performance consequences. Together these studies revealed that representing the university culture in terms of independence (i.e., paving one's own paths) rendered academic tasks difficult and, thereby, undermined first-generation students' performance. Conversely, representing the university culture in terms of interdependence (i.e., being part of a community) reduced this sense of difficulty and eliminated the performance gap without adverse consequences for continuing-generation students. These studies address the urgent need to recognize cultural obstacles that contribute to the social class achievement gap and to develop interventions to address them.

Keywords: social class, culture, higher education, first-generation students, social inequality

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The American system of higher education is widely regarded as an engine of social mobility that provides equal opportunities to all deserving students, irrespective of their previous background, upbringing, or life circumstances (Bowen, Kurzweil, & Tobin, 2005). Does it succeed in realizing this ideal? For decades, sociologists have argued that it does not. They contend, in fact, that the culture of higher education itself plays a pivotal role in “social reproduction”—that is, in constructing, maintaining, and ultimately, recreating inequalities between groups. Specifically, the claim is that institutions of higher education produce social class inequalities among students because they are built and organized according to taken for granted, middle- and upper-class cultural norms, unwritten codes, or “rules of the game” (Bernstein, 1974; Bourdieu & Passeron, 1990; Bourdieu & Wacquant, 1992).

For people socialized in American middle-class environments, college is not only an expected part of the life plan; it is

the ultimate symbol of independence. When transitioning from one's home to the university, students are led to believe that they will finally be able to separate and distinguish themselves from their parents and to realize their individual potential—to find themselves, to develop their voices, to follow their passions, and to influence the world. To people who have mainly experienced middle-class contexts, the culture of American universities may seem intuitive, right, or natural. But how are universities experienced by students with working-class backgrounds, who are likely to have been socialized with different rules of the game—rules that do not emphasize independence but instead emphasize interdependence, including adjusting and responding to others' needs, connecting to others, and being part of a community? If working-class students do experience universities differently, then what does this mean for their academic performance in college and, ultimately, for the prospect of upward social mobility in American society?

The studies presented here integrate overlapping theoretical perspectives from education and the social sciences to address these critical and still unresolved questions. Specifically, we ask whether the very culture of American universities, allegedly an engine of social mobility, provides students from different life circumstances with an equal chance of success, or does the nature of the university culture itself—the taken for granted norms, ideas, and practices—inadvertently play a role in reproducing the very social inequalities that universities hope to alleviate? To answer this question, the present research (a) identifies the nature of the prevalent cultural norms in American university contexts, (b) examines how these pervasive norms affect students from different social class backgrounds, and (c) assesses whether reframing the college culture to include norms of interdependence can bolster first-generation students' performance and reduce the social class achievement gap. These studies investigate whether American universities' focus on norms of independence serves as an advantage for students from middle-class backgrounds but as a source of unseen disadvantage for students from working-class backgrounds.

Social Class Diversity in American Higher Education

As universities work to recruit and retain diverse student bodies, the question of how university cultural norms affect students from different social class backgrounds has assumed a newfound urgency. In fact, over the past decade, a wide range of American universities and colleges—from private universities such as Harvard, Princeton, Stanford, Northwestern, Amherst, and Williams to public universities such as the University of Arizona, San Jose State University, and the University of Virginia—have made it central to their missions to increase socioeconomic diversity. To accomplish this goal, they have undertaken a number of new initiatives (e.g., recruitment at high schools with more diverse students, increased financial aid for low-income students) that seek to recruit students from a much wider range of the social class spectrum (Brooks, 2004; Housel & Harvey, 2009; Rimer, 2007; Schmidt, 2010). As a result, first-generation college students—students whose parents do not have 4-year college degrees¹—now constitute a larger proportion of the student bodies at universities and colleges across the nation (Bowen et al., 2005; Housel &

Harvey, 2009). In fact, one in six students at 4-year American universities are now first-generation college students (Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007).

Although providing access to college is a crucial first step, recruitment efforts alone are insufficient to ensure that first-generation students can take full advantage of the opportunity to attend college and to succeed there. In fact, the education literature illuminates a persistent social class achievement gap in American higher education. Overall, first-generation students² tend to struggle academically in college compared with continuing-generation students—students who have at least one parent with a 4-year college degree. First-generation students generally attain lower grades, take fewer credits, and have higher dropout rates than continuing-generation students (Bowen et al., 2005; Housel & Harvey, 2009; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Sirin, 2005; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). They are also less likely to participate in extracurricular activities and to develop close relationships with their peers and with faculty (Billson & Terry, 1982; Richardson & Skinner, 1992; Terenzini et al., 1994).

Cultural Mismatch: From Working-Class Contexts to American Universities

There are many important economic, social, and cultural factors that contribute to the social class achievement gap in American higher education. For example, since first-generation students have parents who have not attained 4-year college degrees, they tend to come from working-class backgrounds and to have families with far fewer financial resources than continuing-generation students, who are often from middle- and upper-class backgrounds (Horn & Nunez, 2000; Hossler, Schmit, & Vesper, 1999). As a result, when first-generation students attend college, they often work one or more jobs in order to pay for their tuition and living expenses (Phinney & Haas, 2003; Warburton, Bugarin, & Nunez, 2001). Therefore, they have less time to fully devote themselves to academic pursuits, to participate in extracurricular activities, and to spend their summers doing the types of unpaid internships that lead to future job opportunities (Delaney, 2010; Pascarella et al., 2004).

The challenges for first-generation students are not solely economic but are social and cultural as well (e.g., Pascarella et al.,

¹ Parents' level of educational attainment is commonly used as a proxy for students' social class background for the following reasons: (a) The social class status of one's family of origin has a lasting effect on the social class identification of adults (Jackman & Jackman, 1983), (b) attaining a 4-year degree is important for finding a high-status, professional job and gives one substantial advantages in lifetime earnings (Day & Newburger, 2002; Pascarella & Terenzini, 1991), and (c) among the three commonly used indicators of social class status (education, income, occupation), education is the best predictor of a wide range of beliefs (Davis, 1994) and is the most closely associated with lifestyle, behavior, and psychological functioning (Kohn & Schooler, 1983; Matthews, Kelsey, Meilahn, Kuller, & Wing, 1989; Snibbe & Markus, 2005).

² Given that parental educational attainment is widely regarded as the best proxy for students' social class backgrounds (e.g., Sirin, 2005; Snibbe & Markus, 2005; Stephens et al., 2007), we refer to first-generation students as from working-class backgrounds and continuing-generation students as from middle-class backgrounds throughout this article.

2004). First-generation students typically attend lower quality high schools than continuing-generation students. As a result, in transitioning to college, they often need additional tutoring, mentoring, and social support (Warburton et al., 2001). Moreover, prior to college, they have less exposure and access to the types of middle-class cultural capital—understandings of the rules of the game—that are taken for granted as normative by many American universities. Consequently, first-generation students are often uncertain about the “right” way to act as college students and begin to question whether they belong and can be successful in college settings (Johnson, Richeson, & Finkel, 2011; Ostrove & Long, 2007). This uncertainty can hinder their ability to effectively navigate the college experience and to take full advantage of all the opportunities that college has to offer (Housel & Harvey, 2009).

The current article focuses primarily on the cultural obstacles that first-generation students encounter as they transition from high school to college. We propose a cultural mismatch theory that claims that individual performance is contingent on whether people experience a match or a mismatch between their own cultural norms and the norms that are institutionalized in a given setting. Specifically, the four studies presented here illuminate the cultural norms that pervade American university settings and then examine how these norms affect students from different social class backgrounds. We hypothesize that one critical factor underlying the social class achievement gap is American universities’ focus on middle-class norms of independence as the culturally appropriate way to be a college student. Research suggests that this focus is likely to seem natural or normative to continuing-generation students from middle-class backgrounds (Stephens, Fryberg, & Markus, 2011; Stephens, Markus, & Townsend, 2007). We hypothesize, however, that these same norms create a cultural mismatch for first-generation students, who prior to college are likely to have regulated their behavior according to working-class norms of interdependence, such as connecting to others and being attentive to others’ needs (e.g., Fiske & Markus, in press; Kohn, 1969; Lamont, 2000).

The proposed cultural mismatch theory, which we outline below, bridges the literature on social identity threat and the literature on culture and self. These literatures point to the critical roles of self, identity, and culture in shaping individual experience, motivation, and performance in a given setting. For example, the stereotype threat literature reveals that the salience of a negative stereotype about one’s group can lead students to underperform on academic tasks (Inzlicht & Schmader, 2011; Purdie-Vaughns, Steele, Davies, Dittmann, & Crosby, 2008; Steele, 2010). As for the culture and self literature, theories such as identity-based motivation (Markus, 2008; Oyserman & Destin, 2010; Oyserman, Fryberg, & Yoder, 2007), intersubjective culture (Wan, Chiu, Tam, et al., 2007), and person–culture “match” (Cross & Vick, 2001; Fulmer et al., 2010) demonstrate that when a given context is self-relevant, students will experience greater psychological well-being, will be more academically identified or engaged with the setting, and ultimately, will perform better. The current research integrates the literature on culture, self, and social identity threat by examining how cultural norms prevalent in American university contexts match the understandings of students from middle-class backgrounds but present a relative mismatch for students from working-class

backgrounds. Further, the research examines how seemingly neutral cultural norms, once institutionalized, can systematically produce differences in achievement that reflect and maintain the existing social hierarchy.

Models of Self: Cultural Norms at Both the Individual and the Institutional Level

Understanding how the American university culture affects students requires analyzing the cultural norms that students bring to college and how these norms interact with the norms institutionalized in university settings. *Cultural models of self*—implicit understandings of oneself in relation to others and the social context—are one important source of these individual and institutional norms (Cross & Madson, 1997; Markus & Kitayama, 2010). Research conducted in a variety of cultural contexts has identified two common models of self that provide culture-specific norms for how to think, feel, and act (Markus & Kitayama, 1991). The independent model of self assumes that the normatively appropriate person should influence the context, be separate or distinct from other people, and act freely based on personal motives, goals, and preferences (Markus & Kitayama, 2003). In contrast, the interdependent model of self assumes that the normatively appropriate person should adjust to the conditions of the context, be connected to others, and respond to the needs, preferences, and interests of others. The independent and interdependent models both constitute sets of social norms, each providing a different guide or blueprint for how people should relate to others and to the social world (Adams, Anderson, & Adonu, 2004).

Students’ social class backgrounds shape the cultural models of self that they bring with them to college settings. Students from American middle-class contexts, for example, are typically exposed to and required to enact norms of independence, such as a focus on individual development, personal choice, and self-expression prior to college. The material and social conditions common in middle-class contexts tend to foster and promote this independent model (Fiske & Markus, in press; Stephens et al., 2011; Stephens, Hamedani, Markus, Bergsieker, & Eloul, 2009). Specifically, middle-class contexts are characterized by access to economic capital, geographic mobility, and ample opportunities for choice, control, and influence (Kohn, 1969; Patillo-McCoy, 1999). These material realities also promote socialization practices that convey to children a sense of self-importance and individual entitlement (Miller, Cho, & Bracey, 2005). For example, practices in these contexts often involve “concerted cultivation”—that is, careful attention to identifying and elaborating children’s personal preferences, opinions, and interests (Lareau, 2003).

Students from American working-class contexts, on the other hand, are typically exposed to and required to enact norms of interdependence prior to college, such as adjusting to and responding to others’ needs and connecting to others. The material and social conditions common in working-class contexts tend to require and ultimately promote this model (Grossmann & Varnum, 2011; Stephens et al., 2011; Stephens et al., 2007). Specifically, working-class contexts are characterized by limited economic capital, environmental constraints and uncertainty, and few opportunities for choice, control, and influence (Chen & Matthews, 2001; Lachman & Weaver, 1998; Reay, Davies, David, & Ball, 2001).

Moreover, during times of adversity (e.g., losing a job), working-class individuals rarely have an economic “safety net” to protect them. Consequently, they must learn to adjust themselves to the social context and to rely on close others (e.g., family, friends) for support. These working-class realities often promote socialization practices that encourage children to recognize their place in the social hierarchy, to follow the rules and social norms, and to be responsive to others’ needs (Fiske & Markus, *in press*; Kohn, 1969; Kusserow, 1999; Lamont, 2000; Piff, Kraus, Côté, Cheng, & Keltner, 2010; Stephens et al., 2011). For example, in working-class contexts, parents often emphasize to their children the message that “it’s not just about you” and “you can’t always get what you want” (cf. Miller et al., 2005; Snibbe & Markus, 2005).

These cultural models of self reside not only in the minds of individual students but also in the university settings with which students interact (Fryberg & Markus, 2007; Tobin, Wu, & Davidson, 1989). After arriving at college, students encounter a university context that reflects and promotes a culture-specific set of assumptions or norms for how to be a college student. American institutions such as education, the legal system, healthcare, politics, and the media, as well as everyday parenting and interpersonal practices, reflect this societal emphasis on independence and expressive individualism (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Plaut & Markus, 2005). In higher education, in particular, the independent model is commonly reflected in curricula, institutional policies, and teaching practices (Li, 2003; Tweed & Lehman, 2003). Students in American universities are expected to be individually motivated (Fryberg & Markus, 2007), to work and learn independently (Greenfield, 1997), and to develop their own voice and express their own ideas (Kim, 2002). In addition, university cultural products (e.g., student guidebooks, mission statements) reinforce and perpetuate expectations of independence by emphasizing the importance of finding yourself, paving your own path, and developing your own interests. A student guidebook at Stanford University, for example, advises new students: “It is not the task, first and foremost of an advisor to tell you what to do. . . . Your advisor should be seen as a compass, not as a roadmap” (Stanford University, 2004, p. 15). This statement conveys to students that they should know what they want to achieve and find a way to meet their goals without too much reliance on others.

Students’ Expectations for College: The Role of Social Class Background

While all students participate in the larger national American cultural context, first-generation and continuing-generation students differ substantially in the local social class contexts that they inhabit prior to college (see Stephens et al., 2007). At a national level, all students are exposed to the cultural mandate of individualism, including the ideals of self-reliance, the Protestant Ethic, the American Dream, and self-determination through exposure to the media, shared political structures, and the institutions of law, healthcare, and education (cf. Bellah et al., 1985; Greenfield, 1994; Kitayama, Duffy, & Uchida, 2007; Markus & Kitayama, 2003; Plaut & Markus, 2005). Since all students participate in a shared national American culture, at some level, all college students, regardless of their social class backgrounds, should recognize that independence is the widely accepted American ideal for how to act as an appropriate person or college student.

Despite this shared awareness, how students adapt to the new college environment and, ultimately, their sense of fit and performance in that environment is likely to depend on the degree of similarity or “match” between the models of self that are learned in their local communities and those expected in and fostered by their college environments.³ For example, continuing-generation students are both familiar with independence and have ample opportunities to act according to norms of independence in their local middle-class contexts of family and community. As a result, they should experience the American university culture’s focus on independence as a cultural match—as relatively normative and as a seamless extension of their prior experience. On the other hand, although first-generation students may recognize independence as the American cultural ideal, their prior experiences in their local working-class family and community contexts are likely to have been guided mainly by norms of interdependence (Stephens et al., 2011; Stephens et al., 2007). As a result, first-generation students are likely to experience the university culture’s focus on independence as a cultural mismatch—as relatively uncomfortable and as a clear divergence from their previous experiences (cf. Lubrano, 2003).

Cultural Mismatch Theory: Three Claims

We propose a cultural mismatch theory that identifies one important source of the underperformance of first-generation students in American universities. This theory, as outlined in Figure 1, comprises three claims. First, the theory claims that the American university culture reflects the pervasive middle-class norms of independence that are foundational to American society. Second, the theory claims that the effect of the university culture’s focus on independence depends on the implicit cultural frameworks or models of self that individual students bring with them to college. Specifically, we hypothesize that students will be advantaged when they experience a cultural match between their own norms and the norms represented in the university culture but will be disadvantaged when they experience a cultural mismatch. The extent to which students experience a match or mismatch depends not only on cues in the immediate situation but also on the larger university cultural context (e.g., which norms are typically included, represented, and valued in that context). Third, the theory claims that a cultural match or mismatch affects students’ performance by influencing students’ perception of the setting and construal of tasks required of them in that setting.

A growing body of research reveals that removing social identity threats (e.g., negative stereotypes) that make students feel unwelcome in a given setting promotes a sense of “fit,” comfort, or belonging (Davies, Spencer, Quinn, & Gerhardtstein, 2002; Murphy, Steele, & Gross, 2007; Walton & Cohen, 2007). In the current research, we extend social identity threat research beyond the effects of negative stereotypes or limited social representations (Fryberg & Townsend, 2008) to the effects of cultural norms. Specifically, we examine the largely implicit and taken for granted elements of the university culture—cues that may seem neutral or

³ Previous research suggests that people’s local contexts (e.g., families and communities) are especially influential in how people come to understand themselves (cf. Iyengar & Lepper, 1999; Tsai & Chentsova-Dutton, 2002).

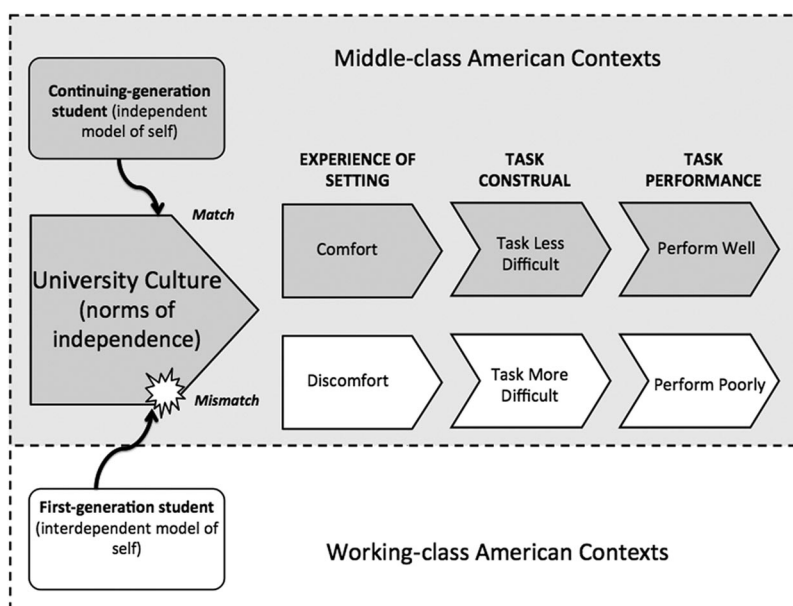


Figure 1. Cultural mismatch theory. Model of the divergent pathways through which a match or mismatch between institutional cultural norms and students' norms can bolster or undermine academic performance.

positive on the surface but that may, in fact, have divergent effects depending on the cultural norms that students have been exposed to prior to college. We focus, in particular, on the messages conveyed by American universities that encourage a particular independent cultural ideal for how to be an appropriate college student—for example, “express yourself,” “find your passion,” or “do your own thing.”

We theorize that in addition to negative stereotypes, these seemingly innocuous messages about the “right” or “best” way to be a student can inadvertently contribute to the social class achievement gap by creating a sense of a cultural match and a corresponding sense of comfort or ease for some students but, at the same time, a cultural mismatch and a corresponding sense of discomfort and difficulty for others. Specifically, we expect that a cultural match between the institutionalized cultural norms in university settings and the normative models of self that students bring with them to college renders one's experiences natural, comfortable, and manageable and thereby enhances academic performance. Conversely, we expect that a cultural mismatch between the institutionalized cultural norms in university settings and the normative models of self that students bring with them to college renders one's experience unnatural, uncomfortable, and difficult and thereby undermines academic performance.

The Current Research

Four studies utilizing diverse methods, including surveys, longitudinal data, and experiments, test the proposed cultural mismatch theory. To test the theory's first claim that American universities reflect the dominant cultural middle-class norms of American society, Study 1 focuses on the university culture. Specifically, this study assesses the university culture by asking university *cultural experts*—in this case, a large sample of undergraduate deans, directors of academic programs, and administrators in the provost office—

about their institutions' expectations for college students. To test the theory's second claim that the effects of the university culture depend on the models of self that students bring with them to college settings, Study 2 examines the cultural norms common among students from different social class backgrounds. This study assesses whether and how students' motives for attending college are influenced by their social class backgrounds and then follows these students for 2 years to examine the academic consequences (i.e., grades) of a cultural match or mismatch between university cultural norms and students' motives. To more fully test the theory's second claim that a cultural match or mismatch affects performance, we conducted two experiments at both a private university and a public university. Specifically, Studies 3 and 4 experimentally create a cultural match or mismatch between the university cultural norms and students' motives and then examine the performance consequences for two different types of academic tasks—verbal and visual-spatial. Finally, to test the theory's third claim that a cultural match or mismatch affects performance through students' perceptions of tasks required of them in academic settings, Study 4 also examines students' construal of academic tasks as a potential mediator. Specifically, Study 4 investigates whether the university's focus on independence creates an uncomfortable or seemingly difficult environment that undermines first-generation students' performance, and conversely, whether fostering a cultural match can reduce this sense of difficulty and thereby eliminate the social class performance gap.

Specific Hypotheses

Hypothesis 1: The American university culture will reflect the pervasive middle-class norms of independence that are foundational to American society.

Hypothesis 2: The effects of the American university culture of independence will depend on the models of self that students bring with them to college and the extent to which those models of self match the models that are represented in the university culture. Specifically,

- If incoming students are guided mainly by norms of independence (e.g., paving one's own path, expressing oneself, becoming an independent thinker), then they should experience a cultural match between universities' focus on cultural norms of independence and their own motives and be academically advantaged.
- If incoming students are guided mainly by norms of interdependence (e.g., being responsive to others, connecting to and working with others, being part of a community), then they should experience a cultural mismatch between universities' focus on cultural norms of independence and their own motives and be academically disadvantaged.

Hypothesis 3: A cultural match or mismatch between universities' cultural norms and students' normative models of self will influence students' performance by shaping their perceptions of the setting and their construal of the tasks required of them in that setting. Specifically,

- If incoming students experience the university culture as a match, then they should experience those settings and construe the tasks required of them in those settings as relatively familiar, comfortable, and easy, and this construal should facilitate students' academic performance.
- If incoming students experience the university culture as a mismatch, then they should experience those settings and construe the tasks required of them in those settings as relatively unfamiliar, uncomfortable, and difficult, and this construal should undermine students' academic performance.

Study 1A

Study 1A tested the first hypothesis of the cultural mismatch theory: that the American university culture reflects the pervasive middle-class norms of independence that are foundational to American society (see Figure 1). To assess the university culture, we recruited a diverse sample of high-level university administrators from the top 50 national universities and the top 25 liberal arts colleges in the United States (U.S. News and World Report, 2010) and asked them to complete a short survey. Specifically, high-level university administrators, who are experts in both creating and maintaining institutional norms, were asked to indicate their institutions' expectations for college students.

Previous research on the culture of education has surveyed college students in different nations about the purpose of education and learning. For example, Jin Li (2005) inferred that self-expression, independence, curiosity, and willingness to challenge ideas are seen as the keys to learning and education in American academic contexts, while diligence, enduring hardship, and perseverance are central in East Asian academic

contexts. Building on this research, the current study is the first to systematically assess the cultural norms that characterize a large sample of American colleges and universities and to measure these norms at the institutional level (e.g., with deans as cultural experts). We reasoned that administrators employed at top institutions would be good representatives of the current cultural ideals or standards of the mainstream American system of higher education. Accordingly, we hypothesized that, reflecting the larger mainstream culture of American society as a whole, administrators would report that their institutions' expectations for students focus more on norms of independence (e.g., being individually motivated) than on norms of interdependence (e.g., working together with others).

Method

Participants. University administrators from the top 50 national universities and the top 25 liberal arts colleges in the United States (U.S. News and World Report, 2010) were recruited via e-mail and postal mail to complete a short survey about the "culture of higher education in American society today." Of the 650 university administrators who were asked to participate, a total of 261 university administrators (M age = 52.7 years; 43% female, 57% male) completed the survey on a volunteer basis (response rate = 40%). Administrators represented 60 of the 75 first-tier national universities and liberal arts colleges from which they were recruited.⁴ About half the participants (53%) completed the survey online, and the other half (47%) completed a hard-copy survey and returned it via postal mail.

⁴ Administrators from the following national universities participated in the study: Boston College ($n = 3$), Brown University ($n = 3$), California Institute of Technology ($n = 1$), Carnegie Mellon University ($n = 3$), Case Western Reserve University ($n = 1$), College of William and Mary ($n = 4$), Columbia University ($n = 3$), Cornell University ($n = 3$), Dartmouth College ($n = 4$), Duke University ($n = 9$), Georgetown University ($n = 2$), Georgia Institute of Technology ($n = 5$), Harvard University ($n = 7$), Johns Hopkins University ($n = 4$), Lehigh University ($n = 1$), Massachusetts Institute of Technology ($n = 2$), New York University ($n = 3$), Northwestern University ($n = 5$), Pennsylvania State University ($n = 5$), Rensselaer Polytechnic Institute ($n = 6$), Rice University ($n = 8$), Tufts University ($n = 5$), University of California—Berkeley ($n = 6$), University of California—Davis ($n = 1$), University of California—Irvine ($n = 6$), University of California—Los Angeles ($n = 6$), University of California—San Diego ($n = 1$), University of California—Santa Barbara ($n = 2$), University of Chicago ($n = 2$), University of Illinois at Urbana—Champaign ($n = 3$), University of Miami ($n = 3$), University of Michigan—Ann Arbor ($n = 12$), University of North Carolina—Chapel Hill ($n = 14$), University of Notre Dame ($n = 7$), University of Pennsylvania ($n = 2$), University of Rochester ($n = 1$), University of Southern California ($n = 15$), University of Texas—Austin ($n = 10$), University of Virginia ($n = 7$), University of Washington ($n = 6$), University of Wisconsin—Madison ($n = 16$), Vanderbilt University ($n = 6$), Wake Forest University ($n = 5$), Washington University in St. Louis ($n = 6$), Yale University ($n = 2$), and Yeshiva University ($n = 2$). Administrators from the following liberal arts colleges participated in the study: Bates College ($n = 2$), Carleton College ($n = 2$), Colby College ($n = 1$), Colgate University ($n = 1$), Grinnell College ($n = 1$), Haverford College ($n = 1$), Middlebury College ($n = 1$), Oberlin College ($n = 1$), Scripps College ($n = 2$), Vassar College ($n = 1$), Washington and Lee University ($n = 2$), Wellesley College ($n = 1$), Wesleyan University ($n = 2$), and Williams College ($n = 3$).

In terms of institutional position, 70% of participants were undergraduate deans, 13% were administrators in the provost office, 8% were directors of academic programs, and 9% did not report their role. Fifty-four percent of participants were from private universities, 46% were from public universities, and 10% were from liberal arts colleges. As for race, 79% of participants self-identified as White, 8% identified as African American, 6% identified as Latino, 3% identified as Asian/Asian American, and 2% identified as other or did not report their race.

Procedure. The items included in the current survey were developed on the basis of a preliminary study that surveyed 43 high-level American university administrators at a national conference about higher education. In this initial pilot survey, administrators were asked to describe in their own words their institution's top three expectations for college students. We then content-analyzed the open-ended responses and used the prevalent themes as the basis for the items that were included in this survey.

Research suggests that culture is best measured by examining perceived cultural norms rather than individuals' personal endorsement of those norms (Wan, Chiu, Peng, & Tam, 2007; Wan, Chiu, Tam, et al., 2007). Given this finding, the current survey included two tasks with different formats that asked participants to focus on their university's expectations for students. The first task presented a list of 12 institutional expectations, half reflecting norms of independence (e.g., learn to solve problems on one's own) and half reflecting norms of interdependence (e.g., learn to be a team player), and asked administrators to pick the five most important expectations (out of the 12 expectations on the list) that characterized their university (see Table 1 for individual items and the percentage of each item selected). The instructions for this task were, "Think about the most important skills that your academic institution expects students to develop while in college. Please read the skills below and mark the five skills that are most important."

The second task presented six pairs of institutional expectations, with each pair divided into one statement reflecting an

independent norm and one statement reflecting an interdependent norm (e.g., "developing personal opinions" versus "appreciating opinions of others"). For each pair, administrators were asked to choose the one statement that best reflected the dominant cultural norms at their university (see Table 2 for items and the percentage of each item selected). The instructions for this task were, "Read each set of two options below and mark the one option that most closely reflects your institution's expectations for college students."

Results

For the first task, which asked administrators to pick the five most important expectations that characterized their university's culture, chi-square analyses were used to examine the percentage of administrators who endorsed a majority of independent items (i.e., three or more out of five possible choices were independent; see Table 1 for items and results for each item). More than three fourths of administrators (84%) from first-tier American universities characterized their university culture as more independent than interdependent, whereas a minority (16%) characterized their university culture as more interdependent than independent, $\chi^2(1, N = 261) = 120.0, p = .000$. Moreover, the tendency to characterize the university culture as more independent than interdependent did not vary by respondents' characteristics (e.g., gender, race) or by type of institution (e.g., public, private, liberal arts).

For the second task, which presented six pairs of institutional expectations and asked administrators to choose the statement more often emphasized at their university, we examined the percentage of administrators who endorsed a majority of independent items (i.e., four or more choices out of six were independent). More than two thirds of administrators (72%) characterized their university culture as more independent than interdependent. A minority of administrators (20%) characterized their university culture as equally independent and interdependent, while 9% characterized their university culture as more interdependent than independent. Chi-square analyses revealed that the number of administrators who characterized their university as more independent than interdependent was greater than the number of administrators who characterized their institution either as equally independent and interdependent or as more interdependent than independent, $\chi^2(1, N = 254) = 47.6, p = .000$ (see Table 2 for the chi-square results for each pair of items). As in the first task, the tendency to characterize the university culture as independent did not vary by respondents' characteristics or by type of institution.

Discussion

Study 1 examined the first hypothesis of the cultural mismatch theory: that the American university culture reflects the pervasive middle-class norms of independence that are foundational to American society. As predicted, the vast majority of administrators at first-tier national and liberal arts universities and colleges reported that their institutions emphasize cultural norms of independence more than norms of interdependence. Notably, the tendency to characterize the university culture as independent held across two different types of tasks and did not

Table 1
Percentage of Independent and Interdependent Items Selected by University Administrators

Survey items	% Items selected
Independent	
Learn to express oneself	74
Learn to be a leader	68
Learn to solve problems on one's own	60
Learn to do independent research	55
Learn to work independently	46
Learn to influence others	17
Interdependent	
Learn to work together with others	58
Learn to do collaborative research	46
Learn to listen to others	36
Learn to be a team player	25
Learn to ask others for help	12
Learn to adjust to others' expectations	2

Table 2
Percentage of Independent Versus Interdependent Expectations Selected by University Administrators

Pairs of survey items	% Independent items	% Interdependent items	$\chi^2(1, N = 254)$
Being independently motivated Being motivated by others' high expectations	92	8	185.2***
Working independently Working collaboratively in groups	55	45	2.1 [†]
Conducting independent research Conducting collaborative research	53	47	0.8
Paving their own innovative pathways Following in the footsteps of accomplished others	86	14	133.1***
Challenging the norms or rules Considering the norms or rules	71	29	44.2***
Developing personal opinions Appreciating the opinions of others	60	40	10.1**

Note. For each pair of items, a one-way chi-square test was used to test the significance of the difference between the percentage of independent and interdependent items selected.

[†] $p < .15$. ** $p < .01$. *** $p < .001$.

vary by respondents' characteristics (e.g., gender, race) or by type of institution (e.g., public, private, liberal arts). These findings reveal that the leaders of higher education in America—deans, administrators in the provost office, and academic program directors—perceive the independent model of self to be culturally normative in their institutions. Further, these findings suggest that the ideas and practices of the independent cultural model (e.g., paving one's own pathways) are both pervasive and widely promoted in the American university culture.

Study 1B

Study 1B more fully tested the hypothesis that the American university culture reflects the pervasive middle-class norms of independence that are foundational to American society. Using the same survey methods as Study 1A, Study 1B asked whether the focus on independence in first-tier American universities (top 50 national universities and top 25 liberal arts colleges) is also evident at less prestigious, second-tier institutions that have more diverse student bodies, or whether these institutions instead rely on a broader range of norms to meet the needs of their students. To address this question, we surveyed high-level university administrators from 50 second-tier national and liberal arts institutions (U.S. News and World Report, 2010).

Method

Participants. Using the same methods as Study 1A, university administrators from 50 second-tier universities were recruited via e-mail and postal mail. Twenty-five of these institutions were national universities, and the other 25 were liberal arts colleges (U.S. News and World Report, 2010).⁵ Of the 400 university administrators who were asked to participate, a total of 119 uni-

versity administrators (M age = 51.2 years; 43% female, 57% male) completed the survey (response rate = 30%). Administrators represented 41 of the 50 different universities from which they were recruited.⁶ About half of the participants (53%) completed the survey online, and the other half (47%) completed a hard-copy survey and returned it via postal mail.

⁵ U.S. News and World Report defines second-tier universities as those that fall in the bottom 25% of a given category (e.g., liberal arts colleges). Given that second-tier universities are not ranked, we randomly selected 25 second-tier institutions from the list of national universities and 25 second-tier universities from the list of liberal arts colleges.

⁶ Administrators from the following second-tier national universities participated in the study: Barry University ($n = 2$), Central Michigan University ($n = 3$), Clark Atlanta University ($n = 1$), Cleveland State University ($n = 3$), East Carolina University ($n = 5$), East Tennessee State University ($n = 5$), Florida Atlantic University ($n = 2$), Florida International University ($n = 2$), Georgia Southern University ($n = 9$), Golden Gate University ($n = 1$), Idaho State University ($n = 2$), Indiana State University ($n = 8$), Indiana University of Pennsylvania ($n = 3$), Indiana University–Purdue University ($n = 6$), Jackson State University ($n = 3$), Long Island University ($n = 2$), Morgan State University ($n = 1$), North Carolina A&T State University ($n = 1$), Northern Arizona University ($n = 3$), Northern Illinois University ($n = 7$), Nova Southeastern University ($n = 1$), and Oakland University ($n = 4$). Administrators from the following second-tier liberal arts colleges participated in the study: Albert Magnus College ($n = 4$), Atlantic Union College ($n = 1$), Brevard College ($n = 2$), Brigham Young University ($n = 7$), Centenary College of Los Angeles ($n = 1$), Christopher Newport University ($n = 5$), Coastal Carolina University ($n = 6$), Colorado State University—Pueblo ($n = 3$), Ferrum College ($n = 2$), Fort Lewis College ($n = 3$), Franklin Pierce University ($n = 1$), Greensboro College ($n = 4$), Huntingdon College ($n = 3$), Huston-Tillotson University ($n = 1$), and Judson University ($n = 1$).

In terms of institutional position, 58% of participants were undergraduate deans, 24% were administrators in the provost office, 5% were directors of academic programs, and 13% did not report their role. Seventy-one percent of participants were from private universities, 29% were from public universities, and 37% were from liberal arts colleges. As for race, 77% of participants self-identified as White, 9% identified as African American, 3% identified as Latino, 2% identified as Asian/Asian American, and 9% identified as other or did not report their race.

Results

For the first task, which required selecting the five most important expectations, chi-square analyses were used to examine the percentage of administrators who endorsed a majority of independent items (i.e., three or more out of five possible choices were independent). Replicating the results observed in Study 1A, we found that the majority of administrators (69%) from second-tier universities characterized their university culture as more independent than interdependent, whereas a minority (31%) characterized their university culture as more interdependent than independent, $\chi^2(1, N = 119) = 17.0, p = .000$. As in Study 1A, the tendency to characterize the university culture as independent did not vary by respondents' characteristics (e.g., gender, race) or by type of institution (e.g., public, private, liberal arts). Notably, however, the administrators at second-tier universities (69%) were significantly less likely than the administrators at first-tier universities (84%) to characterize their institutions as more independent than interdependent, $\chi^2(1, N = 380) = 11.2, p = .001$.

For the second task, which required selecting one statement from each of six pairs of institutional expectations, we examined the percentage of administrators who endorsed a majority of independent items (i.e., four or more choices out of six were independent). In contrast to the findings of Study 1A, we found that less than half of administrators (45%) characterized their university culture as more independent than interdependent. A minority of administrators (22%) characterized their university culture as equally independent and interdependent, while 34% characterized their university culture as more interdependent than independent. Chi-square analyses revealed that the number of administrators who viewed their university culture as more independent than interdependent did not differ from the number of administrators who characterized their institutions as either equally independent and interdependent or as more interdependent than independent, $\chi^2(1, N = 110) = 1.3, p = .25$. As in Study 1A, the tendency to characterize the university culture as independent did not vary by respondents' characteristics or by type of institution. Moreover, as was the case with the first task, the administrators from second-tier universities (45%) were significantly less likely than administrators from first-tier universities (72%) to characterize their institutions as more independent than interdependent, $\chi^2(1, N = 364) = 24.3, p = .000$.

Discussion

Study 1B more fully examined the first hypothesis of the cultural mismatch theory by assessing whether the focus on independence that is characteristic of first-tier American universities is also evident at less prestigious, second-tier institutions that have

more diverse student bodies, or whether these institutions instead adopt a broader range of cultural norms to meet the needs of their students. Together, Studies 1A and 1B support both of these possibilities. Overall, both first- and second-tier universities focused more on independent cultural norms than interdependent cultural norms. At the same time, however, for both of the survey tasks, the focus on independence observed among first-tier American universities was significantly attenuated among second-tier universities. This finding suggests that although universities vary in the degree to which they promote independence as the cultural norm, overall, the American system of higher education reflects and promotes the middle-class cultural norms of independence that are foundational to American society.

Study 2

Study 2 tested the second hypothesis of the cultural mismatch theory: that students' academic performance depends on the models of self that they bring with them to college. To assess how students' motives are shaped by their social class backgrounds, we first surveyed incoming college students about their motives for attending college before they arrived on campus. Given people's frequent exposure to norms of independence through shared mainstream American institutions (e.g., the media, the healthcare system), we anticipated that both continuing-generation students and first-generation students would view college as a place to realize independence (e.g., as a place for individual self-development and exploration). Yet, given first-generation students' prior exposure to norms of interdependence in their local working-class contexts, we expected that they would also view college as a place to realize interdependence (e.g., by contributing to community and helping others).

After identifying students' motives, Study 2 followed these students for 2 years to examine the academic consequences (i.e., for grades) of a cultural match or mismatch between the students' motives and university cultural norms. Because independence is more prevalent than interdependence in the culture of American higher education (see Study 1), we anticipated that students would perform better academically (i.e., receive better grades) when their own motives for attending college were more focused on independence (cultural match) and perform worse when their own motives were more focused on interdependence (cultural mismatch). Finally, we expected that these differences in students' relative focus on independent versus interdependent motives would explain the relationship between social class and academic performance.

Method

Participants. Incoming undergraduate students at a private university ($N = 1,528$) participated in the study. Because the current study focused on the effects of social class in American higher education, and given that methods for measuring social class can vary by culture or nation of origin (e.g., Krieger, Williams, & Moss, 1997), participants were included in the sample only if they reported that they were U.S. citizens or permanent residents. After excluding 104 international students, a total of 1,424 participants remained in the sample.

Following prior research (Housel & Harvey, 2009; Somers, Woodhouse, & Cofer, 2004), participants were classified as *first-*

generation ($n = 245$) if neither parent had a 4-year college degree and *continuing-generation* ($n = 1,179$) if at least one parent had a 4-year college degree. Using the same standard that U.S. universities utilize to define “low income” (i.e., yearly household incomes of less than \$60,000), we found that 46% of first-generation students were low-income, while only a small minority (7%) of continuing-generation students were low-income. In terms of race, 13% of first-generation students self-identified as White, 23% identified as Asian/Asian American, 37% identified as Latino, 13% identified as African American, 7% identified as American Indian, and 7% identified as other or did not report their race. Thirty-nine percent of continuing-generation students self-identified as White, 22% identified as Asian/Asian American, 11% identified as Latino, 10% identified as African American, 3% identified as American Indian, and 14% identified as other or did not report their race.

Procedure. Incoming students completed an online survey before arriving on campus. They first reported their motives for attending college (see Table 3 for items) and then provided demographic information. Half of the 12 survey items reflected the motives of independence that are commonly distributed in American university ideas and practices (e.g., thinking independently, exploring personal preferences), and the other half reflected the motives of interdependence (e.g., helping family, contributing to community) that are more common and relatively normative in American working-class environments.

To examine the influence of students’ motives on academic performance, we followed students for 2 years and obtained their official grade point averages (GPAs) from the university for their 1st and 2nd years in college.⁷ The university also provided students’ official SAT scores and various demographic characteristics such as race and citizenship status. This information from the university was then linked to students’ survey responses about their college motives using an anonymous, matched student identification number.

Principal components analysis. To confirm that each set of survey items loaded onto the hypothesized independent and interdependent factors, we conducted a principal components factor analysis with a Kaiser varimax rotation. We established the factors based on the following criteria: each factor had to have eigenvalues greater than 1, explain more than 5% of the variance, and represent multiple items loading at .4 or higher. As expected, only the two hypothesized factors (independent and interdependent motives for attending college) met these criteria. Consistent with the survey design, the set of six interdependent items loaded onto the same factor (.60 loading or higher), had an eigenvalue of 3.2, and explained 27% of the variance. Likewise, the independent items all loaded onto the same factor (.55 loading or higher), had an eigenvalue of 2.0, and explained 17% of the variance.

Results

Data analysis strategy. To test our hypotheses, three sets of analyses were conducted. First, we examined whether social class predicted students’ independent and interdependent motives upon transitioning to the university. Second, we examined whether these independent and interdependent motives predicted students’ grades during the 1st and 2nd years of college. Third, we examined whether the motives of independence and interdependence medi-

ated the relationship between social class and cumulative grades at the end of the 2nd year of college. Race (White/non-White)⁸ and total SAT scores (sum of Math and Verbal scores) were included as covariates throughout all three sets of analyses (see Table 4 for full results).

Social class predicts student motives. First, we examined the effect of social class on students’ motives for attending college. Using social class as a predictor and race and SAT scores as covariates, we conducted separate regressions to predict (a) the sum of the independent motives that students selected and (b) the sum of the interdependent motives that students selected.

Consistent with our theory, we found that social class background influenced students’ focus on independent versus interdependent motives for attending college. Specifically, first-generation students selected fewer independent motives for attending college, compared with continuing-generation students ($\beta = .13$), $t(1311) = 4.6$, $p = .000$. Additionally, first-generation students selected more interdependent motives, compared with continuing-generation students ($\beta = -.17$), $t(1311) = -6.5$, $p = .000$ (see Table 3 for chi-square analyses comparing endorsement of each item by social class).

Motives predict academic achievement. Second, to examine whether a cultural match or mismatch between students’ motives and the university culture of independence influenced academic performance, we assessed whether students’ independent and interdependent motives for attending college (collected at the onset of the 1st year of college) predicted students’ grades (4-point GPA scale). Specifically, using the independent and interdependent motives as predictors and race and SAT scores as covariates, two separate regression analyses were conducted to predict students’ grades at the end of the 1st and 2nd years of college.

Upon examining 1st year grades, consistent with our theory, we found that motives of interdependence (i.e., a cultural mismatch with the university culture’s focus on independence) negatively predicted grades at the end of the first year ($\beta = -.11$), $t(1298) = -3.9$, $p = .000$. Furthermore, as predicted, motives of independence (i.e., a cultural match with the university culture’s focus on independence) positively predicted grades at the end of the first year ($\beta = .04$), $t(1298) = 1.8$, $p = .07$, but this finding was marginally significant.

As for 2nd year grades, we examined whether independent and interdependent motives predicted 2nd year grades even after controlling for 1st year academic performance. We found the same pattern that we observed for 1st year grades: motives of interdependence negatively predicted grades at the end of the 2nd year ($\beta = -.07$), $t(1291) = -3.1$, $p = .002$, whereas motives of

⁷ We focused on grades from the first 2 years in college because this was the time period that had passed at the time of the study.

⁸ Across studies, when we controlled for race (i.e., when White/non-White was used as a covariate), the results were unchanged if we instead grouped Asian/Asian American participants with Whites.

⁹ The signs of the beta coefficients were the same for both first-generation and continuing-generation students. Upon examining whether students’ motives interacted with social class in predicting academic performance, we found that neither the interdependent by social class interaction nor the independent by social class interaction predicted first or second year grades.

Table 3
Mean Percentage of Interdependent and Independent Items Endorsed by Student Social Class

Survey items	First-generation students	Continuing-generation students
Interdependent items		
Overall scale mean	59	33
Help my family out after I'm done with college	69	31
Be a role model for people in my community	53	38
Bring honor to my family	49	27
Show that people with my background can do well	58	20
Give back to my community	61	43
Provide a better life for my own children	64	42
Independent items**		
Overall scale mean	69	78
Expand my knowledge of the world	78	87
Become an independent thinker**	62	71
Explore new interests**	71	80
Explore my potential in many domains*	60	67
Learn more about my interests	65	77
Expand my understanding of the world**	78	86

Note. All chi-square tests, $\chi^2(1, N = 1424)$, comparing first-generation and continuing-generation students are significant at the $p < .001$ level unless otherwise noted.
* $p < .05$. ** $p < .01$.

independence positively predicted grades at the end of the 2nd year ($\beta = .05$), $t(1291) = 2.5, p = .01$.⁹

Mediation analyses. Finally, we tested whether students' motives of independence and interdependence mediated the relationship between social class and academic performance. The mediation model included social class as the independent variable, race and SAT scores as covariates, motives of independence and interdependence as the two mediators, and cumulative GPA at the end of the 2nd year as the outcome variable.

Following guidelines provided by Preacher and Hayes (2008), a multiple mediator analysis with 5,000 bootstrap resamples was conducted using the indirect SPSS Version 20 macro. This procedure yields an inference about the size of the indirect effect from each proposed mediator and a 95% confidence interval for mediation based on the distribution of the 5,000 samples. If the confidence interval does not include zero, the mediation pathway is considered significant. As predicted, we found that both motives of independence (point

estimate = .01, confidence interval from .003 to .02) and motives of interdependence (point estimate = .03, confidence interval from .01 to .04) significantly mediated the relationship between social class and academic performance (see Table 5 for regression coefficients per mediation paths; Preacher & Hayes, 2008). This finding supports our hypothesis that a match or mismatch between the American university culture of independence and the motives that students bring with them to college explains part of the social class gap in academic performance.

Discussion

Study 2 assessed the second hypothesis of the cultural mismatch theory: that the effects of the American university culture of independence depend on the models of self that students bring with them to the college environment. As predicted, we found that students' social class backgrounds shaped their motives for attend-

Table 4
Summary of Regression Results in Study 2

Predictors	Dependent variable			
	Independent motives	Interdependent motives	Year 1 grades	Year 2 grades
Social class	.13***	-.17***		
Race (White/non-White)	.01	-.28***	.09**	.02
SAT scores	-.04	-.22***	.43***	.10***
Independent motives			.04†	.05*
Interdependent motives			-.11***	-.07**
Year 1 grades				.59***

Note. Numbers represent standardized beta coefficients. Race was coded as non-White = 0 and White = 1; social class was coded as first-generation = 0 and continuing-generation = 1.
† $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Regression Results for Multiple Mediation Analysis in Study 2

Independent variable (IV)	Mediating variables (M)	Dependent variable (DV)	Effect of IV on M (a path)	Direct effect of M on DV (b path)	Total effect of IV on DV (c path)	Direct effect of IV on DV (c' path)
Social class	Independent motives	Cumulative GPA (end of 2nd year)	.60*** (4.7)	.02** (2.9)	.05* (2.0)	.02 (.60)
	Interdependent motives		-.87*** (-6.5)	-.03*** (-5.4)		

Note. Numbers represent unstandardized beta coefficients, and numbers inside parentheses represent *t* values. Regression analyses included race (White/non-White) and SAT scores as covariates. GPA = grade point average.

* $p < .05$. ** $p < .01$. *** $p < .001$.

ing college. Specifically, first-generation students selected fewer independent motives and nearly twice as many interdependent motives, compared with continuing-generation students. This finding reveals that first-generation students are less likely to endorse motives of independence but are also more likely to transition to the university environment with an additional set of interdependent motives that diverge from the university culture's primary focus on norms of independence.

Next, we examined the academic consequences of students' motives. We hypothesized that a focus on motives of interdependence would create a cultural mismatch with the university culture of independence and that this mismatch would constitute an academic disadvantage. Conversely, we expected that a focus on independence would create a cultural match and that this match would constitute an academic advantage. As predicted, a greater focus on motives of interdependence (i.e., a cultural mismatch) was associated with lower grades, while a greater focus on independence (i.e., a cultural match) was associated with higher grades. These effects held even after controlling for race and SAT scores, suggesting that the results were due to the experience of a cultural match or mismatch rather than preexisting differences in academic performance. Further supporting our hypotheses, we also found that the degree to which students were motivated by independence and interdependence mediated the relationship between social class background and academic performance during the first 2 years in college.

These findings are compatible with previous research suggesting that a feeling of "fit" in an environment promotes academic identification, motivation, and performance (Cheryan, Plaut, Davies, & Steele, 2009; Cheryan, Siy, Vichayapai, Kim, Drury, 2011; Cross & Vick, 2001; Murphy et al., 2007; Walton & Cohen, 2007). Supporting the proposed cultural mismatch theory, these findings suggest that a cultural mismatch between individuals' motives of interdependence and the American university culture of independence is one element of the unseen disadvantage experienced by first-generation college students.

Study 3

Study 3 more fully tested the second hypothesis of the cultural mismatch theory: that a cultural match or mismatch between university cultural norms and students' motives affects performance. Specifically, by experimentally creating a cultural match or mismatch between university cultural norms and students' motives for attending college, this study examined the causal consequences

of a cultural match or mismatch on academic performance. Through the manipulation of university orientation materials (i.e., a welcome letter from the university president), students were first exposed to a representation of the university culture as either independent (e.g., as about independent thinking and learning) or interdependent (e.g., as about learning and working together with others). Then, they completed a verbal academic task (i.e., anagrams).

We hypothesized that representing the university culture in terms of independent norms would create a cultural mismatch for first-generation students that would undermine their performance and, ultimately, lead to the performance gap that is typically observed between first-generation and continuing-generation college students in American universities. Conversely, we anticipated that representing the university culture in terms of interdependent norms would create a cultural match for first-generation students, bolster their performance, and therefore reduce the social class performance gap. Additionally, as noted earlier, whether students experience a match or mismatch depends not only on the cues or messages in the immediate situation but also on the norms that are typically represented in the larger institutional cultural context. In this case, given the larger backdrop of university cultural norms of independence, first-generation students may experience a relatively enduring state of mismatch with the university culture and may regularly confront questions about whether they fit in university settings, whereas continuing-generation students may experience a more regular state of match with the university culture and experience university settings as a seamless extension of their previous experience. Given that first-generation students experience greater uncertainty about their fit in American universities (Johnson et al., 2011; Ostrove & Long, 2007), we expected that, compared with continuing-generation students, first-generation students would be more affected by a single encounter with a message signaling a cultural match or mismatch between their motives and university expectations (cf. Pickett, Gardner, & Knowles, 2004; Walton & Cohen, 2007).

Method

Participants. Participants included 88 undergraduate students (M age = 18.2 years; 57% female, 43% male). Among first-generation students ($n = 42$), 14% self-identified as White, 43% identified as Asian/Asian American, 26% identified as Latino, 2% identified as African American, 7% identified as American Indian, and 7% identified as other or did not report their race.

Among continuing-generation students ($n = 46$), 53% self-identified as White, 15% identified as Asian/Asian American, 13% identified as Latino, 2% identified as African American, and 17% identified as other or did not report their race. On an 8-point income scale (1 = < \$9,999; 2 = \$10,000–\$19,999; 3 = \$20,000–\$29,999; 4 = \$30,000–\$49,999; 5 = \$50,000–\$74,999; 6 = \$75,000–\$99,999; 7 = \$100,000–\$200,000; 8 = > \$200,000), first-generation students reported lower family household incomes ($M = 4.7$, $SD = 1.2$) than continuing-generation students ($M = 6.6$, $SD = 1.4$), $t(79) = -6.6$, $p = .000$.

Materials. Two distinct welcome letters were used to manipulate the university culture's relative focus on independence versus interdependence. Each welcome prime included a full-page letter ostensibly from the university president. The independent letter was modeled after actual university materials and represented the university culture and the college experience in terms of the following four themes: (a) learning by exploring personal interests, (b) expressing ideas and opinions, (c) creating your own intellectual journey, and (d) participating in independent research. For example, the independent letter said, "[your university] has a tradition of independence: of bold students who assert their own ideas, thoughts, and opinions." In contrast, the interdependent welcome letter reflected cultural norms more common among first-generation students and represented the university culture and the college experience in terms of the following four themes: (a) learning by being part of a community, (b) connecting with fellow students and faculty, (c) working together with and learning from others, and (d) participating in collaborative research. For example, the interdependent letter said, "[your university] has a tradition of learning through community—bridging academic study with public service."

Procedure. First-year students at a large private university were randomly assigned to read either the independent or interdependent welcome letter. After reading one of the two welcome letters, participants completed a common academic test of verbal reasoning (i.e., an anagram task). Specifically, participants were allotted 10 min for 20 anagrams and were asked to complete as many as they could during that time period. To present the task in a nonevaluative and nondiagnostic manner and to thereby minimize the potential for stereotype threat (i.e., due to negative stereotypes about social class and intelligence; see Croizet & Claire, 1998), the experimenter said, "I'd like you to complete and evaluate an activity that has been used in the past with incoming students. The task's purpose is to assess different learning styles."

Manipulation check. Following the anagram task, a manipulation check assessed whether the welcome letters (independent or interdependent) effectively manipulated participants' perceptions of the university culture. Specifically, using 7-point Likert scales from 1 (*strongly disagree*) to 7 (*strongly agree*), participants were asked to rate the extent to which their institution expects college students to "be individually motivated" and to "work together with other students." Confirming that the welcome letters effectively manipulated participants' perceptions of the university culture, the independent welcome letter led participants to report that their university placed more emphasis on the expectation of being *individually motivated* ($M = 6.6$, $SD = 0.6$), compared with the interdependent letter ($M = 6.1$, $SD = 0.9$), $t(86) = 3.2$, $p = .002$. In contrast, the interdependent letter led participants to report

that their university placed more emphasis on the expectation of *working together with other students* ($M = 6.1$, $SD = 0.8$), compared with the independent letter ($M = 5.6$, $SD = 1.3$), $t(86) = -2.2$, $p = .03$.

Results and Discussion

Study 3 more fully examined the second hypothesis of the cultural mismatch theory: that a cultural match or mismatch between university cultural norms and students' motives affects performance. To test this hypothesis, we experimentally created a cultural match or mismatch and assessed the consequences for students' performance on an anagram task. A 2 (social class) \times 2 (condition) analysis of covariance (ANCOVA), controlling for race (White/non-White) and self-reported high school GPA,¹⁰ revealed no significant main effects or covariates. However, supporting the theory, we found the expected significant Social Class \times Condition interaction on anagram performance, $F(1, 82) = 4.7$, $p = .03$.¹¹ Specifically, as predicted, when the university culture was represented as focusing on norms of independence, the typical social class performance gap observed in American higher education emerged. That is, first-generation students solved fewer anagrams than continuing-generation students, $F(1, 38) = 6.1$, $p = .02$. However, when the university culture was represented as focusing on norms of interdependence, the social class performance gap was eliminated: First-generation students performed just as well as continuing-generation students on the anagram task, $F(1, 42) = 0.1$, $p = .71$ (see Figure 2).

Furthermore, upon examining performance across conditions, we found that first-generation students solved significantly more anagrams in the interdependent condition, compared with the independent condition, $F(1, 38) = 4.2$, $p = .049$, whereas continuing-generation students performed comparably well across the two conditions, $F(1, 42) = 0.8$, $p = .37$. As expected, we found that the experimental creation of a cultural match versus a cultural mismatch significantly affected the performance of first-generation college students, who experience a relatively enduring state of cultural mismatch with the university culture and greater uncertainty about their fit in university settings (Johnson et al., 2011; Ostrove & Long, 2007). For first-generation college students who are regularly reminded that their normative ways of being are not included in the larger university culture, a single message that runs counter to the prevailing independent discourse and that clearly matches their normative ways of being may be especially meaningful and consequential for performance (see Pickett et al., 2004). On the other hand, a single encounter with a message signaling a match or mismatch did not significantly influence the performance of continuing-generation students, who experience a more regular state of cultural match with the university culture. For continuing-generation students whose normative ways of being are regularly represented in the larger university culture, a brief en-

¹⁰ In this study, unlike Study 2, we did not have access to students' official SAT scores. Since high school GPA was included in our survey, these experiments control for high school GPA rather than SAT scores.

¹¹ Throughout the article, all of the means reported for ANCOVA analyses are estimated marginal means.

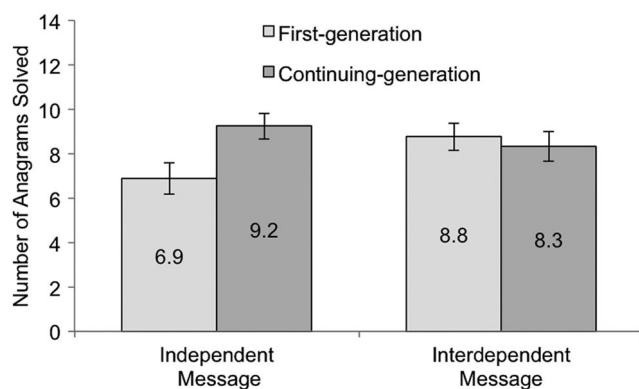


Figure 2. Mean number of anagrams solved by student social class and condition in Study 3. Error bars represent standard errors.

counter with a cue that reflects nonnormative ways of being is unlikely to be meaningful or consequential for performance. In other words, if all of the other elements of the larger university context are set up to support one's own ways of being, then a single message that counters this larger pattern is not likely to be interpreted as a signal that one does not fit in the setting but is instead likely to be dismissed as nondiagnostic of the larger culture.¹²

Study 4

Study 4 tested the third hypothesis of the cultural mismatch theory: that a cultural match or mismatch impacts students' performance by shaping their construal of academic tasks. Using the same methods as Study 3, Study 4 sought to replicate Study 3's results with a different type of academic performance task—a visual-spatial task (i.e., tangrams)—and examined participants' construal of the task (i.e., perceived task difficulty) as a potential mediator of the performance effects. Specifically, we hypothesized that creating a cultural mismatch would lead students to construe their academic experiences as uncomfortable and difficult and thereby undermine their performance. Conversely, we anticipated that creating a cultural match would lead students to construe their academic experiences as comfortable and manageable and thereby bolster their performance. Through this replication, we additionally examined whether the cultural mismatch effect observed in Study 3 generalizes to a public university that is less prestigious and more socioeconomically diverse than the private university where Study 3 was conducted.

Method

Participants. Participants included 147 undergraduate students (M age = 18.8 years; 60% female, 40% male). About half of the participants were students enrolled at a public state university ($n = 71$), while the other half were enrolled at a private university ($n = 76$). Among first-generation students ($n = 67$), 49% self-identified as White, 8% identified as Asian/Asian American, 24% identified as Latino, 10% identified as African American, 2% identified as American Indian, and 8% identified as other or did not report their race. Among continuing-generation students ($n = 80$), 65% self-identified as White, 1% identified as Asian/Asian American, 15% identified as

Latino, 10% identified as African American, and 9% identified as other or did not report their race. Using the same eight-level income scale that we reported in Study 3, first-generation students reported lower family household incomes ($M = 5.0$, $SD = 1.9$) than did continuing-generation students ($M = 5.9$, $SD = 1.8$), $t(138) = -3.0$, $p = .003$.

Procedure. After reading one of the two welcome letters used in Study 3, participants completed a tangram task, which asked them to reproduce a visual pattern (e.g., an image of a cat) using a set of differently shaped puzzle pieces. Ten minutes were allotted for 9 tangram puzzles, and students were asked to complete as many as they could during that time period (M tangrams solved = 2.7, $SD = 1.6$). After completing the tangram task, participants were asked two questions that measured their construal of difficulty of the task. Specifically, using 7-point Likert scales from 1 (*not at all*) to 7 (*extremely*), they responded to the following questions: "How difficult was this task?" and "How challenging was this task?" These two items were averaged to create a composite measure of perceived *task difficulty* ($r = .86$, $M = 3.9$, $SD = 1.4$).

Results and Discussion

Study 4 sought to generalize the cultural mismatch performance effect observed in Study 3 to a different type of performance task (i.e., tangrams) and to a large public university that is less prestigious and more socioeconomically diverse than the private university where Study 3 was conducted. Study 4 also sought to examine the third hypothesis of the cultural mismatch theory: that a cultural match or mismatch affects performance by shaping participants' construal of academic tasks.

Task performance. First, we examined whether the cultural mismatch effect generalized to a different type of task and to a different type of university. To examine the effects of a cultural match versus mismatch on tangram performance, a 2 (social class) \times 2 (condition) \times 2 (university type) ANCOVA, controlling for race (White/non-White) and high school GPA, was conducted. As predicted and replicating the cultural mismatch performance effects observed in Study 3, we found the expected Social Class \times Condition interaction for tangram performance, $F(1, 133) = 8.8$, $p = .004$. Specifically, when the university culture was represented in terms of independent norms, the typical social class performance gap emerged. That is, first-generation students solved fewer tangrams than did continuing-generation students, $F(1, 68) = 10.6$, $p = .002$. However, when the university culture was represented in terms of interdependent norms, the social class performance gap between first-generation and continuing-generation students was eliminated, $F(1, 67) = 0.3$, $p = .58$ (see Figure 3). Additionally, indicating that the cultural mismatch effect functions similarly

¹² These results are consistent with research on belonging (Walton & Cohen, 2007, 2011; see also Cohen, Garcia, Apfel, & Master, 2006). This research finds that exposing students to a message that creates a sense of belonging positively influences the academic performance for racial/ethnic minority students but does not affect the performance of White students. The explanation is that the White students are unaffected because, unlike the racial/ethnic minority students, they do not experience a chronic state of belonging uncertainty. The same logic applies to the experiences of first-generation and continuing-generation college students.

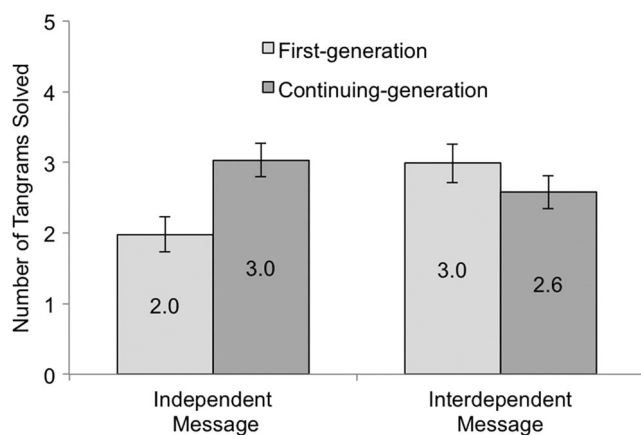


Figure 3. Mean number of tangrams solved by student social class and condition in Study 4. Error bars represent standard errors.

across both private and public universities, we found no significant two-way or three-way interactions with university type.

Upon examining performance across conditions, we found that first-generation students solved significantly more tangrams in the interdependent condition, compared with the independent condition, $F(1, 61) = 8.3, p = .006$, whereas continuing-generation students performed comparably well across the two conditions, $F(1, 74) = 0.7, p = .41$. Further replicating Study 3's results, this pattern of findings again indicates that a single encounter with a culturally matched message versus mismatched message about the university culture significantly influenced the performance of first-generation students but did not significantly impact the performance of continuing-generation students.

Task construal. Next, to test the hypothesis that a cultural match or mismatch shapes students' perceptions of the difficulty of academic tasks, a 2 (social class) \times 2 (condition) by 2 (university type) ANCOVA, controlling for race (White/non-White) and high school GPA, was conducted. We found the expected Social Class \times Condition interaction for students' perceptions of task difficulty, $F(1, 133) = 12.4, p = .001$.¹⁴ There were no other significant main effects or interactions. Furthermore, as predicted, first-generation students perceived the task as more difficult when the university culture was represented in terms of independence than when it was represented in terms of interdependence, $F(1, 61) = 15.4, p = .000$. Conversely, continuing-generation students perceived the task as comparably difficult when the university culture was represented in terms of independence or interdependence, $F(1, 74) = 1.6, p = .21$ (see Figure 4). These findings support the hypothesis that a cultural match between students' motives and the norms of the college environment leads students to construe academic tasks as relatively easy, whereas a cultural mismatch between students' motives and the norms of the college environment leads students to construe academic tasks as relatively difficult.

Mediation analyses. Finally, to test the hypothesis that a cultural match or mismatch impacts performance through its effect on students' perceptions of the difficulty of academic tasks, mediated moderation analyses were employed. Specifically, we examined whether the observed differences in perceptions of task difficulty (see ANCOVA analyses above) explained the Social

Class \times Condition interaction on tangram performance. The mediation model included Social Class \times Condition as the independent variable, perceived task difficulty as the mediator, race (White/non-White), high school GPA, and university type (public or private) as covariates, and tangrams solved as the outcome variable. Following the guidelines provided by Preacher and Hayes (2008), a mediated moderation analysis with 5,000 bootstrap resamples was conducted using the indirect SPSS macro. As predicted, we found that perceptions of task difficulty mediated the Social Class \times Condition interaction on tangram performance (point estimate = .87; confidence interval from .43 to 1.45; see Table 6 for regression coefficients per mediation paths; Preacher & Hayes, 2008; Muller, Judd, Yzerbyt, 2005). These findings support the third hypothesis of the cultural mismatch theory. Specifically, the results reveal that a cultural match between students' motives and the norms of the college environment leads students to construe academic tasks as relatively easy and that this construal facilitates students' academic performance, whereas a cultural mismatch between students' motives and the norms of the college environment leads students to construe academic tasks as relatively difficult, and this construal undermines students' academic performance.

General Discussion

As American universities work to recruit and retain first-generation college students, the question of how the university culture affects students from different social class backgrounds has assumed a newfound urgency. The central question of this research was whether American universities provide equal opportunities to all students, or whether the university culture itself—through its focus on middle-class cultural norms of independence—plays a pivotal role in creating and reproducing the very social class inequalities that universities hope to alleviate. Supporting and extending the claims of classic sociological theories, the findings from these studies reveal for the first time that American universities are in fact organized according to middle- and upper-class cultural norms or rules of the game and that these norms do indeed constitute an unseen academic disadvantage for first-generation college students transitioning to university settings. Specifically, the independent cultural norms institutionalized in American university settings can undermine first-generation students' performance because they do not match the relatively interdependent norms to which many first-generation students are regularly exposed in their local working-class contexts prior to college.

Notably, our findings also demonstrate that the university culture is malleable and that social class achievement gaps may be quite responsive to subtle shifts in the cultural landscape of uni-

¹³ The only significant main effect in this analysis was for university type, indicating that overall the private university students (M tangrams solved = 3.2, $SD = 1.3$) performed significantly better on the tangram task, compared with the public university students (M tangrams solved = 2.1, $SD = 1.7$), $F(1, 133) = 4.9, p = .03$.

¹⁴ Notably, this Social Class \times Condition interaction on perceptions of task difficulty held even after controlling for tangram performance, $F(1, 132) = 5.3, p = .02$. This finding suggests that participants' perceptions of the task were not simply a result of their prior differences in performance on the tangram task.

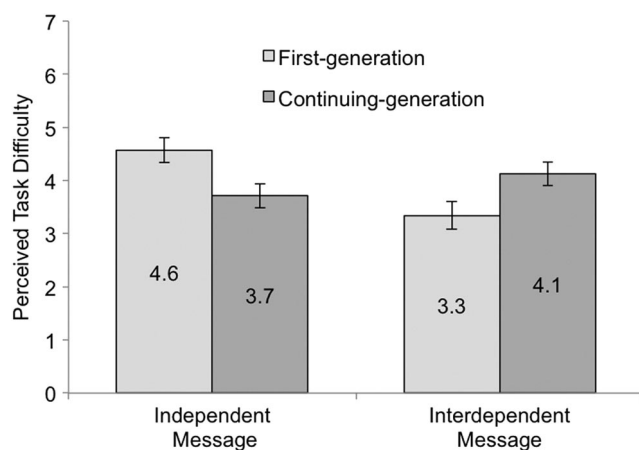


Figure 4. Mean perceptions of task difficulty by student social class and condition in Study 4. Error bars represent standard errors.

versity settings. Specifically, the current research revealed that first-generation college students only underperformed relative to their continuing-generation peers when the university culture was represented according to the American cultural status quo—norms of independence and expressive individualism. Conversely, when the university culture was reframed to include the interdependent norms prevalent in the American working-class contexts that first-generation students often inhabit prior to college, first-generation students performed just as well as their relatively privileged peers. Although social class achievement gaps are often thought to be a product of differences in students’ intellectual abilities or academic skills (cf. Pascarella et al., 2004), our findings suggest that the gap in performance between first-generation and continuing-generation students is, at least in part, a product of the predominantly middle-class cultural norms of independence that are institutionalized in many American colleges and universities.

Summary of Findings

Four studies utilizing diverse methods—surveys, longitudinal data, and experiments—systematically assessed the three claims of the proposed cultural mismatch theory (see Figure 1 for theoretical model). To test the theory’s first claim that the American university culture reflects the pervasive middle-class norms of independence that are foundational to American society, Studies 1A and 1B surveyed high-level university administrators (e.g., deans) at

first- and second-tier national and liberal arts universities and colleges and asked them about their institutions’ expectations for students. Supporting the theory, across both first- and second-tier universities and irrespective of respondents’ characteristics (e.g., race) or institution type (e.g., liberal arts), there was a clear consensus among administrators that American universities focus more on independence than on interdependence.

To test the theory’s second claim that academic performance depends on the models of self that students bring with them to university settings, Study 2 assessed how incoming students’ motives for attending college are influenced by their social class backgrounds. As predicted, we found that compared with continuing-generation students, first-generation students were less focused on motives of independence (e.g., “become an independent thinker”) and more focused on motives of interdependence (e.g., “give back to my community”). The theory further claims that students will be advantaged when they experience a cultural match between their own norms and the norms represented in the university culture but disadvantaged when they experience a cultural mismatch. To test this hypothesis, Study 2 followed incoming college students for 2 years to examine the academic consequences (i.e., for grades) of a cultural match or mismatch between the university cultural norms of independence and students’ motives for attending college. As predicted, even after controlling for race and SAT scores, a greater focus on motives of independence (a cultural match with the university culture) was associated with better grades, whereas a greater focus on motives of interdependence (a cultural mismatch with the university culture) was associated with lower grades. Further supporting the theory, mediation analyses revealed that the degree to which students were motivated by independence and motivated by interdependence mediated the relationship between social class background and academic performance during the first 2 years in college.

To test the theory’s third claim that a cultural match or mismatch affects students’ academic performance through its impact on students’ construal of academic tasks, we conducted two experiments at both a private university and a public university. These studies allowed us to examine the causal consequences of a cultural match or mismatch and to identify one specific route through which a cultural match or mismatch affects performance. Specifically, Studies 3 and 4 created a cultural match or mismatch between university cultural norms and students’ motives and then examined the performance consequences for a verbal task (Study 3) and a visual-spatial task (Study 4). As predicted, when the university culture was represented in terms of independent cultural

Table 6
Regression Analyses With Perceived Task Difficulty as a Mediator of the Social Class × Condition Interaction on Tangram Performance

Independent variable (IV)	Mediating variables (M)	Dependent variable (DV)	Effect of IV on M (a path)	Direct effect of M on DV (b path)	Total effect of IV on DV (c path)	Direct effect of IV on DV (c' path)
Social Class × Condition	Task difficulty	Tangrams solved	-1.75*** (-3.80)	-.50*** (-6.20)	1.39** (2.84)	.52 (1.14)

Note. Numbers represent unstandardized beta coefficients and numbers inside parentheses represent *t* values. Analyses control for university type (public/private), race (White/non-White), and high school GPA. GPA = grade point average.
* *p* < .05. ** *p* < .01. *** *p* < .001.

norms (e.g., thinking and learning independently), the typical social class gap between first-generation and continuing-generation students emerged. Specifically, first-generation students construed academic tasks as more difficult and performed worse on the academic tasks, compared with continuing-generation students. In contrast, when the university culture was reframed in terms of interdependent cultural norms (e.g., being part of a community, working together), first-generation students construed academic tasks as less difficult, and the performance gap between first-generation and continuing-generation students was eliminated. The findings of these studies suggest that the cultural mismatch effect generalizes to private and public universities and to verbal and visual-spatial tasks.

Theoretical Contributions

The current studies support a novel cultural mismatch theory that bridges the literature on social identity threat with the literature on culture and self. Previous research on social identity threat has focused on explicit stereotypes or cues about the meaning of race or social class in a given setting. The current studies, however, reveal how social identity threats can also be inadvertently conveyed through seemingly neutral or even positive cultural norms. For example, when universities emphasize that students should “chart their own course” or “become independent thinkers,” these studies reveal that such statements are not neutral but instead signal that particular middle-class ways of being a student are valued in university settings and, conversely, that other ways of being a student do not belong there. Once institutionalized, these independent norms can systematically produce differences in achievement that reflect and maintain the existing social hierarchy. Notably, this process can occur even in the absence of explicit discrimination or negative stereotypes about one’s group.

These studies also extend the literature on social identity threat by revealing that what is classified as a nonthreatening or safe environment varies as a function of the cultural norms that are fostered by students’ backgrounds. While cultural norms of independence can be positive and motivating for some students, they can inadvertently undermine the sense of fit and the performance of others. For example, one first-generation student who participated in an initial focus group described her sense of mismatch:

Neither of my parents went to college. So they never told me what to do in college because they didn’t really know how to interact with teachers, speak up in class, and develop my own opinions. These are the types of things I didn’t know.

Another first-generation student described a frustrating interaction with her advisor: “She wants me to be independent and to figure out what I want to do on my own, but I went to her for guidance and support.” Consistent with our theory, these examples reveal how independent norms can create a sense of cultural mismatch for first-generation college students.

Possible Theory-Driven Interventions

The four studies presented here suggest a number of potential theory-driven interventions that universities could implement to ease the challenges first-generation students experience when transitioning from high school to college. For instance, universities

could make small changes to the university culture in an effort to recognize, appreciate, and accommodate more than one cultural model of how to be a student. These changes could be implemented at the level of the cultural products disseminated by universities or at the level of the everyday rules of the game that influence student life. For example, in terms of cultural products, universities could be more strategic in developing communication materials (e.g., student guidebooks, university mission statements, admissions advertisements, and videos) that signal the importance of both independent and interdependent models of self. These products may convey to first-generation students that the university is aware that there are multiple viable ways of being and that these other ways of being are welcome and can be successful at the university.

Moreover, in terms of everyday student life, universities could expand the dominant rules of the game or expectations for college students to include more interdependent cultural norms (e.g., connecting to others, working together). For example, in most universities, undergraduate research opportunities are listed on transcripts as “independent study.” This label conveys that the project will be individually driven rather than a cooperative project carried out together with a faculty member. Our studies suggest that changing both the name and the written expectations of undergraduate research experiences (e.g., recognizing that research is often a collaborative process) might have the added benefit of encouraging a different style of mentoring between faculty and students and, in the long-term, encourage greater numbers of first-generation college students to consider pursuing a research path as a career.

Notably, our findings suggest that these efforts to expand the university culture to include more interdependent cultural norms will benefit first-generation college students without significantly hindering the performance of continuing-generation students. Developing and fostering an appreciation of interdependence could also have positive downstream consequences beyond students’ experiences in university contexts. Greater exposure to ideas and practices of interdependence (e.g., working together in groups) could prove useful for students as they transition from their roles as college students to their future roles as employees. For example, in organizational contexts, such as consulting, employees are expected to be effective team players, to recognize their place in the larger organizational hierarchy, and to attend to the needs of their coworkers and the larger organization. In fact, according to Eagly and Carli (2007), a more relational style of leadership is increasingly normative in today’s business world.

Limitations and Future Directions

Study 1 suggests that American higher education focuses primarily on cultural norms of independence, but the sample of administrators included in this study was drawn from a sample of 75 first-tier and 50 second-tier national universities and liberal arts colleges. Future research is needed to examine whether different types of educational institutions are similarly focused on independence. For example, is the emphasis on independence in university settings particular to American contexts, or do most formal schooling practices outside of the United States also emphasize individual learning and thinking? Similarly, do colleges, such as historically Black colleges and universities, tribal colleges, women’s

colleges, or community colleges, promote independent norms or interdependent norms as part of universities' expectations for students? Additional studies are also needed to index the wide range of cultural materials and practices (e.g., mission statements, university websites) that inform students' perceptions of and experiences in university contexts. Finally, research is also needed to examine how differences in institutions' cultural norms relate to the size of the social class performance gap in a given college or university.

In Study 2, the results supported the hypothesis that a focus on norms of independence in university settings (a cultural match with the university culture of independence) is a source of academic advantage, while a focus on interdependence (a cultural mismatch) is a source of academic disadvantage in the first 2 years of students' university experience. Nevertheless, a number of important questions remain. For example, are there other consequential domains within university settings where a focus on interdependence might yield different and potentially positive effects? For example, future research might consider the effects of interdependent motives on relational outcomes in college environments (e.g., making friends, working effectively with peers). Future research might also examine the strategies that first-generation students use to adjust throughout their college career and as they ascend the American social class hierarchy (i.e., become middle- or upper-class). For example, as first-generation students progress toward graduation, will the degree to which they adopt independent norms to regulate their behavior predict grades and graduation rates? If so, will they be able to effectively adopt middle-class independent models while also maintaining their interdependent motives of helping others and contributing to the community? Given that cultural models emerge in response to the environments to which students are exposed, our theory predicts that students will acculturate to the university culture over time and eventually overcome the initial hurdles experienced early on in their academic careers. If this prediction holds, then the cultural mismatch effect might be reduced over time as students adapt and change in response to the cultural norms in the largely independent college environment.

Finally, Studies 3 and 4 revealed the performance consequences of a cultural match or mismatch on two different types of tasks— anagrams (a verbal task) and tangrams (a visual-spatial task). Given the claims of the proposed cultural mismatch theory, we expect that a cultural match or mismatch would yield similar effects for any type of task that is affected by students' sense of academic fit in university settings. To provide more complete support for this claim, however, future research is needed to consider the effects of a cultural match versus mismatch on other types of academic tasks (e.g., giving a speech, writing an academic essay) that students are required to regularly perform in college.

Conclusion

American universities, like all institutions, are not neutral contexts. Instead, reflecting the cultural norms that are foundational to American society, universities promote a particular set of independent norms for college students. These norms are based on a particular middle-class model for how to be a person and a successful college student. The current studies illuminate that American universities' focus on cultural norms of independence can

serve as an unseen academic disadvantage for first-generation college students and, thereby, fuel the very social class gap in experience and performance that they hope to erase.

These studies highlight important practical implications for the many universities and colleges that seek to redress longstanding social inequalities and to level the academic playing field. At least in the short term, our brief situational manipulation of university cultural norms successfully reduced the social class academic performance gap between first-generation and continuing-generation college students. These findings suggest that social-psychological interventions that systematically expand the university culture so that they include ideas and practices of interdependence may go a long way toward remedying the unseen disadvantage experienced by first-generation students in American universities today.

References

- Adams, G., Anderson, S. L., & Adonu, J. K. (2004). The cultural grounding of closeness and intimacy. In D. J. Mashek & A. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 321–339). Mahwah, NJ: Erlbaum.
- Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (1985). *Habits of the heart: Individualism and commitment in American life*. New York, NY: Harper and Row.
- Bernstein, B. (1974). *Class codes and control. Theoretical studies towards a sociology of language* (2nd ed.). New York, NY: Schocken Books.
- Billson, J. M., & Terry, B. T. (1982). In search of the silken purse: Factors in attrition among first-generation students. *College and University, 58*, 57–75.
- Bourdieu, P., & Passeron, J. C. (1990). *Reproduction in education, society and culture*. London, England: Sage.
- Bourdieu, P., & Wacquant, L. J. D. (1992). *An invitation to reflexive sociology*. Chicago, IL: University of Chicago Press.
- Bowen, W. G., Kurzweil, M. A., & Tobin, E. M. (2005). *Equity and excellence in American higher education*. Charlottesville, VA: University of Virginia Press.
- Brooks, A. (2004). *Elite universities look to boost economic diversity: Top universities boost aid to low-income students*. Washington, DC: National Public Radio.
- Chen, E., & Matthews, K. A. (2001). Cognitive appraisal biases: An approach to understanding the relationship between socioeconomic status and cardiovascular reactivity in children. *Annals of Behavioral Medicine, 23*, 101–111. doi:10.1207/S15324796ABM2302_4
- Cheryan, S., Plaut, V. C., Davies, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology, 97*, 1045–1060. doi:10.1037/a0016239
- Cheryan, S., Siy, J. O., Vichayapai, M., Kim, S., & Drury, B. J. (2011). Do female and male role models who embody STEM stereotypes hinder women's anticipated success in STEM? *Social Psychological and Personality Science, 2*, 656–664.
- Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science, 313*, 1307–1310. doi:10.1126/science.1128317
- Croizet, J. C., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin, 24*, 588–594. doi:10.1177/0146167298246003
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin, 122*, 5–37. doi:10.1037/0033-2909.122.1.5
- Cross, S. E., & Vick, N. (2001). The interdependent self-construal and social support: The case of persistence in engineering. *Personality and Social Psychology Bulletin, 27*, 820–832. doi:10.1177/0146167201277005

- Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images: How television commercials that elicit stereotype threat can restrain women academically and professionally. *Personality and Social Psychology Bulletin*, *28*, 1615–1628. doi:10.1177/014616702237644
- Davis, J. A. (1994). Achievement variables and class cultures: Family, schooling, job, and forty-nine dependent variables in the cumulative GSS. In D. B. Grusky (Ed.), *Social stratification: Class, race, and gender in sociological perspective* (pp. 439–457). Boulder, CO: Westview Press.
- Day, J. C., & Newburger, E. C. (2002). *The big payoff: Educational attainment and synthetic estimates of work-life earnings* (Current Population Report P23–210). Washington, DC: U.S. Census Bureau.
- Delaney, R. (2010). About those unpaid internships. *The American Prospect*. Retrieved from http://prospect.org/cs/articles?article=about_those_unpaid_internships
- Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become leaders*. Boston, MA: Harvard Business School Press.
- Fiske, S. T., & Markus, H. R. (in press). A wide angle lens on the psychology of social class. In S. T. Fiske & H. R. Markus (Eds.), *Facing social class: Social psychology of social class*. New York, NY: Russell Sage.
- Fryberg, S. A., & Markus, H. R. (2007). Cultural models of education in American Indian, Asian American, and European American contexts. *Social Psychology of Education*, *10*, 213–246. doi:10.1007/s11218-007-9017-z
- Fryberg, S. A., & Townsend, S. S. M. (2008). The psychology of invisibility. In G. Adams, M. Biernat, N. Branscombe, C. S. Crandall, & L. W. Wrightsman (Eds.), *Commemorating Brown: The social psychology of racism and discrimination* (pp. 173–193). Washington, DC: American Psychological Association. doi:10.1037/11681-010
- Fulmer, C. A., Gelfand, M. J., Kruglanski, A. W., Kim-Prieto, C., Diener, E., Pierro, A., & Higgins, E. T. (2010). On “feeling right” in cultural contexts: How person-culture match affects self-esteem and subjective well-being. *Psychological Science*, *21*, 1563–1569. doi:10.1177/0956797610384742
- Greenfield, P. M. (1994). Independence and interdependence as developmental scripts: Implications for theory, research, and practice. In P. M. Greenfield & R. R. Cocking (Eds.), *Cross-cultural roots of minority child development* (pp. 1–37). Hillsdale, NJ: Erlbaum.
- Greenfield, P. M. (1997). You can't take it with you: Why ability assessments don't cross cultures. *American Psychologist*, *52*, 1115–1124. doi:10.1037/0003-066X.52.10.1115
- Grossmann, I., & Varnum, M. E. W. (2011). Culture, social class, and cognition. *Social Psychological & Personality Science*, *2*, 81–89. doi:10.1177/1948550610377119
- Horn, L., & Nunez, A. (2000). *Mapping the road to college: First-generation students' math track, planning strategies, and context of support* (Report No. NCES 2000–153). Washington, DC: National Center for Education Statistics, U.S. Government Printing Office.
- Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore, MD: Johns Hopkins University Press.
- Housel, T. H., & Harvey, V. L. (2009). *The invisibility factor: Administrators and faculty reach out to first-generation college students*. Boca Raton, FL: Brown Walker Press.
- Inzlicht, M., & Schmader, T. (2011). *Stereotype threat: Theory, process, and application*. New York, NY: Oxford University Press.
- Iyengar, S. S., & Lepper, M. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology*, *76*, 349–366. doi:10.1037/0022-3514.76.3.349
- Jackman, M. R., & Jackman, R. W. (1983). *Class awareness in the United States*. Berkeley, CA: University of California Press.
- Johnson, S. E., Richeson, J. A., & Finkel, E. J. (2011). Middle class and marginal? Socioeconomic status, stigma, and self-regulation at an elite university. *Journal of Personality and Social Psychology*, *100*, 838–852. doi:10.1037/a0021956
- Kim, H. S. (2002). We talk, therefore we think? A cultural analysis of the effect of talking on thinking. *Journal of Personality and Social Psychology*, *83*, 828–842. doi:10.1037/0022-3514.83.4.828
- Kitayama, S., Duffy, S., & Uchida, Y. (2007). Self as cultural mode of being. In S. Kitayama & D. Cohen (Eds.), *The handbook of cultural psychology* (pp. 136–174). New York, NY: Guilford Press.
- Kohn, M. L. (1969). *Class and conformity: A study in values*. Homewood, IL: Dorsey Press.
- Kohn, M., & Schooler, C. (1983). *Work and personality: An inquiry into the impact of social stratification*. Norwood, NJ: Ablex.
- Krieger, N., Williams, D. R., & Moss, N. E. (1997). Measuring social class in U.S. public health research. *Annual Review of Public Health*, *18*, 341–378. doi:10.1146/annurev.publhealth.18.1.341
- Kusserow, A. S. (1999). De-homogenizing American individualism: Socializing hard and soft individualism in Manhattan and Queens. *Ethos*, *27*, 210–234. doi:10.1525/eth.1999.27.2.210
- Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology*, *74*, 763–773. doi:10.1037/0022-3514.74.3.763
- Lamont, M. (2000). *The dignity of working men*. New York, NY: Harvard University Press.
- Lareau, A. (2003). *Unequal childhoods: Class, race and family life*. Berkeley, CA: University of California Press.
- Li, J. (2003). U.S. and Chinese cultural beliefs about learning. *Journal of Educational Psychology*, *95*, 258–267. doi:10.1037/0022-0663.95.2.258
- Li, J. (2005). Mind or virtue: Western and Chinese beliefs about learning. *Current Directions in Psychological Science*, *14*, 190–194. doi:10.1111/j.0963-7214.2005.00362.x
- Lubrano, A. (2003). *Limbo: Blue-collar roots, white-collar dreams*. New York, NY: Wiley.
- Markus, H. R. (2008). Pride, prejudice, and ambivalence: Toward a unified theory of race and ethnicity. *American Psychologist*, *63*, 651–670. doi:10.1037/0003-066X.63.8.651
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253. doi:10.1037/0033-295X.98.2.224
- Markus, H. R., & Kitayama, S. (2003). Models of agency: Sociocultural diversity in the construction of action. In V. Murphy-Berman & J. J. Berman (Eds.), *Nebraska symposium on motivation: Vol. 49. Cross-cultural differences in perspectives on self* (pp. 1–57). Lincoln, NE: University of Nebraska Press.
- Markus, H. R., & Kitayama, S. (2010). Cultures and selves: A cycle of mutual constitution. *Perspectives on Psychological Science*, *5*, 420–430. doi:10.1177/1745691610375557
- Matthews, K. A., Kelsey, S. F., Meilahn, E. N., Kuller, L. H., & Wing, R. R. (1989). Educational attainment and behavioral and biological risk factors for coronary heart disease in middle-aged women. *American Journal of Epidemiology*, *129*, 1132–1144.
- Miller, P. J., Cho, G. E., & Bracey, J. R. (2005). Working-class children's experience through the prism of personal storytelling. *Human Development*, *48*, 115–135. doi:10.1159/000085515
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, *89*, 852–863. doi:10.1037/0022-3514.89.6.852
- Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat: How situational cues affect women in math, science, and engineering settings. *Psychological Science*, *18*, 879–885. doi:10.1111/j.1467-9280.2007.01995.x
- Ostrove, J. M., & Long, S. M. (2007). Social class and belonging: Implications for college adjustment. *The Review of Higher Education*, *30*, 363–389.

- Oyserman, D., & Destin, M. (2010). Identity-based motivation: Implications for intervention. *The Counseling Psychologist, 38*, 1001–1043.
- Oyserman, D., Fryberg, S. A., & Yoder, N. (2007). Identity-based motivation and health. *Journal of Personality and Social Psychology, 93*, 1011–1027. doi:10.1037/0022-3514.93.6.1011
- Pascarella, E., Pierson, C., Wolniak, G., & Terenzini, P. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *Journal of Higher Education, 75*, 249–284. doi:10.1353/jhe.2004.0016
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass.
- Patillo-McCoy, M. (1999). *Black picket fences: Privilege and peril among the Black middle class*. Chicago, IL: The University of Chicago Press.
- Phinney, J. S., & Haas, K. (2003). The process of coping among ethnic minority first-generation college freshmen: A narrative approach. *The Journal of Social Psychology, 143*, 707–726. doi:10.1080/00224540309600426
- Pickett, C. L., Gardner, W. L., & Knowles, M. (2004). Getting a cue: The need to belong and enhanced sensitivity to social cues. *Personality and Social Psychology Bulletin, 30*, 1095–1107. doi:10.1177/0146167203262085
- Piff, P. K., Kraus, M. W., Côté, S., Cheng, B. H., & Keltner, D. (2010). Having less, giving more: The influence of social class on prosocial behavior. *Journal of Personality and Social Psychology, 99*, 771–784. doi:10.1037/a0020092
- Plaut, V. C., & Markus, H. R. (2005). The “inside” story: A cultural-historical analysis of being smart and motivated, American style. In C. Dweck & A. Elliott (Eds.), *Handbook of competence and motivation* (pp. 457–488). New York, NY: Guilford Press.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879–891. doi:10.3758/BRM.40.3.879
- Purdie-Vaughns, V., Steele, C. M., Davies, P. G., Dittmann, R., & Crosby, J. R. (2008). Social identity contingencies: How diversity cues signal threat or safety for African Americans in mainstream institutions. *Journal of Personality and Social Psychology, 94*, 615–630. doi:10.1037/0022-3514.94.4.615
- Reay, D., Davies, J., David, M., & Ball, S. J. (2001). Choices of degree or degrees of choice? Class, “race,” and the higher education choice process. *Sociology, 35*, 855–874.
- Richardson, R. C., & Skinner, E. F. (1992). Helping first-generation minority students achieve degrees. In L. S. Zwerling & H. B. London (Eds.), *First-generation students: Confronting the cultural issues: New Directions for Community Colleges Series* (No. 80, pp. 29–43). San Francisco, CA: Jossey-Bass.
- Rimer, S. (2007). Elite colleges open new door to low-income youths. *New York Times*. Retrieved from <http://www.nytimes.com/2007/05/27/education/27grad.html>
- Saenz, V. B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). *First in my family: A profile of first-generation college students at four-year institutions since 1971*. Los Angeles, CA: Higher Education Research Institute.
- Schmidt, P. (2010). In push for diversity, colleges pay attention to socioeconomic class. *Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Socioeconomic-Class-Gains/124446/>
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*, 417–453. doi:10.3102/00346543075003417
- Snibbe, A. C., & Markus, H. R. (2005). You can’t always get what you want: Educational attainment, agency, and choice. *Journal of Personality and Social Psychology, 88*, 703–720. doi:10.1037/0022-3514.88.4.703
- Somers, P., Woodhouse, S., & Cofer, J. (2004). Pushing the boulder uphill: The persistence of first-generation college students. *NASPA Journal, 41*, 418–435. Stanford University. (2004). *Stanford viewbook*. Stanford, CA: Author.
- Steele, C. (2010). *Whistling Vivaldi and other clues to how stereotypes affect us*. New York, NY: WW Norton & Company.
- Stephens, N. M., Fryberg, S. A., & Markus, H. R. (2011). When choice does not equal freedom: A sociocultural analysis of agency in working-class American contexts. *Social Psychological & Personality Science, 2*, 33–41. doi:10.1177/1948550610378757
- Stephens, N. M., Hamedani, M. G., Markus, H. R., Bergsieker, H. B., & Eloul, L. (2009). Why did they “choose” to stay? Perspectives of Hurricane Katrina observers and survivors. *Psychological Science, 20*, 878–886. doi:10.1111/j.1467-9280.2009.02386.x
- Stephens, N. M., Markus, H. R., & Townsend, S. M. (2007). Choice as an act of meaning: The case of social class. *Journal of Personality and Social Psychology, 93*, 814–830. doi:10.1037/0022-3514.93.5.814
- Terenzini, P. T., Rendon, L. I., Upcraft, M. L., Millar, S. B., Allison, K. A., Gregg, P. L., & Jalomo, R. (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education, 35*, 57–73. doi:10.1007/BF02496662
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*, 1–22. doi:10.1007/BF01680039
- Tobin, J. J., Wu, D. Y. H., & Davidson, D. H. (1989). *Preschool in three cultures: Japan, China, and the United States*. Binghamton, NY: Yale University Press.
- Tsai, J. L., & Chentsova-Dutton, Y. (2002). Different models of cultural orientation in American- and overseas-born Asian Americans. In K. Kurasaki, S. Okazaki, & S. Sue (Eds.), *Asian American mental health: Assessment theories and methods* (pp. 95–106). New York, NY: Kluwer Academic/Plenum Press.
- Tweed, R. G., & Lehman, D. R. (2002). Learning considered within a cultural context: Confucian and Socratic approaches. *American Psychologist, 57*, 89–99. doi:10.1037/0003-066X.57.2.89
- U.S. News and World Report. (2010). Best colleges. *U. S. News and World Report*. Retrieved from <http://colleges.usnews.rankingsandreviews.com/best-colleges>
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82–96. doi:10.1037/0022-3514.92.1.82
- Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331*, 1447–1451. doi:10.1126/science.1198364
- Wan, C., Chiu, C.-Y., Peng, S., & Tam, K.-P. (2007). Measuring cultures through intersubjective norms: Implications for predicting relative identification with two or more cultures. *Journal of Cross-Cultural Psychology, 38*, 213–226. doi:10.1177/0022022106297300
- Wan, C., Chiu, C.-Y., Tam, K.-P., Lee, S.-L., Lau, I. Y.-M., & Peng, S.-Q. (2007). Perceived cultural importance and actual self-importance of values in cultural identification. *Journal of Personality and Social Psychology, 92*, 337–354. doi:10.1037/0022-3514.92.2.337
- Warburton, E., Bugarin, R., & Nunez, A. (2001). *Bridging the gap: Academic preparation and postsecondary success of first-generation students* (Report No. NCES 2001–153). Washington, DC: National Center for Education Statistics, U.S. Government Printing Office.

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