

HOW CAN INCENTIVES IMPROVE THE SUCCESS OF DISADVANTAGED COLLEGE STUDENTS?

Insights from the Social Sciences

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I. INTRODUCTION

Achievement gaps among college students from different social class, racial, or ethnic backgrounds are ubiquitous and a persistent problem in the United States (Bowen, Kurzweil, & Tobin, 2005; Steele, 2010). Students who are low-income, first-generation, or underrepresented racial or ethnic minorities receive lower grades, take longer to graduate, and drop out at higher rates than high-income, continuing-generation, or white and Asian students (Pascarella et al., 2004; Sirin, 2005).¹ Because these underperforming students face an additional set of obstacles on the path to academic success, we refer to them as *disadvantaged* and to their higher performing peers as *advantaged*. Specifically, disadvantaged students tend to enter college with fewer of the academic skills (Pascarella, Pierson, Wolniak, & Terenzini, 2004; Warburton, Bugarin, & Nuñez, 2001) and financial resources (Walpole, 2003) that enable students to succeed. They are also more likely to confront prejudice or negative stereotypes about their group (Croizet & Claire, 1998; Steele & Aronson, 1995) and to lack the “rules of the game” for how to be a successful college student (Bourdieu & Passeron, 1977; Bourdieu & Wacquant, 1992; Carter, 2003; Lareau, 1987; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). These additional challenges often contribute to students’ underperformance and can prevent them from fully realizing their potential (Stephens, Markus, & Fryberg, 2012; Steele, 2010). Efforts to reduce achievement gaps must therefore address these obstacles.

This policy brief examines one increasingly popular strategy for reducing achievement gaps: financial incentives. In particular, we focus on the question of how we can structure and implement financial incentive programs to maximize chances of improving disadvantaged students’ success in college. To answer this question, we integrate insights from the social sciences with a focus on research in psychology, organizational behavior, and education. We first draw from previous literature reviews to describe general baseline preconditions that must be met before incentives will have a chance of being effective tools for changing behavior. We next consider, in particular, whether incentives have the potential to tackle the problem of achievement gaps by helping disadvantaged students improve their academic performance. In order to be effective for this population of students, incentives must not only meet the general baseline preconditions we discuss, but must also address the particular obstacles that contribute to the underperformance of disadvantaged students. We describe each of these challenges and examine whether and how incentives might be used to help these students overcome them. In doing so, we acknowledge that incentives are well equipped to address some obstacles but fall short in remedying others. Finally, we discuss some open questions that future research should address.

¹ The term *first-generation* refers to students who have neither parent with a four-year college degree. The term *continuing-generation* refers to students who have at least one parent with a four-year college degree. In college settings, *underrepresented racial minorities* include African American, Latino, and Native American students.

II. CAN FINANCIAL INCENTIVES BE EFFECTIVE TOOLS FOR CHANGING BEHAVIOR?

We define financial incentives as the offer of a monetary reward in exchange for engaging in a behavior or accomplishing a goal. For example, if taking an advanced placement test is the desired behavior, then a financial incentive could be paying students \$50 to take the test or waiving the fee that students would normally pay. A common assumption is that financial incentives are a powerful motivating force and that people work or study harder, faster, or smarter *because* they are rewarded for doing so. Following from this logic, people should perform better when incentives are present. The organizational behavior, psychology, and education literature on the effectiveness of incentives, however, is rife with controversy and mixed in its conclusions. What is clear is that incentives work to enhance performance under some conditions and not under others (Akin-Little *et al.*, 2004; Cameron & Pierce, 2002; Condy, Clark, & Stolovitch, 2003; Jenkins, Mitra, Gupta, & Shaw, 1998; Lepper & Greene, 1978; Lepper, Greene, & Nisbett, 1973).

The mixed success of incentives also applies to programs designed to improve the performance of *disadvantaged* college students. On the one hand, some programs have been quite effective (e.g., Patel & Richburg-Hayes, 2012). For example, Brock and Richburg-Hayes (2006) found that performance-based scholarships increased community college students' GPAs and progress toward degree completion. Similarly, Pallas (2009) found that a large merit-based scholarship program in Tennessee improved high school achievement (i.e., test scores). Additionally, Jackson's (2010) assessment of the Advanced Placement Incentive Program (APIP) found that providing financial incentives to high school students for high scores on advanced placement exams improved not only their exam scores but also their rates of college attendance and college performance.

On the other hand, not all financial incentive programs have achieved this degree of success. For example, in a series of randomized experiments that paid students for academic achievement (e.g., money for a good grade on a test), Fryer (2011) found that short-term financial incentives did not reliably improve students' performance. Even in the context of a successful program, the effects of incentives may not persist once the incentives are removed. Scott-Clayton (2011) evaluated the success of a merit scholarship program in West Virginia, which provides free tuition and fees to college students who maintain a minimum GPA and course load. The scholarship program increased BA completion rates and the number of credits that students completed during their first three years of college. However, the effect on credits disappeared during the last year, when students no longer faced the minimum requirements to renew the scholarship.

These mixed findings suggest that financial incentives have the *potential* to improve students' academic performance, including the performance of disadvantaged college students. Based on these previous reviews of the literature, below we outline some baseline preconditions that practitioners should take into account in deciding whether incentives are an appropriate strategy, as well as how to maximize their chances of being effective at changing behavior.

Baseline Preconditions for Incentives to be Effective

People must have:

- skills or knowledge required to complete the incentivized behavior.
- resources (e.g., financial) and the corresponding opportunity to complete the incentivized behavior.

Incentives should:

- target behaviors that would otherwise not occur (i.e., when students are not intrinsically motivated).
- take into account the level of quality at which the task is completed.
- be used repeatedly over time (not just on one occasion).
- be delivered immediately after the incentivized behavior occurs and be concretely tied to that behavior.
- be made meaningful to the intended population (e.g., appropriate for a given age, role, social class, culture, etc.).

To improve the academic success of *disadvantaged* college students, incentives need to not only meet these baseline preconditions, but also to address the particular obstacles these students are likely to face.

III. ACADEMIC SKILLS

One obstacle that many disadvantaged college students confront is that they often lack some of the academic skills needed to succeed in college. For example, low-income students, who are frequently first-generation and racial or ethnic minorities, are more likely to attend lower quality, less academically rigorous high schools than are high-income students (Alon, 2009; Bastedo & Jaquette, 2011; Carnevale & Rose, 2004; Pascarella *et al.*, 2004; Warburton *et al.*, 2001). When we use the term *low-income*, we refer to students whose family incomes are below the U.S. poverty line (e.g., \$22,350 for a family of four in 2011; Federal Register, 2011). Even if these disadvantaged students make full use of all of the opportunities to learn and develop skills at their high schools (e.g., advanced placement classes), they still are likely to enter college lacking some academic skills needed to perform up to their potential (Credé & Kuncel, 2008; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004; Choy, 2001).

Whether students have the skills needed for academic success is an important factor that may help to explain the variation in the effectiveness of previous incentive programs. For example, Jackson's (2010) study of the effects of the APIP suggests that one reason the program was so successful was because it not only provided incentives for high scores on Advanced Placement (AP) exams but also ensured that students had the academic skills necessary to master material in AP classes and subsequently pass their exams. Beginning as early as seventh grade, this program used teams of teachers spanning different grade levels. The teams designed and implemented curricula to prepare students to learn the relevant material before the students were eligible to register for AP courses and exams.

In contrast, a lack of academic skills may be. Roland Fryer (2001) found that paying middle and high school students for getting better grades did not reliably improve students' performance. Indeed, across the four major cities where studies were conducted, Fryer did not find significant differences in the performance of the students who were paid for their performance and those who were not paid. Although the incentives were motivating and generated enthusiasm among students who wanted to receive money for strong academic performance, follow-up interviews with the students demonstrated that many students did not have the knowledge or study skills to improve their performance on their own. In other words, despite a strong desire to improve, many students simply did not understand what was required of them (e.g., studying more, asking teachers for help) to realize the desired improvements in academic performance.

Can incentives be used to help disadvantaged students to hone their academic skills and improve their academic performance? To be successful in achieving this goal, incentives should be tied to activities that will develop the academic skills that students need to perform up to their potential (see Jenkins *et al.*, 1998). For example, if an intervention seeks to improve grades among a population of disadvantaged students who have poor math skills, then practitioners should first consider the behaviors that are most likely to improve or undermine math skills. Then, incentives should be used to encourage the specific behaviors and activities that are needed to improve math skills and discourage those that inhibit the development of these skills. In this case, perhaps students could be incentivized for meeting with a teacher outside of class to get additional tutoring or for paying attention in math class, rather than for improving their math grades. In other words, when students lack the academic skills needed to improve their grades, incentives should encourage the types of academic activities that are the building blocks of earning better grades.

IV. FINANCIAL RESOURCES

Many disadvantaged students, particularly students from low-income backgrounds, face the obstacle of limited access to the financial resources needed to succeed in college. This resource gap is important to address because providing students with financial aid can improve students' college persistence and completion rates (Dynarski, 2008; Brock & Richburg-Hayes, 2006; Scott-Clayton, 2011). Indeed, having fewer financial resources is an obstacle that can undermine academic performance through different processes (Paulsen & St. John, 2002; Cabrera, Nora, & Castaneda, 1992). For example, students with fewer resources often need to work multiple jobs to pay for their college tuition and living expenses, and, as a result, have less time to devote to their academic studies and social activities (Stinebrickner & Stinebrickner, 2003; Walpole, 2003; Ehrenberg & Sherman, 1987). Having less time to spend on one's classes can lead to lower grades (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; George, Dixon, Stansal, Gelb, & Pheri, 2008) and spending less time with peers is also likely to hinder students' cognitive development (Pascarella *et al.*, 2004). Having fewer resources may also mean that students are not able to fully participate in the college experience (e.g., extracurricular activities), which could detract from their sense of belonging (Bohnert, Aikins, & Edidin, 2007) and undermine their academic performance (cf., Walton & Cohen, 2007).

Can incentives be used to bridge the financial resource gaps between low- and high-income students? We believe that incentive programs have the potential to help disadvantaged students overcome deficits in financial resources in two ways. First, incentives could be used to directly bridge the resource gap by providing disadvantaged students with additional financial resources (Henry & Rubenstein, 2002). For example, to maintain a given level of financial aid, students could be required to engage in behaviors that will improve their grades (e.g., attending class, getting extra tutoring). Alternatively, students who have the academic skills needed to improve their grades could be required to attain a certain grade point average to maintain funding.

Second, incentives could be used to mitigate some of the *consequences* of the financial resource gap. For example, due to a lack of resources, many students are not able to fully participate in the college experience (e.g., student clubs, sororities, meals with friends) and thus do not feel like they fully belong. Incentives could enable these students to participate in extracurricular activities otherwise unavailable to them. Although such incentives would not directly improve academic performance, they have the potential to do so indirectly by enhancing students' psychological experience of belonging in college (cf., Ostrove & Long, 2007; Walton & Cohen, 2007).

V. CULTURAL CAPITAL

Many disadvantaged students, particularly those who are first-generation, face the obstacle of not having the middle-class cultural capital or "rules of the game" for how to most effectively navigate college settings (Horvat, Weininger, & Lareau, 2003; Lareau, 1987). For example, without college-educated parents, first-generation students are unlikely to have been exposed to family discussions about what it means to attend college or what students need to do in order to be successful there. As a result, these students may be less certain than continuing-generation students about how to choose a major, plan their class schedules, interact with professors, and select a future career (cf., Calarco, 2011; Kim & Sax, 2009).

In addition, many first-generation students have less familiarity and experience with the cultural norms institutionalized in university settings than do their continuing-generation peers. Specifically, American universities tend to promote largely middle-class cultural norms and expectations for college students (Fryberg & Markus, 2007; Greenfield, 1994; Kim, 2002; Li, 2003). For example, universities often ask students to pave their own path, express themselves, work independently, and challenge the status quo. These messages are consistent with the norms held by many continuing-generation students, who have been socialized in mostly middle-class contexts. However, for first-generation students, who have been socialized in mostly working-class contexts, these cultural norms are often experienced as a "cultural mismatch" or as a sign that they do not fit in college settings. This cultural mismatch between the largely middle-class norms institutionalized in university settings and the working-class norms that often guide first-generation students' behavior can diminish students' sense of comfort, render academic tasks difficult, and undermine their academic performance (Stephens, *et al.*, 2012; Stephens, Townsend, Markus & Phillips, 2012).

Can incentives be used to provide disadvantaged students with the experience of a “cultural match” that they need to improve their performance in college? Unfortunately, we believe that this is one obstacle that incentives may be poorly equipped to address. While it might be possible to incentivize first-generation students to learn how to enact the middle-class behaviors that are expected of them in college contexts, doing so would likely only serve to highlight the cultural mismatch between such behaviors and the norms common in their working-class backgrounds (see Stephens *et al.*, 2012). Although incentives are unlikely to directly address the cultural obstacles that students experience, incentive programs that take disadvantaged students’ particular cultural backgrounds into account will be more effective.

A growing body of research on self and identity as a source of motivation indicates that making incentives relevant to students’ understandings of themselves and of their behavior is likely to render the incentives more effective in changing behavior (Oyserman, 2009; Oyserman & Destin, 2010; Oyserman, Fryberg, & Yoder, 2007; Stephens, Markus, & Fryberg, 2012; Walton & Cohen, 2007). By taking into account both how students think about themselves and how they are likely to interpret the incentives, incentives can be made self-relevant or identity-relevant. One strategy would be to provide incentives that reflect what students care about the most. For example, if first-generation college students are concerned about whether they can afford to visit their families over the holidays, then buying them plane tickets to visit family as an incentive for completing a certain number of credits could be especially motivating. Another way to make incentives self-relevant is by framing the incentives to reflect students’ particular understandings of who they are and why they are attending college. For example, if first-generation students’ are motivated to attend college to give back to their communities, then the incentives could be framed in a way that takes those motives into account. For example, an incentive program might be named “Building Blocks for Better Communities,” which frames education as a route to contributing to community, instead of “Building Blocks for Academic Excellence,” which frames education as a route to academic accomplishments. Framing incentive programs in a culture-specific way, however, would require additional time and attention on the part of program developers and administrators.² To avoid stereotyping the targeted student population, they would need to learn more about the local concerns, interests, and motives of this group.

VI. SOCIAL IDENTITY THREAT, PREJUDICE, AND DISCRIMINATION

Many first-generation, low-income, and racial/ethnic minority students also face the obstacles of confronting negative attitudes about their group (i.e., prejudice/stereotypes) or negative group-based treatment (i.e., discrimination; Croizet & Claire, 1998; Johnson, Richeson, & Finkel, 2011; Steele & Aronson, 1995). Although many students learn to cope with these experiences, research reveals that the experience of repeatedly being the target of stereotypes, prejudice, and discrimination can decrease students’ level of identification with higher education and lead them to feel that they do not belong (see Steele, 2010). As mentioned above, incentives might be effective in promoting a sense of belonging (e.g., vouchers to cover the costs of participating in extracurricular activities), which may help disadvantaged students to overcome the downstream consequences of negative stereotyping, prejudice, and discrimination. Nevertheless, incentive strategies are poorly suited to directly address the obstacles themselves.

Can incentives help reduce the prevalence of negative stereotypes, prejudice, and discrimination faced by disadvantaged students in college and university settings? One strategy might be to incentivize people to behave in nonprejudiced ways toward outgroup members. For example, student groups, such as sororities or fraternities, could be incentivized to promote a culture of tolerance and inclusion among their members (e.g., additional funding to hold events promoting awareness and acceptance of cultural differences). We speculate that such a strategy, however, is unlikely to be effective against the most common forms of prejudice, which are implicit and operate outside individuals’ awareness and control (Greenwald & Banaji, 1995; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). Moreover, such a strategy would need to be mindful of students’ awareness of any prejudice-reducing incentives, because awareness could heighten the

² Framing incentives a culture-specific way does not require taking into account every possible source of cultural variation but rather requires attention to broad, overarching differences that occur along the lines of independence—e.g., prioritizing the individual over relationships—and interdependence—e.g., prioritizing family, community, and relationships over the individual. Research suggests that this independent-interdependent divide is the primary driver of cultural clashes between groups or between individuals and institutions, and that taking this divide into account can go a long way toward making incentives meaningful to the targeted population (Markus & Conner, 2013).

perception that prejudice is a significant issue on campus and could therefore have the paradoxical consequence of amplifying its pernicious effects. Thus, an additional strategy could be to provide incentives to increase the types of behaviors that are known to reduce stereotyping, prejudice, and discrimination, and thereby improve intergroup relations. For example, research shows that, under the right set of conditions (e.g., equal status, common goal for everyone to achieve), intergroup contact can promote better intergroup relations and serve to reduce negative attitudes toward outgroup members (Allport, 1954; Page-Gould, Mendoza-Denton, & Tropp, 2008; Pettigrew & Tropp, 2006).

VII. MOTIVATION

In addition to the obstacles described above, which are predominantly faced by disadvantaged students, lack of motivation is an obstacle that can prevent all students from reaching their full academic potential. For example, at certain times in college (e.g., the so-called “sophomore slump”), all students may suffer from a lack of motivation to do the work required to perform well in their classes or to fulfill academic requirements needed to earn a degree and graduate on time. Although disadvantaged students may also face a lack of motivation, this obstacle is not more of an issue among disadvantaged students than it is among advantaged students (Steele, 2010; Walton & Cohen, 2007). If anything, given the additional obstacles faced by disadvantaged students, those who have overcome the odds to make it to college are likely to have demonstrated high levels of motivation and persistence (cf., Chen & Miller, 2012).

Can incentives help to increase the motivation of disadvantaged students in college and university settings? Research suggests that incentives can be effective at increasing motivation if they are used in the right circumstances—that is, when students are unmotivated to engage in the types of behaviors that promote academic success (Cameron, 2001). Reflecting this crucial insight, incentives should be designed to encourage the types of activities in which students would otherwise be unmotivated to engage (Deci, 1975; Lepper, Greene, & Nisbett, 1973). For example, if attending office hours is known to improve exam performance and teachers observe that students are not motivated to do so, then students could be incentivized to attend office hours on a regular basis. Incentives could also be used to increase these performance-enhancing behaviors at key times, such as the “sophomore slump” mentioned above, when students are most likely to be unmotivated or to deviate from the path to graduation.

While incentives can be effective when used in the right circumstances, they also can backfire if not used with careful attention to people’s understandings of their behavior (e.g., why they behave as they do) and of the incentives (Ariely, 2008; Bowles, 2009). If incentives are used to encourage the types of activities for which people are already motivated, they can undermine motivation and decrease the likelihood that people will engage in the incentivized behavior in the future (Greene & Lepper, 1974; Greene, Sternberg, & Lepper, 1976; Lepper, Greene, & Nisbett, 1973). For example, many people engage in altruistic activities not because they want to be rewarded but because those activities signal they are good and charitable people. As a result, paying people for donating blood or to pick their kids up from school on time actually reduces donation rates (Mellström & Johannesson, 2008) and increases the number of late parents (Gneezy & Rustichini, 2000) because it changes people’s understandings of why they are engaging in those activities. Rather than participating to show that they are good citizens or responsible parents, the presence of incentives may lead individuals to believe that they are engaging in these activities because they are being paid to do so. This response can undermine the intrinsic motivation driving people’s behaviors. Applying the same logic to academic contexts, financial incentives could undermine students’ motivation by leading them to believe that they are engaging in academic activities (e.g., reading books) *because* they are being rewarded for doing so, rather than because they enjoy the activity or because they see themselves as hard-working students.

Along the same lines, it is important to consider what the act of providing an incentive for academic performance might unintentionally communicate to disadvantaged students about how other people perceive them or their groups. Incentivizing disadvantaged students for getting better grades might promote the negative stereotype that disadvantaged students do not perform as well as other students because they are simply lazy or unmotivated. This understanding could produce increases in social identity threat and could therefore serve to further undermine, rather than enhance, the performance of disadvantaged groups (see Steele, 2010).

VIII. OPEN QUESTIONS

Several questions remain about the best ways to use incentives to reduce or eliminate achievement gaps between disadvantaged and advantaged students.

Incentivizing Professors and Teaching Assistants

Most of the strategies described above focus on improving disadvantaged students' academic performance by changing their behavior. Taking a step back to examine the problem with a broader view of the contexts that contribute to students' behavior might lead to an approach that also focuses on changing the behaviors of other people who influence students' performance. Can providing incentives to professors or teaching assistants improve the performance of disadvantaged college students? Professors and teaching assistants are a good place to start because they typically have the resources and skills to help students to improve their academic performance. The literature examining the effects of incentivizing teachers is mixed in its conclusion. While some research suggests that teacher incentives are not effective (e.g., Fryer, 2011; Springer *et al.*, 2011), other studies demonstrate that they can be effective if used properly. For example, Fryer and colleagues (2012) gave teachers a cash incentive at the beginning of the school year and asked them to return the money at the end of the year if their students did not perform well enough academically. In response, they found a measurable improvement in the average math scores of disadvantaged students. Such a program could also be effective among university professors.

Applying the same principles that we outlined above when discussing how to develop students' academic skills, we suggest that effective incentive programs for professors and teaching assistants might reward them for the concrete and specific behaviors that are known to improve students' performance instead of students' performance itself. For example, incentivizing professors to mentor disadvantaged students may not only help improve but also help students feel more connected, increase their sense of belonging, and transmit some cultural capital in the process. Such incentives may be particularly effective in many large, research-focused universities where the current incentive structure is not fully aligned with helping disadvantaged students, who may require more time and effort than their advantaged peers. For example, institutions might consider providing reduced course loads to professors in exchange for their participation in mentorship programs for disadvantaged students.

Additional Strategies for Reducing Achievement Gaps

In addition to the various forms of financial incentives we have discussed, non-financial incentives may also be helpful in reducing the achievement gap between advantaged and disadvantaged students. For example, providing students with public recognition such as being on a dean's list for successful completion of target behaviors or achievement of a particular outcome may serve to increase motivation or bolster disadvantaged students' feelings of belonging in college. However, to be effective, such non-financial incentives would also need to address the specific obstacles faced by disadvantaged students.

Finally, we also want to acknowledge that financial incentives are poorly equipped to address some of the obstacles that disadvantaged college students face, namely the psychological obstacles of cultural mismatch, lack of belonging, and social identity threat, prejudice, or discrimination. We suggest that the best way to improve the success of these students would likely involve a multi-strategy approach incorporating incentives along with other programs that may better address these psychological obstacles. In particular, a growing intervention literature in social psychology provides a number of useful tools in this regard (Wilson, 2011; Yeager & Walton, 2011). These interventions, which typically focus on providing psychological resources to help students reinterpret their experiences (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Cohen, Garcia, Apfel, & Master, 2006; Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Walton & Cohen, 2011) or educating students to better understand the source of their struggles and equipping them with culture-specific strategies for success (Stephens, Hamedani, & Destin, 2013), are well suited to helping disadvantaged students overcome the psychological obstacles described above.

WORKS CITED:

- Akin-Little, K.A., Eckert, T.L., Lovett, B. J., Little, S.G. (2004). Extrinsic reinforcement in the classroom: Bribery of best practice. *School Psychology Review*, 33, 344-362.
- Allport, G.W. (1954). *The nature of prejudice*. Reading, Mass: Addison Wesley.
- Alon, S. (2009). The Evolution of Class Inequality in Higher Education Competition, Exclusion, and Adaptation. *American Sociological Review*, 74, 731-755.
- Ariely, D. (2008). *Predictably Irrational: The Hidden Forces That Shape Our Decisions*. New York: HarperCollins Publishers.
- Bastedo, M.N., & Jaquette, O. (2011). Running in place: Low-income students and the dynamics of higher education stratification. *Educational Evaluation and Policy Analysis*, 33, 318-339.
- Bohnert, A.M., Aikins, J.W., & Edidin, J. (2007). The role of organized activities in facilitating social adaptation across the transition to college. *Journal of Adolescent Research*, 22, 189-208.
- Blackwell, L.S., Trzesniewski, K.H., & Dweck, C.S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, 78, 246-263.
- Bourdieu, P., & Passeron, J.C. (1977). *Reproduction in Education, Society, and Culture*. Chicago: University of Chicago Press.
- Bourdieu, P., & Wacquant, L.J. (1992). *An invitation to reflexive sociology*. Chicago: University of Chicago Press.
- Bowen, W.G., Kurzweil, M.A., & Tobin, E.M. (2005). *Equity and excellence in American higher education*. Charlottesville: University of Virginia Press.
- Bowles, S. (2009). When economic incentives backfire. *Harvard Business Review*, 87, 22-23.
- Brock, T., & Richburg-Hayes, L. (2006). *Paying for persistence: Early results of a Louisiana scholarship program for low-income parents attending community college*. New York: MDRC.
- Cabrera, A.F., Nora, A., & Castaneda, M.B. (1992). The role of finances in the persistence process: A structural model. *Research in Higher Education*, 33, 571-593.
- Calarco, J.M. (2011). "I Need Help!" Social Class and Children's Help-Seeking in Elementary School. *American Sociological Review*, 76, 862-882.
- Cameron, J. (2001). Negative effects of reward on intrinsic motivation—A limited phenomenon: Comment on Deci, Koestner, and Ryan (2001). *Review of Educational Research*, 71, 29-42.
- Cameron, J., & Pierce, W.D. (2002). *Rewards and intrinsic motivation: Resolving the controversy*. Westport, Conn.: Bergin & Garvey.
- Carnevale, A.P., & Rose, S.J. (2004). Socioeconomic Status, Race/Ethnicity, and Selective College Admissions. R.D. Kahlenberg (Eds.), *America's Untapped Resources* (pp. 101–156). New York: The Century Foundation Press.
- Carter, P.L. (2003). "Black" Cultural Capital, Status Positioning, and Schooling Conflicts for Low-Income African American Youth. *Social Problems*, 50, 136-155.
- Chen E., & Miller, G.E. (2012). "Shift-and-Persist" strategies: Why being low socioeconomic status isn't always bad for health. *Perspectives on Psychological Science*, 7, 135-158.
- Choy, S.P. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment*. National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement.
- Cohen, G.L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science*, 313, 1,307-1,310.

- Condly, S.J., Clark R.E., and Stolovitch H.D. (2003). The Effects of Incentives on Workplace Performance: A Metaanalytic Review of Research Studies. *Performance Improvement Quarterly*, 16, 46-63.
- Credé, M., & Kuncel, N.R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3, 425-453.
- 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.
- Deci, E.L. (1975). *Intrinsic motivation*. New York: Plenum.
- Dovidio, J.F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice Automatic and controlled processes. *Journal of Experimental Social Psychology*, 33, 510-540.
- Dynarski, M. (2008). *Dropout Prevention*. National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, US Department of Education.
- Ehrenberg, R.G., & Sherman, D.R. (1987). Employment While in College, Academic Achievement and Post-College Outcomes: A Summary of Results. *Journal of Human Resources*, 22, 1-23.
- Federal Register*, Vol. 76, No. 13, January 20, 2011, pp. 3,637-3,638.
- 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.
- Fryer, R.G. (2011). Financial incentives and student achievement: Evidence from randomized trials. *The Quarterly Journal of Economics*, 126, 1,755-1,798.
- Fryer Jr., R.G., Levitt, S.D., List, J., & Sadoff, S. (2012). Enhancing the Efficacy of Teacher Incentives through Loss Aversion: A Field Experiment (No. w18237). National Bureau of Economic Research.
- George, D., Dixon, S., Stansal, E., Gelb, S.L., & Pheri, T. (2008). Time diary and questionnaire assessment of factors associated with academic and personal success among university undergraduates. *Journal of American College Health*, 56, 706-715.
- Gneezy, U., & Rustichini, A. (2000). A Fine is a Price. *Journal of Legal Studies*, 29, 1-17.
- Greene, D., & Lepper, M.R. (1974). Effects of extrinsic rewards on children's subsequent intrinsic interest. *Child Development*, 45, 1,141-1,145.
- Greene, D., Sternberg, B., & Lepper, M.R. (1976). Overjustification in a token economy. *Journal of Personality and Social Psychology*, 34, 1,219-1,234.
- 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, N.J.: Erlbaum.
- Greenwald, A.G., & Banaji, M.R. (1995). Implicit social cognition: attitudes, self-esteem, and stereotypes. *Psychological Review*, 102, 4-27.
- Harackiewicz, J.M., Rozek, C.S., Hulleman, C.S., & Hyde, J.S. (2012). Helping Parents to Motivate Adolescents in Mathematics and Science: An Experimental Test of a Utility-Value Intervention. *Psychological Science*, 23, 899-906.
- Henry, G.T., & Rubenstein, R. (2002). Paying for grades: Impact of merit-based financial aid on educational quality. *Journal of Policy Analysis and Management*, 21, 93-109.
- Horvat, E.M., Weininger, E.B., & Lareau, A. (2003). From social ties to social capital: Class differences in the relations between schools and parent networks. *American Educational Research Journal*, 40, 319-351.

- Jackson, C.K. (2010). A Little Now for a Lot Later A Look at a Texas Advanced Placement Incentive Program. *Journal of Human Resources, 45*, 591-639.
- Jenkins, G.D., Mitra, A., Gupta, N., & Shaw, J.D. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology, 83*, 777-787.
- 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.
- Kim, Y.K., & Sax, L.J. (2009). Student–faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status. *Research in Higher Education, 50*, 437-459.
- 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.
- Kuh , G.D., Cruce, T.M., Shoup, R., Kinzie, J., & Gonyea, R.M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*, 540-563.
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education, 60*, 73-85.
- Lepper, M.R., & Greene, D.E. (1978). *The hidden costs of reward: New perspectives on the psychology of human motivation*. Hillsdale, N.J.: Lawrence Erlbaum.
- Lepper, M.R., Greene, D., & Nisbett, R.E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28*, 129-137.
- Li, J. (2003). U.S. and Chinese cultural beliefs about learning. *Journal of Educational Psychology, 95*, 258-267.
- Mellström, C., & Johannesson, M. (2008). Crowding out in blood donation: was Titmuss right? *Journal of the European Economic Association, 6*, 845-863.
- Ostrove, J.M., & Long, S.M. (2007). Social class and belonging: Implications for college adjustment. *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 & Social Psychology, 93*, 1,011-1,027.
- Oyserman, D. (2009). Identity-based motivation: Implications for action-readiness, procedural-readiness, and consumer behavior. *Journal of Consumer Psychology, 19*, 250-260.
- Page-Gould, E., Mendoza-Denton, R., & Tropp, L.R. (2008). With a little help from my cross-group friend: reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology, 95*, 1080.
- Pallais, A. (2009). Taking a chance on college: Is the Tennessee Education Lottery Scholarship a winner? *Journal of Human Resources, 44*, 199-222.
- Pascarella, E.T., Pierson, C.T., Wolniak, G.C., & Terenzini, P.T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *Journal of Higher Education, 75*, 249-284.
- Patel, R., & Richburg-Hayes, L. (2012). *Performance-Based Scholarships: Emerging Findings from a National Demonstration*. New York, NY: MDRC.
- Paulsen, M.B., & St John, E.P. (2002). Social class and college costs: Examining the financial nexus between college choice and persistence. *The Journal of Higher Education, 73*, 189-236.

- Pettigrew, T.F., & Tropp, L.R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 751-783.
- Robbins, S.B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Dopsychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin, 130*, 261-288.
- Scott-Clayton, J. (2011). On Money and Motivation A Quasi-Experimental Analysis of Financial Incentives for College Achievement. *Journal of Human Resources, 46*, 614-646.
- Sirin, S.R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*, 417-453.
- Springer, M.G., Ballou, D., Hamilton, L., Le, V.N., Lockwood, J.R., McCaffrey, D.F., Pepper, M., & Stecher, B.M. (2011). Teacher Pay for Performance: Experimental Evidence from the Project on Incentives in Teaching (POINT). *Society for Research on Educational Effectiveness*.
- Steele, C.M. (2010). *Whistling Vivaldi and other clues to how stereotypes affect us*. New York: WW Norton & Company.
- Steele, C.M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*, 797-811.
- Stephens, N.M., Fryberg, S.A., Markus, H.R., Johnson, C.S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology, 102*, 1,178-1,197.
- Stephens, N.M., Hamedani, M.G., & Destin, M. (2013). *Closing the social class achievement gap: A diversity education intervention improves the academic performance of first-generation college students and the college transition for all students*. Manuscript submitted for publication.
- Stephens, N.M., Markus, H.R., Fryberg, S.A. (2012). Social class disparities in health and education: reducing inequality through a sociocultural self model of behavior. *Psychological Review, 119*, 723-744.
- Stephens, N.M., Townsend, S.S., Markus, H.R., & Phillips, L.T. (2012). A cultural mismatch: Independent cultural norms produce greater increases in cortisol and more negative emotions among first-generation college students. *Journal of Experimental Social Psychology, 48*, 1,389-1,393.
- Stinebrickner, R., & Stinebrickner, T.R. (2003). Working during school and academic performance. *Journal of Labor Economics, 21*, 473-491.
- Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *The Review of Higher Education, 27*, 45-73.
- Warburton, E.C., Bugarin, R., & Nuñez, A.M. (2001). Bridging the Gap: Academic Preparation and Postsecondary Success of First-Generation Students (NCES 2001-153). U.S. Department of Education. *National Center for Education Statistics*. Washington: Government Printing Office.
- Walton, G.M., & Cohen, G.L. (2007). A question of belonging: race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82-96.
- Walton, G.M., & Cohen, G.L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331*, 1,447-1,451.
- Wilson, T.D. (2011) *Redirect: The surprising new science of psychological change*. New York: Little, Brown and Company.
- Yeager, D.S., & Walton, G.M. (2011). Social-Psychological Interventions in Education They're Not Magic. *Review of Educational Research, 81*, 267-301.