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CHOOSING TO ACHIEVE: SAME DOMAIN SELF-AFFIRMATIONS AND
ACADEMIC OUTCOMES

A Thesis Submitted to the
Yale University School of Medicine
In Partial Fulfillment of the Requirements for the
Degree of Doctor of Medicine

By

David E. Myles

2010

Abstract

CHOOSING TO ACHIEVE: SAME DOMAIN AFFIRMATIONS AND ACADEMIC ACHIEVEMENT. David E. Myles and Forrester Lee., MD. Department of Internal Medicine, Yale University, School of Medicine, New Haven, CT.

Investigators have observed decrements in the inter-ethnic disparity in academic achievement among middle-school students as a result of self-affirming manipulations. In the current study the tested hypothesis is that students who are African-American will: 1. choose to self-affirm in the domain of academics; and 2. be observed to earn a higher grade-point average (GPA) as a result of such self-affirmations. Self-affirmations made in the same domain as that of the dependent variable being measured have historically led to adverse outcomes. This study suggests that three conditions are necessary for same-domain affirmations to result in beneficial outcomes: 1. there must be a perceived threat; 2. the domain must be of personal relevance; and 3. participants must freely choose the domain in which they self-affirm. Two independent evaluators conducted a content analysis of the self-affirmation manipulations. It was observed that students who are African American chose to self-affirm in the domain of academics statistically greater than students who were not African American ($\chi^2 = 2.62$; OR = 2.4; $p < 0.1$). The results from this study support the hypothesis that students who are African America do choose to self-affirm in academics, but there was no resultant relative increase in academic achievement (all t 's < 1.3 , all p 's $> .20$).

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Introduction

Much time, energy, and money has been allocated toward closing disparities in academic achievement that exist between a number of groups. Relevant groups where such gaps have been observed to exist include ethnic and gender. Despite these efforts some of these disparities still exist. In times of financial uncertainty, many American municipalities are seeking temporally and monetarily efficient ways to close such gaps (Hilliard, 2003). A group of such efficient initiatives based on the theory of self-affirmation has been developed and implemented in a wide variety of contexts and generated notable results (Sherman & Cohen, 2006).

The theory of self affirmation proposed by Steele posits that there exists a psychological mechanism which has a primary function of protecting the integrity of the self when threats are encountered (Steele, 1998). Steele asserts that there is a certain degree of “fluidity” inherent to the self implying that there exists more than one way that the self-system can resolve potential threats. This fluidity allows threats posed to one domain of the self to be buffered by highlighting a domain of personal importance. The personally important domain does not necessarily have to be related to the domain at which the threat is aimed.

Being a part of a social group can constitute an important aspect of the self (Cohen & Garcia, 2005). Perceptions of the group can contribute to one’s perception of self-integrity. Attributing negative characteristics about one’s group

can be experienced as a threat to one's self. Therefore, self affirmation can provide a way to restore one's self-system following a group-level threat.

Previous Work

In an ongoing field experiment investigators have used self-affirmation manipulations and observed a statistically significant positive change in GPA and a reduction in the number of failing grades earned among certain groups of affirmed students (Cohen, Garcia, Apfel, & Master, 2006). Specifically, affirmed students who are African-American and academically achieving at relatively low to moderate levels experienced a near 40% of a grade point average (GPA) point increase in the fall term in the intervention-targeted course. Additionally, there was also noted a reduction in poor performance (D or below) in classroom work among such students. What is of particular interest is that these findings were observed among affirmed participants who were defined as African American—there were no experimental between group differences among European American students.

Mechanisms

While this and other such studies have routinely demonstrated *that* self-affirmations work, much less is known regarding of *how* these manipulations work—particularly as they relate to academic domains. Some of the proposed moderators have implications that are hostile to each other. Of particular importance to the domain of academics in the context of achievement gaps, the

purported role that identity centrality and same-domain affirmations have on outcomes has yet to be resolved.

The degree to which, “. . . a potentially threatening domain is personally important to an individual or constitutes a part of their personal identity” is suggested to influence how threatened a person feels and ultimately how effective a self-affirming manipulation is. This is a working definition of identity centrality offered by Sherman and Cohen (2006). The implications of this construct suggest that increasing the salience of the connection between areas of personal importance and the domain in question can increase the efficacy of self affirming manipulations by the same process—increasing the perceived domain’s importance to the individual. As an example, one study demonstrated that only participants who construed tuition increases as important were ultimately significantly influenced by a self-affirming manipulation (Correll, Spencer, & Zanna, 2004). In another study, participants pre-screened to be either “patriots” or “anti-patriots” interacted with an experimenter that either had an American Flag on the lapel vs. did not. It was only those participants identified as patriots that interacted with the experimenter wearing the flag for which the self-affirming manipulation was able to decrease observed bias of information critical of the United States government (Cohen, Sherman, Bastardi, Hsu, McGoey, & Ross, 2005).

There have been studies published in which self-affirming manipulations are observed to induce effects opposite of those that one would predict. Instead of decreasing defensive biases, prejudicial behavior and evaluations, and other

unwanted behavior, some self affirming manipulations have actually been observed to increase these behaviors. These often are observed to occur when participants are asked to affirm themselves in the same domain as the dependent variable (i.e. affirming a participant in the domain of academics and observing the change in their academic performance). In an exemplary study, university participants were affirmed in their morality—that students at this school have been observed to be more objectively moral than a rival college (Brown, 2000). After reading propaganda that foreign students posed a threat to national security, the investigators measured how many xenophobic policies the morally affirmed students endorsed. The morally affirmed students were more likely to endorse such xenophobic policies than those who were not affirmed.

It is interesting to note that interventions aimed at increasing the salience of a given domain (identity centrality) often also measure dependent variables in the same domain. If affirming individuals in the same domain as that which is measured induces adverse outcomes, why didn't the "patriots" in the aforementioned study actually perceive increased license to become *more* critical of anti-United States information?

It is hypothesized that same-domain individual affirmations will induce normatively beneficial domain-specific outcomes if three conditions are met: 1. participants must perceive a threat; 2. participants must be allowed to freely choose the domain of affirmation; and 3. the domain must be construed as personally relevant. It is clear, however, that affirming one self in the same domain as the experienced threat is not necessary for an affirming intervention to

work. In fact, the second study from the aforementioned field experiment did not include the option for participants to select a same domain affirmation and the same treatment effect was still observed (Cohen, Garcia, Apfel, & Master, 2006).

By definition, self-affirmation processes are, “. . . activated by information that threatens the perceived adequacy or integrity of the self” (Steele, 1988). In the absence of threat, there is no need to restore the integrity of the self and, therefore, affirming manipulations in the absence of threat should have no observable normatively beneficial effect on the self. This is what is observed in the aforementioned study about the tuition increase (Correll et al., 2004). It was only those who construed tuition increases as personally relevant that were presumably threatened. It then follows that such individuals were the only ones for whom the intervention reduced the bias observed in their evaluations.

In the experiments in which self-affirming manipulations have generated effects in contrast to what is normatively expected, participants are affirmed in a particular domain chosen by the experimenter. In the study referenced above, college student participants were specifically affirmed in the domain of morality—the participants did not choose the domain in which to affirm themselves (as occurs in many self-affirmation studies—see Cohen and Sherman, 2006). These morally affirmed participants were observed to behave in immoral ways. Similar unwanted outcomes are observed when male participants are affirmed in their objectivity. Such objectivity-affirmed participants are more likely to evaluate men more favorably than women for a stereotypical “male” job (Uhlmann & Cohen, 2007). It is known that the provision of choice can induce behavior consistent

with aspects of intrinsic motivation (Zuckerman, Porac, Lathin, Smith, & Deci, 1978). Therefore, allowing participants to select the domain of self-affirmation may increase the likelihood that participants demonstrate reduced defensive biases.

Finally, the extent to which a domain is construed as important can dictate if or when affirmations will induce desirable vs. non-desirable outcomes. As observed above in the case of the tuition increase, it was only those students who construed such increases as important that were observed to have a significant decrement of biased behavior. However, the male college students whose opinions were asked about hiring job candidates may not have construed such a situation as personally relevant—they are still college students who presumably are removed from such workforce-related decisions. Unlike a tuition increase, making hiring decisions may not be as personally relevant to these students. Furthermore, it has been demonstrated that the domain of academics is important to students (Myles & Purdie-Vaughns, in prep.).

To reiterate, in the contexts where participants perceive threats to their self systems and are allowed to choose among relevant domains in which to affirm themselves, making same domain affirmations will lead to normatively desirable outcomes.

Proposed Study

The purpose of this study is to conduct a preliminary test of the hypothesis that students who are African American and affirm themselves in the domain of

academics will perform better academically. It is already known that school-based settings are intrinsically threatening to students who are African American (Steele & Aronson, 1995). Furthermore, the students in this study have been objectively observed to have racial stereotypes cognitively accessible (Cohen et al., 2006). Middle school participants in the aforementioned field study completed measures of the accessibility of cognitive racial stereotypes. These took the form of word completion exercises (e.g. _ A C E) that could be solved in either a race-neutral (e.g. F A C E) or racially-activated (e.g. R A C E) way. It was observed that African American participants in the treatment (self-affirmation) condition generated significantly fewer racially-activated words than those in the control condition. No differences in the total number of such words were observed among European American students. There was also observed a statistically significant interaction between race x experimental condition on the dependent variable representing the total number of racially-activated words.

Prior studies have demonstrated that the domain of academics is important to students of similar backgrounds. High school students, 95% of whom were ethnic minorities, were observed to significantly increase the number of academic and achievement possible selves they described for themselves over the course of one academic term (Myles & Purdie-Vaughns, in prep.). It will be determined if the students, particularly students who are African American, in this experiment actually selected the domain of academics as most important. Furthermore, providing such students with the option to select in which domain

they will be affirmed should facilitate the increase in academic performance previously cited.

Statement of Purpose

The purpose of this study is to conduct a test of the hypothesis that students who are African American and affirm themselves in the domain of academics will perform better academically. Therefore, the aims that follow are:

1. to determine if students who are African American choose to self-affirm in the domain of academics; and
2. to observe whether those students who self-affirm in academics perform better academically when compared to students who self-affirm in non-academic domains.

Methods

Participants

Data from the first cohort (N = 111) of the Cohen et al., study was content analyzed (2006). For complete details about that sample, refer to Cohen et al. (2006). This sample included 50 African American students and 61 European American Students.

Procedure

For detailed information regarding random assignment, the nature of the actual manipulation and the controls, see Cohen et al. (2006). In short, students completed the manipulations during the first quarter of their seventh grade year for what they thought was a part of a larger, ungraded class exercise. Students and teachers were unaware of the nature of the manipulation, the assigned experimental condition, or the aims of the study.

Essay coding

Two trained coders, who were masked to the participants' experimental condition and demographic information, content analyzed 108 participant essays. Both coders reviewed a coding manual to increase the reliability of the training they received. The coding unit was defined as the entire phrase describing a single domain and was the unit of analysis for coding the domain type. These procedures follow from previously published work (Smith, 2000). Coders were

instructed to determine which of the domains (athletic ability, being good at art, being smart or getting good grades, creativity, independence, living in the moment, membership in a social group, music, politics, relationships with friends or family, religious values, and sense of humor) participants wrote about for each of the individual coding units. Their primary concern was to determine whether a given domain was or was not present in the participants' essays. These determinations were made dichotomously ("present" vs. "absent"). Interrator reliability (Cohen's kappa) = 0.93. The number of words each participant wrote in their essay was tallied using a word processing program's word count feature (Microsoft Word, 2005).

Coders were trained using five sample essays from the dataset in a practice session. They then coded the essays independently of one another. Interrator reliability (Cohen's kappa) for all stages was 0.84. Chi-square analysis was used to make non-parametric observations about the types of domains participants selected. An independent t-test was used to compare the essay length (number of words written assessed by a computerized word processor) between groups and to compare the number of domains between groups. Statistical significance is $p < 0.05$ unless specified otherwise. All analyses were conducted using SPSS 16.0 (Chicago, IL) unless otherwise specified.

Results

Preliminary analysis

There were no observed pre-intervention GPA differences within each ethnicity as a function of experimental group ($t < .79$, $p > 0.38$). Additionally, there were no between group gender or ethnic differences observed in the number of such individuals assigned ($\chi^2 < 4.0$, $p > 0.05$).

The total number of words (misspelled or otherwise) the participants wrote for the essay in both conditions was tallied in an effort to assess and compare the length of the essays between experimental groups. No statistically significant differences were observed between treatment ($M = 43.33$, $SD = 23.29$) and control ($M = 39.30$, $SD = 21.15$) conditions, $t(109) = 1.12$, $p = 0.26$. Means and standard deviations reported are from untransformed data. The distribution was observed to significantly depart from normality. Therefore inferential statistics were conducted on \log_{10} transformed data. Additionally, no significant differences in the total number of words written were observed between the ethnic groups: EA ($M = 41.16$, $SD = 23.78$); AA ($M = 40.67$, $SD = 17.03$); $t(107.87) = 0.638$, $p = 0.53$. The assumption of homogeneity of variances was violated for this analysis thus the Levene Test was calculated yielding the calculated t statistic above.

The distribution of values representing the number of domains participants selected departed from normality. However, the distributions for EA and AA resembled each other and that of the parent distribution. Additionally, the sample

size is relatively large. In this instance, ANOVA is robust to such departures from normality (Howell, 2007; Field 2005). No statistically significant ethnic differences were observed for the number of domains participants selected as a function of experimental group when the variable representing the number of domains is dichotomized (one vs. more than one domain) for either condition, $\chi^2 < 2.2, p > 0.15$.

Domain selection

A 2 (condition) x 2 (domain present/absent) chi-square analysis was used to examine whether students in either the experimental or control condition were more likely to select a given domain in the course of the self-affirming manipulation. Table 1 lists the top three most selected domains in the affirmation condition by ethnicity. The only coded domain that showed any sort of trend was that of academics ($p < 0.1$). For academics, it was observed that AA in the treatment condition were 2.4 times more likely to select the domain of academics as compared to EA in the treatment condition, as indicated by the odds ratio.

Academic performance

A regression was conducted using experimental condition, ethnicity, and the academics variable (wrote about academics or not) as predictors, along with all 2-way and 3-way interactions involving them. Baseline performance and teacher assignment were also included as covariates. The dependent measure was change in GPA—i.e., GPA in the intervention-targeted course (the one in

which the intervention took place) minus previous year's GPA (using post-intervention GPA as the outcome, rather than a change score, did not change the results). Contrary to predictions, there were neither main effects nor interactions observed involving the academic selection variable, all t s < 1.3, all p s > .20. Additionally, among students in the affirmation condition, no statistically significant main effect of writing about academics was observed for either ethnic group, t s < 1.

Discussion

In this study we tested the hypothesis that same-domain affirmations will lead to beneficial outcomes when participants perceive threats to their self system and are allowed to choose among personally relevant domains in which affirm themselves. Contrary to the predictions, self-affirming in the domain of academics did not increase academic performance. As was reported above, African American participants in the treatment condition were more likely to self-affirm in the domain of academics than European Americans. The influence that participant ethnicity and academic domain choice had on the effect that experimental condition has on change in GPA was not found. All hypothesized necessary conditions were met: unaffirmed participants were previously observed to have stereotypically derogatory words mentally accessible (i.e. they perceived threat); participants were more likely to select the domain of academics as being most important to them; and they were able to select the domain of academics from among 12 domain choices.

Although the data did not support the hypothesis, this does not suggest that all same-domain affirmations are not beneficial. The findings reported above pertain only to the way in which writing about academics is operationalized in this study. Furthermore, the mechanism underlying the impact of the affirmation may be different from what is conceptualized in this report.

Despite not observing data consistent with the aforementioned prediction, it was observed that students who are African American chose to self-affirm in

academic domains at higher proportions than students who are European American. This challenges the hypotheses that students who are African American do not actively or passively identify with academic environments (Ogbu, 1992). Ogbu asserts that involuntary minorities (e.g. African American descendants of slaves) abstain from domains linked with the dominant culture as a result of the history of contact between the groups. Such abstentions, he argues, contribute to the disparities in intergroup academic outcomes observed. The data in this report may suggest that self-affirmations may reduce the perceived hostility that students who are of an involuntary minority ethnicity have toward academic and other so-called dominant group domains. Alternatively, the process of self-affirmation may have allowed the African American students to personally identify with academics in novel way. Framing such achievement gaps not as interethnic, but as disparities between African Americans and their own standards of personal excellence may support that alternative explanation (Hilliard, 2003). This is consistent with the reduction in accessible stereotypic words observed for African Americans in this and another cohort (Cohen, et al., 2006). Tangential implications of this hypothesis are further explored in the discussion of belongingness below.

Steele asserted that much of the cognitive dissonance literature mistakenly asserted that people's responses following a threat were aimed at resolving inconsistency via rationalization. The mistake, he declared, is that participants were only given one way to resolve the inconsistency. However, he and his colleagues demonstrated that providing alternative ways to restore self-

integrity reduces inconsistency rationalizations and related behaviors (Steele, 1988). It appears that the current results extend the notion of providing alternatives one step further. Not only must participants be allowed more than one way to restore their integrity in the context of a given threat, they must also be allowed to choose which way from among the potentially self-relevant alternatives.

There are still unanswered questions regarding the findings outlined above that could potentially be answered by conducting future experiments. Determining under what conditions people are more likely to endorse a same-domain affirmation vs. not may be a logical first step. There is at least one report suggesting that, given a choice, people are more likely to affirm themselves in a domain different from the one in which they are being evaluated (Aronson, Blanton, & Cooper, 1995). This makes our findings above even more intriguing. In the current study, African American participants were given a choice and chose to affirm themselves in a domain in which readily accessible negative academic stereotypes for the group exist. Either we studied an unusual sample, or there may exist features about their environments that would increase the likelihood that they would self-affirm in academics. Giving the participants an opportunity to affirm themselves in a domain of *their* interest may have conceptually primed the construct of belongingness. Perceiving belongingness in the collegiate setting has been observed to significantly increase achievement among college students (Walton & Cohen, 2007). Measuring the sense of belonging among future students and observing to what extent belongingness

mediates the relationship between same domain affirmations and outcomes could test this hypothesis. The climate assessments given to students throughout the year (assessing their attitudes toward and identification with scholastic environments) may provide some preliminary data to determine whether such processes are occurring.

That the manipulations were completed in a classroom may provide evidence for another alternative to belongingness in reconciling the above paradox. There are presumably many potential environmental cues that exist in a classroom inside of a school that may prime a student to select academics as the domain of most personal importance. What is interesting is that only affirmed African American participants (not European American students) were observed to select the domain of academics more so than those in the control condition. Having the participants complete the affirmation in a different setting (e.g. at lunch, during recess, at home) and comparing which domains are ranked as most important to those ranked in the classroom setting would allow us to know to what extent their setting influenced their selections. To further the ecological validity of the findings, having participants complete a similar affirmation but be assessed on a different dependent variable could be done.

Additionally, the affirmation may have increased students' intrinsic motivation relative to their extrinsic motivation by highlighting a domain that was important to them. The psychological subfield of motivation has numerous examples of the beneficial effects of intrinsic motivation (Levesque, Stanek, Zuehlke & Ryan, 2004; McGregor, Sharp, Kouides, Levesque, Ryan, & Deci,

2006). It is thought that one's being intrinsically (verses extrinsically) motivated increases the likelihood that one will identify aspects of a given task or process that will increase and sustain interest over time (Ryan & Deci, 2000). This increase in interest can be predictive of academic performance via the formation of mastery goals—goals in which the aim is “to develop[p] new skills” whereby, “the process of learning itself is valued” as opposed to performance goals (Harackiewicz, Baron, Tauer, Carter, & Elliot, 2000; Ames & Archer, 1988). Self-affirmations may be demonstrated to provide the context that makes the development of intrinsic motivational states more cognitively accessible. Furthermore, it has been demonstrated that increasing perceptions of competence can increase the likelihood of one's having intrinsic (vs. extrinsic) goal-orientations (Ryan & Deci, 2000). More directly, Schimel et al. have demonstrated that affirming intrinsic (as opposed to extrinsic) selves can increase accurate performance on a math test (2004). Assessing motivation using the TSRQ both before and after an affirming manipulation in a future cohort may shed some light as to what degree motivational orientations are influenced by self-affirming manipulations (Ryan & Connell, 1989).

One way to further demonstrate that the conditions outlined above are necessary vs. sufficient would be to pre-screen participants to identify which domains are most important to them. Experimenters would then affirm one cohort of participants in a domain different from the one that they ranked most important (whereas the other cohort would be affirmed in the domain of interest). The performance of the two groups on a dependent variable would then be

observed. Those affirmed in a domain different from the one they selected would be expected to perform less well on the dependent variable.

While there is much work to be done to further clarify the findings, we have begun to demonstrate the necessary conditions in which self-affirmations made in the same domain as the one being measured can lead to normatively beneficial outcomes.

Table 1
Chi-square Analysis for Domain Selection

Domain	AA	EA	$\chi^2(1)$	Cohen's K
Academics	50%	29%	2.62	0.98
Friends/Family	30%	35%	0.14	0.81
Independence ^a	19%	9%	0.31	0.87
Sports ^a	11%	16%	0.07	1.0

^a Reflects Yate's correction when expected values are < 5

References

- Ames, C., & Archer J. (1988). Achievement Goals in the Classroom: Students' Learning Strategies and Motivation Processes. *Journal of Educational Psychology, 80*, 260-267
- Aronson, J., Blanton, H., & Cooper, J. (1995). From dissonance to disidentification: Selectivity in the self-affirmation process. *Journal of Personality and Social Psychology, 48*, 986-996.
- Brown, B. R. (2000). When moral entitlement leads to immoral acts. Doctoral dissertation, Stanford University. *Dissertation Abstracts International: Sciences and Engineering, 61*, 1132.
- Cohen, G. L., & Garcia, J. (2005). "I Am Us": Negative Stereotypes as Collective Threats. *Journal of Personality and Social Psychology, 89*, 566-582.
- Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the Racial Achievement Gap: A Social-Psychological Intervention. *Science, 313*, 1307-1310.
- Cohen, G. L., Sherman, D. K., Bastardi, A., Hsu, L., McGoey, M., & Ross, L. D. (2005). Bridging the partisan divide: Self-affirmation and the reduction of ideological bias. Manuscript under review.
- Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*, 350-356.
- Creswell, J. D., Lam, S., Stanton, A. L., Taylor, S. E., Bower, J. E., & Sherman, D., K. (2005). Does self-affirmation, cognitive processing, or discovery of meaning explain cancer-related health benefits of expressive writing? Manuscript under review.
- Harackiewicz, J. M., Barron, K. E., Tauer, J. M., Carter, S. M., & Elliot, A. J. (2000). Short-Term and Long-Term Consequences of Achievement Goals: Predicting Interest and Performance Over Time. *Journal of Educational Psychology, 92*, 316-330.
- Hilliard, A. (2003). No Mystery: Closing the Achievement Gap between Africans and Excellence. In T. Perry, C. Steele, & A. Hilliard., *Young, Gifted, and Black: Promoting High Achievement Among African-American Students* (pp.131-165). Boston, MA: Beacon Press.

- Levesque, C., Stanek, L. R., Zuehlke, A. N., & Ryan, R. M. (2004). Autonomy and competence in German And American University Students: A Comparative Study Based on Self-Determination Theory. *Journal of Educational Psychology, 96*, 68-84
- Myles, D. E., & Purdie-Vaughns, V. P., (n.d.). Realizable Choice: An Ethnographic Approach. Manuscript in Preparation.
- Ogbu, J. U. (1992). Understanding Cultural Diversity and Learning. *Educational Researcher, 21*, 5-14.
- Ryan, R. M., & Deci, E. L. (2000). Self Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist, 55*, 68-78.
- Schimmel, J., Arndt, J., Banko, K. M., Cook, A. (2004). Not All Self-affirmations were Created Equal: The Cognitive and Social Benefits of Affirming the Intrinsic (vs. extrinsic) Self. *Social Cognition, 22*, 75-99.
- Sherman, D. K., & Cohen, G. L. (2006). The Psychology of Self-Defense: Self-Affirmation Theory. *Advances in Experimental Social Psychology, 38*, 183-242.
- Smith, C. P. (2000). Content Analysis and Narrative Analysis. In H. T. Reis & C. M. Judd (Eds.), *Handbook of Research Methods in Social and Personality Psychology* (pp. 313-335). New York, NY: Cambridge University Press.
- Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261-302). New York: Academic Press.
- 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.
- Uhlman, E. L., & Cohen, G. L. (2007). "I think it, therefore it's true": Effects of self-perceive objectivity on hiring discrimination. *Organizational Behavior and Human Decision Processes, 104*, 207-223.
- 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.
- Williams, G. C., McGregor, H. A., Sharp, D., Kouides, R. W., Levesque, C., Ryan, R. M., & Deci, E. L. (2006). Testing a Self-Determination Theory

Intervention for Motivating Tobacco Cessation: Supporting Autonomy and Competence in a Clinical Trial. *Health Psychology, 25*, 91-101.

Zuckerman, M., Porac, J., Lathin, D., Smith, R., & Deci, E. L. (1978). On the Importance of Self-Determination for Intrinsically-Motivated Behavior. *Personality and Social Psychology Bulletin, 4*, 443-446.