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## FlashReports

## The Obama effect: An experimental test

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## ABSTRACT

Past research on stereotype threat and role model effects, as well as a recent quasi-experiment (Marx, Ho, & Freidman, this issue) suggested the possibility of an “Obama effect” on African American’s standardized test performance, whereby the salience of Barack Obama’s stereotype defying success could positively impact performance. We tested this reasoning in a randomized experiment with a broad sample of college students from across the country. Specifically, we tested the hypothesis that students prompted to think about Barack Obama prior to taking a difficult standardized verbal test would improve their performance relative to white students, and to African American students in control conditions that were not prompted to think about Obama. Our results did not support this hypothesis. Test scores were unaffected by prompts to think about Obama and no relationship was found between test performance and positive thoughts about Obama, a disconfirmation of both the findings and conclusions of the Marx, Ho, and Freidman study.

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The ascent of Barack Obama, a charismatic, well spoken, and intellectually gifted African American male to the presidency is a watershed in American history, a societal advance with a host of potential implications for race relations, cultural images of African Americans, and perceptions of social opportunity. Opinion polls taken since the election, for example, indicate that twice the percentage of African Americans report they are optimistic about American race relations than did so prior to the election (Saulny, 2009).

Of specific interest in this research was the effect that Mr. Obama’s widely publicized success might have on the psychological experiences of black American students in the realm of their intellectual abilities, performances, and efforts. Anecdotes reported in the media suggest, for example, that Mr. Obama has inspired increased enthusiasm among black students about their education, with one teacher reporting that excitement about Mr. Obama prompted an increase in homework completion among her black students (Cooper, 2008).

In our research we were interested in testing whether Obama’s success could positively influence the intellectual test performance of African American test-takers. Solid evidence from scores of experiments would seem to favor this possibility. First, there is the research on “stereotype threat” (Aronson & McGlone, 2009; Aronson & Steele, 2005; Steele & Aronson, 1995). This research shows that members of groups for whom negative ability stereo-

types are well known can experience significant shifts in test performance, depending on situational cues (e.g., test instructions) that make negative ability stereotypes salient or relevant to performance. For example, Steele and Aronson (1995) found that African American college students performed significantly worse on a standardized test of verbal ability when the test was presented as a measure of their intellectual abilities as opposed to a non-evaluative task. In a second study they found that simply having students indicate their race on a questionnaire was sufficient to lower the test scores of the African American students. These manipulations had negligible effects on the performance of white students in both studies. The explanation for these effects is that awareness of the stereotype (in this case, the allegation that black people are less intelligent than whites) arouses psychological discomfort in the test-taker about the prospect that his or her performance could confirm the negative implications of the stereotype. If strong enough, the discomfort can impair cognitive efficiency (e.g., working memory capacity and other executive functions), thereby interfering with performance on the test. Numerous studies have replicated these effects, not only with African American students, but also with other groups similarly targeted by ability stereotypes, such as women taking math or spatial reasoning tests, and Latinos taking verbal tests (see Aronson and McGlone (2009), for a review).

The possibility that awareness of Obama’s success could potentially alleviate stereotype threat and improve performance is suggested by a number of experiments showing the positive effects of salient role models on test performance in stereotype

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threatening situations. For example, Marx and Roman (2002) found that women performed significantly better on a math test when the test was administered by a female rather than male mathematician, presumably because the implied math competence of the experimenter offered a salient disconfirmation of the women-are-bad-at-math stereotype. McGlone, Aronson, and Kobrynowicz (2006) found analogous results in a study on the political knowledge test performance of women and men: women performed significantly better when the test examiner was female rather than male. Thus there is ample evidence from laboratory studies that stereotype-disconfirming role models can counter the effects of stereotype threat, and thereby improve the performance of stereotype-threatened students. As noted by Marx, Ko, and Friedman (this issue), three preconditions for threat-reduction are suggested by this research: the role model must be salient, be perceived as competent in the stereotyped domain, and be perceived as having a similar social identity (e.g., the same race or gender) to that of the test-taker.

Given Obama's race and his clear competence and success in academics and politics, one could reasonably predict that African Americans induced to think about Obama prior to taking a difficult test of ability might experience a lift in performance, an effect Marx et al. (this issue) claim to have captured in a quasi-experiment conducted in the months leading up to Obama's victory in the presidential election, and in the direct aftermath of that victory. Their results suggested that awareness of Obama's success shrank the black–white gap in test scores.

Yet given the non-experimental nature of the Marx et al. study, there is good reason to wonder how real the “Obama effect” is—i.e., whether the same effects would occur under more naturalistic conditions, with a representative sample in a more methodologically rigorous study. Working during the same time frame as Marx et al. (immediately following Obama's nomination by the DNC) we employed a randomized controlled design with a random sample of African American and white college students to test this “Obama effect” hypothesis experimentally.

## Method

### *Sample, setting and general procedure*

Employing a sample, setting, and procedure that has reliably produced stereotype threat effects (Aronson, McGlone, & Doyle, submitted for publication), undergraduate students took a challenging verbal test in mixed race and gender groups of approximately 80 students per testing session. The testing sessions were conducted at three different American universities and involved students participating in a residential summer program sponsored by the American Association of Medical Colleges for medical school aspirants. The test given was highly relevant to the students' aspirations—a verbal section of the Medical College Admissions Test (MCAT). The test contained 24 verbal reasoning and reading comprehension items virtually identical in form and difficulty to items on the Graduate Record Exam used in previous stereotype threat experiments (e.g., Steele & Aronson, 1995; Marx et al., this issue). Importantly, the testing sessions were conducted within a week of one another between June 20th and July 15th, 2 weeks after Obama had been declared the Democratic nominee, leaving a two-man race with McCain for the presidential election in November.

In each case, the tests were administered and proctored by a white male who ran the testing session in a manner designed to closely simulate typical group testing: the proctor made sure students did not open their testing booklets until the designated start

time and closed them by the designated completion time, and closely monitored the group to discourage talking or wandering eyes.

In previous experiments employing samples from this same population of students in the same setting and using the same test (Aronson et al., submitted for publication), we successfully replicated the stereotype threat effect. Specifically, African Americans solved significantly more verbal items when the test instructions downplayed the ability–diagnostic nature of the test than when it was emphasized it (Steele & Aronson, 1995). Thus we were confident that the population, setting, and procedure were appropriate for testing the “Obama effect” on performance.

### *Experimental manipulation of Obama's salience*

All students in the experiment received the same test instructions, which described the test as an important measure of ability that predicted success in gaining admission to either medical or graduate school, a desired outcome for all students in the program. Within each testing session, participants were randomly assigned to receive one of three versions of the test booklet, which contained a cover sheet, the experimental manipulation, the test instructions, and the MCAT test. The manipulation consisted of a brief political survey ostensibly being conducted by a colleague of the experimenter. The survey was designed to prompt participants to think about either Barack Obama (Obama condition) or John McCain (McCain condition), or upon neither of the two (control condition).

For students in the Obama condition, three small color photos of Obama were printed on the top of the sheet. One was a portrait that had appeared on the cover of *Time* magazine, a second showed him standing in front of the Capitol building, and a third displayed him smiling triumphantly from a podium giving a speech. The pictures were chosen to highlight Obama's success. Photos of McCain in similar contexts (e.g., smiling on a *Time* Magazine cover) were presented on the top of the page of the McCain condition. Under the photos, a series of quotes was presented, taken from transcripts of Obama's political speeches, press conferences, and interviews. The quotes were explicitly chosen to be ideologically ambiguous, so that they could be conceivably be attributed to any political candidate of either party. These quotes were attributed to Obama in the Obama Condition, McCain in the McCain condition, and to “an American politician” in the control condition. To add plausibility to the McCain condition, into three of the quotes we inserted the phrase “my friends,” a trademark phrase McCain habitually employed in campaign speeches.

In each condition, participants were instructed to indicate on a scale how much they agreed with each of the quoted statements. Next, participants were instructed to think of and list two positive things about the prospect of electing Obama (or McCain) to the presidency. In the control condition, participants were asked to generate two positive things about being politically informed. In sum, the manipulation was designed to induce focus not just upon McCain or Obama, but to prompt an explicit focus on their positive qualities. Following the test, participants answered an additional set of questions aimed at gauging their engagement with and attention to the election. To provide an additional comparison group, a fourth group was run in additional sessions within the same population of students without the political survey task. The test instructions and procedures were otherwise identical to those in the other conditions.

We hypothesized that African American test-takers would solve more items if prompted to think about Obama than if prompted to think about McCain, an unspecified politician, or no one at all. We predicted that the salience manipulation would have no effect on the white test-takers.

## Results and discussion

### Data inclusion

Small numbers of Latino, Asian, and Native American students also participated in the summer programs, and thus were also included in the experimental testing sessions. Because inclusion of these students in statistical analysis had no effects on the results, they were excluded from further analysis, and we hereafter consider only the data of the African American and white students. We also excluded the data from participants whose race could not be confidently determined from program records and two participants who scored more than 2.5 standard deviations below the grand mean. This left a total of 119 (85 female, 35 male) participants distributed across the four conditions of the experiment.

### Test performance

Students' test performance was computed by summing the number of correct answers. A 2(race: white or black)  $\times$  4(experimental condition: Obama, McCain, Unspecified Politician, or Control)  $\times$  2(sex: male or female) ANOVA was performed on these scores, revealing a significant main effect of race,  $F(1, 104) = 26.83, p < .01, \eta_p^2 = .205$ , with whites ( $M = 18.68$ ) outperforming blacks ( $M = 14.20$ ). A race by sex interaction was also detected  $F(1, 104) = 6.61, p < .05, \eta_p^2 = .06$ , such that white males ( $M = 20.82$ ) outperformed white females ( $M = 17.61$ ), while black females ( $M = 14.67$ ) outperformed black males ( $M = 12.90$ ).

Contrary to predictions, there were no significant effects of presidential condition and no interaction between race and presidential condition ( $F < 1$  in both cases). For the participants whose SAT scores were known ( $n = 71$ ), an analysis of covariance (ANCOVA) was conducted using SAT verbal scores as a covariate. Correcting for SAT had no effect on results beyond reducing the overall black–white difference across conditions. We examined the simple main effects of presidential condition for black students only with or without the SAT correction, yet neither analysis revealed any indication of an Obama effect (all  $ps > .5$ ). Black students solved no more problems in the Obama condition ( $M = 14.5$ ) than they did in the McCain ( $M = 13.1$ ), unnamed politician ( $M = 14.5$ ), or stereotype threat control condition ( $M = 16.0$ ). Analysis of the number of items attempted similarly revealed no effects of the Obama manipulation ( $F < 1$ ).

### Internal analyses

Although no overall condition effect emerged, it is possible that *certain* students benefited by thinking about Obama. To explore this possibility, participants' open-ended positive statements about Obama were coded for level of positivity, mentioning Obama's minority status, and mentioning his stereotype-defying qualities. Positivity ratings reflect *how* positively participants described Obama. Possible values ranged from 1 for an unembellished fact (e.g., "He is married") to 5 for an extremely positive characterization (e.g., "He is the ideal president"), and were normally distributed. Two independent coders ( $r = .97$ , Cohen's  $\kappa = .92$ ) scored each of the two positive statements before the two scores were summed to create a total positivity score. The open-ended responses were also coded for whether they mentioned Obama's minority status (e.g., "History's first African American Democratic presidential nominee") or his intelligence (e.g., "very intelligent"), which would suggest his image as defying negative stereotypes about African American intelligence. We also considered students' responses to follow-up questions tapping into their engagement in the campaign ("In the last 3 months, how often have you watched

television programs about the 2008 presidential campaign?"). Possible values ranged from 1 ("Once or more a day") to 5 ("I have not watched a TV program about the campaign in the last 3 months"). These analyses revealed no indication of an Obama effect on performance. For example, looking only at blacks in the Obama condition, test score was uncorrelated with positivity ( $r = -.01, p = .98$ ), mentioning race ( $r = .02, p = .91$ ), mentioning intelligence ( $r = .23, p = .20$ ). The only significant correlation disconfirmed the logic of the Obama effect: students who reported greater engagement in the election earned *lower* test scores ( $r = -.35, p = .05$ ).

In sum, in a situation that reliably produces stereotype threat effects, our experiment used standardized procedures to get students thinking about Obama in a positive way, yet produced no evidence to suggest that doing so improved their test performance; participants primed to think about Obama performed no better than students in three different control conditions. Moreover, no evidence suggested that greater admiration for Obama was meaningfully associated with better performance. This is curious, given not only the effects obtained from laboratory experiments on black role models (e.g., Marx & Goff, 2005), but even more so, given the encouraging results of the Marx et al.'s quasi-experiment (this issue) that specifically focused on Obama. We can only speculate about the reasons.

First, it is conceivable that giving the exam following the nomination but prior to the election, meant that Obama's success was insufficient to overcome the stereotype threat experienced by students in our testing sessions. Marx et al. make this argument to explain a "down period" during the campaign (between the primaries and before the Democratic National Convention) when they found no reduction in the test score gap. Yet we doubt this factor affected our results for a number of reasons. First, our test occurred just after the primary, and Obama led McCain in national polls during that time period; students queried in our sample expressed jubilation about the primary and optimism that he would win the election. These conditions are thus quite similar to those in which Marx et al. found a significant reduction in the black–white gap.

Considering the prerequisites for a role model effect mentioned earlier, it seems reasonable to assume that Obama was made *salient* in our Obama condition given that we induced focus upon him. It is also reasonable to assume that he was perceived as *defying the stereotype* by being perceived as highly intelligent and successful, given his recent nomination and the stimuli showing him in highly triumphant contexts. (It is worthy of note that participants' open-ended responses about Obama were uniformly admiring.) Contrary to Marx et al.'s assertion that role model effects require recent evidence of concrete success, research shows that this is not a necessary condition. For example, Marx and Roman (2002) found that merely having a female, ostensibly math-competent woman administer the test boosted the test performance of women. Nothing in their procedure was done to present her as being especially successful, yet the role model effect occurred nonetheless. Thus we doubt that our null effects reflect the fact that the election was uncertain or that Obama was viewed as insufficiently successful to defy a stereotype.

To what extent might an Obama effect be attributable to Obama's perceived *similarity* to test-takers and therefore his relevance as a role model? Clearly, Obama's African American background provides some grounds for similarity to the Black students in our sample. Yet we wonder if it is possible that, given his extraordinary talents, Obama may be perceived as perhaps too innately talented to serve as a threat-buffering role model for the typical African American college student; perhaps his abilities are so stellar that the typical student cannot confidently conclude that "if Obama can succeed, so can I." We know from prior research that when a model's success is seen as the unattainable product of talent, role model salience does not facilitate performance (Lockwood &

Kunda, 1997). In other words, perhaps Obama was seen as an outlier—inspirational, but a bit out of reach as a role model.

Given the degree to which our results contradict the findings of the Marx et al. study (this issue), it is also reasonable to wonder about possible selection biases in their quasi-experiment that may have facilitated finding an Obama effect. Specifically, participants in their study responded to advertisements to sit at pre-designated times to take difficult verbal ability tests. This may have restricted their sample to students comfortable being thus evaluated, and perhaps such individuals are more responsive to Obama's example. Our sample was quite different; students volunteered for a summer enrichment program which included, among many diverse activities, some test preparation activities of which our group testing was an unadvertised part. In other words, participation in our experiment was not predicated on their feeling comfortable about ability evaluation. We think this may make our sample more representative of the typical Black American student than those recruited to participate in Marx et al. study, and thus we believe our experiment to be a more stringent test of the effect.

It is also the case that Marx et al. did not randomly assign their participants to condition. Rather, participants voluntarily chose whether to expose themselves to Obama, pay attention to his speeches, the presidential campaign, and so on. Again this raises the specter of selection bias; perhaps students who were attracted to and inspired by Obama's success were more likely to show the effect, or to experience less stereotype threat to begin with. Or perhaps some other unmeasured variable was operating that made people both more likely to be tuned into Obama and more likely to score well on a test. We cannot know for sure; this is precisely the sort of ambiguity one is left with in naturalistic research where random sampling, random assignment to condition, and appropriate control groups are not available.

To be sure, none of these concerns strictly rule out the possibility of an Obama effect. But we believe our research, at the very least, suggests that if it exists, this effect is less pervasive and more dependent on test-taker characteristics than is suggested by Marx et al.'s study. While Obama is clearly an inspirational figure, his effect on motivating students and lifting their test scores is undoubtedly a more complex and interesting phenomenon than initially assumed. It seems unlikely that his mere salience would be enough to eliminate all of the stereotype threat experienced by all students, given that stereotype threat is rooted not only in perceptions of one's social group, but in important life experiences and self-perceptions as well (Aronson & Inzlicht, 2004; Inzlicht, Aronson, Good, & McKay, 2006; Schmader, 2002). Moreover, given the variety of structural and social factors known to contribute to the black–white gap in test scores (e.g., Jencks & Phillips, 1998; Magnuson & Waldfogel, 2008), it strikes us as highly improbable that the gap could be closed overnight by electing a black Presi-

dent, even one who inspires as much hope and admiration as Obama. The good news is that if Marx et al. are correct and we are mistaken, we will see a steady and significant reduction of the black–white test score gap as the Obama presidency rolls on. But we remain skeptical that a psychological predicament predicated on generations of negative stereotyping could be neutralized so quickly by our present positive (and undoubtedly unprecedented) political circumstances.

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