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# When Beliefs Yield to Evidence: Reducing Biased Evaluation by Affirming the Self

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*People often cling to beliefs even in the face of disconfirming evidence and interpret ambiguous information in a manner that bolsters strongly held attitudes. The authors tested a motivational account suggesting that these defensive reactions would be ameliorated by an affirmation of an alternative source of self-worth. Consistent with this interpretation, participants were more persuaded by evidence impugning their views toward capital punishment when they were self-affirmed than when they were not (Studies 1 and 2). Affirmed participants also proved more critical of an advocate whose arguments confirmed their views on abortion and less confident in their own attitudes regarding that issue than did unaffirmed participants (Study 3). Results suggest that assimilation bias and resistance to persuasion are mediated, in part, by identity-maintenance motivations.*

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One of the greatest pains to human nature is the pain of a new idea.

—Walter Bagehot

Many of us have had the puzzling experience of presenting arguments that challenge a friend's endorsement of a presidential candidate or belief in ESP only to find our appeals met with resistance. As social psychologists have long observed, people tend to persist in cherished beliefs and attitudes even when confronted with clear and contradictory evidence (Festinger, Riecken, & Schachter, 1956; Ross & Lepper, 1980). They also tend to evaluate ambiguous information in a manner that bolsters preexisting views (Lord, Ross, & Lepper, 1979). From work on self-fulfilling prophecies (Snyder, Tanke, & Berscheid, 1977) and interpersonal expectancies (Darley & Gross, 1983) to investigations of stereotypes and prejudice (Hamilton & Rose, 1980; Munro & Ditto,

1997), much research has demonstrated the powerful influence that beliefs can have on the interpretation of new information (see Gilovich, 1991, for a review).

This article begins with the assumption that beliefs can constitute valued sources of identity. They may thus be given up only with great reluctance, and they may be embraced even when they conflict with the demands of fact, logic, or material self-interest (e.g., Abelson, 1986; Sears & Funk, 1991). Capital punishment proponents, for example, might cling to a belief in the death penalty's deterrent efficacy in large part because it reinforces their identity as political conservatives (Ellsworth & Ross, 1983). The conflicting attitudes that Blacks and Whites had about the O.J. Simpson trial might also have arisen, in part, from a desire to affirm racial identity and solidarity. Evidence that challenges the validity of such cherished beliefs presents a self-threat insofar as giving up that belief would entail losing a source of esteem or identity. To neutralize that threat, people are apt to evaluate evidence defensively (Ditto & Lopez, 1992; Dunning, Leuenberger, & Sherman, 1995; Kunda, 1990; Munro & Ditto, 1997; Zuwerink & Devine, 1996). Scrutinizing belief-disconfirming evidence for fault or accepting at face

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value belief-confirming evidence helps to protect one's belief and the identity it affirms.

Buffering people against self-threat, however, should attenuate defensive processing. According to self-affirmation theory, the potency of a psychological threat lies in its capacity to imperil a global sense of self-worth (Steele, 1988). Because global self-worth derives from many sources, people have much flexibility in how they cope with a particular self-threat. They can reaffirm their self-worth directly—in this case, by defensively evaluating the persuasive evidence—or they can do so indirectly—by affirming other equally valued domains of self-worth. Indeed, research suggests that such “self-affirmations” can reduce defensive processing of health risk information (e.g., Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000). They have also been shown to increase people's openness to information that threatens their self-interests or motives (Bastardi & Ross, 2000).

According to our analysis, people should prove less defensive and resistant in the face of a counterattitudinal message when alternative sources of self-worth are buttressed or activated. For example, a capital punishment proponent should feel more open to evidence challenging the death penalty's effectiveness if he or she feels affirmed as a good friend or valued employee. Self-affirmations, we argue, trivialize the attitude as a source of self-worth and thus make it easier to give up.

The present conceptual analysis may be compared with that offered by researchers working in other theoretical traditions. Cognitive dissonance theorists, for example, would suggest that information inconsistent with strongly held beliefs induces an aversive state of arousal. People can reduce that arousal, and restore consonance, by challenging the validity of the dissonant information, for example, by denigrating its source as untrustworthy (E. Aronson, Turner, & Carlsmith, 1963; Zimbardo, 1960). Like dissonance theory, our analysis implies that an aversive drive state mediates, in part, resistance to counterattitudinal messages (see also Munro & Ditto, 1997; Zuwerink & Devine, 1996). In contrast to dissonance theory, however, we argue that this drive state reflects the activation of ego-protective motivations rather than consistency-restoring ones (Steele, 1988). Accordingly, dissonance may be attenuated by addressing the provoking inconsistency directly (by attacking the specific persuasive appeal) or indirectly (by reflecting on alternative sources of self-worth). Cognitive dissonance theory, at least in its most straightforward form, would not predict that heightened feelings of self-worth in one domain would reduce dissonance (and thus resistance to persuasion) in another.

The pattern of findings that we predict also differs from that previously obtained in research examining the role of self-esteem in moderating persuasibility. High-

self-esteem individuals, it has been found, tend to resist persuasive messages more than do low-self-esteem individuals, presumably because people with high self-esteem have greater confidence in the validity of their beliefs (e.g., Cohen, 1959; Janis, 1954; Zellner, 1970; cf. Rhodes & Wood, 1992). Based on this finding, it would seem that enhancing self-worth with an affirmation procedure should increase resistance to persuasion rather than decrease it. One reason for the difference between earlier results and our own predictions involves the present research's use of affirmations unrelated to the attitude issue. The effectiveness of such self-affirmations lies in their capacity to remind people that their self-worth derives from sources other than the attitude issue. Although high self-esteem might increase self-confidence, it would not necessarily confer the flexibility that an affirmation does in terms of coping with self-image threats. Indeed, research suggests that unless they are first reminded of their esteem resources, high-self-esteem individuals will prove just as defensive as their low-self-esteem peers in response to a specific self-threat (Steele, Spencer, & Lynch, 1993; cf. Brown & Smart, 1991).

One other factor helps to explain the difference between our predictions and findings obtained in past research. In general, earlier studies did not present participants with threatening persuasive messages—these studies typically used vague or otherwise weak messages addressing issues tangential to participants' self-interests or identities (e.g., the effect of TV on the movie industry or whether penicillin constitutes a wonder drug). Such messages would trigger little if any defensive processing because participants were unlikely to have a personal investment in the issue. Even if they did have such an investment, the messages often were insufficiently persuasive to pose a serious threat to participants' beliefs. According to our analysis, affirming self-worth should attenuate defensive processing, and to induce such defensiveness it is essential to expose participants to strong evidence that conflicts with a cherished attitude.

Our three studies thus featured social-political partisans responding to highly persuasive evidence. In Studies 1 and 2, we expose capital punishment partisans to a counterattitudinal scientific report regarding the death penalty and predict that a self-affirmation will lead them to be more positively influenced by that report. In Study 3, we present prochoice and prolife advocates with a debate on abortion. Here, we predict that a self-affirmation will attenuate biased evaluation of the debate, that is, the tendency to rate the like-minded debater more favorably than the debater from the other side. Although these predictions follow from our conceptual analyses, it is worth reiterating that previous persuasion models would anticipate the opposite pattern of results—that self-affirmations should raise self-confidence and

thereby increase biased evaluation and resistance to persuasion (Cohen, 1959; Janis, 1954; Zellner, 1970). In a sense, our studies pit the self-affirmation logic against these earlier theoretical frameworks.

#### STUDY 1

Proponents and opponents of capital punishment were presented with a counterattitudinal scientific report regarding the death penalty (see also Lord et al., 1979). They were told that their memory of the report would be tested; thus, they presumably felt motivated to read the report systematically rather than peripherally. Before doing so, however, participants were randomly assigned either to an affirmation condition or to a no-affirmation condition. In the affirmation condition, they wrote an essay about a personally important trait or value unrelated to their views on capital punishment (Fein & Spencer, 1997; Steele, 1988). In the no-affirmation condition, they wrote an essay about a personally unimportant topic. The dependent measures included both attitude change and questionnaire items assessing the general positivity of response to the scientific report.

#### METHOD

##### *Design and Participants*

The experiment featured a  $2 \times 2$  factorial design, with partisanship of the participant (proponent of capital punishment or opponent) and affirmation condition (affirmation or no affirmation) the between-participants factors.

Participants consisted of 36 male and 41 female undergraduates who either received credit in an introductory psychology course or were paid \$6 for participation. Students were recruited on the basis of their responses to a preselection survey administered earlier in the academic quarter. One item in this survey asked students to indicate their attitude toward capital punishment on a scale ranging from 1 (*very much in favor*) to 13 (*very much opposed*). Students who had indicated that they either strongly favored capital punishment (a 1, 2, or 3) or strongly opposed it (an 11, 12, or 13) were telephoned and invited to participate in the study. Data from 5 participants (3 in the affirmation condition, 2 in the no-affirmation condition) were discarded prior to analyses, 4 students who expressed suspicion about our concern with persuasion and attitude change and 1 student who doubted the authenticity of the scientific report. This left a total of 72 participants—25 opponents and 47 proponents—randomly assigned to the two experimental conditions. (Fewer opponents were recruited simply because of their dearth in our available participant pool.)

At the time that they filled out the preselection questionnaire, participants also completed a version of Harber's (1995) Sources of Validation Scale—responses to which would later be used in the preparation of the self-affirmation manipulation (see the appendix). In the present study, the questionnaire asked students to rate several traits and values in terms of their personal importance. The questionnaire included the values of sense of humor, athletic skills, and relations with friends but did not include items such as religion and family values, which might be related to capital punishment attitudes.

##### *Procedure*

Because research has shown that warning of persuasive intent increases resistance to persuasion (McGuire, 1985), a cover story was necessary. Students participated in the study individually, and after being greeted by a male experimenter, they were told that the study concerned memory. The researchers, they were told, wanted to examine the relationship between subjective memory—memory of personal events as experienced firsthand—and objective memory—memory of less personally relevant stimuli. Participants were informed that they would first recall a few experiences from their personal life in a brief essay (the subjective memory exercise) and that they would then read a scientific report, aspects of which they would later try to remember (the objective memory exercise). After signing the consent form and being assured of the confidentiality of their responses, participants were provided with what ostensibly was the subjective memory exercise. They were given a sheet of paper titled "Personal Recall Exercise" with instructions printed underneath. In fact, this subjective memory exercise constituted the self-affirmation manipulation. Participants were randomly assigned either to an affirmation condition or to a no-affirmation condition.

*Affirmation condition.* Responses to the Sources of Validation Scale (which, as noted earlier, had been administered earlier in the academic quarter) were used to prepare the materials in the affirmation condition. Specifically, the most highly rated trait or value in each participant's Sources of Validation questionnaire had been identified and embedded in the instructions contained on the Personal Recall Exercise (when more than one value had been rated highly, the first one listed on the questionnaire was used). The instructions on the personal recall sheet asked participants to describe three or four personal experiences in which their most highly rated characteristic from the Sources Scale had been important to them and had made them feel good about themselves. For example, a participant who had rated sense of humor most highly on the Sources Scale was instructed to write about "personal experiences in which your sense of humor was important to you and made you

feel good about yourself.” Participants were further instructed to pick one of these experiences and to write a short story describing the event and their feelings at the time. Steele and his colleagues have found that reflecting on a personally important self-characteristic or value is an effective means of inducing self-affirmation (Steele, 1988).

*No-affirmation condition.* In this condition, the instructions on the Personal Recall Exercise asked participants to list, in as much detail as they could, everything that they had eaten or drank in the past 48 hours. They were further told “not to worry about those things you find yourself unable to remember.” We chose this control condition (instead of one that asked participants to write about an unimportant value) because students tend to turn almost any self-reflective writing task into a self-affirming one. Notably, in our studies, the affirmation effects were unrelated to the characteristic chosen and no student wrote about his or her social-political beliefs.

After the experimental manipulation (which took up to 13 minutes to complete), participants were told that they would now complete the objective memory exercise, whose purpose, they were reminded, involved assessing their memories of stimuli of a “more objective and less personally relevant nature.” Participants were thus informed that they would read a scientific article and then try to remember as much of its content as they could.

To heighten the plausibility of this cover story, and to further allay suspicions regarding the study’s concern with persuasion and capital punishment attitudes, participants were given a choice between two articles to read, although this choice was forced. They were told that the researchers wanted participants to have at least a minimal interest in the stimulus article. The experimenter gave the participant a sheet of paper listing two abstracts and asked participants to pick an article to read on the basis of these abstracts. The abstracts were fictitious but each appeared to be an excerpt from an authentic scientific article. The first abstract described a dry article about research on structure-mapping and systematicity in linguistics, whereas the second described an article about the various issues involved in capital punishment policy. All but 2 participants chose to read the capital punishment article. In response to the 2 less cooperative participants, the experimenter fumbled through papers and folders, cursed a research assistant for having misplaced the linguistics article, and asked whether the participant would consider reading the capital punishment article instead. Both participants were happy to acquiesce, although postexperimental debriefing indicated that 1 of these participants suspected the true purpose of the study; his data were discarded from analysis (as noted earlier).

*Counterattitudinal scientific report.* Participants were then given a 4-page scientific report addressing the merits (or lack thereof) of capital punishment, and they were provided as much time as they wanted to read this report carefully. The report appeared to be a lead article from a recent issue of the *Journal of Law and Human Behavior*, written by two researchers from Yale, titled “The Death Penalty: New Evidence Informs an Old Debate.” In fact, the report was fictitious. It contained facts, statistics, and arguments whose cumulative effect was to wage a persuasive attack on participants’ attitudes toward capital punishment. Proponents of the death penalty thus read an anti-capital punishment report. By contrast, opponents read a pro-death penalty report.

The arguments that each report presented addressed the effectiveness of the death penalty as a deterrent, its economic soundness, its merits as a means of incapacitating known murderers, and its ethical value. The arguments were highly persuasive and backed up, where possible, with relevant statistics and research findings. The research presented was styled after authentic capital punishment literature (see Lord et al., 1979). Importantly, the report that proponents read was identical in format to the one that opponents read—both described relevant research identical in methodology—but the two reports presented opposite findings and conclusions. For example, proponents of capital punishment read the following excerpt:

New research tools have helped researchers to overcome some of the shortcomings that plagued earlier work. . . . Crandall (1991) finished a 10-year study comparing murder rates for the years before and the years after adoption of capital punishment in 14 states. In 12 of the 14 states, murder rates were significantly higher after the adoption of the death penalty, in many states by as much as 35%. This finding held even when competing factors, such as changes in a state’s social and economic status and in its prior murder rate, were accounted for. Finally, much evidence has shown that when an execution is highly publicized . . . state and national murder rates increase dramatically (Vidmar, 1991).

By contrast, opponents of capital punishment read the same paragraph except that the phrases “higher after” and “increase dramatically” were replaced with the phrases “lower after” and “decrease dramatically.”

*Dependent measure.* After they read the scientific report, participants were given the dependent measure questionnaire designed to assess the favorability of their responses to the report. To probe for attitude change, one item asked, “What is your attitude toward capital punishment?” on a scale ranging from 1 (*very much in favor*) to 7 (*undecided*) to 13 (*very much opposed*). Another item asked, “How much, if at all, did the article affect



your overall attitude toward capital punishment?" on a scale ranging from 1 (*much more opposed*) to 7 (*no change in attitude*) to 13 (*much more in favor*). Two other items asked, "In your opinion, how effective a deterrent is capital punishment?" and "In your opinion, how economically sound is capital punishment?" on separate 13-point scales ranging from 1 (*extremely*) to 7 (*moderately*) to 13 (*not at all*). Finally, several items assessed evaluations of the authors of the article. One item asked, "How would you describe the political orientation of the researchers who wrote the article?" on a scale ranging from 1 (*extremely liberal*) to 7 (*neutral*) to 13 (*extremely conservative*). The other items asked, "In your opinion, how reasonable are the researchers?" and "How informed do you think the researchers are?" on separate scales ranging from 1 (*extremely*) to 7 (*moderately*) to 13 (*not at all*). These latter items constituted established measures of openness to persuasion (e.g., E. Aronson et al., 1963; Ross & Ward, 1995). As past research suggests, political partisans are apt to maintain the sanctity of their beliefs by attributing opposing views to political ideology, ignorance, or irrationality (Ross & Ward, 1995).

After completing the questionnaire, participants were probed for suspicion and debriefed. The experimenter explained that the report they read was fictitious and discussed the necessity of withholding the true purpose of the study until its completion. Participants were either paid \$6 or provided with the relevant signature to obtain course credit.

## RESULTS AND DISCUSSION

In Studies 1 and 2, data were analyzed using a two-way ANOVA, with partisanship (opponents or proponents) and experimental condition (affirmation or no affirmation) as between-participants factors. Gender was included as a factor in all three studies and, unless otherwise noted, there were neither main effects nor interactions involving it. Also, some participants failed to complete several questionnaire measures; as a result, degrees of freedom vary slightly.

### *Creation of "Favorability of Response" Composite and Index of "Attitude Change"*

To obtain a general index of the extent to which participants were positively influenced by the scientific report, we simply averaged the dependent measure items into a single "favorability of response" composite. Several items were first reverse-coded, however, to ensure that higher ratings along all scales would reflect, for proponents and opponents alike, more positive responses to the scientific report. Ratings of the reasonableness and informedness of the authors were thus reverse-coded for all participants. Opponents' attitude

toward capital punishment, their ratings of its deterrent efficacy and economic soundness, and their ratings of the authors' political orientation were also reverse-coded, as were proponents' ratings of the extent to which the article affected their overall attitude. The resulting postmanipulation items are conceptually similar and form a reliable index of the favorability of participants' response to the report (Cronbach's  $\alpha = .70$ ). Consequently, these items were averaged (after being standardized to equate their variance) into a single composite.

An index of attitude change also was computed by subtracting each participant's premanipulation attitude rating from his or her postmanipulation attitude rating. The resulting change score of opponents was then multiplied by  $-1$  so that positive numbers for opponents and proponents alike would reflect greater attitude change in the direction of the report.

### *Effects Along Favorability of Response Composite*

Results supported the prediction that the affirmation would produce more favorable evaluations of attitude-disconfirming evidence. Affirmed participants responded more positively to the scientific report ( $M = 0.18$ ) than did unaffirmed participants ( $M = -0.23$ ),  $F(1, 63) = 7.10, p = .01$ .

Of less importance, the analysis also yielded a main effect of partisanship; proponents of capital punishment responded more favorably to the report ( $M = 0.16$ ) than did opponents ( $M = -.21$ ),  $F(1, 63) = 5.93, p < .02$ . One possible reason for this finding is that the anti-capital punishment report (that proponents read) may have been more persuasive than the pro-capital punishment report (that opponents read). Those who oppose capital punishment may regard scientific evidence as less convincing because their opposition may derive from a moral conviction rather than a scientific rationale.

### *Effects Along Attitude Change Index*

The analysis yielded only a main effect of partisanship. Proponents showed more attitude change in the direction of the report ( $M = 2.33$ ) than did opponents ( $M = 0.97$ ),  $F(1, 64) = 6.34, p < .015$ . Contrary to predictions, however, affirmed participants did not change their attitudes more ( $M = 1.74$ ) than did unaffirmed participants ( $M = 1.56$ ),  $F < 1$ . (The pattern of means, at least, was in the direction anticipated by our conceptual analysis rather than by models concerning the role of self-esteem in persuasibility [e.g., Janis, 1954].)

In sum, the affirmation led participants to respond more favorably to the disconfirming evidence, although it did not prompt them to give up their general attitude

toward capital punishment. It seems likely that attitudes about capital punishment are simply more resistant to change than are specific beliefs about its deterrent efficacy or particular impressions of the authors of the report. In a sense, one's general attitude toward capital punishment is overdetermined, tied to relevant values and reference groups (Katz, 1960), and grounded in past behavioral commitments (Festinger, 1957). As dissonance researchers have long noted, central, self-defining cognitions prove more resistant to change than noncentral ones (Cooper & Mackie, 1983; Pilisuk, 1968; Zuwerink & Devine, 1996). Thus, the dissonance involved in giving up a central attitude may have been too great, and participants in Study 1 may have chosen other, less painful avenues of change that were assessed by the questionnaire. In this respect, writing about a personal trait may not have been affirming enough to neutralize the self-threat inherent in giving up one's general attitude toward capital punishment.

#### STUDY 2

Accordingly, in Study 2, we used a more powerful self-affirmation procedure—participants were given positive feedback regarding a personally important skill. Whereas in Study 1 participants reflected on a probably familiar event that had taken place in the past, in Study 2 they experienced a new situation designed to induce self-affirmation. We also decided to focus our dependent measure questionnaire almost exclusively on attitude change. We suspected that multiple measures might dilute the affirmation effects by providing alternative outlets for participants to relieve pressures to change. Indeed, past research suggests that dissonant information will exert less influence on central, resistant cognitions if participants believe that the questionnaire includes response items other than those relevant to change along this central cognition (Götz-Marchand, Götz, & Irle, 1974).

As in Study 1, Study 2 presented opponents and proponents of capital punishment with a scientific report that challenged their views on the death penalty. As in Study 1, prior to reading this report, half of the participants were randomly assigned to an affirmation condition, whereas the remaining participants were assigned to a no-affirmation condition. But, in the case of the present study, participants in the affirmation condition received positive feedback regarding their performance on a test of their social perceptiveness. Participants in the no-affirmation condition completed the same test but received no feedback. The dependent measures encompassed attitude change and one additional item assessing impressions of the convincingness of the article.

#### METHOD

##### *Design and Participants*

Once again, the experiment featured a  $2 \times 2$  factorial design, with partisanship of the participant (proponent or opponent of capital punishment) and affirmation condition (affirmation or no affirmation) as between-participants factors.

Participants were 35 female and 47 male Stanford undergraduates who received course credit for an introductory psychology course. Study 2 used the same general selection procedure used in Study 1. However, in the present study, a 7-point scale was used instead of the 13-point scale described in Study 1 (with participants who circled a 1 or 2 qualifying as proponents and those who circled a 6 or 7 qualifying as opponents). Data from 2 participants—1 in the affirmation condition, 1 in the no-affirmation condition—were discarded prior to analyses because they expressed suspicion about our concern with persuasion and attitude change among capital punishment partisans. This left a total of 80 participants—38 opponents of capital punishment, 42 proponents—randomly assigned to the two experimental conditions.

##### *Procedure*

Students again participated in the study individually. They were greeted by a female experimenter who told them that the study concerned "social perceptiveness," that is, "the ability to read the meaning behind other people's physical gestures and facial expressions." Participants were told that this ability had proved highly correlated with career success and that the researchers were attempting to understand the nature and origin of this important skill. Participants were informed that they would first take a well-validated test of social perceptiveness. Afterward they were told they would complete another exercise in social perceptiveness—they would watch a videotaped presentation made by a person speaking on a social issue and they would then try to assess the presenter's true thoughts and feelings. After signing the consent form, and being assured of the confidentiality of all their responses, participants began the social perceptiveness test.

*Test of social perceptiveness.* The test was presented as the "Archer Test of Social Perceptiveness," and it consisted of 25 photographs of people interacting in various situations (taken from Archer, 1980). For each photograph, a multiple-choice question was presented that presumably required participants to infer the thoughts and feelings of the photographed individuals. For example, one photograph portrayed two men working side-by-side in a store, and participants were asked to assess which person was the manager and which the employee. Participants

marked their answers on a Scantron sheet. While they worked on the test, the experimenter waited outside and, by coin toss, assigned the participant either to the affirmation or to the no-affirmation condition. The experimenter returned to the lab room when the participant finished the test.

*Affirmation condition.* In this condition, participants were told that certain ethical considerations legally obliged the researchers to share the results of any personality testing. The experimenter then left the room to grade the participant's exam and asked that the participant complete a demographics questionnaire in the meantime. A few minutes later, the experimenter returned. Appearing slightly disappointed, she asked, "Have you taken this test before?" When the participant said that he or she had not, the experimenter expressed relief and then explained, "Wow, I have to say you've done extraordinarily well; it's almost as if you had the answer sheet in front of you while taking the test." She returned the participant's answer sheet, where 22 of the 25 the items had been marked correct. The experimenter showed the participant where his or her score fell in a dot-plot distribution of the scores of previous test-takers, making it clear that the participant's score fell in the top 5%. The experimenter then said, "Because of the quality of your scores, I have a few special questions I'd like to ask you if that's okay" and pulled out a sheet marked "Follow-Up Questions for High Scorers," marking the sheet with the participant's identification number and percentile score. Reading aloud from this sheet, the experimenter asked participants to describe the experiences and skills that they believed contributed to their social perceptiveness skills and took notes on their responses. This interview served to buttress the plausibility and power of the feedback manipulation by having participants generate causal explanations for their performance (Ross, Lepper, & Hubbard, 1975).

*No-affirmation condition.* In this condition, participants also were told that certain ethical considerations obliged the researchers to share the results of personality testing. But here, the experimenter explained that the participant would be shown his or her score at the end of the experiment. The experimenter then left the room while the participant filled out the demographic questionnaire noted earlier. Participants in this condition were not provided with feedback regarding their performance on the test. After completing the demographics questionnaire, they simply proceeded to the next phase of the study.

*Provision of scientific report.* After the experimental manipulation, participants were told that they would now watch the videotaped presentation and were informed that the presenter would speak about a popular social-

political issue, that is, capital punishment. Participants were told that they should try to assess the speaker's thoughts and feelings about the issue. As she ostensibly prepared the TV and VCR, the experimenter explained that "to control for differences in prior knowledge, it was necessary first to equalize all participants in terms of their knowledge of capital punishment." Participants were then presented with the appropriate counterattitudinal scientific report regarding the death penalty (as described in Study 1).

*Dependent measures.* Participants were next given a questionnaire that assessed capital punishment attitudes. Again, the experimenter emphasized the confidentiality and anonymity of their responses to the questionnaire, which, when completed, was to be sealed in an envelope. The first questionnaire item asked participants to indicate how convincing they found the article on a scale ranging from 1 (*not at all convincing*) to 7 (*extremely convincing*). The second item asked participants to indicate their current attitude toward capital punishment on a scale from 1 (*very much opposed*) to 7 (*very much in favor*). Finally, as a manipulation check, participants (with the exception of an initial wave of 11 students) were asked by the experimenter to rate their social perceptiveness on a scale ranging from 1 (*very bad*) to 7 (*very good*).

Afterward, participants were debriefed (in the same manner described in Study 1), thanked for their participation, and provided with the relevant signature to obtain course credit.

## RESULTS AND DISCUSSION

### *Manipulation Check*

Affirmed participants reported having stronger social perceptiveness skills ( $M = 5.49$ ) than did unaffirmed participants ( $M = 4.43$ ),  $F(1, 61) = 14.13$ ,  $p < .001$ .

### *Effects Along Attitude Change Index*

Results confirmed the hypothesis that the self-affirmation would make participants more willing to give up their attitude in the face of disconfirming evidence. We used the same procedure reported in Study 1 to compute an index of attitude change. Affirmed participants changed their attitude significantly more in the direction of the counterattitudinal scientific report ( $M = 1.93$ ) than did unaffirmed participants ( $M = 1.25$ ),  $F(1, 72) = 4.12$ ,  $p < .05$ . No other effects were significant.

An illustrative way to describe the data involves assessing the percentage of participants who displayed substantial attitude change within each condition. Substantial attitude change was defined as a shift of two or more points in the direction of the report. (In addition to being the median change score, two points reflects meaningful



attitude change—enough to move an extreme partisan to neutrality.) A minority of unaffirmed participants (39.5%) showed substantial attitude change, whereas a majority of affirmed participants (61.9%) did so. A chi-square contingency table, comparing the observed with the expected count of participants showing substantial versus unsubstantial attitude change in the two conditions, paralleled the results of ANOVA, indicating that the hypothesis of equal attitude change in both conditions could be rejected,  $\chi^2(1, N = 80) = 4.02, p < .05$ . As in Study 1, it was also found that proponents were more likely to change their attitude in the direction of the report (64.1% did so) than were opponents (39.0% did so),  $\chi^2(1, N = 80) = 5.03, p < .05$ .

#### *Effects Along Ratings of Article's Convincingness*

A main effect for experimental condition along this measure again confirmed our predictions, although the results proved somewhat weaker than those involving attitude change. Affirmed participants rated the article somewhat more convincing ( $M = 4.70$ ) than did unaffirmed participants ( $M = 4.13$ ),  $F(1, 72) = 3.79, p = .055$ . Interestingly, a marginal interaction with participant gender qualified this condition effect, suggesting that, along this measure at least, the affirmation effect was confined to women,  $F(1, 72) = 3.39, p = .07$ . Whereas men reported being convinced by the article regardless of whether they were affirmed ( $M = 4.47$ ) or not affirmed ( $M = 4.44$ ), women showed the expected pattern of being more convinced when affirmed ( $M = 4.93$ ) than when unaffirmed ( $M = 3.82$ ). Although this Gender  $\times$  Condition interaction is interesting, an interpretation would be at best speculative in light of its absence on the primary measure of attitude change (and on either measure in Study 1).

What is clear in Study 2, however, is the predicted main effect of the affirmation on attitude change. Affirmed participants proved significantly more likely than unaffirmed participants to change their attitudes in the face of the counterattitudinal report. Supplementing the evidence provided by Study 1, Study 2 demonstrated attitude change along an enduring social-political attitude.

#### STUDY 3

Whereas Studies 1 and 2 examined responses to disconfirming evidence, Study 3 examined responses to mixed or ambiguous evidence. As several classic studies attest, people tend to find confirmation of their preexisting beliefs in such ambiguous information (e.g., Hastorf & Cantril, 1954; Lord et al., 1979). Scientists tend to believe that the studies that confirm their theoretical position are more valid than those that do not. Partisans

involved in a conflict see their side's arguments and concerns as more legitimate than those of the other side. The net result of this biased evaluation is that attitudes persist and may even be strengthened (Lord et al., 1979).

The study reported here examined partisans' responses to a political debate and thus explored two particular consequences of such biased assimilation. The first consequence is "biased source perception"—the tendency to rate the debater representing one's own side more positively than the debater representing the other side. After extracting such attitude-confirming evidence, participants also are apt to show "attitude polarization"—the tendency to embrace one's views with even greater conviction following exposure to mixed evidence or arguments (Lord et al., 1979). Investigators have long debated whether these two biases have motivational or purely cognitive origins, and recent research suggests that they have at least some motivational basis (Ditto & Lopez, 1992; Edwards & Smith, 1996; Munro & Ditto, 1997). The study to be reported here illustrates one implication of the role of motivational pressures in mediating these biases. If biased source perception and attitude polarization reflect a motivation to protect an esteem-bolstering belief, then these two biases should be attenuated by a self-affirmation.

Study 3 also began the effort to disentangle the effects of the affirmation that result from enhanced mood and those that arise from heightened self-regard. We asked participants simply to indicate their current mood and self-regard along two single-item response measures. If our theoretical analysis is accurate, then self-regard should correlate with our dependent measures but mood should not.

#### *Overview*

Prolife and prochoice partisans participated in a study ostensibly related to communication and impression formation. They were presented with a debate between two opposing advocates of the abortion issue. Before completing a dependent measure questionnaire, half of the participants were randomly assigned to an affirmation condition where they wrote about a personally important trait or value (as in Study 1) (see Fein & Spencer, 1997; Liu & Steele, 1986). The remaining participants were assigned to a no-affirmation condition where they wrote about a personally unimportant trait or value. We predicted that participants would rate the advocate representing their own side (the attitude-confirming advocate) more favorably than the advocate representing the other side (the attitude-disconfirming advocate). We also predicted that the debate would cause them to feel even more confident in their abortion attitudes.

Most important, however, we expected that both of these tendencies would be diminished in the affirmation condition.

## METHOD

### *Design and Participants*

This experiment involved a  $2 \times 2$  factorial design, with partisanship of the participant (prolife or prochoice) and affirmation condition (no-affirmation or affirmation) as the between-participants factors. The dependent measures comprised ratings of the two debaters along several evaluative dimensions and participants' reports of how the debate had affected their confidence in their own attitude toward abortion.

A total of 30 male and 34 female Stanford undergraduates participated. They were recruited from an introductory psychology class or a pool of Stanford undergraduates who had expressed interest in participating in psychology studies for payment. Participants from the psychology class received course credit; all other participants were paid \$5.

As in Studies 1 and 2, students were selected for participation based on their responses to a preselection questionnaire administered earlier in the quarter. One questionnaire item asked students to indicate their attitude with regard to abortion rights on a scale ranging from 1 (*extremely prolife*) to 9 (*extremely prochoice*). A second item asked students to indicate how personally important the abortion issue was to them on a scale from 1 (*not at all important*) to 9 (*extremely important*). This latter item was included because research suggests that attitude importance moderates, in part, motivated biases in persuasion (e.g., Edwards & Smith, 1996; Zuwerink & Devine, 1996) and this measure of attitude importance was used both in our selection criteria and in our later analyses, where it proved a significant covariate. Students qualified for participation if they rated themselves extremely prolife (a 1 or 2 on the relevant scale) or extremely prochoice (an 8 or 9 on the relevant scale) and if they gave an attitude importance rating at or above the median score of 4. A total of 38 prochoice and 26 prolife students ultimately participated in the study (there were fewer prolife partisans in the available participant pool).

### *Procedure*

Students again participated in the study individually. On arrival, they were welcomed by a male experimenter who presented the study as a two-part investigation of impression formation and communication. As part of this cover story, it was explained that the first part of the study would examine people's impression of other people and participants would thus be asked to read a communication involving two students debating a social-

political issue. The second part of the study, participants were told, would examine people's attempts to convey impressions of themselves. Participants would thus be asked to write a communication about a personal value or characteristic. In preparation for that exercise, participants first completed a version of Harber's (1995) Sources of Validation Scale, where they ranked a list of 11 traits and values in order of their personal importance (see the appendix). The list included various qualities but, as in Study 1, it excluded topics that might potentially be associated with the attitude issue. While the participants ranked the list, the experimenter left the room.

*Abortion debate.* Participants next read a three-page transcript of a debate between two opposing advocates of abortion rights. Participants were given as much time as they needed to read the debate thoroughly. Importantly, in crafting this debate, we reviewed relevant prochoice and prolife literature and incorporated into the debate the most persuasive arguments that we could find in support of each side of the issue. For example, in one section, the debate presented the following exchange:

Eric (prochoice advocate): For me, one of the fundamental issues is that only the woman should have control over her body. . . . Anti-abortion laws unfairly legislate what a woman can or can't do with her body. They're essentially woman-control laws. . . . Should the state be allowed to exercise that kind of power over a person's most private, intimate affairs? . . . I think that under anti-abortion laws, women don't really have the full human rights . . . guaranteed them under the Bill of Rights.

Mike (prolife advocate): It's not about choice or control. It's about life. I understand the importance of the privacy and sanctity of a person's body. But . . . how can you justify killing an unborn child to vindicate a woman's "privacy" and "freedom of choice"? . . . We're talking about two bodies, two separate lives. Shouldn't the state assume protection of the unborn baby—as it assumes the responsibility of protecting children from, say, abusive parents?

*Self-affirmation manipulation.* After reading the transcript, participants were asked to write about one of the personal characteristics or values they had ranked earlier. This task constituted the experimental manipulation and was similar to the procedure used in Study 1 and in past research (e.g., Fein & Spencer, 1997; Liu & Steele, 1986; Steele, 1988). Participants were randomly assigned to one of two conditions. In the affirmation condition, participants wrote about why their first-ranked value or characteristic was important to them and described a time in their lives when it had proved meaningful. In the no-affirmation condition, participants wrote about why their ninth most important value or characteristic might be important to the typical Stanford student. All participants were instructed to write as much or as little as they wanted.

*Dependent measures.* Participants then completed the dependent measure questionnaire. To assess the degree to which participants became more confident in their attitudes, they were asked to indicate how the debate had affected their confidence in their views concerning abortion on a scale from 1 (*made me much less confident in my views*) to 5 (*did not affect my views at all*) to 9 (*made me much more confident in my views*)—a self-report measure of attitude polarization similar to that used in past research (e.g., Lord et al., 1979). (As Lord et al. [1979] note, this measure is appropriate because participants had been selected on the basis of having extreme attitudes. Thus, they would have little room to polarize in their views further on a scale similar to that used in preselection.) To assess the extent to which participants were biased in favor of the attitude-confirming advocate relative to the attitude-disconfirming advocate, they were asked to rate each of the advocates along several dimensions. Specifically, on separate, appropriately labeled 9-point scales, participants rated how reasonable, how politically extreme, how close-minded, how intelligent, how biased, and how informed they thought each of the advocates was.

After completing these measures, participants answered two questionnaire items designed to assess their current mood and state of self-regard. Following a questionnaire prompt requesting that they, “Take a moment to think about how you are feeling,” they were asked, “How would you describe your mood right now?” on a scale from 1 (*extremely bad*) to 5 (*neutral*) to 9 (*extremely good*). Next, they were asked to rate their current self-regard by answering the question, “In general, how do you feel about yourself?” on a scale ranging from 1 (*extremely negatively*) to 5 (*neutral*) to 9 (*extremely positively*).

At the conclusion of the experiment, participants were fully debriefed (with a procedure similar to the one used in Studies 1 and 2), thanked for their participation, and either paid \$5 or provided with the relevant signature to obtain course credit.

## RESULTS AND DISCUSSION

Analyses of the primary dependent variables were conducted using a two-way analysis of covariance (ANCOVA) with participant partisanship (prochoice or prolife) and experimental condition (affirmation or no affirmation) as independent variables and ratings of personal importance of the abortion issue (as measured in preselection) as the covariate.

### *Creation of Biased Source Perception Composite*

A difference score was computed by subtracting, along each dimension, ratings of the attitude-disconfirming advocate from ratings of the attitude-confirming advo-

cate. These difference scores are conceptually similar and, after being reverse-coded where appropriate, form an index of the extent to which participants rated the attitude-confirming advocate more favorably than the attitude-disconfirming advocate (Cronbach's  $\alpha = .73$ ). They were averaged into a single composite (after the difference scores were standardized to equate their variance), with higher numbers indicating greater favorability toward the attitude-confirming advocate than the attitude-disconfirming one.

While our analyses use standardized scores, we report composite ratings based on averaging unstandardized difference scores. This way, the zero point reflects the absence of biased source perception. (Statistical significance is unaffected by whether a standardization procedure is used.) The difference score composite had a narrow spread (the interquartile range was 0.67 to 2.38), reflecting participants' tendency to rate both advocates favorably.

### *Effects Along Biased Source Perception Composite*

The results indicated that the affirmation attenuated biased source perception, that is, the tendency to rate the attitude-confirming advocate more favorably than the attitude-disconfirming one. The difference between participants' rating of the attitude-confirming advocate and their rating of the attitude-disconfirming advocate proved smaller in the affirmation condition ( $M = 1.00$ ) than in the no-affirmation condition ( $M = 1.74$ ),  $F(1, 55) = 4.85$ ,  $p < .035$ .

Two other less important findings emerged. Among prochoice partisans, men proved more likely than did women to engage in biased source perception, whereas the reverse was true among prolife partisans, as reflected by a marginal Partisanship  $\times$  Gender interaction,  $F(1, 55) = 3.66$ ,  $p = .06$ . In addition, prochoice participants showed less biased source perception when affirmed ( $M = 2.35$ ) than when unaffirmed ( $M = 1.03$ ), whereas the corresponding affirmation effect among prolife participants was, at least along this measure, weaker ( $M_s = 1.13, 0.97$ , respectively), as indicated by a marginal Partisanship  $\times$  Affirmation interaction,  $F(1, 55) = 2.89$ ,  $p < .10$ .

### *Does the Affirmation Reduce Bias in Favor of the Attitude-Confirming Advocate or Bias Against the Attitude-Disconfirming One?*

Surprisingly, the affirmation reduced bias in favor of the attitude-confirming advocate. Affirmed participants rated that advocate less positively ( $M = 5.76$ ) than did unaffirmed participants ( $M = 6.17$ ),  $F(1, 55) = 4.04$ ,  $p < .05$ . By contrast, the affirmation had little reliable effect on ratings of the attitude-disconfirming advocate, although the pattern is such that (as would be expected)



affirmed participants rated the attitude-disconfirming advocate more positively ( $M = 4.76$ ) than did unaffirmed participants ( $M = 4.43$ ),  $F(1, 55) = 1.56$ ,  $p = .22$ .

#### *Effects Along Attitude Polarization Index*

The results also indicated that affirmation attenuated attitude polarization. Consistent with Lord et al. (1979), participants overall reported that the debate made them more confident in their views on abortion, as indicated by a comparison of the mean confidence rating ( $M = 5.94$ ) with the point of neutrality on the scale,  $t(50) = 5.24$ ,  $p < .001$ . However, this heightened confidence was significantly lower in the affirmation condition ( $M = 5.53$ ) than in the no-affirmation condition ( $M = 6.35$ ),  $F(1, 50) = 5.49$ ,  $p < .025$ .

#### *Disentangling Effects of Mood and Self-Regard*

We tried to assess the extent to which these effects resulted from elevated mood and enhanced self-regard. Recall that participants had indicated both their current mood and the level of self-regard that they felt at the present moment. As might be expected, these two items were significantly correlated,  $r(62) = .37$ ,  $p < .005$ . Consistent with the findings of Liu and Steele (1986) and Fein and Spencer (1997), the manipulation of self-affirmation had no significant effect on mood ( $p > .20$ ). Affirmed participants did, however, report somewhat higher feelings of self-regard ( $M = 7.15$ ) than did unaffirmed participants ( $M = 6.79$ ), but the distribution of this measure was severely skewed to the left, posing inherent statistical difficulties for parametric tests. Consequently, a Kruskal-Wallis nonparametric test was performed. It yielded a marginal effect of condition ( $H = 2.91$ ,  $p = .088$ ). (The same nonparametric analysis yielded no such effect along the mood measure.)

If the reduction in biased assimilation and attitude polarization in the affirmation condition arose from elevated mood, then self-reported mood should correlate with that dependent measure; it did not,  $r(62) = -.12$ , *ns*. Moreover, the correlation between mood and ratings of attitude confidence was slightly positive,  $r(57) = .14$ , *ns*, opposite of what a mood-based explanation would predict. Consistent with our theoretical perspective, however, higher ratings of self-regard proved significantly correlated with less biased source perception,  $r(62) = -.31$ ,  $p < .02$ . Higher self-regard also tended to be correlated (albeit nonsignificantly) with lower ratings of confidence,  $r(57) = -.15$ , *ns*. Self-regard thus correlated with the dependent measures more systematically than did mood, providing further evidence that mood does not provide a sufficient explanation for the affirmation effects. Higher feelings of self-regard—not better mood—predicted less bias.

#### GENERAL DISCUSSION

Beliefs can constitute important sources of identity. This notion helps to explain why people resist evidence that challenges the validity of strongly held beliefs, as they did in Studies 1 and 2, and why they interpret ambiguous information in a manner that reinforces pre-existing attitudes, as they did in Study 3. In each study, pressures to maintain a valued self-image impeded a balanced consideration of the evidence (see Ellsworth & Ross, 1983). However, an affirmation of an alternative source of identity both attenuated resistance to persuasion and produced a more even-handed evaluation of evidence. Shoring up global self-worth, it seems, takes the sting out of new ideas, making them less painful to accept as true. We have demonstrated the effectiveness of self-affirmations in ameliorating defensive reactions to persuasion in two social-political domains and with two manipulations of self-affirmation. Taken together, the results illustrate the validity and generality of our conceptual framework.

One obvious question is why the affirmation in Studies 1 and 2 led to more positive evaluations of the attitude-disconfirming information, whereas in Study 3 it led to more negative evaluations of the attitude-confirming information. It seems that the affirmation attenuated a disconfirmation bias in the first two studies but ameliorated a confirmation bias in the third. One possible reason for this pattern simply involves the availability of counterattitudinal and proattitudinal evidence in the three studies. In Studies 1 and 2, participants could protect their attitude only by denigrating the counterattitudinal evidence. In Study 3, however, participants had the additional option of exalting the merit of the proattitudinal information. We can only speculate as to why they chose a confirmation bias rather than a disconfirmation bias in that study, but we suspect the reason involves the persuasive nature of the evidence they read (cf. Edwards & Smith, 1996). Praising a persuasive ally may be less effortful than criticizing a persuasive adversary.

#### *Considerations of Underlying Process*

Participants felt less threatened by evidence that impugned their attitudes, it seems, when they received an affirmation of an alternative source of self-worth. As a result, they engaged in fewer defensive maneuvers aimed at protecting an identity at the expense of a lost opportunity to learn. Future research will examine the specific mechanisms by which self-affirmation attenuates bias. It is possible, for example, that the self-affirmation reduced resistance to persuasion by trivializing the importance of the attitude as a source of identity or self-worth (see Simon, Greenberg, & Brehm, 1995). Indeed, personally unimportant attitudes have been shown to be



less resistant to change than personally important ones (Zuwerink & Devine, 1996; see also Pomerantz, Chaiken, & Tordesillas, 1995). It is also possible that the affirmation simply made participants less extreme and confident in their attitudes.

Two alternative explanations for the present findings warrant discussion. Perhaps the affirmation produced the effects it did by inducing self-focus. But past research suggests that self-focus does not increase persuasibility but decreases it (Hutton & Baumeister, 1992). A more plausible alternative explanation involves the possibility that the affirmation induced positive mood and thus caused participants to evaluate the evidence less critically or systematically (see McGuire, 1985; Petty, Schumann, Richman, & Strathman, 1993). Four arguments, however, cast doubt on this possibility. First, past research suggests that positive mood does not reduce systematic processing when people have ample time, as they did in our studies, to read and respond to the relevant materials (Mackie & Worth, 1989). Second, previous studies suggest that the effects of positive mood on persuasion are diminished when (as in our studies) people presumably have strong prior opinions or extensive knowledge about the attitude topic (Bless, Bohner, Schwarz, & Strack, 1990; Worth & Mackie, 1987; see also Bless, Schwarz, & Mackie, 1992; Mackie & Worth, 1989; see also Petty et al., 1993). Third, consistent with findings obtained in earlier studies, the affirmation procedure used in the first and third studies was found, in Study 3, to have no effect on self-reported mood (Fein & Spencer, 1997; Liu & Steele, 1986). Finally, most mood-based accounts, at least in their most straightforward form, could not parsimoniously explain why the affirmation used in Study 3 made participants more negative in their evaluation of the attitude-confirming advocate.

Although mood is probably insufficient to yield the effects obtained in the three studies, it may nevertheless prove necessary. Affirmation effects may require both a self-perception of personal worth and an elevated mood state. In this sense, positive mood constitutes less an alternative explanation of affirmation effects than one of several possible mediators of them.

Another issue relevant to underlying processes regards the placement of the self-affirmation. In Studies 1 and 2, participants were affirmed prior to the presentation of the scientific report, whereas in Study 3, participants were affirmed after the presentation of the debate. If the affirmation operates through its effect on information processing, then it seems necessary to affirm participants prior to exposure to the relevant evidence. This argument would be reasonable if all information processing took place while participants read this evidence and none occurred afterward. But it is likely that both

on-line and memory-based processing determined responses to the information. (Indeed, we would submit that much attitude change in the real world occurs not during exposure to disconfirming evidence but in later moments of calm reflection.) The affirmation may thus reduce on-line defensive processing, at the time of encoding, as it presumably did in Studies 1 and 2, or it may attenuate memory-based defensive processing, as it presumably did in Study 3. Past research provides support for this reasoning by demonstrating that self-affirmations may both buffer against a future threat (Steele, 1988) and dispel the effects of a past one (Tesser & Cornell, 1991).

An additional question that future research could examine involves dispositional self-esteem as a potential moderator of self-affirmation effects. People low in self-esteem, it could be argued, would benefit most from a self-affirmation procedure because after reading a threatening message, they have fewer favorable self-concepts with which to affirm and thus restore self-worth on their own (Steele et al., 1993; see also Greenberg et al., 1993). It is also possible, however, that people with low self-esteem would benefit less from an affirmation procedure than people with high self-esteem. Low-self-esteem participants might find affirming feedback (of the sort used in Study 2) less plausible than their high-self-esteem peers, or they might have greater difficulty remembering self-affirming experiences (as the procedures in Studies 1 and 3 required). Ultimately, of course, the role of dispositional self-esteem in moderating the effect of self-affirmation is an empirical question.

#### *Theoretical and Practical Implications*

Our theoretical perspective has implications for negotiation, education, and therapeutic interventions. When alternative sources of identity are affirmed, negotiators may more clearly see the merits of the other side's arguments and more readily concede their own biases (Bastardi & Ross, 2000). Students may prove more critical of their long-held views and more open to information that challenges their preconceptions. Clients in therapy may better recognize and change erroneous beliefs that cause them psychological distress.

Our results also add to a growing literature on the role of self-image maintenance motivations in mediating a wide range of social psychological phenomena (J. Aronson, Cohen, & Nail, 1999). Not only does this motivation help to explain the present findings but it has also been implicated in cognitive dissonance processes (Steele, 1988; Steele et al., 1993), terror management phenomena (Greenberg et al., 1993), low self-esteem and depression (Brown & Smart, 1991; Linville, 1987), prejudice and stereotyping (Fein & Spencer, 1997; Greenberg

et al., 1993), attributional analysis (Liu & Steele, 1986), biases in social judgment (Dunning & Cohen, 1992; Dunning et al., 1995), behavioral inhibition (Vohs & Heatherton, 2000), decision making (Josephs, Larrick, Steele, & Nisbett, 1992), and many other rich phenomena. Our findings suggest that persistent biases in social judgment arise from identity-maintenance motivations. Consistent with Kunda (1990) and Dunning and his colleagues (Dunning et al., 1995), we argue that such motivations pressure cognitive processes to a desired end. People search for an interpretation of the evidence that best supports the conclusion they hope to draw, much as a lawyer spins courtroom evidence to present the strongest case. Relieving these pressures fosters a more rational and even-handed evaluation of evidence.

Our findings also address an older tension in Western art and philosophy concerning the relationship between emotion and reason. One artistic and philosophical tradition ascribes human folly to the mischievous dance of the passions and sees emotion as a contaminant of reason. The other romantic tradition celebrates the role of emotion in imagination and relationships. But both of these traditions view reason and emotion as antagonistic. Reason is but a carriage being pulled by the wild horses of the passions, or the passions must be curbed by a disciplined application of reason. In a sense, however, our research shows that the two sides of human nature—the emotional side and the rational side—are intertwined (Palfai & Salovey, 1994). When people are in a good emotional state, they are more rational.

## APPENDIX

### Sources of Validation Scale

#### RANKING OF PERSONAL CHARACTERISTICS AND VALUES

Below is a list of characteristics and values, some of which may be important to you, some of which may be unimportant. Please rank these values and qualities in order of their importance to you, from 1 to 11 (1 = *most important item*, 11 = *least important item*). Use each number only once.

- \_\_\_\_\_ Artistic skills/aesthetic appreciation
- \_\_\_\_\_ Sense of humor
- \_\_\_\_\_ Relations with friends/family
- \_\_\_\_\_ Spontaneity/living life in the moment
- \_\_\_\_\_ Social skills
- \_\_\_\_\_ Athletics
- \_\_\_\_\_ Musical ability/appreciation
- \_\_\_\_\_ Physical attractiveness
- \_\_\_\_\_ Creativity
- \_\_\_\_\_ Business/managerial skills
- \_\_\_\_\_ Romantic values

SOURCE: K. Harber (1995).

## REFERENCES

- Abelson, R. P. (1986). Beliefs are like possessions. *Journal for the Theory of Social Behavior*, 16, 223-250.
- Archer, D. (1980). *How to expand your S.I.Q. (social intelligence quotient)*. New York: M. Evans.
- Aronson, E., Turner, J., & Carlsmith, J. M. (1963). Communication credibility and communication discrepancy as determinants of opinion change. *Journal of Abnormal and Social Psychology*, 63, 31-36.
- Aronson, J., Cohen, G. L., & Nail, P. (1999). Self-affirmation theory: An update and appraisal. In E. Harmon-Jones & J. Mills (Eds.), *Cognitive dissonance theory: Progress on a pivotal theory in social psychology* (pp. 127-147). Washington, DC: American Psychological Association.
- Bastardi, N., & Ross, L. (2000). *Maintaining self-integrity: Effects of threat to personal identity on evidence evaluation and concession making*. Manuscript submitted for publication.
- Bless, H., Bohner, G., Schwarz, N., & Strack, F. (1990). Mood and persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin*, 99, 229-246.
- Bless, H., Schwarz, N., & Mackie, D. M. (1992). Mood effects on attitude judgments: Independent effects of mood before and after message elaboration. *Journal of Personality and Social Psychology*, 63, 585-595.
- Brown, J. D., & Smart, S. A. (1991). The self and social conduct: Linking self-representations to prosocial behavior. *Journal of Personality and Social Psychology*, 60, 368-375.
- Cohen, A. R. (1959). Some implications of self-esteem for social influence. In I. L. Janis (Ed.), *Personality and persuasibility* (pp. 102-120). New Haven, CT: Yale University Press.
- Cooper, J., & Mackie, D. (1983). Cognitive dissonance in an intergroup context. *Journal of Personality and Social Psychology*, 44, 536-544.
- Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology*, 44, 20-33.
- Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: Use of differential decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology*, 63, 568-584.
- Dunning, D., & Cohen, G. L. (1992). Egocentric definitions of traits and abilities in social judgment. *Journal of Personality and Social Psychology*, 63, 341-355.
- Dunning, D., Leuenberger, A., & Sherman, D. A. (1995). A new look at motivated inference: Are self-serving theories of success a product of motivational forces? *Journal of Personality and Social Psychology*, 69, 58-68.
- Edwards, K., & Smith, E. E. (1996). A disconfirmation bias in the evaluation of arguments. *Journal of Personality and Social Psychology*, 71, 5-24.
- Ellsworth, P. C., & Ross, L. (1983). Public opinion and capital punishment: A close examination of the views of abolitionists and retentionists. *Crime and Delinquency*, 29, 116-169.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology*, 73, 31-44.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.
- Festinger, L., Riecken, H. W., & Schachter, S. (1956). *When prophecy fails*. Minneapolis: University of Minnesota Press.
- Gilovich, T. (1991). *How we know what isn't so: The fallibility of human reasoning in everyday life*. New York: Free Press.
- Götz-Marchand, B., Götz, J., & Irle, M. (1974). Preference of dissonance reduction modes as a function of their order, familiarity and reversibility. *European Journal of Social Psychology*, 4, 201-228.
- Greenberg, J., Pyszczynski, T., Solomon, S., Pintel, E., Simon, L., & Jordan, K. (1993). Effects of self-esteem on vulnerability denying defensive distortions: Further evidence of an anxiety-buffering function of self-esteem. *Journal of Experimental Social Psychology*, 29, 229-251.
- Hamilton, D. L., & Rose, T. L. (1980). Illusory correlation and the maintenance of stereotypic beliefs. *Journal of Personality and Social Psychology*, 39, 832-845.
- Harber, K. (1995). *Sources of Validation Scale*. Unpublished scale.
- Hastorf, A., & Cantril, H. (1954). They saw a game: A case study. *Journal of Abnormal and Social Psychology*, 49, 129-134.

- Hutton, D. G., & Baumeister, R. F. (1992). Self-awareness and attitude change: Seeing oneself on the central route of persuasion. *Personality and Social Psychology Bulletin*, 18, 68-75.
- Janis, I. L. (1954). Personality correlates of susceptibility to persuasion. *Journal of Personality*, 22, 504-518.
- Josephs, R. A., Larrick, R. P., Steele, C. M., & Nisbett, R. E. (1992). Protecting the self from the negative consequences of risky decisions. *Journal of Personality and Social Psychology*, 62, 26-37.
- Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly*, 24, 163-204.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108, 480-498.
- Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology*, 52, 663-676.
- Liu, T. J., & Steele, C. M. (1986). Attributional analysis as self-affirmation. *Journal of Personality and Social Psychology*, 51, 531-540.
- Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, 37, 2098-2109.
- Mackie, D. M., & Worth, L. T. (1989). Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology*, 57, 27-40.
- McGuire, W. J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (3rd ed., Vol. 2, pp. 233-346). New York: Random House.
- Munro, G. D., & Ditto, P. H. (1997). Biased assimilation, attitude polarization, and affect in reactions to stereotype-relevant scientific information. *Personality and Social Psychology Bulletin*, 23, 636-653.
- Palfai, T. P., & Salovey, P. (1994). The influence of depressed and elated mood on deductive and inductive reasoning. *Imagination, Cognition, and Personality*, 13, 57-71.
- Petty, R. E., Schumann, D. W., Richman, S. A., & Strathman, A. J. (1993). Positive mood and persuasion: Different roles for affect under high- and low-elaboration conditions. *Journal of Personality and Social Psychology*, 64, 5-20.
- Pilisuk, M. (1968). Depth, centrality, and tolerance in cognitive consistency. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), *Theories of cognitive consistency: A sourcebook* (pp. 693-699). Chicago: Rand McNally.
- Pomerantz, E. M., Chaiken, S., & Tordesillas, R. S. (1995). Attitude strength and resistance processes. *Journal of Personality and Social Psychology*, 69, 408-419.
- Reed, M. B., & Aspinwall, L. G. (1998). Self-affirmation reduces biased processing of health-risk information. *Motivation and Emotion*, 22, 99-131.
- Rhodes, N., & Wood, W. (1992). Self-esteem and intelligence affect influenceability: The mediating role of message reception. *Psychological Bulletin*, 111, 156-171.
- Ross, L., & Lepper, M. R. (1980). The perseverance of beliefs: Empirical and normative considerations. In R. A. Shweder & D. Fiske (Eds.), *New directions for methodology of behavioral science: Fallible judgment in behavioral research*. San Francisco: Jossey-Bass.
- Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and social perception. *Journal of Personality and Social Psychology*, 32, 880-892.
- Ross, L., & Ward, A. (1995). Naive realism: Implications for misunderstanding and divergent perceptions of fairness and bias. In T. Brown, E. Reed, & E. Turiel (Eds.), *Values and knowledge*. Hillsdale, NJ: Lawrence Erlbaum.
- Sears, D. O., & Funk, C. L. (1991). The role of self-interest in social and political attitudes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 2-91). San Diego, CA: Academic Press.
- Sherman, D. A. K., Nelson, L. D., & Steele, C. M. (2000). Do messages on health threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, 26, 1046-1057.
- Simon, L., Greenberg, J., & Brehm, J. (1995). Trivialization: The forgotten mode of dissonance reduction. *Journal of Personality and Social Psychology*, 68, 247-260.
- Snyder, M., Tanke E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology*, 35, 656-666.
- 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., Spencer, S. J., & Lynch, M. (1993). Self-image resilience and dissonance: The role of affirmational resources. *Journal of Personality and Social Psychology*, 64, 885-896.
- Tesser, A., & Cornell, D. P. (1991). On the confluence of self processes. *Journal of Experimental Social Psychology*, 27, 501-526.
- Worth, L. T., & Mackie, D. M. (1987). Cognitive mediation of positive affect in persuasion. *Social Cognition*, 5, 76-94.
- Zellner, M. (1970). Self-esteem, reception, and influenceability. *Journal of Personality and Social Psychology*, 15, 87-93.
- Zimbardo, P. G. (1960). Involvement and communication discrepancy as determinants of opinion conformity. *Journal of Abnormal and Social Psychology*, 60, 86-94.
- Zuwerink, J., & Devine, P. G. (1996). Attitude importance and resistance to persuasion: It's not just the thought that counts. *Journal of Personality and Social Psychology*, 70, 931-944.

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