
The Effect of Self-Affirmation in Nonthreatening Persuasion Domains: Timing Affects the Process

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Most research on self-affirmation and persuasion has argued that self-affirmation buffers the self against the threat posed by a persuasive message; thus, it increases the likelihood that participants will respond to the message favorably. Little research, in contrast, has looked at the effects of self-affirmation on persuasive messages that are not threatening to the self. This research examines mechanisms that can operate under these conditions. Consistent with the idea that self-affirmation affects confidence, the article shows that self-affirmation can decrease information processing when induced prior to message reception (Experiment 1) and can increase the use of self-generated thoughts in response to a persuasive message when induced after message reception (Experiment 2). In addition, Experiment 3 manipulates the timing of self-affirmation to replicate both effects and Experiment 4 provides direct evidence for the impact of self-affirmation on confidence.

Keywords: *self-affirmation; persuasion; attitude; attitude change; self-validation*

Imagine a situation in which you are grocery shopping and must decide between different unknown brands of laundry detergent, napkins, or chips, and you ask a salesperson for information about the products. Might the salesperson influence your purchase decisions by

asking questions regarding your important values? If so, when would it be better for the salesperson to raise these questions—before or after you have thought about the products?

This research seeks to explore the role of self-affirmation in the processing of information on nonthreatening topics such as new products or services. Nonthreatening topics might seem mundane, but understanding the role of self-affirmation in these settings is important because of the frequency with which people are exposed to them as well as the impact they have on their daily lives (e.g., leading people to purchase one brand of cold remedy rather than another).

Considerable recent research has explored the role of self-affirmation in persuasion (e.g., Cohen, Aronson, &

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Steele, 2000; Correll, Spencer, & Zanna, 2004; Reed & Aspinwall, 1998). The focus of much of this research has been on using self-affirmation to reduce the resistance to change that is often encountered when a person is presented with threatening or counterattitudinal information. This focus makes sense because self-affirmation is seen as a way to restore self-integrity when the self has been threatened (Steele, 1988). If the self is affirmed prior to a threatening message, the threat may not induce the defensiveness that would normally occur. Thus, self-affirmation may soften the impact of information that either directly threatens the self (e.g., by pointing out one's risk for cancer; Harris & Napper, 2005) or indirectly threatens the self (e.g., by attacking personally important attitudes; Correll et al., 2004). Little is known, however, about the potential impact of self-affirmation inductions on persuasive communications that do not threaten the self (e.g., that do not point out personal dangers or attack important attitudes). This research examines mechanisms that may operate under these conditions. Consistent with the idea that self-affirmation increases confidence, we argue that self-affirmation can decrease information processing when induced prior to message reception and can increase the use of one's thoughts to a message when induced after message reception.

SELF-AFFIRMATION

Most people have a need to feel good about themselves. Indeed, research suggests that people wish to enhance the positivity of their self-views and that they seek information that maintains a positive self-view. For example, individuals, particularly those high in self-esteem, tend to define positive traits in terms of their own strengths, seek out positive information about the self, and engage in favorable social comparisons with others (see Tesser, 2000).

Consistent with the need for positive self-regard, Steele's (1988) self-affirmation theory proposes that individuals can use important aspects of their self-concept, such as previous successes, important values, or important beliefs, to help boost feelings of self-worth (for a review, see Sherman & Cohen, 2006). An important prediction of self-affirmation theory is that the effects of a threat to the self in one domain can be ameliorated through an affirmation in another domain. According to Steele, self-affirmation strategies are normally activated by information that threatens self-integrity. These strategies are then deactivated when a positive self-perception is restored. In addition, when self-affirmation precedes a threat, it can buffer the impact of this threat on self-evaluations (Sherman & Cohen, 2006).

The self-protective role of self-affirmation has received considerable empirical attention in the domain

of persuasion. Persuasive messages can be threatening to the self under certain conditions. For example, because some attitudes are an important component of a person's self-concept, messages that attack these attitudes can be seen as an attack on the self (e.g., when one's attitudes toward capital punishment are personally important, Cohen et al., 2000). In addition, persuasive messages, such as health communications, can directly convey threatening information to message recipients (e.g., one's current lifestyle can lead to cancer; Harris & Napper, 2005). When encountering such threatening information, people can engage in self-defense by resisting it (e.g., by counterarguing the information) or ignoring it (see Knowles & Linn, 2004, for a review). According to self-affirmation theory, self-affirmation can diminish or reduce this self-defensive mechanism because it can inoculate the self in a positive manner. For instance, if people affirm themselves before a threat, the subsequent persuasive information will be seen as less menacing and thus can have a greater persuasive impact because it is resisted less (Sherman, Nelson, & Steele, 2000).

Because of the emphasis on the self-protective nature of self-affirmation, in nearly all previous research the persuasive message of interest could be construed as a threat to the self.¹ What is unknown is what effect self-affirmation would have, if any, in persuasive settings that are seen as nonthreatening to the self. The present research is designed to provide insight into these situations. It is likely that most of the persuasive messages people receive each day are not threatening but instead deal with topics such as the opening of a new grocery store or the movie recommendations of coworkers.

In brief, we hypothesize that self-affirmation increases confidence, and in so doing it can affect persuasion through a number of different mechanisms. Specifically, we argue that because self-affirmation affects confidence it can affect an individual's motivation to think about a proposal when it precedes a persuasive message and it can affect the perceived validity of participants' thoughts when it follows message processing. As elaborated below, these roles for confidence have received consistent support in the literature but have not been previously linked to self-affirmation.

THE ROLE OF CONFIDENCE IN ATTITUDE CHANGE

Because self-affirmation is postulated to affect confidence, we argue, in accordance with the Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1986), that self-affirmation inductions can affect attitudes by serving in multiple roles, depending on additional contextual features of the persuasive situation

(see Petty, Briñol, Tormala, & Wegener, 2007, for further discussion). In short, when confidence is induced prior to message exposure and elaboration is not constrained to be high or low, confidence has been shown to affect the extent of information processing, with confident people engaging in less thought than people lacking in confidence (e.g., Tiedens & Linton, 2001; Weary & Edwards, 1994). One reason for this is that when people feel confident in their current views there is little need to seek additional information that might lead to change. In contrast, when people lack confidence they are likely to seek and carefully scrutinize information that might provide a more validated opinion.

Initial evidence for a link between being affirmed prior to a message and information processing can be found in a study by Correll and colleagues (2004). In their study, participants were recruited for whom the issue of a tuition increase was counterattitudinal and was either important or unimportant to the self, as indicated by prescreening. Upon arriving at the laboratory, half of the participants were affirmed by validating an important value whereas control participants validated a less important value. All participants then viewed a videotaped debate wherein two speakers took turns arguing for or against a tuition increase. Each speaker presented some strong, some moderate, and some weak arguments in favor of their position. While watching the debate, participants rated the persuasiveness of each argument.

Among participants who did not attach a great deal of importance to the issue of a tuition increase (i.e., the message would not be very threatening), there was a nonsignificant trend for affirmed participants to show less sensitivity to message quality and message position than nonaffirmed participants, a pattern consistent with the idea that self-affirmation lead to decreased thought. The small sample size as well as other methodological issues (e.g., assessing perceptions of argument quality but not attitudes toward the issue, within-subject variation of argument quality and position) may have limited their ability to detect this effect. In the present research, we postulate that when people are self-affirmed before receiving a persuasive message on a nonthreatening topic their motivation to process the information will decrease.

On the other hand, when self-affirmation is induced after message exposure, the resultant confidence from affirmation is predicted to influence whether people trust or doubt the validity of the thoughts they have already generated in response to the message. Consistent with the self-validation hypothesis (Petty, Briñol, & Tormala, 2002), we argue that self-affirmation following a message can increase confidence in thoughts, thereby increasing reliance on them when forming attitudes.

Evidence for self-validation processes comes from several studies. For example, Petty and colleagues (2002) tested the notion that the confidence individuals

have in their cognitive responses to a persuasive message can increase or decrease attitude change. In one study, they manipulated confidence after message processing by getting people to think of past situations in which they felt confidence or doubt in their thoughts. When people were exposed to a strong message and thus they generated predominately positive thoughts, confidence led to more persuasion than doubt, but when people were exposed to a weak message and thus they generated predominately negative thoughts, confidence led to less persuasion than doubt. In a series of studies, these self-validation effects occurred regardless of the type of the proposal (proattitudinal or counterattitudinal) and regardless of whether thought confidence was measured or induced through an experimental manipulation. It is important to note that subsequent research on source expertise (Briñol, Petty, & Tormala, 2004), head nodding (Briñol & Petty, 2003), and ease of retrieval (Tormala, Petty, & Briñol, 2002) has shown that thought confidence can be affected by a large number of individual and situational variables.

In summary, we argue that self-affirmation affects confidence and thus affects persuasion by different mechanisms depending on whether it occurs before or after the processing of a persuasive message. Before we continue, it is important to note that the processes we propose are dependent on specific levels of elaboration (Petty & Cacioppo, 1986). Research on the self-validation hypothesis (e.g., Petty et al., 2002) has demonstrated that this mechanism requires a level of elaboration that is sufficiently high for individuals to both generate thoughts in response to the message and to care about their validity (examining the validity of thoughts is a form of metacognition, Petty et al., 2007). For confidence to affect the level of thought, however, elaboration must not be constrained to be overly high or low (i.e., if elaboration is already set to be very high or low by other variables, there is little room for confidence to affect thinking further). To accommodate the conditions needed for these two mechanisms to operate, we created a context such that ability to think was held constant and motivation to think was set to be moderately high. In particular, we instructed participants to think about the issues in each of the studies but we did nothing to further enhance motivation to think, such as using a topic of high personal importance (e.g., Petty & Cacioppo, 1979) or making participants personally and uniquely accountable and responsible for message evaluation (e.g., Petty, Harkins, & Williams, 1980).

OVERVIEW OF THIS RESEARCH

This research examines mechanisms underlying the effects of self-affirmation on persuasion when the message

is not threatening. The procedure we used to examine these ideas was similar across studies. Participants were assigned to a self-affirmation or a control group before or after receiving a persuasive message composed of either strong or weak arguments. When self-affirmation is induced prior to a persuasive message, as in Experiment 1, we predicted that the enhanced confidence from self-affirmation should decrease the likelihood of careful information processing. Therefore, in Experiment 1, we predicted that self-affirmation will lead to reduced argument quality effects on attitudes compared to a no-affirmation condition. That is, if people are not processing the message carefully because they rely on the validity of their initial position, they should be less influenced by the substantive arguments included in the message.

In Experiment 2, we examined the extent to which self-affirmation can influence persuasion by a different mechanism when it follows (rather than precedes) a persuasive message. Consistent with the self-validation hypothesis, when self-affirmation is induced after message processing, it cannot affect the extent of message processing but it should affect attitude change by influencing the extent to which people rely on the thoughts they have already generated to the message. Self-affirmation should lead to a greater argument quality effect on attitudes than a nonaffirmed condition would because confident people would be more reliant on their positive thoughts to the strong message or negative thoughts to the weak message. In sum, we hypothesized that self-affirmation can play different roles in persuasion depending on when it is introduced in the persuasive setting. Thus, inducing self-affirmation before or after message scrutiny allowed us to make theoretical predictions of moderation based on the hypothesis that self-affirmation can relate to confidence (e.g., Spencer, Zanna, & Fong, 2005). For that reason, in Experiment 3, we experimentally manipulated whether self-affirmation is induced before or after receiving a persuasive message. Finally, in Experiment 4 we directly tested the impact of self-affirmation on confidence.

EXPERIMENT 1

Experiment 1 was designed to examine whether self-affirmation, when it precedes a message, can influence attitude change by affecting the degree of information processing. The extent to which participants processed information was assessed by varying the quality of the arguments contained within the message and by measuring the impact of these arguments on attitudes. When people are differentially affected by strong and weak persuasive messages, it suggests that they have carefully attended to and thought about the merits of the information (Petty & Cacioppo, 1986). In this

experiment, relative to a control group, we expected affirmed participants to think less about the message content. This should result in smaller differences in the attitudes of self-affirmed participants (relative to no-affirmation control participants) to the strong versus weak proposal.

Method

Participants and Design

One hundred and eleven undergraduate students enrolled in introductory psychology courses at the Universidad Autónoma de Madrid (UAM) participated in exchange for partial course credit. Students were randomly assigned to the cells of a 2 (self-affirmation: affirmation vs. no affirmation) \times 2 (argument quality: strong vs. weak) between participants factorial design.

Procedure

The experimental session was presented as a part of a broad research project in social psychology. Participants were told that they were going to participate in two different research projects. The first study was described as a project about values and their influence on daily life situations (self-affirmation manipulation). After selecting a series of values from Grimm and colleagues' Individualism-Collectivism Scale (ICS; Grimm, Church, Katigbak, & Reyes, 1999), half of the participants listed experiences related to their most important values (affirmation condition) or their least important values (no affirmation condition). The second part of the experiment was presented as a research study for a new cell phone marketing campaign, and participants were asked to evaluate the advertisement. Participants received a strong or weak version of a message in favor of a new cell phone and were then asked to report their attitudes toward the cell phone.

Independent Variables

Self-affirmation. All participants received a copy of Grimm et al.'s (1999) ICS, which provides 10 values associated with collectivist or individualist cultural orientations. For example, one statement about a collective value was the "trust of the family" (trust in family and close friends); one statement about an individual value was "freedom" (freedom of action and thought). Participants had to order the 10 statements by personal importance. Next, participants were provided with another page on which they had to relate some of those values to situations in their lives. Individuals in the self-affirmation condition had to select the 3 ICS values that were most important to them and were asked to write about three situations in their lives that were associated

with the most important of the selected values. In contrast, people in the no-self-affirmation condition had to select the 3 least important values from the ICS and write about three situations associated with their least important value. Two judges coded the content of those situations associated with the values. As anticipated, participants wrote about instances in which they acted consistent with the values listed.²

Argument quality. Participants were exposed to a message containing information about a new cell phone. The advertisement contained either strong or weak arguments in favor of the new product. This manipulation was designed to assess the extent to which people were carefully examining the content of the message (Petty & Cacioppo, 1986). The arguments selected have been used successfully in previous research and produce the appropriate pattern of thoughts (Briñol et al., 2004). That is, the strong arguments elicited mostly favorable thoughts and the weak arguments elicited mostly unfavorable thoughts when people were instructed to think carefully about them. The gist of some of the strong arguments in favor of the new cell phone stated that Ginex is waterproof, shock-resistant, and extremely low in battery consumption and that it includes a calendar, an alarm, and a video recorder. The gist of some of the weak arguments stated that Ginex has a clock, is able to convert international currencies with a sophisticated formula, and has only a 2-digit password. In the weak message, it was also noted that Ginex was investing a great deal of money in an ad campaign, which meant it would be popular soon and thus a good choice.³

Dependent Variables

Manipulation check. To determine whether the self-affirmation manipulation was perceived as personally important, all participants had to rate the personal importance of the three selected values on a single scale ranging from 1 (*not important*) to 7 (*most important*). Two participants did not complete this measure so the degrees of freedom will vary in the analyses below.

Attitudes. To assess attitudes toward the Ginex cell phone, participants indicated their assessment of the phone using a series of 9-point semantic differential scales. These scales were anchored at *bad-good*, *unattractive-attractive*, *not recommended-recommended*, and *useless-useful*.

Results

The dependent measures were submitted to a 2 (self-affirmation: affirmed or not) \times 2 (argument quality: strong or weak) analyses of variance (ANOVA).

Manipulation Check

Responses of participants regarding the personal importance of the three selected values were highly intercorrelated ($\alpha = .86$) and thus were averaged to create an index of personal importance. The 2 \times 2 ANOVA revealed only a main effect for self-affirmation, $F(1, 105) = 175.79$, $p < .01$, such that participants in the self-affirmation condition perceived the selected values as more personally important ($M = 8.4$; $SD = .64$) than did the control group ($M = 5.2$; $SD = 1.56$). No other significant effects were found ($ps > .31$).

Attitudes

Responses to the semantic differential scales assessing product attitudes were scored so that higher numbers represented more favorable opinions. These items were strongly correlated ($\alpha = .94$) and were averaged to create a composite measure of attitude toward the product. Results of the 2 \times 2 ANOVA revealed a significant main effect of argument quality, $F(1, 107) = 95.33$, $p < .01$, such that participants who received strong arguments held more favorable attitudes toward the phone ($M = 7.0$; $SD = 1.31$) than did those who received weak arguments ($M = 4.5$; $SD = 1.38$). There was no main effect of self-affirmation, $F < 1$.

More germane to our hypothesis, a significant argument quality \times self-affirmation interaction emerged, $F(1, 107) = 5.73$, $p = .01$. As shown in the top panel of Figure 1, although both affirmation, $F(1, 107) = 22.10$, $p < .01$, and nonaffirmation groups, $F(1, 107) = 75.02$, $p < .01$, showed more persuasion to strong than weak arguments, the interaction indicates that the differentiation of strong from weak arguments was greater in the nonaffirmed than in the affirmed conditions.

Viewed in a different manner, when participants read the strong arguments, their attitudes were significantly less favorable in the affirmed group ($M = 6.6$; $SD = 1.38$) than in the control group ($M = 7.4$; $SD = 1.14$), $F(1, 107) = 4.58$, $p = .03$. For the weak message, in contrast, participants tended to show more favorable attitudes toward the proposal in the affirmed group ($M = 4.8$; $SD = 1.37$) than in the control group ($M = 4.3$; $SD = 1.38$), $F(1, 107) = 1.62$, $p = .20$.

Discussion

The results of Experiment 1 were consistent with our hypothesis that self-affirmation can influence attitude change by affecting the extent to which people think about a message. Specifically, self-affirmed participants showed less differentiation between strong and weak arguments than did affirmed participants, consistent with the hypothesized decrease in thinking. This experiment provides the first empirical demonstration that

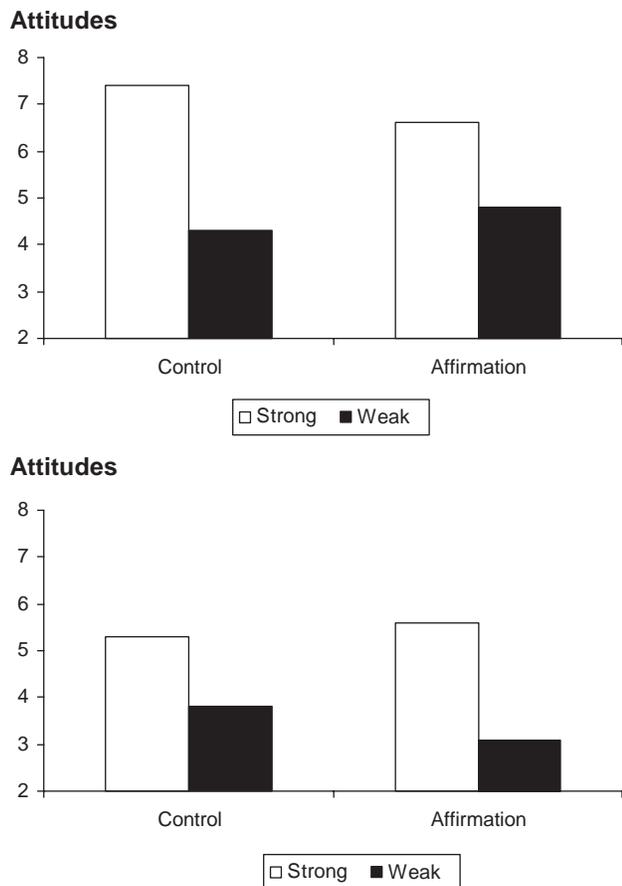


Figure 1 Top panel: Attitudes as a function of argument quality and self-affirmation in Experiment 1 in which affirmation precedes the message. Bottom panel: Attitudes as a function of argument quality and self-affirmation in Experiment 2 in which affirmation follows the message.

self-affirmation can interact with argument quality to affect attitudes.

As we mentioned in the introduction, however, to the extent that self-affirmation relates to confidence, it is predicted to serve multiple roles in a persuasive situation. In Experiment 2, we explored the extent to which self-affirmation can influence attitude change by affecting the extent to which people rely on their thoughts. We predicted that this self-validation role would be most likely to occur when self-affirmation is induced following a persuasive message. Because elaboration of the message would occur before the self-affirmation induction, self-affirmation was expected to influence attitude change by affecting the confidence participants attach to their recent message-relevant thoughts, which, based on pretesting, will differ in valence in the strong and weak argument conditions. It is notable that if self-affirmation affects thought confidence, then an interaction with argument

quality opposite to that observed in Experiment 1 should be found. This procedure helped us to experimentally test the proposed mechanism by generating unique predictions for self-affirmation in persuasion as a function of timing (Spencer et al., 2005).

EXPERIMENT 2

Experiment 2 was designed to address the role that self-affirmation can play in influencing attitude change when it follows a message.⁴ Thus, participants first received a persuasive message composed of either strong or weak arguments. Following the argument quality manipulation, participants were assigned to either the self-affirmation or control conditions. We expected self-affirmation to interact with argument quality in a manner that was opposite to Experiment 1. That is, we expected self-affirmed individuals to show a greater effect of argument quality on attitudes than would nonaffirmed individuals.

Method

Participants and Design

Seventy-three undergraduate students enrolled in introductory psychology courses at UAM participated in exchange for partial course credit. They were randomly assigned to the cells of a 2 (self-affirmation: self-affirmed vs. not self-affirmed) \times 2 (argument quality: strong vs. weak) between participants factorial design.

Procedure

Participants were given the same cover story as in Experiment 1 but with the two experiments in the opposite order. That is, participants received either the strong or the weak version of the cell phone message used in Experiment 1 and were explicitly asked to think carefully about it. After reading the persuasive message, participants were told that they were needed for a second research project about values and their influence on daily life situations. This study involved the affirmation of either important or unimportant personal values. Finally, participants were told that we wanted to know what their opinions were regarding the cell phone.

Independent Variables

Argument quality. Participants read the same strong or weak cell phone messages used in Experiment 1.

Self-affirmation. After reading the cell phone message, participants engaged in the same self-affirmation manipulation used in Experiment 1.

Dependent Variables

The same manipulation check and attitude items used in Experiment 1 served as our dependent measures. Seven participants did not complete the manipulation check so the degrees of freedom will vary in the analyses below.

Results

Dependent measures were submitted to a 2 (self-affirmation: affirmed vs. not affirmed) \times 2 (argument quality: strong vs. weak) ANOVA.

Manipulation Check

Again, personal importance ratings on the three selected values were highly correlated ($\alpha = .85$). A 2 \times 2 ANOVA on the average importance of these values revealed the expected main effect of self-affirmation, $F(1, 62) = 62.07, p < .01$, showing that the values the self-affirmation groups wrote about (i.e., the three most important from the ICS) were evaluated as more personally important ($M = 6.3; SD = .71$) than the values selected by the control groups ($M = 4.4; SD = 1.27$). No message main effect, $F(1, 62) = 1.82, p = .18$, or interaction, $F < 1, ns$, was found.

Attitudes

Ratings on the attitude scales were highly intercorrelated ($\alpha = .92$) and thus were averaged to create an index of attitudes toward the cell phone. Results of the 2 \times 2 ANOVA revealed a main effect of argument quality, $F(1, 69) = 69.5, p < .01$, such that participants who received strong arguments held more favorable attitudes toward the proposal ($M = 5.4; SD = 1.01$) than did those who received weak arguments ($M = 3.5; SD = 1.04$). There was no main effect for self-affirmation ($F < 1$).

It is important that a significant argument quality \times self-affirmation interaction emerged, $F(1, 69) = 4.95, p = .02$. As illustrated in the bottom panel of Figure 1, although there were significant differences between the strong and weak message in both the control condition, $F(1, 69) = 54.90, p < .01$, and the affirmed condition, $F(1, 69) = 18.99, p < .01$, the significant interaction indicates that this difference was larger when people affirmed an important than an unimportant value.

Viewed from a different perspective, when participants read a strong version of the persuasive information, their attitudes tended to be more favorable in the affirmed group ($M = 5.6; SD = .97$) than in the control group ($M = 5.3; SD = 1.05$), $F(1, 69) = .90, p = .34$. For the weak message, however, attitudes were significantly less favorable in the affirmed group ($M = 3.1; SD = 1.11$) than the control group ($M = 3.8; SD = .89$), $F(1, 69) = 4.77, p = .03$.

Discussion

As predicted, the data from Experiment 2 produced a significant self-affirmation \times argument quality interaction but it was the opposite of that obtained in Experiment 1, despite the same argument quality and self-affirmation manipulations being used. The only difference between the two studies was the placement of the self-affirmation manipulation. These findings are consistent with the self-validation hypothesis, which suggests that an affirmation following thinking can affect the extent to which people rely on their thoughts. Consistent with the self-validation notion that self-affirmation affects confidence and that confident individuals rely more on their thoughts, argument quality had a greater impact on attitudes in the self-affirmation than in the control conditions.

Together, the first two studies suggest that self-affirmation can have different (and opposite) effects in nonthreatening persuasive settings depending on when the manipulation is introduced. These findings each offer unique support regarding the proposed mechanism because of the different predictions for self-affirmation as a function of timing. Thus, these data are consistent with the multiple roles postulate of the ELM and with the notion that the effects of self-affirmation are because of an increase in confidence. Specifically, in Experiment 1, when people were self-affirmed before receiving a message, self-affirmation reduced the impact of a message quality manipulation consistent with our hypothesis that self-affirmation would decrease information processing. In Experiment 2, when people were self-affirmed after processing the message, self-affirmation increased the impact of a message quality manipulation consistent with our hypothesis that self-affirmation validated people's thoughts, increasing reliance on them. We assumed that self-affirmation would affect confidence in both studies but that confidence induced prior to a message should affect information processing and that confidence induced after message processing should affect reliance on thoughts.

In addition, these studies help us begin to rule out alternative mechanisms that have been proposed for the effects of self-affirmation on persuasion. Within the present context of relatively novel and nonthreatening issues, several of these alternatives seem highly implausible as comprehensive theories of the effects of self-affirmation on persuasion. For example, the self-protection perspective would not predict any effect of self-affirmation on persuasion when personally unimportant topics are used because the persuasive messages would not pose a threat to the self. Second, although the findings of Experiment 1 can be seen as consistent with the notion that self-affirmation trivializes the persuasive topic (because people think less about trivial issues; see

Simon, Greenberg, & Brehm, 1995), the results of Experiment 2 cannot be predicted from this perspective. The reduction of importance of the persuasive topic should either not affect attitudes at all when induced after information processing or it should stimulate a decrease in memory-based processing as indicated by a small decrease in argument quality effects, relative to control participants, the opposite pattern to the one we obtained.

Although these findings offer initial support for our predictions and begin to rule out alternative mechanisms, there is one salient issue remaining. Specifically, although we attempted to keep our manipulations, measures, messages, and subject population constant across Experiments 1 and 2 and vary only the order in which self-affirmation was induced, people were not randomly assigned to different orders of the affirmation manipulation. Thus, it seems clear that the timing of the self-affirmation manipulation should be manipulated within the same experiment. Furthermore, it would be desirable to replicate the obtained findings with a different self-affirmation manipulation. In addition to addressing these issues, we measure mood in Experiment 3 to examine its role in accounting for the findings. That is, it could be mood rather than confidence that produces the effect of self-affirmation that we have observed because mood prior to a message could plausibly affect information processing (see Schwarz, 1990) and mood following a message could affect self-validation processes (Briñol, Petty, & Barden, in press). Although self-affirmation has not affected mood in most previous studies, there are isolated examples in which it has (e.g., Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999).

EXPERIMENT 3

The main goals of Experiment 3 were to replicate our previous findings in a study in which we experimentally varied the order of the self-affirmation induction. Thus, we manipulated the timing of the self-affirmation induction to demonstrate the predicted consequences of both psychological roles (decreasing information processing and increasing the use of thoughts) within the same experimental design. This manipulation was designed to validate the proposed mechanism for self-affirmation in nonthreatening domains. That is, instead of measuring confidence and submitting it to a mediational analyses, we followed an experimental approach to test whether a direct manipulation of the timing in which affirmation is induced can replicate within the same design the (opposite) attitudinal effects obtained in Experiments 1 and 2 (see Spencer et al., 2005, for more on the rationale behind this moderation approach to theory testing; see also Petty, 2006).

Because this experiment is primarily a methodological advance over the previous studies, we decided to use only strong persuasive messages to simplify the design. Thus, compared to the control condition, we expected self-affirmation to reduce persuasion when it was induced prior to the presentation of the message (as in Experiment 1) because affirmed individuals would be processing the strong arguments less, but we expected it to enhance persuasion when manipulated after the reading of the proposal (as in Experiment 2) because affirmed individuals would be more reliant on their positive thoughts to the strong arguments.

Experiment 3 also included different self-affirmation and control conditions, validated in previous self-affirmation research, in which participants had to engage in a task in which they either wrote about a universally important value (honesty; see Jacks & O'Brien, 2004) or generated names of different cities (Blanton, Pelham, DeHart, & Carvallo, 2001). Finally, in addition to assessing attitudes, a mood measure was included to rule mood out as an alternative mechanism for the observed effects.

Method

Participants and Design

Eighty-seven undergraduate students enrolled in introductory psychology courses at UAM participated in exchange for partial course credit. They engaged in a 2 (timing: before vs. after) \times 2 (self-affirmation: affirmation vs. control) between-subjects design. All participants received a message with strong arguments.

Procedure

Participants were led to believe that they would be engaged in two different studies. For the self-affirmation-before condition, participants were told that the first study was designed to evaluate different aspects of memory and the second study was designed to evaluate a new cell phone. Half of the participants (affirmation condition) were told that the memory task involved writing about situations in which they remembered feeling or acting like an honest person. The other half of the participants (control condition) were told that their memory exercise was to remember the names of at least 10 cities in their country. This task was comparable to the self-affirmation condition in terms of effort. Then, participants read the strong version of the persuasive message used in Experiments 1 and 2 about a new cell phone. In the self-affirmation-after condition, we reversed the order of the studies. That is, after reading the message, participants were asked either to write about their honest behavior or to recall names of cities. Finally, all groups had to indicate their attitudes toward the cell phone.

Independent Variables

Self-affirmation timing. Participants were randomly assigned to a self-affirmation task either before or after the persuasive message. In the before condition, we first presented the memory aspects study (self-affirmation manipulation) and then the message. In the after condition, the order of the two studies was reversed.

Self-affirmation. In the affirmation condition, participants were told that the memory task was associated with personal values, so they had to list at least three times that they remembered feeling or acting as an honest person (Jacks & O'Brien, 2004). In the control condition, participants were told that they had to list at least 10 cities in their country. This control condition has been used successfully in previous self-affirmation research (Blanton et al., 2001).

Dependent Variables

Manipulation checks. Immediately following the self-affirmation task, we asked participants how important the memory task was to them. Participants completed a single item ranging from 1 (*not important*) to 7 (*extremely important*). This item was included to ensure that the self-affirmation manipulation was perceived as more personally important than the control condition. To ensure that the two tasks were equally engaging, participants were also asked to rate the extent to which they felt activated and stimulated. These items were responded to on 9-point scales.

Attitudes. Following both manipulations, participants had to rate their opinions about the proposal on the same four 7-point semantic differential scales used in Experiment 1.

Mood. Following the manipulation of self-affirmation, participants recorded the feelings they had during the task on two single 7-point scales anchored at *sad-happy* and *unpleasant-pleasant*.

Results

All dependent measures were submitted to a 2 (timing: before vs. after message) \times 2 (self-affirmation: affirmation vs. control) ANOVA.

Manipulation Checks

The 2 \times 2 ANOVA computed on the affirmation importance item showed a significant main effect for self-affirmation condition, $F(1, 83) = 47.17, p < .01$,

suggesting that recalling information about an important value (honesty) was more important for participants ($M = 6.7; SD = 0.43$) than recalling cities was ($M = 4.6; SD = 1.94$). No other main or interaction effects were found (all $ps > .35$). With respect to engagement, the 2 \times 2 ANOVA did not reveal any significant effects ($F_s < 1$).

Attitudes

The attitude scales were highly intercorrelated ($\alpha = .89$) and thus were averaged to create a composite index. The 2 \times 2 ANOVA did not show any significant main effects, $F_s(1, 83) < 1, ns$. More germane to our hypothesis, the interaction effect was significant, $F(1, 83) = 8.86, p < .01$. As displayed in Figure 2, when self-affirmation was manipulated prior to the presentation of the message (as in Experiment 1), the self-affirmation induction ($M = 4.7; SD = 1.58$) reduced persuasion compared to the control condition ($M = 5.6; SD = 1.25$), $F(1, 83) = 5.96, p = .02$. In contrast, when affirmation was manipulated after the reading of the proposal (as in Experiment 2), the self-affirmation induction ($M = 5.7; SD = 0.86$) tended to enhance persuasion compared to the control condition ($M = 5.1; SD = 1.05$), $F(1, 83) = 3.06, p = .08$. Decomposed differently, the interaction revealed that for the control condition there was no difference in attitude change as a function of timing, $F(1, 83) = 2.37, p = .12$. For the self-affirmation condition, however, participants reported significantly less favorable attitudes when the affirmation occurred before than after reading the proposal, $F(1, 83) = 7.02, p = .01$.

Mood

The two mood items we included were strongly correlated ($r = .70; p < .01$) and thus were combined to form an overall mood index. No significant effects emerged (all $ps > .25$).

Discussion

Results of Experiment 3 were in accordance with our hypotheses regarding the different roles for self-affirmation depending on whether it preceded or followed the persuasive message. That is, self-affirmation had opposite effects on persuasion depending on its placement. Self-affirmation decreased the persuasive impact of the strong message relative to the control group when it was induced before the message, consistent with a reduction in elaboration. In contrast, when self-affirmation followed the message, it increased persuasion relative to the control group, consistent with the idea that affirmation affected the use of the (positive) thoughts generated by the strong arguments. This pattern suggests that

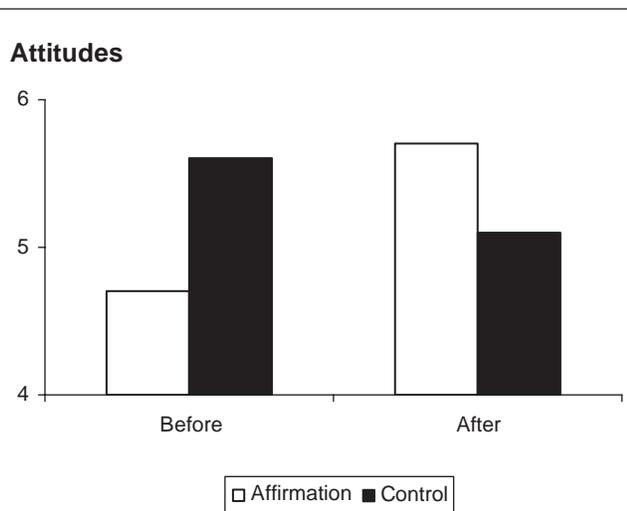


Figure 2 Attitudes as a function of timing and self-affirmation in Experiment 3.

when self-affirmation came after a message it did not affect processing of the message. Taken together, these findings provide further evidence that self-affirmation can influence attitude change by different processes as a function of the moment at which it is introduced, before or after message processing.

Additionally, we explored the likelihood that mood could serve as an alternative explanation for our self-affirmation effects. The null effect of self-affirmation on mood suggested that self-affirmation did not affect mood, and thus mood is unlikely to be responsible for the effects obtained. One potential alternative explanation for the results obtained in this experiment is that writing about honesty in the self-affirmation condition might have primed participants to behave honestly (as opposed to confidently). This honesty could have contributed to the greater impact of thoughts on attitudes for self-affirmed participants (see Rasinski, Visser, Zagatsky, & Rickett, 2005). Although plausible, we do not think that this mechanism was likely to play a role in the research for two main reasons. First, although honesty was used, Experiment 2 had participants affirm a completely different value and still found the same effect. Second, the potential influence of honesty on the reliance on one's thoughts could not easily explain the findings obtained for the conditions in which honesty was induced prior to message (in which people did not have thoughts to validate yet). Indeed, in these conditions, honesty might be associated with increased thought because participants might be motivated to provide honest feedback. Thus, honesty does not provide a complete or parsimonious interpretation of the findings across our studies.

It is worth noting that although we argue that the effects of self-affirmation on attitude change are based on its impact on confidence and self-affirmation effects mirrored the effects that confidence has shown in prior research when it was manipulated before or after a message, we have not yet provided any direct evidence for such a link. Examining the relationship between self-affirmation and confidence was the goal of our final experiment.

EXPERIMENT 4

After having shown that attitudes can vary as a function of the timing of self-affirmation in a pattern clearly predicted by confidence, we explored the relationship between self-affirmation and confidence. Consistent with the logic of the previous studies, we expected self-affirmation to enhance the sense of self-confidence. To test this hypothesis, we assessed reported confidence for self-affirmed and control participants.

Method

Participants and Design

Ninety-one undergraduates enrolled in introductory psychology courses at UAM participated for partial course credit. They were randomly assigned to the self-affirmation or control condition in a between-participants design.

Procedure

Participants were told that they were going to engage in a project directed by the Psychology Department that explored diary situations associated with different types of feelings. Participants then completed either the self-affirmation or the control task from Experiment 3. After the affirmation manipulation, participants rated their self-confidence.

Independent Variable

The same self-affirmation and control manipulations used in Experiment 3 were employed in this experiment.

Dependent Variables

After listing cities or honest situations, participants were asked about how confident and secure they felt on two semantic differential scales ranging from 1 to 7 (*secure–insecure*; *confident–unconfident*).

Results and Discussion

The two confidence measures were reverse scored and averaged to create a confidence index ($r = .73$;

$p < .01$). As predicted, participants in the control condition reported feeling significantly less confidence ($M = 4.6$; $SD = 1.67$) than those in the self-affirmation condition ($M = 5.9$; $SD = 1.58$), $t(82) = 3.60$, $p < .01$. This finding provides suggestive evidence for the first step in the process that we hypothesized underlies our previous findings. Furthermore, this is the first direct evidence that self-affirmation can affect self-confidence. Obviously, in the absence of other measures, it might have been possible that self-affirmation just produced a general sense of positivity and that was what our measure of confidence was tapping. However, if that was the case, the measure of mood included in Experiment 3 should have also reflected the effect of the manipulation.

GENERAL DISCUSSION

This research is the first to systematically investigate the impact of self-affirmation on persuasion when the topic of persuasion is not threatening to the self in some way. We hypothesized that self-affirmation would induce confidence, which should then affect persuasion via a number of different mechanisms, depending on other contextual variables (for further discussion of multiple roles, see Petty & Cacioppo, 1986). Specifically, we hypothesized that self-affirmation operates by affecting the extent of elaboration when it is induced prior to the reception of persuasive information and through a self-validation process when it is induced after the presentation of a message. Notably, if these hypotheses are correct, self-affirmation should have opposite interactions with argument quality depending on its placement before or after a message.

In Experiment 1, where affirmation came before a message, affirmed participants were less influenced by the quality of arguments in the communication than were control participants. This pattern of results is consistent with the pattern that would be expected if self-affirmation affected confidence and confidence affected the extent of information processing. That is, previous research relating persuasion and confidence has shown that confident individuals are less attentive to argument quality because they engage in less thought about the message than do individuals low in confidence (e.g., Briñol, Petty, & Wheeler, 2006; Petty, Tormala, Briñol, & Jarvis, 2006; Tiedens & Linton, 2001).

In Experiment 2, we showed that self-affirmation induced following message reception had the opposite interaction with argument quality. This pattern of results is consistent with the pattern that would be expected if self-affirmation affected confidence and confidence in turn affected reliance on one's thoughts. That is, previous research relating persuasion and confidence has shown

that when confidence follows a message, confident individuals are more reliant on their thoughts to a message (Briñol et al., 2004; Petty et al., 2002). Thus, argument quality has a greater impact on attitudes.

Experiment 3 was important in isolating the timing of the self-affirmation manipulation as critical to producing the different effects observed in Experiments 1 and 2. Specifically, in Experiment 3 we manipulated the timing of the self-affirmation induction, allowing us to more adequately compare the effects of affirmation timing on persuasion. As noted before, the unique outcomes predicted as a function of this manipulation also provides key evidence in support of our proposed mechanisms (Petty, 2006; Spencer et al., 2005). Results of self-affirmation on attitudes supported our multiple-roles perspective in that affirmation had different effects on persuasion based on timing. In addition, Experiment 3 allowed us to rule out mood as an alternative explanation because self-affirmation did not affect mood in this experiment. Finally, Experiment 4 added direct support for the postulated link between self-affirmation and confidence. Taken together, our studies show that manipulating affirmation affects attitudes according to very specific patterns that have been previously linked to confidence. Although measuring and testing confidence as a mediator might also have been a possible approach, we believe the moderation approach offers compelling support for the role of confidence in the persuasive effects of affirmation in nonthreatening domains.

A New Source of Thought Confidence

The findings of this research provide an important extension of prior work on self-validation processes and social judgment. Previous research has found that people's overt behavior (e.g., head nodding; Briñol & Petty, 2003) can influence persuasion by increasing (e.g., nodding) or decreasing (e.g., shaking) thought confidence. We also have found evidence demonstrating that other variables such as the ease with which thoughts come to mind (Tormala et al., 2002), the trustworthiness of the message source (e.g., Briñol et al., 2004; Tormala, Briñol, & Petty, 2006), the presumed number of others with similar thoughts (Petty et al., 2002), and one's emotions (Briñol et al., in press) can have an impact on persuasion by influencing thought confidence. These studies extend this line of research by demonstrating that self-affirmation can also be amenable to a self-validation analysis. If self-validation can explain the persuasive effects of all these different variables, then it may ultimately prove useful in providing a novel explanation for other attitude change phenomena as well.

Other Roles for Confidence in Persuasion

As mentioned when introducing our research, we postulated that self-affirmation (and the confidence it inspires), like any other persuasion variable, can play multiple roles in persuasion (Petty & Cacioppo, 1986). Although we explored only two of these roles, influencing the extent of elaboration and the validation of cognitive responses to a message, other possibilities exist (e.g., Briñol et al., 2004). For example, as has been shown for other variables, when elaboration is constrained to be low, self-affirmation and the associated confidence might become linked with an advocacy and act as a simple cue affecting the evaluation of an attitude object. When self-affirmation precedes a message and elaboration is constrained to be high, it might also bias thoughts in a positive manner, assuming people have a naïve theory that confidence is positive (Briñol, Petty, & Tormala, 2006). Future research should explore the extent to which these mechanisms operate as a function of self-affirmation and the conditions that favor a given mechanism over alternative mechanisms.

Self-Affirmation and Threatening Messages

Our intent in writing this article was to address a previously ignored area of research: the role of self-affirmation in the context of nonthreatening persuasive messages. In doing so, we found opposite effects of self-affirmation depending on when it was induced. We predicted these opposite findings because of two mechanisms that result from confidence and that have not been explored in previous self-affirmation research: that it can decrease information processing and validate thoughts. Can the multiple roles approach to confidence be applied to the processing of personally threatening messages? We expect that it can with some caveats.

It is notable that a critical difference between threatening and nonthreatening persuasion situations, and therefore between this research and prior research, is the extent of thinking (elaboration) that likely characterizes the setting. That is, the high personal relevance and consequences of a threatening persuasive message may cause thinking to be very high. Given the threatening nature of messages in prior research and this high elaboration likelihood, we expect that participants are likely to generate mostly negative thoughts (counterarguments) toward the proposal in those situations. That is, this combination of factors is likely to produce biased information processing in a manner counter to the persuasive message (see Petty & Cacioppo, 1986). Previous research has shown that self-affirmation reduces this negative bias (e.g., Sherman et al., 2000). Although speculative, if self-affirmation is associated

with confidence under these circumstances, then it may be possible that the reduction in bias is because of an opposing, positive bias induced by self-affirmation. That is, when people are high in elaboration and self-affirmation precedes thinking, it might influence persuasion by biasing the direction of the thoughts generated. In other words, if people are thinking, self-affirmation is likely to make the thoughts generated toward a proposal more positive than they would be in its absence. This would be the case for both threatening and nonthreatening messages. However, when messages are not threatening (as in this research), people might not be motivated to think carefully; therefore, the process that is most likely to be affected is the amount rather than the direction of thought.

This idea is necessarily speculative, so future research should examine the mechanisms we propose in the context of personally threatening persuasive messages.⁵ As should be evident from the previous discussion, we would predict that a number of contextual features, such as the quality of the arguments presented and the timing of the self-affirmation manipulation, will determine not only the outcome of self-affirmation on persuasion but also the mechanism by which these outcomes are produced.

Why Does Self-Affirmation Produce Confidence?

Another question raised by this research is why self-affirmation produces confidence. There are a number of possible reasons for this. For example, affirming an important value might increase participants' perceptions that they are correct in general. Much like social validation of beliefs' increasing a person's subjective confidence in those beliefs (e.g., Petty et al., 2002), it is plausible that affirming a personally important value can serve as a validation of the self, resulting in an increase in confidence. Alternatively, because self-affirmation is predicted to enhance the integrity of the self (Steele, 1988), the self may be seen as a more credible and competent source of information and, thus, a source a person can be confident in (e.g., Greenwald & Albert, 1968). Certainly, other reasons are also plausible, and this may be a useful direction for future research as well.

CONCLUSION

In sum, across our studies we showed that self-affirmation can have opposite effects on persuasion depending on whether it is introduced before or after a message has been processed. This pattern of data was accounted for by our proposal that self-affirmation affects a person's confidence and that confidence invokes

different persuasion mechanisms when it comes before or after a message. Because of the impact of self-affirmation on confidence, we proposed that increased self-affirmation would affect attitude change by reducing elaboration when it precedes information processing and would enhance the confidence people have in their thoughts when it follows elaboration.

In closing, consider the hypothetical scenario mentioned at the beginning of this work regarding consumer behavior. In light of these findings, if the grocery store clerk had compelling arguments for a new brand of detergent, it might make sense for him to affirm you after he has told you about the product. This will increase the likelihood that you will use the positive thoughts generated in response to his information. If, however, his arguments were not as compelling, it might make more sense for him to ask you about your important values before telling you about the product.

NOTES

1. The low-importance group in Correll, Spencer, and Zanna (2004) and low-risk group in Harris and Napper (2005) are notable exceptions, but in these studies, attitudes were not measured so the effects on persuasion cannot be determined.

2. In the affirmation condition, all participants listed instances that were consistent with the most important values. However, in the control group, there were nine stories for which it was not clear if the content stemmed from the least important values listed. It is important that removing these participants from the primary analyses did not affect the results; the interaction between argument quality and self-affirmation remained significant, $F(1, 98) = 4.60, p = .03$.

3. It is important to note that both the strong and weak arguments argued in favor of the cell phone, but the strong arguments provided more compelling reasons than did the weak arguments. This manipulation should be clearly distinguished from other forms of message variations, such as arguments in favor of or against the proposal. Because the argument manipulation is used to assess how much thinking people are doing about the message, all arguments need to argue for the same position—but only with high or low convincingness. Because all arguments are in favor of the issue, they may be equally persuasive if people don't think about their implications. Individuals not thinking about the message carefully may respond simply to cues like the number of arguments presented or their initial gut reaction to the proposal (see Petty & Wegener, 1998).

4. In one study dealing with threatening messages, Sherman, Nelson, and Steele (2000) found that relative to a control group self-affirmation induced after message processing led to more persuasion. They interpreted this finding as a case in which self-affirmation can provide a cure from the threat induced by the message, regardless of whether it is induced before or after the message. However, if the message in the Sherman et al. study was strong (i.e., produced mostly favorable thoughts), the post order could have produced a self-validation effect, which would also predict an increase in persuasion.

5. It is also possible that the confidence induced by self-affirmation in threatening domains might increase the number of favorable thoughts generated toward the proposal by affecting the focus of the thoughts generated in the first place. (We thank Toni Schmader for this suggestion.) For example, in high-threat conditions, the focus might be on elaborating the message with respect to the self and affirmation might validate those self-relevant thoughts, thus reducing the perceived threat of a counterattitudinal message and increasing the chances to generate favorable thoughts toward the proposal. In contrast, in low-threat conditions, the focus might be on the message

proposal (rather than the self) and affirmation validates whatever mental content is available at the time. As we argue in this research, the particular content that is salient and thus validated will vary depending on when confidence is induced—before or after receipt of a nonthreatening message. Under low threat, when people are confident prior to their receipt of a message, they rely on their existing opinions and, therefore, there is little need to process additional information on the subject. When people are made to feel confident immediately following receipt of a message, their thoughts to the message are salient, and these thoughts are validated by affirmation and determine the attitudes formed.

REFERENCES

- Blanton, H., Pelham, B. W., DeHart, T., & Carvallo, M. (2001). Overconfidence as dissonance reduction. *Journal of Experimental Social Psychology, 37*, 373-385.
- Briñol, P., & Petty, R. E. (2003). Overt head movements and persuasion: A self-validation analysis. *Journal of Personality and Social Psychology, 84*, 1123-1139.
- Briñol, P., Petty, R. E., & Barden, J. (in press). Happiness versus sadness as a determinant of thought confidence in persuasion: A self-validation analysis. *Journal of Personality and Social Psychology*.
- Briñol, P., Petty, R. E., & Tormala, Z. L. (2004). Self-validation of cognitive responses to advertisements. *Journal of Consumer Research, 30*, 559-573.
- Briñol, P., Petty, R. E., & Tormala, Z. L. (2006). The meaning of subjective ease and its malleability. *Psychological Science, 17*, 200-206.
- Briñol, P., Petty, R. E., & Wheeler, S. C. (2006). Discrepancies between explicit and implicit self-concepts: Consequences for information processing. *Journal of Personality and Social Psychology, 91*, 154-170.
- Cohen, G. L., Aronson, J., & Steele, C. M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin, 26*, 1151-1164.
- Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*, 350-356.
- Greenwald, A. G., & Albert, R. D. (1968). Acceptance and recall of improvised arguments. *Journal of Personality and Social Psychology, 8*, 31-34.
- Grimm, S. D., Church, A. T., Katigbak, M. S., & Reyes, J. A. (1999). Self-described traits, values, and moods associated with individualism and collectivism: Testing I-C theory in an individualistic (U.S.) and a collectivistic (Philippine) culture. *Journal of Cross-Cultural Psychology, 30*, 466-500.
- Harris, P. R., & Napper, L. (2005). Self-affirmation and the biased processing of threatening health-risk information. *Personality and Social Psychology Bulletin, 31*, 1250-1263.
- Jacks, J. Z., & O'Brien, M. E. (2004). Decreasing resistance by affirming the self. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion* (pp. 235-257). Mahwah, NJ: Lawrence Erlbaum.
- Knowles, E. S., & Linn, J. A. (2004). *Resistance and persuasion*. Mahwah, NJ: Lawrence Erlbaum.
- Koole, S. L., Smeets, K., van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology, 77*, 111-125.
- Petty, R. E. (2006). The research script: One researcher's view. In F. T. Leong & J. M. Austin (Eds.), *The psychology research handbook: A guide for graduate students and research assistants* (2nd ed., pp. 465-480). Thousand Oaks, CA: Sage.
- Petty, R. E., Briñol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology, 82*, 722-741.
- Petty, R. E., Briñol, P., Tormala, Z. L., & Wegener, D. T. (2007). The role of meta-cognition in social judgment. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: A handbook of basic principles* (2nd ed., pp. 254-284). New York: Guilford.

- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 37, 1915-1926.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Petty, R. E., Harkins, S. G., & Williams, K. D. (1980). The effects of group diffusion of cognitive effort on attitudes: An information processing view. *Journal of Personality and Social Psychology*, 38, 81-92.
- Petty, R. E., Tormala, Z. L., Briñol, P., & Jarvis, W. B. G. (2006). Implicit ambivalence from attitude change: An exploration of the PAST model. *Journal of Personality and Social Psychology*, 90, 21-41.
- Petty, R. E., & Wegener, D. T. (1998). Attitude change: Multiple roles for persuasion variables. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 323-390). New York: McGraw-Hill.
- Rasinski, K. A., Visser, P. S., Zagatsky, M., & Rickett, E. M. (2005). Using implicit goal priming to improve the quality of self-report data. *Journal of Experimental Social Psychology*, 41, 321-327.
- Reed, M. B., & Aspinwall, L. G. (1998). Self-affirmation reduces biased processing of health-risk information. *Motivation and Emotion*, 22, 99-132.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527-561). New York: Guilford.
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In L. M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 183-242). San Diego, CA: Academic Press.
- Sherman, D. K., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, 26, 1046-1058.
- Simon, L., Greenberg, J., & Brehm, J. (1995). Trivialization: the forgotten mode of dissonance reduction. *Journal of Personality and Social Psychology*, 68, 247-260.
- Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology*, 89, 845-851.
- 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.
- Tesser, A. (2000). On the confluence of self-esteem maintenance mechanisms. *Personality and Social Psychology Review*, 4, 290-299.
- Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology*, 81, 973-988.
- Tormala, Z. L., Briñol, P., & Petty, R. E. (2006). When credibility attacks: The reverse impact of source credibility on persuasion. *Journal of Experimental Social Psychology*, 42, 684-691.
- Tormala, Z. L., Petty, R. E., & Briñol, P. (2002). Ease of retrieval effects in persuasion: A self-validation analysis. *Personality and Social Psychology Bulletin*, 28, 1700-1712.
- Weary, G., & Edwards, J. A. (1994). Individual differences in causal uncertainty. *Journal of Personality and Social Psychology*, 67, 308-318.

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