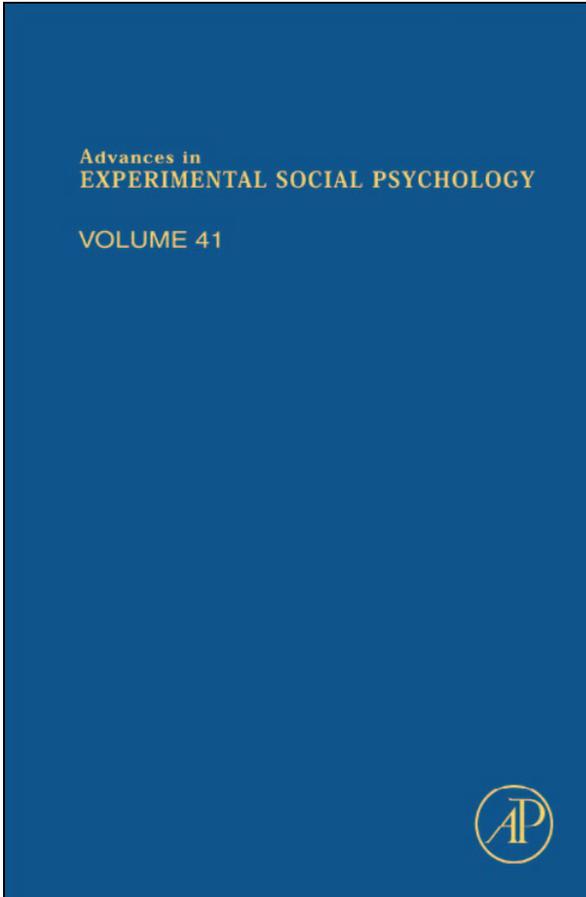


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PERSUASION: INSIGHTS FROM THE SELF-VALIDATION HYPOTHESIS

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Abstract

This article describes the basic mechanisms underlying persuasion highlighting the role of a recently discovered new process—called *self-validation*. Unlike previous mechanisms in attitude change that focus on primary or first-order cognition, this new process emphasizes secondary or meta-cognition. The key notion of self-validation is that generating thoughts is not sufficient for them to have an impact on judgment. Rather, one must also have confidence in them. We review research revealing that this new mechanism can account for some already established outcomes in persuasion, but by a different process than postulated previously, as well as for some new findings. Specifically, we describe how source (e.g., credibility), recipient (e.g., bodily responses), message (e.g., matching), and context (e.g., repetition) variables can influence persuasion by affecting thought-confidence. We also describe how establishing a basic mechanism such as self-validation can provide a novel framework for understanding a variety of additional phenomenon in the domain of persuasion and beyond.

1. INTRODUCTION

Persuasion has always been a major component of human activity. Thinking about the varied situations in which persuasion occurs quickly reveals that it is present in nearly all social interactions, ranging from consumer and organizational settings to academia and health related contexts. As we will describe in this review, understanding *why* a particular persuasion phenomenon is effective is essential for a number of reasons ranging from designing interventions across diverse domains to predicting the long-term consequences of persuasion. Accordingly, the focus of this article is on explicating the psychological mechanisms underlying persuasion with particular attention to a recently discovered process by which a plethora of variables can produce attitude change.¹ After providing a brief

¹ Although many constructs can be targeted for change (e.g., emotions, beliefs, behaviors), we focus on attitudes (people's general evaluations of people, objects, and issues) because attitudes serve a key mediational role (e.g., attitude change mediates the impact of belief change on behavior change) and have been the focus of most persuasion research. Nevertheless, the same fundamental persuasion processes can operate regardless of the target of change.

overview of classic perspectives on attitude change research and outlining a general framework that articulates the key processes of persuasion we will (1) highlight a new mechanism of persuasion—called *self-validation*—that ties together the operation of a diverse set of variables, (2) describe how a variety of source, recipient, message, and context variables can influence persuasion by affecting the validation of or confidence in one's thoughts, (3) describe how self-validation plays an important role in other phenomena related to attitudes, and (4) outline other processes by which confidence can influence judgment.

2. OVERVIEW OF CLASSIC AND CONTEMPORARY SOCIAL PSYCHOLOGICAL PERSPECTIVES ON PERSUASION

In the typical situation in which persuasion is possible, a person or a group of people (i.e., the *recipient*) receives an intervention (e.g., a persuasive *message*) from another individual or group (i.e., the *source*) in a particular setting (i.e., the *context*). Successful persuasion is said to occur when the target of change (e.g., attitudes, beliefs) is modified in the desired direction. Over the past 50 years, researchers have developed numerous theories of persuasion (see [Petty & Wegener, 1998](#)). We highlight some prominent approaches next.

One of the earliest assumptions was that effective influence required a sequence of steps leading to absorption of the content of a message (e.g., exposure, attention, comprehension, learning, retention; see [McGuire, 1985](#)). According to this framework, variables affected the extent of persuasion by affecting learning and retention of message information. However, the available research evidence shows that message learning can occur in the absence of attitude change and that attitudes can change without learning the specific information in the communication ([Petty & Cacioppo, 1981](#); [Petty et al., 2008](#)).

Cognitive response theory ([Greenwald, 1968](#); [Petty et al., 1981](#)) was developed explicitly to account for the low correlation between message learning and persuasion observed in many studies, and for the processes responsible for yielding to messages. In contrast to the traditional message learning view, the cognitive response approach contended that persuasion depended on the extent to which individuals articulate and rehearse their own idiosyncratic thoughts to the information presented. According to this framework, an appeal that elicits issue-relevant thoughts that are primarily favorable toward a particular recommendation produces agreement, whereas an appeal that elicits unfavorable thoughts toward the recommendation is ineffective in achieving attitude change—regardless of message learning.

Although the cognitive response approach provided important insights into the persuasion process, it focused only on those situations in which people were active processors of the information provided to them. Indeed, the numerous persuasion theories that have promulgated over the past several decades have tended to focus either on persuasion that required relatively high amounts of thinking (e.g., dissonance theory; Festinger, 1957) or relatively low amounts of thinking (e.g., classical conditioning, Staats & Staats, 1958; self-perception theory, Bem, 1972). By the 1980s it was clear that attitudes could be changed both when thinking was high and when it was low. The Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1981, 1986) was proposed to integrate the many persuasion theories by arguing that persuasion can occur when thinking is high or low, but the processes and consequences of persuasion are different in each situation.² Although many specific processes of persuasion have been proposed over the years (see Eagly & Chaiken, 1993), the ELM holds that these processes can be organized into a finite set, and that any one variable (i.e., whether source, message, recipient, or context) can influence attitudes by affecting these key processes (Petty & Wegener, 1999).

3. FUNDAMENTAL PROCESSES OF PERSUASION

As just one example of the multiple roles that a variable can play in persuasion situations according to the ELM, consider how a person's incidental emotions can impact evaluative judgments. First and most simply, when thinking is constrained to be low (e.g., due to many distractions or low personal relevance), then emotions tend to serve as simple associative cues and produce evaluations consistent with their valence. That is, positive emotions should produce more positive attitudes than negative emotions (e.g., Petty et al., 1993). When thinking is high, however, one's emotions serve in other roles. First, emotions can be evaluated as evidence (e.g., negative emotions such as sadness or fear can lead to positive evaluations of a movie if these are the intended states; see Martin, 2000). Also, when thinking is high, emotions can bias the ongoing thoughts (e.g., positive consequences seem more likely when people are in a happy than sad state; DeSteno et al., 2000). There is one more process by which emotions can operate when thinking is high—affecting confidence in thoughts and this is discussed in this chapter.

² The ELM is an early example of what became an explosion of dual process and dual system theories that distinguished relatively thoughtful (deliberative) from relatively nonthoughtful (e.g., automatic, intuitive) determinants of judgment (see Chaiken & Trope, 1999; Petty & Briñol, 2006).

When the likelihood of thinking is not constrained to be high or low by other variables, then emotions can affect the extent of thinking. For example, people might think about messages more when in a sad than happy state because sadness signals a problem to be solved (Schwarz et al., 1991a) or conveys a sense of uncertainty (Tiedens & Linton, 2001). If people process a message more when in a sad than happy state, this means that they would be more persuaded by cogent arguments when sad than happy but less persuaded by specious arguments.³ Various theories of emotion and social judgment have incorporated one or more of these processes highlighted by the ELM (e.g., see Forgas, 2001).

Notably, the ELM organizes these processes of persuasion together into one overarching framework (see Petty et al., 2003), and holds that these same processes can be used not only to understand the impact of incidental emotion, but also a long list of other very different variables. For example, source credibility has been shown to serve in the exact same multiple roles observed for incidental emotions under the same circumstances (see Briñol & Petty, *in press*, for a review).

Understanding the multiple processes by which variables can produce persuasion is important for a number of reasons (Petty & Briñol, 2008a,b). First, if any one variable can affect attitudes by different processes, then different persuasion outcomes for the same variable are possible. For example, when thinking is constrained to be low, a happy state might lead to more persuasion than a sad state because emotion serves as a simple positive cue, but when thinking is unconstrained, a happy state might reduce processing of the strong arguments in a message compared to a sad state thereby reducing persuasion.

Second, the ELM holds that the process by which an attitude is formed or changed is consequential for the strength of the attitude (Petty & Krosnick, 1995). Thus, even if two different processes result in the same extent of persuasion, the consequences of this persuasion can differ. For example, when variables such as emotion or a highly credible source produce persuasion through low thinking processes (e.g., serving as a cue) the attitudes formed are less persistent, resistant to change, and predictive of behavior than when the same amount of change is produced by these variables via high thinking processes (e.g., biasing the thoughts generated; see Petty et al., 1995). Thus, understanding the processes by which variables have their impact is important because it is informative about the immediate and long-term consequences of persuasion (see Wegener et al., 2006).

³ When mood management is a salient concern and thinking about the message will be uplifting, people will process more when in a positive than in a negative mood (e.g., see Wegener et al., 1995).

4. THE SELF-VALIDATION HYPOTHESIS: A NEW WAY TO AFFECT ATTITUDE CHANGE

We noted that since its inception, the ELM has described four ways in which any variable can affect attitudes: (1) serving as a simple cue, (2) as a piece of substantive evidence (i.e., an argument), (3) affecting the extent of information processing by influencing motivation or ability to think, and (4) affecting the direction of processing (i.e., introducing a bias to the ongoing thinking). Variables serve in these four roles at different points along the elaboration continuum (Petty & Cacioppo, 1986). Recently, we have proposed and documented a fifth mechanism through which variables can work that also appears to have considerable integrative potential. Unlike the previous roles, which focus on primary or first-order cognition, this new process emphasizes secondary or meta-cognition. Primary thoughts are those that occur at a direct level of cognition and involve our initial associations of some object with some attribute. Following a primary thought, people can also generate other thoughts that occur at a second level which involve reflections on the first level thoughts. *Meta-cognition* refers to these second order thoughts, or our thoughts about our thoughts or thought processes (Petty et al., 2007). In recent years, meta-cognition has assumed a prominent role not only in the domain of social psychology (Jost et al., 1998), but also in memory research (Koriat & Goldsmith, 1996), clinical practice (Beck & Greenberg, 1994), and advertising (Friestad & Wright, 1995). Indeed, meta-cognition has been touted as one of the top 100 topics in psychological research (Nelson, 1992).

One of the most essential dimensions of meta-cognitive thought consists of the degree of *confidence* people place in their thoughts, ranging from extreme certainty to extreme doubt in their validity.⁴ Thus, two people might have the *same* thought, but one person might have considerably greater confidence in that thought than the other, and the greater confidence in the thought, the greater its impact on judgment. This idea is referred to as the *self-validation hypothesis* (Petty et al., 2002). The key notion is that generating thoughts is not sufficient for them to have an impact on judgments. Rather, one must also have confidence in them. The self-validation hypothesis makes a number of straightforward predictions.

First, it suggests that just as assessing attitude confidence has been very useful in determining which attitudes guide behavior (e.g., Fazio & Zanna, 1978), so too would assessing thought confidence be useful in determining

⁴ People can have confidence or doubt in many aspects of their thoughts (e.g., their origin, likelihood, desirability; see Petty, Briñol et al., 2007), but assessments of confidence have focused on the validity dimension because of its fundamental importance in judgment (Kruglanski, 1989).

which thoughts generated to a persuasive communication would predict attitudes. In line with this reasoning, Petty et al. (2002) found that attitude–thought correlations increased as measured thought confidence increased. More specifically, we conducted an initial study in which thought confidence was assessed following a persuasive message along with the traditionally measured variables of thought valence and thought number. In this study (Petty et al., 2002, Study 2) participants were asked to read a persuasive message about a campus issue, to think carefully about the proposal, and to list what they thought about the proposal. Following the thought listing task, participants reported the confidence they had in the thoughts they listed as well as their attitudes toward the proposal. In accord with the self-validation hypothesis, the relationship between thoughts and attitudes was significantly greater to the extent that confidence was relatively high rather than low. In other words, to the extent that people had confidence in their thoughts, persuasion depended on the valence of those thoughts. On the other hand, to the extent that people lacked confidence in their thoughts, persuasion was less dependent on thought valence. When individuals wrote favorable thoughts, increased confidence was associated with more persuasion, but when individuals wrote negative thoughts, increased confidence was associated with reduced persuasion. This study showed that thought confidence could play an important role in persuasion and thus understanding the origins of thought confidence was important.

At first glance, one might think that thought confidence would stem from some objective quality of the thoughts such as having thoughts based on careful analysis or study. Yet, over the past several years we have shown that thought confidence can stem from factors that are linked to validity only in the minds of the perceivers. In one early study, for instance, we showed that thought confidence could be misattributed from an irrelevant source to one's thoughts about a persuasive message and thereby affect whether the thoughts were used or not. In this study, college students were asked to think about past situations in which they experienced confidence or doubt. They engaged in this exercise immediately following exposure to a message containing strong or weak arguments in favor of a new university exam policy (Petty et al., 2002, Experiment 3). Those who articulated past instances of confidence became more certain of the validity of their recently generated thoughts to the message compared to those who reflected upon instances of doubt. That is, the feeling of confidence stemming from the memory exercise was over generalized (or misattributed) to the thoughts previously generated to the persuasive message. Furthermore, this confidence led to greater persuasion when recipients' thoughts were largely favorable (i.e., to the strong arguments), but more confidence led to less persuasion when recipients' thoughts were largely unfavorable (i.e., to the weak arguments). Thus, confidence (vs. doubt) increased the impact of thought valence (and argument quality) on attitudes (see Fig. 2.1).

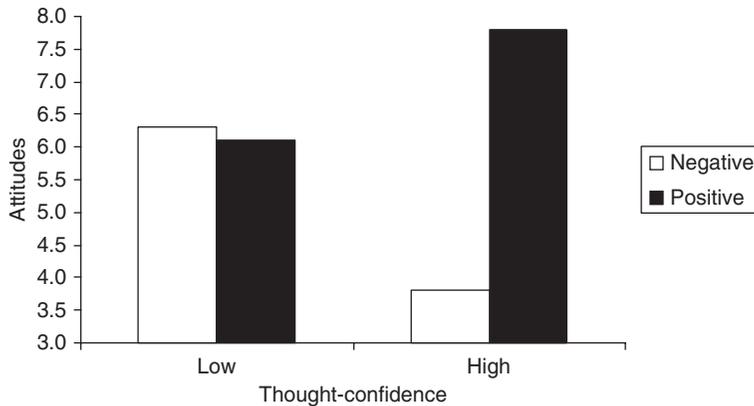


Figure 2.1 Attitudes as a function of thought valence and confidence. Adapted from Petty et al. (2002, Experiment 3).

This work clearly indicates that in addition to considering the number and valence of thoughts elicited by a message, confidence in thoughts is also consequential. Indeed, persuasion attempts can be unsuccessful not because a message has failed to elicit many favorable thoughts, but because people lack confidence in the thoughts they generated.

In these initial studies, the self-validation hypothesis was supported whether thought confidence was measured or manipulated. We also used two different kinds of measures of thought confidence—assessing confidence in each individual thought or in all of one's thoughts together. Furthermore, we measured confidence both before and after attitude expression in different studies. In addition, we used different ways to vary the valence of thinking (e.g., argument quality and instructed thinking). None of these differences changed the self-validation effects observed. Finally, across the studies in this original series, we were able to demonstrate that the effects of thought confidence on attitudes are not accounted for by related constructs, such as belief likelihood or desirability (Fishbein & Ajzen, 1975).

Another contribution of our initial research has been to specify under what circumstances evaluations of our own thoughts are more likely to influence our judgments. Petty et al. (2002) demonstrated that the meta-cognitive activity involved in the self-validation process is more likely to take place when people have the motivation and ability to attend to and interpret their own cognitive experience (e.g., participants are high in need for cognition; Cacioppo & Petty, 1982; when there is high personal relevance of the persuasion topic; Petty & Cacioppo, 1979). There are at least two reasons for this. First, for validation processes to matter, people need to have some thoughts to validate. Second, people need some motivation and ability not only to think at the primary level of cognition but also to think

and care about their thoughts. This fact has led to some interesting results. For example, although individuals who are high in their need for cognition generally rely on their thoughts more than those low in need for cognition (for a review, see, e.g., [Petty et al., in press](#)), this effect can be eliminated if people are made to doubt their thoughts. Consistent with this notion, motivation or ability to think will play an important moderating role in the self-validation effects described in this review.

Subsequent research has identified another limiting condition on the self-validation effect. That is, self-validation effects are more likely when confidence is salient following thought generation rather than prior to it. For example, [Tormala et al. \(2007a\)](#) demonstrated that when the validating information (source credibility) preceded the message, it biased the generation of thoughts, consistent with past research ([Chaiken & Maheswaran, 1994](#)), but it affected thought confidence when it followed the message. Thus, our findings on self-validation argue that research on persuasion can benefit from considering the *timing* of the key manipulations as placement of the independent variable (e.g., source credibility, experience of emotion) in the sequence of persuasion stimuli can have an impact on the mechanism by which it operates. In line with this notion, timing will play an essential role in many of the studies we review.



5. DISTINCTION FROM OTHER RECENT META-COGNITIVE APPROACHES

Now that the self-validation approach has been described, it is important to note that the self-validation framework shares features with some other meta-cognitive theories in social psychology, but also has notable differences. Most obviously, the self-validation approach agrees with other recent theories on the importance of secondary cognition. However, previous approaches have generally examined and attempted to explain one single source of meta-cognitive influence. For example, [Kruglanski's \(1989\)](#) lay epistemic theory (LET) has been applied to causal attributions and argues that validation processes are affected by the number of causal explanations generated—the more alternative explanations generated for any given event, the less confidence a person has in any one given causal explanation. Generating few explanations, then, leads to greater confidence.

Perhaps the most well known meta-cognitive theory in social psychology is that of [Schwarz et al. \(1991b\)](#) on ease of retrieval effects. In this work, the focus is on the ease with which primary cognitions come to mind and the key finding is that cognitions that come to mind easily are more impactful than those that are difficult to access. In a separate line of work, [Clore and colleagues \(e.g., Clore & Huntsinger, 2007; Clore et al., 2001\)](#) have focused on emotions and have proposed that cognitions accompanied by positive

emotions are more likely to be used than cognitions accompanied by negative emotions because of the promotive nature of positive emotions.

Interestingly, by focusing on particular variables (e.g., number of cognitions, ease, emotion), these theorists have developed rather specific rationales for why and when their particular variable of interest would matter. In contrast, and as will be evident in the studies that we review, the self-validation framework is designed to be a general meta-cognitive approach that can explain the effects of a wide array of variables that have been examined separately under the rubric of different theories. We also aim to explain the impact of variables that have not been considered to have a meta-cognitive impact by any prior theory.

To help understand how the self-validation approach differs from other theories focused on single variables, consider the ease of retrieval phenomena just mentioned. Schwarz et al. (1991a) argue that when thoughts are easy to generate (e.g., generate 2 reasons to buy a BMW), people infer (mistakenly) that there are more reasons available than when they are difficult to generate (e.g., generate 8 reasons). Because of this availability heuristic (Tversky & Kahneman, 1974), generating 2 reasons in favor of something can lead to more persuasion than generating 8 reasons. Furthermore, because the ease effect is presumed to be mediated by use of a heuristic, the ease effect is argued to be more likely when people are not thinking very much (e.g., for a low importance topic; see Rothman & Schwarz, 1998). In contrast, the self-validation approach assumes that easily generated thoughts have greater impact because people infer greater validity of thoughts that are generated easily. This would be true independent of the actual number of thoughts that are generated. Second, the self-validation approach assumes that because a meta-cognitive inference of validity is involved, the ease effect should be magnified under high rather than low levels of thinking. Thus, the self-validation approach postulates a different mediator and different moderation than classic ease of retrieval theory. In a series of studies examining both mediation and moderation of ease of retrieval effects we found that the ease effect was mediated by thought confidence rather than the availability heuristic and occurred to a greater extent when thinking was high rather than low (see Tormala et al., 2002, 2007b). It is important to note, however, that these self-validation findings do not mean that ease cannot affect attitudes by simple heuristic processes when thinking is low. Indeed, we believe that ease, like other variables, can affect attitudes by different mechanisms in different circumstances. However, consideration of the self-validation mechanism provides a new way in which experienced ease or fluency can affect judgments that has not been considered previously.

It is also important to distinguish thought confidence from other theories that aim to deal with multiple rather than single variables. In particular we can distinguish thought confidence from thought diagnosticity (see Lynch, 2006). This is important because like thought confidence, the more diagnostic thoughts are perceived to be, the more they should impact judgments.

In our studies, we hold thought diagnosticity constant for the same situation, and vary thought-confidence. For example, a person might consider a thought very diagnostic (i.e., when it is *relevant* to deciding how one feels in the current situation), but hold that thought with low confidence (e.g., because it came to mind with great difficulty) or high confidence (e.g., because it came to mind very quickly). Obviously, a person might also consider a thought to be perfectly valid (e.g., I am sure the car was yellow) but still realize that that the thought is not diagnostic or relevant now (e.g., I am sure the color of the car has nothing to do with how much I like it). Further distinguishing thought validity from diagnosticity is that the former tends to transcend different situations whereas the latter often changes from situation to situation (see Petty et al., 2007, for further discussion).

In sum, the self-validation notion is that numerous variables can affect attitude change not only by affecting the number or valence of thoughts generated, but also by affecting thought confidence. The self-validation hypothesis provides a completely new mechanism by which a large number of traditionally studied variables can have an impact on attitudes in persuasion situations. After describing some of the initial work in which the self-validation notion was used to account for some classic persuasion variables, we examine how self-validation can provide a novel framework for understanding a variety of additional persuasion phenomena. Finally, we move beyond the persuasion context to briefly describe the possible role of self-validation in other kinds of judgments

6. SOURCE EFFECTS THROUGH SELF-VALIDATION

6.1. Source credibility

One of the earliest and most well-known findings in the persuasion literature is that high credibility sources often produce more attitude change than sources of low credibility. As we outlined earlier for emotion, this effect could result from the several processes outlined by the ELM. That is, depending on the message recipient's extent of thinking, source credibility has been found to influence persuasion by serving as a simple cue, biasing the thoughts message recipients have, serving as a piece of evidence relevant to the central merits of the issue, and determining the amount of thinking that occurs (see, Petty & Wegener, 1998, for a review).

Recently, we have proposed that source credibility can also influence persuasion by affecting the confidence people have in the thoughts they generated to a message. This hypothesis relies on the assumption that source credibility begins by influencing the perceived validity of the information in a persuasive proposal. Consistent with this assumption, Kaufman et al. (1999) found that information from a high credibility source (e.g., *Washington Post*)

was rated as more believable, accurate, factual, and true than the same information originating from a low credibility source (e.g., *National Enquirer*). More important, we argued that when one has already thought about information in a proposal and then discovers that it came from a high or low credibility source, one's thoughts can also be validated or invalidated by this source information. For example, if one learns that a source is high in credibility, one might think that, because the information is presumably valid, his or her thoughts about it can be trusted. If one learns that the source has low credibility, however, one might think the information itself is invalid and thus have less confidence in one's thoughts about this information. That is, if the credibility of the information in a message is undermined, confidence in one's thoughts that were based on that information are likely to be undermined as well.

In an initial demonstration of this possibility, [Briñol et al. \(2004\)](#) exposed participants to strong arguments in favor of the benefits of phosphate detergents. Following receipt of the message, participants learned that the source of the information was either a government consumer agency (high credibility) or a major phosphate manufacturer (low credibility). The self-validation reasoning is that when thoughts are generated in response to credible information, people can be relatively confident in their thoughts, but when people learn that their thoughts were generated to a source of low credibility, doubt is instilled. Although participants in both high and low credibility conditions generated equally favorable thoughts to the strong arguments, participants exposed to the high (vs. low) credibility source had more confidence in their thoughts, relied on them more, and were therefore more persuaded by the proposal.

In a follow-up experiment, [Tormala et al. \(2006\)](#) predicted and found that because of the self-validation role for sources, a high credibility source can lead to either more or less persuasion than a low credibility source depending on the nature of people's thoughts in response to the persuasive message. In two experiments, [Tormala et al. \(2006\)](#) presented recipients with either a strong or a weak persuasive message promoting *Comfrin*, a new pain relief product, and then revealed information about the source (i.e., either from a federal agency that conducts research on medical products or from a class report written by a 14-year-old student). When the message was strong, high source credibility lead to more favorable attitudes than low source credibility because of greater reliance on the positive thoughts generated. However, when the message was weak and participants generated mostly unfavorable thoughts, the effect of credibility was reversed. As illustrated in [Fig. 2.2](#), for the weak message, high source credibility produced less favorable attitudes than did low source credibility because participants exposed to the more credible source had more confidence in their unfavorable thoughts.

Finally, [Tormala et al. \(2007a\)](#) confirmed that source credibility primarily affects thought confidence when the source information follows rather

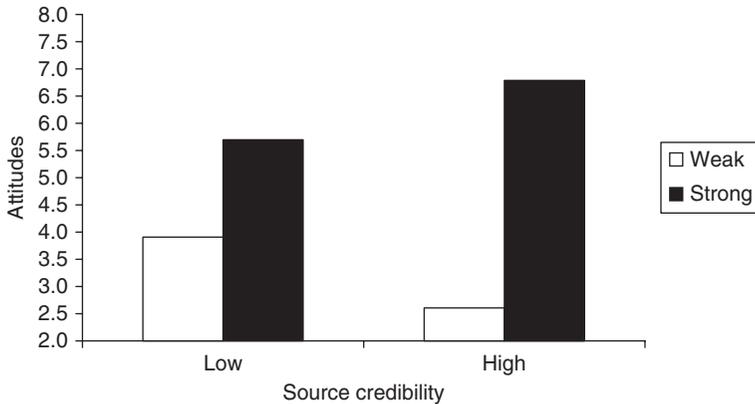


Figure 2.2 Attitudes as a function of argument quality and source credibility. Adapted from [Tormala et al. \(2006, Experiment 1\)](#).

than precedes the persuasive message. In this research, when source information preceded the message, it biased the generation of thoughts, consistent with past research ([Chaiken & Maheswaran, 1994](#)). In sum, our research on source credibility shows that the self-validation process should be added to the other mechanisms previously identified for explaining the impact of source credibility on attitudes.

6.2. Source similarity

Although there are some notable studies on the likeability or attractiveness of the source (e.g., [DeBono & Harnish, 1988](#); [Petty & Cacioppo, 1983](#)), source factors other than credibility and status have not been extensively studied. Nevertheless, we have collected some initial evidence for self-validation effects of source similarity. In one illustration, [Petty et al. \(2002, experiment 4\)](#) studied how having similar others agree with one's thoughts can increase the perceived validity of those thoughts and thereby increase their impact on attitudes. The undergraduate participants in this study first received a message advocating the implementation of a new comprehensive exam policy at their university. In order to manipulate the direction of the thoughts toward the proposal, the message they received contained adaptations of either the strong or weak arguments on this topic developed originally by [Petty and Cacioppo \(1986\)](#). After listing their thoughts, participants were told that those thoughts were going to be analyzed by the computer and compared with a pool of thoughts of many other students from their own university (Ohio State University). After 10 s, a new computer screen appeared with the ostensible outcome of this comparison. Half of the participants were told that their thoughts had been rejected for future research because they were very different from the rest of

the members of their group. The other half of the participants were told their thoughts had been accepted into the pool for future research because they were quite similar to the thoughts listed by other members of their group.

As anticipated by Festinger's (1950) notion of consensual validation, this experiment found that social consensus information affected persuasion by influencing thought-confidence (see also, Goethals & Nelson, 1973; Orive, 1988a,b). People reported more confidence in their thoughts when these thoughts were said to be shared with similar others than when they were not. When thoughts were favorable toward the proposal, sharing thoughts with others increased persuasion, but when thoughts were not favorable, sharing thoughts with others reduced persuasion. Importantly, the results in support of the self-validation hypothesis were apparent particularly for participants high in need for cognition, who are more chronically motivated to engage in extensive thinking. This finding is similar to the one described above for source credibility, and also is consistent with the notion that meta-cognitive processes tend to be more pronounced to the extent that people have the motivation and ability to engage in considerable thinking.⁵

6.3. Source majority/minority status

One of the most examined source variables in the persuasion literature is whether the persuasive proposal is said to be endorsed by a majority or a minority of other people. Both the conformity and persuasion literatures have accumulated considerable evidence suggesting that endorsement from numerical majorities often exert greater influence than numerical minorities do (e.g., Wood et al., 1994), although sometimes minorities can be more effective (e.g., Crano & Chen, 1998; Moscovici, 1980; Mugny & Perez, 1991). Several of the mechanisms we have already mentioned have been shown to operate for minority sources. Thus, endorsement of an issue by a numerical minority (vs. majority) has led to resistance to attitude change by a low-effort rejection process (minority as a negative cue) when thinking was likely to be low, and by a more thoughtful but negatively biased processing mechanism under high thinking conditions. When elaboration is not constrained by other variables to be high or low, however, minorities have been shown to influence attitude change by influencing the amount of thinking that occurs (e.g., Baker & Petty, 1994; for a review these mechanisms, see, Martin & Hewstone, 2008; Tormala et al., in press).

⁵ Although in this research, agreement with similar others increased perceived validity compared to disagreement with similar others, this could be because the message was on a matter of opinion rather than fact. Following prior work by Goethals and Nelson (1973), it could be that agreement with *dissimilar* others would increase thought confidence if the message was on a topic considered to be a matter of fact rather than opinion. Thus, agreement by similar (vs. dissimilar) others might increase or decrease perceived validity depending on the circumstances, such as the nature of the topic being considered.

We have recently conducted a line of research in which we proposed that minorities can affect persuasion not only by serving as cues or affecting the direction and the amount of thinking, but also by influencing the confidence with which people hold their thoughts in response to the persuasive message (Horcajo et al., 2008a). That is, we proposed that, at least under some circumstances, such as when the source information follows the message and thinking is high, minority influence can operate through self-validation processes.

In one of the studies of this series, participants were presented with a message introducing a new company. The message was composed of either strong or weak arguments about the firm. The gist of one strong argument in favor of the company was that workers report high satisfaction because of the flexibility in their work schedules. In contrast, the gist of one weak argument in favor of this firm was that they used recycled paper in one of the departments during an entire year. After reading and thinking about this information, participants listed their thoughts in response to the company. Next, we manipulated source status by attributing the message to a source in the numerical minority or majority (e.g., 18% vs 88% of their fellow students support the company; see Baker & Petty, 1994). Consistent with the self-validation hypothesis, we predicted and found the status of the source (minority vs majority) influenced the confidence with which participants held their thoughts about the company. Specifically, participants tended to have higher thought confidence when the message was endorsed by a majority rather than a minority. As a consequence, we observed that the majority (versus minority) endorsement increased reliance on thoughts and thus enhanced the argument quality effect on attitudes.

Among other things, these findings are important because in virtually all of the prior studies manipulating minority source status and argument quality, the manipulation of source status has *preceded* presentation of the persuasive message. As explained earlier for source credibility, in this order any variable can affect the amount of information processing that takes place as long as it is not already constrained to be high or low by other variables. In contrast, in the study just described, the status of the source was introduced when processing of the message proposal was already done, and operated through thought confidence. Thus, the effects of source status on attitude change and the mechanisms underlying those effects vary as a function of the timing in which the source information is introduced in the persuasion process.

6.4. Summary of source factors

The self-validation research reviewed in this section has shown that this new mechanism can account for some already established persuasion outcomes (e.g., more persuasion with high than low credibility sources), but by a completely different process than postulated previously (i.e., a credible

source making people more confident in their thoughts and thus relying on them more). Moreover, we have also been able to obtain findings opposite to those typically observed (e.g., when thoughts are mostly unfavorable there is more persuasion to low than high credible sources). Importantly, self-validation not only relates to classic topics in the psychology of the source of persuasion (such as credibility, similarity, and minority status), but it has the potential to provide a useful framework for examining other more novel phenomenon (for an extensive review of source effects on persuasion, see, [Briñol & Petty, in press](#)). For example, self-validation can be used to interpret the role of oneself as a source of persuasion (self-persuasion), to examine research on the self versus other origin of thoughts, and to shed light on diverse source matching phenomena. We briefly cover some of these lines of research in subsequent sections of this review.

7. RECIPIENT EFFECTS THROUGH SELF-VALIDATION

There are many recipient variables that are relevant for persuasion that have been studied in the literature. In addition to emotion which we cover in more detail below, important recipient factors include individual behaviors, motives, abilities, and personality (see [Briñol & Petty 2005](#), for a review). We review some recipient factors that have been subjected to a self-validation analysis next.

7.1. Bodily responses

There is a growing interest in studying how people's own behavior can influence information processing and social judgments. Indeed, cognition and judgment are embodied (see [Smith & Semin, 2008](#)). One of our first self-validation studies focused on the role of people's own bodily responses—their head movements—on thought confidence and persuasion. Prior research on head nodding had assumed that nodding one's head in a vertical (versus horizontal) manner produced more positive attitudes either because vertical head nodding biased thinking in a favorable direction or because head nodding served as a relatively simple affective cue ([Wells & Petty, 1980](#)). Although these roles are certainly possible under certain circumstances (e.g., head nodding as a simple cue when thinking is low), the self-validation hypothesis suggested another possibility—that just as vertical head movements from others can give us confidence in what we are saying, our own vertical head movements could give us confidence in what we are thinking. In a series of studies ([Briñol & Petty, 2003](#)), we found that head movements affected the confidence people had in their thoughts, and thereby had an impact on attitudes.

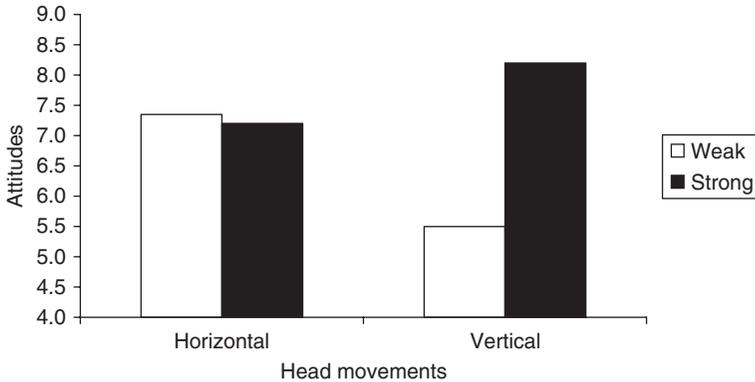


Figure 2.3 Attitudes as a function of argument quality and head movements. Adapted from Briñol and Petty (2003, Experiment 1).

In one study (Briñol & Petty, 2003, Experiment 1), when people listened through headphones to the strong arguments in an editorial advocating that students be required to carry personal identification cards on campus, vertical movements led to more confidence in the favorable thoughts generated and to more favorable attitudes than when horizontal movements were made. However, when people listened to weak arguments about the ID cards, vertical movements led to more confidence in the unfavorable thoughts generated and to less favorable attitudes than when horizontal movements were made. This was the first reverse effect observed for head movements on evaluation (see Fig. 2.3). Additional analyses indicated that the head movements did not have any impact on the number or valence of thoughts listed but did have an impact on the confidence with which people held their thoughts. Furthermore, this thought confidence mediated the impact of head movements on attitudes (Briñol & Petty, 2003, Experiment 3).

The initial studies on the effects of bodily responses through self-validation processes were conducted in traditional persuasion settings in which attitudes change with respect to particular issues and objects following presentation of a message (for a review on embodied persuasion, see, Briñol & Petty, 2008a). It is important to note, however, that the self-validation framework can also be applied to other attitude domains, such as attitudes about oneself (i.e., self-esteem). That is, confidence applies to whatever the salient or available mental contents are at the time. For example, in one illustration of the generality of self-validation processes (Briñol & Petty, 2003, Experiment 4), we asked participants, as part of a presumed graphology study, to think about and write down their best or worse qualities (thought-direction manipulation) using their dominant or nondominant hand (overt behavior manipulation). Then, participants rated the confidence in their thoughts and reported their self-esteem.

Because writing with the nondominant hand is very infrequent and difficult, and whatever is written with the nondominant may appear “shaky,” we expected and found that using the nondominant hand decreased the confidence with which people held the thoughts they just listed. As a consequence, the effect of the direction of thoughts (positive/negative) on current self-esteem was significantly less when participants wrote their thoughts with their nondominant rather than their dominant hand. That is, writing positive thoughts about oneself with the nondominant hand decreased self-esteem relative to writing positive thoughts with the dominant hand, but writing negative thoughts with the nondominant hand resulted in the reverse pattern (see Fig. 2.4).

This experiment reveals that bodily responses can influence self-evaluation by affecting the confidence with which people hold their self-related thoughts. In another study examining this meta-cognitive process in the domain of self-evaluation, Briñol et al. (2009) asked participants to think about and write down their best or worse qualities while they were sitting with their back erect while pushing their chest out (confident posture) or slouched forward with their back curved (doubt posture). Then, participants completed a number of measures and reported their self-esteem. In line with the self-validation hypothesis, it was predicted and found that the thoughts generated about the self only affected self attitudes in the relatively high confidence posture. Conceptually similar to the previous study, the effect of the direction of thoughts on current self-esteem was greater when participants wrote their thoughts in the confident rather than the doubtful body posture.⁶

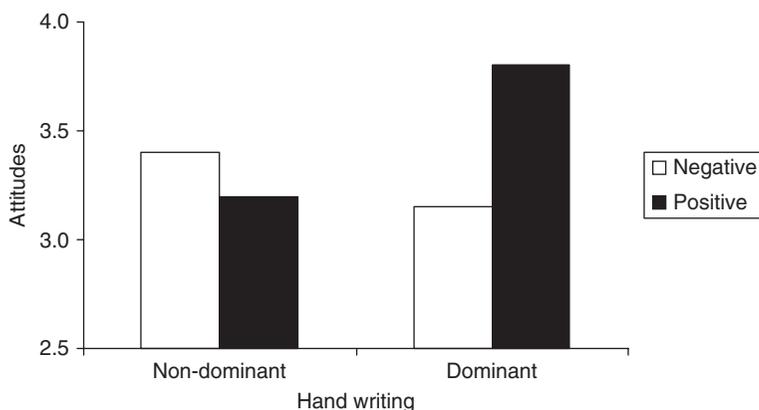


Figure 2.4 Attitudes as a function of thought-direction and hand writing. Adapted from Briñol and Petty (2003, Experiment 4).

⁶ None of the bodily movements or postures we have studied (head nodding, hand writing, slumping) affected the number or valence of thought generated. Only thought confidence was affected.

These studies demonstrated that inducing doubt about possessing positive qualities tended to undermine self-esteem whereas inducing doubt about possessing negative qualities tended to enhance self-esteem. Importantly, Briñol and Petty (2003; Experiment 4) showed that these changes in self-esteem were mediated by changes in the participants' certainty in the self-beliefs listed. Subsequent research has replicated these effects on self-thoughts using other validating variables, including a measure of individual differences in chronic self-confidence (e.g., see, DeMarree et al., 2008a). Taken together, these lines of research also suggest that meta-cognitive confidence can be associated with anything that is currently available in people's minds, including not only thoughts in response to persuasive messages and social issues, but also self-related thoughts.

7.2. Incidental emotions

One of the most fundamental and encompassing aspects of the human condition is emotion. People often rely on their emotions, either intentionally or unintentionally, to shape their judgments and decision making regarding life satisfaction, risk assessment, and so forth (e.g., Forgas, 2001). Thus, a recipient aspect that has been studied extensively in the attitudes domain is the emotional state of the target of persuasion. We noted earlier that as expected by the ELM, prior research has shown that a person's emotions can operate through different processes in different situations (see Petty et al., 2003, for a review).

Research guided by the self-validation hypothesis has shown that emotion can also affect thought confidence. This possibility follows directly from the finding that emotional states can relate to confidence with happy people being more certain and confident than sad individuals (Tiedens & Linton, 2001). If emotion influences thought confidence, then people in a happy state should be more reliant on their thoughts than people in a sad state. In fact, Briñol et al. (2007a) found that when placed in a happy state following message processing, attitudes, and behavioral intentions were more influenced by the recipients' valenced thoughts to the presented arguments than when placed in a sad state following the message (see Fig. 2.5).

In one study (Briñol et al., 2007a, Experiment 2), when participants received a strong message advocating that students should be required to carry personal identification cards on campus (and thoughts were thus mostly favorable), those who were asked to recall prior situations in which they were happy following message processing were more persuaded than those asked to recall prior situations in which they were sad. However, when participants received a weak message on the same topic (and thoughts were mostly unfavorable), the effects of the emotion induction were reversed. Furthermore, the effect of emotion on attitudes was mediated

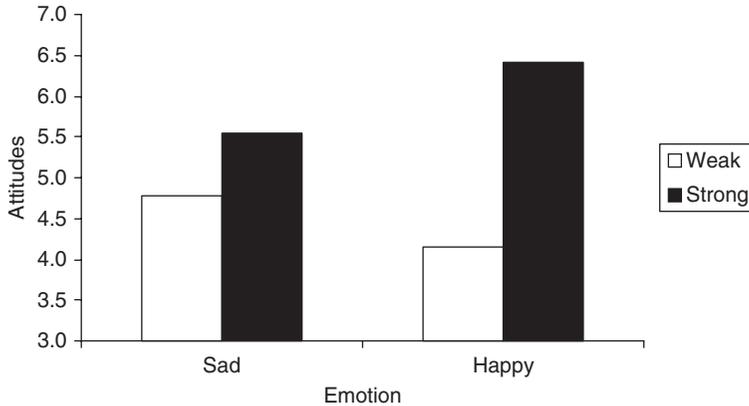


Figure 2.5 Attitudes toward the proposal as a function of argument quality and emotion. Adapted from Briñol et al. (2007a, Experiment 1).

by the confidence people placed in their thoughts with happy individuals expressing more thought confidence than those who were sad. In other studies in the series, these self-validation effects for emotion were confined to situations when emotion followed thought generation rather than preceded it and when conditions fostered high thought (e.g., for individuals high in need for cognition, NC).⁷

It is worth noting that, like much of the previous research on the influence of affect on cognition, our studies on self-validation examined the effects of emotions for which valence and other appraisals such as confidence were operating simultaneously (i.e., were confounded; see, Briñol et al., 2006). Some emotions unconfound the valence and confidence dimensions. For example, anger is negative in valence, but is associated with confidence (see Tiedens & Linton, 2001). Thus, it is important to know if it is the valence appraisal of an emotion that is determining use of thoughts (e.g., *I am angry with my thoughts*—implying nonuse) or the confidence appraisal. To examine these possibilities, we conducted a series of studies in which participants were led to feel anger or surprise after generating positive or negative thoughts toward a persuasive proposal (Briñol & Petty, 2008b). Anger is negative in valence whereas surprise is positive, but anger is associated with confidence whereas surprise is associated with doubt. Consistent with most of the research presented above, we found that the direction of primary thoughts (positive or negative) only affected subsequent judgments when those

⁷ Of most importance for the multiple roles idea outlined earlier, for people low in NC, emotions had a direct effect on attitudes unmediated by thought confidence. That is, for low NC individuals, feeling good following the message acted as a simple cue leading to more positive attitudes when happy than sad regardless of argument quality. As noted earlier, this is consistent with prior research suggesting that low elaboration individuals are more likely to use their emotions as input to an affect heuristic (e.g., Petty et al., 1993).

thoughts were accompanied by an emotion associated with relatively high (anger) but not low (surprise) confidence.

Taken together, our research on emotion suggests that different emotions such as happiness or anger can influence persuasion by affecting the confidence with which people hold their thoughts. The research covered so far on self-validation has focused on the validity dimension of one's own thoughts. That is, we have examined *cognitive* validation. It is important to note that the self-validation approach also holds open the possibility of *affective* validation wherein people infer that their thoughts have made them happy or sad, angry or surprised (e.g., Petty et al., 2007). Thus, although we focus on cognitive validation in this review, we also acknowledge that affective reactions might also exert an impact on attitudinal processes by affective validation (i.e., a valence effect of the emotions). For example, in a preliminary test of this idea we manipulated whether participants felt angry or surprised following the generation of positive or negative thoughts in response to a persuasive proposal (Briñol et al., 2008b). To foster affective or cognitive validation, after these two inductions we asked participants to either write about how they felt about their emotions (affective mindset) or to write about their thoughts and beliefs in response to the proposal (cognitive mindset). For those induced with a cognitive mindset, we replicated previous findings and showed self-validation effects by an emotion associated with relatively high (anger) but not low (surprise) confidence. In support of the possibility of affective validation, however, those induced with an affective mindset felt better and relied more on their thoughts when forming their attitudes following the surprise rather than then anger induction. Among other things, this line of research on affective self-validation suggests that the same emotion can increase or decrease thought-confidence as a function of people's mindset (e.g., focused on how they feel about their thoughts or focused on how valid they think their thoughts are).

7.3. Power

Power has been recognized as a central motivating force in human relationships and action, being considered as one of the most fundamental concepts in social science (e.g., Fiske, 1993). As a consequence, scholars have long argued for the importance of understanding the origins of power and its influence on a variety of outcomes. In a line of research inspired by the self-validation hypothesis, we examined the effect of recipients' power on attitude change. The self-validation prediction is that when induced to feel powerful, people should be more confident in their thoughts. This prediction is in line with prior research that suggests a link between power and approach tendencies (e.g., Keltner et al., 2003).

In one study on power (Briñol et al., 2007c, Experiment 4), participants were first led to generate either positive or negative thoughts about a

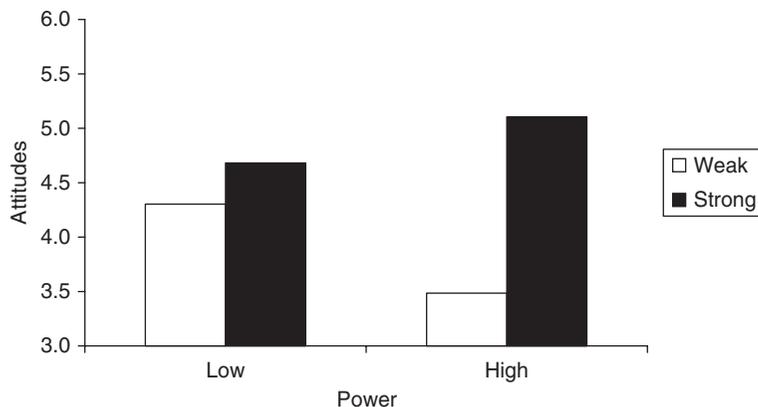


Figure 2.6 Attitudes as a function of argument quality and power. Adapted from Briñol et al. (2007, Experiment 3).

vaccination policy for students on campus. Then the participants were instructed to recall either two incidents in their lives in which they had power over another person (high power condition), or in which someone else had power over them (low power condition). Relative to powerless individuals, those induced to have power following message processing reported greater confidence in their thoughts about the campus policy. As a consequence, the effect of the direction of the thoughts generated on attitudes was greater when power was high rather than low (for an illustration, see, Fig. 2.6). Furthermore, thought-confidence mediated the observed effects of power on persuasion. As in the prior self-validation studies, these effects were greatest under high elaboration conditions and when power followed thought generation.

These studies not only contribute to the literature on persuasion, in which the few studies conducted so far focused exclusively on the power of the source rather than the recipient (e.g., Kelman, 1958), but also have important implications for the study of power. For example, according to the self-validation hypothesis, power is likely to produce either positive (e.g., mitigating conflicts) or negative (e.g., corruption) social outcomes depending on the direction of the thoughts that power holders have in their minds. This is important because the self-validation view argues that meta-cognitive confidence can magnify the effect of any content that is currently available in people's minds, including not only the thoughts in response to persuasive proposals, but also to other cognitions including active goals.

In one study examining self-validation processes in this domain, DeMarree et al. (2008a) first asked participants to complete words related to different constructs, such as competition (C_M_ETE) versus cooperation (e.g., H_LP). Previous research has revealed that when these constructs are activated, they can influence the extent to which particular goals are activated

and people behave accordingly (e.g., Macrae & Johnston, 1998). Next, participants were assigned to a role of high or low power, a manipulation that, as we described above, has been successfully shown to influence the use of thoughts in the domain of persuasion. In line with the self-validation logic, we found primes to influence participant's behavior during a subsequent negotiation simulation, particularly in the situations in which participants were assigned to a role with high (vs. low) power. That is, the more powerful people were found to engage in more competition *or* cooperation, whichever was primed. Thus, as was the case with power affecting validity of thoughts generated in response to persuasive messages, so too does it appear to affect the validity of socially-relevant mental content.

7.4. Self-affirmation

People are often motivated to resist changing their attitudes. Thus, there is growing interest in studying ways to undermine resistance as a first step to persuasion (Knowles & Linn, 2004). One means that has been promulgated to soften a person's resolve is to provide some self-affirmation prior to an attacking message. Self-affirmation theory (Steele, 1988) holds that affirming an important aspect of the self can restore self-integrity when the self has been threatened. When applied to persuasion, self-affirmation theorists have argued that self-affirmation can buffer the self against the threat posed by a counter-attitudinal persuasive message, and thus increase the likelihood that participants will respond to the message favorably (e.g., Cohen et al., 2000). Although the self-affirmation approach has much to offer, it says nothing about situations in which a message does *not* pose a threat to the self. We have argued that in such situations, self-affirmation can affect persuasion by affecting thought confidence.

In a relevant study, Briñol et al. (2007b, Experiment 2) had participants read an advertisement introducing a new cell phone containing either strong or weak arguments. After receiving the message, individuals affirmed either an important or unimportant aspect of their self-concepts. That is, they were asked to write about situations in which they felt or performed in a manner consistent with their most or least important value. In accord with the self-validation framework, this research found greater argument quality effects for self-affirmed than nonself-affirmed participants (see Fig. 2.7). And, once again, in additional studies on self-affirmation, the self-validation effects were obtained only when participants were in high elaboration conditions and the self-affirmation followed thought generation. When the self-affirmation manipulation preceded the persuasive message, it validated the person's own initial point of view, and affected the extent of thinking about the message with more affirmed individuals thinking less. That is, when people feel confident (affirmed) prior to a message, there is

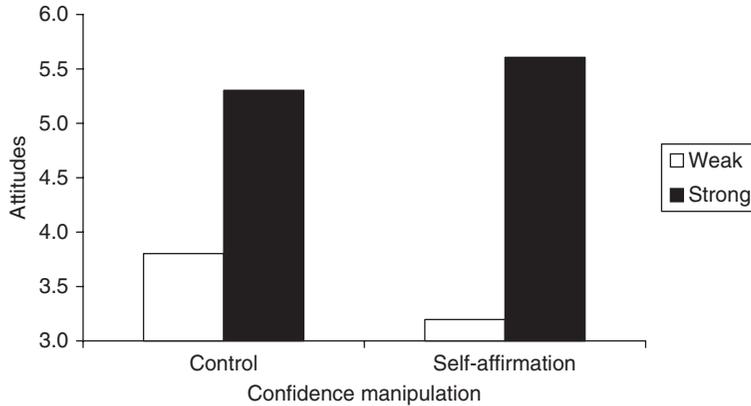


Figure 2.7 Attitudes as a function of argument quality and self-affirmation where affirmation follows the message. Adapted from Briñol et al. (2007, Experiment 2).

more confidence in one's own position, and less need to process the opinions of others than when one is feeling doubtful.

These findings on information processing are consistent with those found by Correll et al. (2004) in a study examining the link between being affirmed prior to a message and the subsequent processing of the message. 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. Among participants who did not attach a great deal of importance to the issue (i.e., the message would not be very threatening), there was a trend for affirmed participants to show less sensitivity to message quality and message position than nonaffirmed participants. This pattern is consistent with the idea that self-affirmation lead to decreased thought under these conditions because the affirmation validates a person's existing opinion.

7.5. Ease of retrieval

As noted earlier in this review, considerable attention has been paid to the subjective sense of ease with which new information can be perceived or generated. In their seminal research, Schwarz et al. (1991b) showed that subjective feelings regarding information can be more important than the content of one's thoughts. Although the traditional interpretation of this ease-of-retrieval effect has relied on the availability heuristic approach (i.e., that ease signals that many supporting arguments or thoughts are available; Tversky & Kahneman, 1974), the self-validation hypothesis provides an alternative mechanism by which ease of retrieval effects can occur—at least under high thinking conditions. As described earlier, Tormala et al. (2002) demonstrated that people were more confident in their thoughts when few

rather than many were generated, and this thought confidence mediated the effects of ease of generation on attitudes. Subsequent research has replicated these findings using different paradigms (Tormala et al., 2007b).⁸ As in prior research on self-validation effects, the impact of ease on confidence occurred only under high thinking conditions. Again, this is notable given that the ease of retrieval effect had largely been assumed to be a phenomenon only of low cognitive effort based on the availability heuristic (e.g., Rothman & Schwarz, 1998). According to the ELM, however, ease, like other variables, should be capable of affecting judgments by different mechanisms in different situations.

7.6. Threat and mortality salience

Taken together, the examples in this section illustrate that self-validation can provide a useful framework for understanding how a wide variety of aspects related to the recipient of persuasion operate in producing attitude change. Whether the manipulations involved head movements or ease of retrieval or whether the cognitions were about oneself, others, or objects, self-validation effects were apparent suggesting that people often look for ways to validate their thoughts. Furthermore, a consideration of self-validation processes might expand our understanding of the dynamics of other unexplored recipient variables that could influence persuasion either by increasing or decreasing thought-confidence. As one example, consider research on threat, and on mortality salience (MS).

Our research on self-validation has typically found that meta-cognitive confidence exerts a *magnifying* effect on one's self-related cognitions. In contrast, doubt exerts an *attenuating* influence on one's thoughts, reducing the impact of these primary cognitions. There might be circumstances, however, when a thought is cast in doubt, and individuals are motivated to behave in ways that restore the sense of confidence they would like to associate with that thought (for a review of these cases, see, Wichman & Hermann, *in press*; see also, Briñol et al., *in press*). The idea of compensating for doubt suggests that people sometimes try to correct for the doubts they do not want to have by engaging in behaviors associated with confidence. We argue that most of the time meta-cognitive doubt is

⁸ In addition to self-validation, Tormala et al. (2007) uncovered another mechanism relevant to understanding ease of retrieval effects in the most common paradigm in which people are asked to generate a high (difficult) or low (easy) number of cognitions in a given direction. Specifically, it was predicted and found that when it is difficult for people to generate the specific type of cognition requested, they are more likely to spontaneously generate unrequested cognitions, and the presence of these opposite-direction cognitions can play a mediating role in determining the judgments expressed.

likely to merely attenuate the use of primary cognition.⁹ However, when doubt is *threatening*, it might lead people to want to restore confidence. In a line of research designed to explore this idea, [Horcajo et al. \(2008b\)](#) asked participants to read a persuasive proposal composed of strong or weak arguments. After listing their thoughts toward the proposal, participants were assigned to either write about personal experiences of doubt (doubt induction), to complete a test of intelligence and receive false feedback of poor performance (threat induction), or to do both of these tasks sequentially (threatening doubt induction). Compared with participants in the normal doubt condition, participants in the other two conditions (threat and threatening doubt) reported wanting more confidence, and showed more reliance of their thoughts. These findings suggest that the same meta-cognitive doubt can decrease or increase the use of primary cognitions depending on the threat associated with that doubt.

We argue that one day-to-day situation in which people are engaged in intense threatening uncertainty occurs when thinking about one's inevitable death. In accord with this possibility, Terror Management Theory (TMT; [Greenberg et al., 1986](#)) postulates the idea of death leading people to counter their fear of death by creating and maintaining a cultural worldview, which gives meaning and order to the world. Consistent with this proposal, laboratory research has shown that reminders of death lead to more favorable evaluations of people who personify cultural values and to more negative evaluations of people who defy those values (e.g., see [Greenberg et al., 1997](#); for a review). Our self-validation approach can shed some light on why MS leads to such polarized judgments. Specifically, we hypothesized that one way in which MS influences attitudes is by increasing threatening doubt (inducing the need for confidence), which, in turn, leads to reliance on one's own thoughts.

In order to test this novel prediction that MS-induced polarization can occur via self-validation, [Horcajo et al. \(in press\)](#) exposed participants to a printed vita of a job candidate containing either strong or weak attributes in support of the candidate. Attribute cogency was varied in this study to lead participants to generate mostly positive or negative thoughts toward the job candidate. After participants read the vita and wrote their cognitive

⁹ There might also be conditions and processes by which doubt does not just attenuate but actually *reverses* the effects of first-order cognition (cf. [Briñol et al., in press](#)). For example, if people have so much doubt about what they have in mind, they might decide to do the opposite of their thoughts. Some studies have provided some preliminary evidence in favor of the possibility that doubt can sometimes lead to such reverse effects (e.g., [Briñol et al., 2007a](#)). In particular, people might be especially likely to do the opposite of their thoughts when they doubt self-views that are represented or framed in a dichotomous manner (e.g., winner vs loser, extrovert vs introvert, smart vs dumb) than when those self-views are seen as more continuous (e.g., success, intelligence, age). Obviously, a large number of individual (e.g., dysfunctional use of dichotomous thinking, [Beck & Greenberg, 1994](#)) and situational (e.g., format of response) factors might influence these constructs, and therefore whether doubt merely attenuates or reverses primary cognition.

responses about it, MS was experimentally manipulated. Participants were asked to describe what they thought will happen when they die (MS induction), or to write about being cold (control). Finally, all participants reported their attitudes toward the candidate. In line with the self-validation hypothesis, we found that the effect of attribute cogency on attitudes toward the job candidate was greater under the MS than the control condition. Thus, MS participants relied on their thoughts more than control participants in forming attitudes to judge the candidate. Importantly, we established that the MS effects on attitudes were mediated by thought confidence, and occurred only among participants who reported greater elaboration. Across different manipulations of all the variables, this series of studies revealed that MS can influence attitude change by increasing the confidence with which people hold their own thoughts. Among other things, these findings are important because they provide an entirely unexplored mechanism (self-validation) for MS effects that are relevant for understanding persuasion.

8. MESSAGE EFFECTS THROUGH SELF-VALIDATION

Although there are numerous studies on aspects of a persuasive message that can determine its effectiveness (e.g., whether it emphasizes affect or cognition, presents many or few arguments, is complex or not), relatively few self-validation studies have examined message effects per se. Although we have examined some of these (e.g., message complexity can influence persuasion by reducing thought-confidence, cf. Petty & Briñol, 2002), we focus here on two current topics within the domain of persuasive messages—the effects of matching or tailoring the message to some characteristic of the message recipient (e.g., their personality, their identity, etc.; see Briñol & Petty, 2006; Petty et al., 2000), and the effects of a person's thoughts that match some aspect of the persuasive appeal.

8.1. Matching regulatory fit

One aspect of matching that has achieved considerable attention recently is the idea that matching a message or a process to a person's promotion or prevention regulatory style can produce a sense of regulatory "fit" (Higgins, 2000). As a result, when a message is matched to the person in this way (i.e., eager means of achieving some end combined with a promotion focus or vigilant means with prevention focus), the individual might come to accept the message position simply because the message "feels right" (Cesario et al., 2004) or is easier to process (e.g., Lee & Aaker, 2004). According to the ELM, these simple fluency experiences should influence attitudes in a simple way (e.g., as a heuristic, "if it fits it is good") primarily under

relatively low thinking conditions. Our interest here is that the experience of “fit” from matching can also serve a self-validation role when the likelihood of thinking is high (Tormala et al., 2002).

In one study on regulatory fit, Cesario et al. (2004) exposed participants to a persuasive message in favor of consuming more vegetables. The message either emphasized the accomplishment (promotion) or the safety (prevention) features of vegetable consumption. Additionally, within each regulatory focus condition, the message was either framed in terms of eager means (i.e., presence and absence of gain/no-gain information) or vigilant means (i.e., presence and absence of nonloss/loss information). When the promotion system was activated, there was more persuasion with eager means framing than vigilant means framing. The reverse occurred when the prevention system was activated. This interaction pattern is consistent with the self-validation framework if one assumes that participants generated mostly favorable thoughts. In another study in which both positive and negative thoughts were assessed, Cesario et al. (2004) report that the valence of one's thoughts (favorable/unfavorable) had a greater impact on attitudes under conditions of regulatory fit than nonfit. This pattern fits predictions from the self-validation framework if regulatory fit enhanced thought confidence.

Future research on regulatory fit should examine whether other kinds of message matching can also produce self-validation effects by inducing a sense of feeling right. For example, additional research on regulatory fit has shown that fit (vs. nonfit) can increase motivation when one has a positive thought (e.g., “I feel like continuing”) or decrease it when the thought is opposite (e.g., “I have done all I can,” Ann Vaughn et al., 2006). This pattern also fits the self-validation framework if fit enhanced the impact of available thoughts by increasing confidence.

8.2. Thought matching

An interesting case of matching between the persuasive appeal and the message recipient has to do with the content of the thoughts generated by the target of persuasion. As described earlier in this review, prior work on self-validation has demonstrated that sources (e.g., credible and similar) can validate people's thoughts regardless of the content and valence of the target's thoughts. For example, high source credibility increased confidence in message recipients' thoughts in response to strong messages and also in their counterarguments in response to weak messages (Tormala et al., 2006). Similarly, different recipient variables (e.g., emotion, power, head nodding) were shown to validate thoughts regardless of the content and valence of the target's thoughts. For example, happiness increased confidence in favorable (positive) and unfavorable (negative) thoughts alike, and sadness reduced confidence in both kinds of thoughts (Briñol et al., 2007a). In all these

studies, the content of the thoughts did not matter for validation purposes because those thoughts were not directly related to the validating variable in that the thoughts were about some proposal (e.g., a new cell phone, comprehensive exams) rather than the validating variable itself (e.g., about the source of the message or one's emotional state).

However, it might be different when the content of the thoughts relates directly to the validating variable. For example, when a source serves as a validating cue, it might matter if the thoughts are about the source rather than a proposal the source is advocating. Imagine reading a message about some unidentified person that you suspect is a woman. If you then learn that the source is indeed a woman, your thoughts about the source would be validated whereas if you learned that the source was a man, your thoughts would be invalidated. In general, people are likely to have more confidence when the content of their thoughts matches or fits the nature of the source rather than when the content does not fit or mismatches. Thus, thought confidence might be increased if a person high in prejudice generated negative thoughts toward a job candidate and then learned that the candidate came from a stigmatized group with low performance expectations rather than from a nonstigmatized group with positive performance expectations. This suggests that sources with low (vs. high) status can affect judgments by validating (rather than invalidating) thoughts under some circumstances such as when the source is the object of the thoughts, and when thoughts are stereotypical or match the nature of the source.

In one study examining this idea (Clark et al., *in press*), participants received information about a student who performed either reasonably well or poorly on an intelligence test. The good information would lead people to have positive thoughts about the target's intelligence whereas the poor information would lead people to have negative thoughts about the target's intelligence (see Wegener et al., 2006). Following the information, participants listed their thoughts about the target and then learned that the target was either from a low SES (socioeconomic status) household or a high SES household. When the SES information matched the performance expectations (i.e., poor performance with low SES and high performance with high SES), participants had more confidence in their thoughts and used them more in making recommendations regarding the target's future education. Importantly, the obtained findings were mediated by thought-confidence (rather than thought content, and consistency-related measures).

8.3. Summary and additional message factors

The examples on matching described above suggest that the self-validation approach can operate not only for totally unrelated thoughts and validating variables, but also when the content of the thoughts (e.g., stereotypical or nonstereotypical) directly relate to the validating variable. Other aspects of

the thoughts can also match (or mismatch) the recipient, leading to an increase (or decrease) in confidence. For example, future research should examine whether the *position* advocated in a persuasive proposal can be seen as validating or invalidating information regarding one's own position, at least when highlighted *after* thinking about the persuasive proposal.

9. CONTEXT EFFECTS THROUGH SELF-VALIDATION

In the preceding sections we have described how source (e.g., credibility), recipient (e.g., emotions), and message (e.g., matching) variables can influence persuasion by affecting thought-confidence. Most of the time, variables affect confidence in a particular direction. For example, source credibility and positive emotions tend to signal high rather than low confidence. However, the meaning and the valence of particular variables can vary between individuals and situations. We argue that if the meaning of the variable with respect to confidence changes, the subsequent effects could also change (for an example of variations on the meaning of “fluency” see, [Briñol et al., 2006](#)). This implies that the same variable might increase or decrease certainty as a function of other variables, such as one's naïve theories of the meaning of that variable. For example, consider the case of *mental repetition*. Previous research has shown that repeating thoughts that are perceived as uncontrollable might lead to nonadaptive self-related consequences (by increasing rumination and uncontrollable intrusiveness), whereas repeating thoughts that are perceived as controllable might lead to more adaptive outcomes (by allowing strategies such as refocusing and reframing; [Segerstrom et al., 2003](#)). These findings suggest that repetition might increase or decrease certainty depending on various other factors such as the specific mental construct that is rehearsed.

In addition to the specific construct rehearsed, people's naïve theories about repetition are expected to moderate this phenomenon. For example, a few repetitions could enhance confidence in the repeated construct, but many repetitions might trigger doubt as continuing repetition might signal that something is wrong with the thought. This logic is similar to the findings observed in the literature on mere repeated exposure (e.g., [Bornstein, 1989](#); [Cacioppo & Petty, 1979](#); [Zajonc, 1968](#)) where initial repetition leads to positive results that turn negative. In a preliminary test of the later idea, [Briñol et al. \(2008\)](#) asked participants to list their positive or negative thoughts regarding a persuasive proposal, and to report their attitudes toward it. The number of times the thoughts were repeated (1, 3, 5, 7, 9, 11) was manipulated between subjects. As predicted, the results revealed a curvilinear effect of repetition on confidence with confidence first increasing and then decreasing with repetition. With very few

repetitions, repetition increased confidence, and people relied on their thoughts more when forming attitudes. However, after an early inflection point in the curve, the thought-confidence effect reversed. Specifically, asking participants to repeatedly write down the same thoughts reduced the perceived confidence in the thoughts as a basis for judgment. As a consequence of this reduction in thought-confidence following excessive repetition, persuasion either decreased (for positive thoughts) or increased (for negative thoughts). In line with the self-validation logic, this study revealed that the number of repetitions moderates the relation between repetition and confidence, therefore having opposite effects on persuasion.

10. EXTENDING SELF-VALIDATION IN PERSUASION

Our review has documented that the self-validation framework provides a new process by which many previously studied variables can operate in persuasion situations. We have focused our review on the effects of self-validation processes in traditional persuasion settings in which attitudes change with respect to particular issues and objects following presentation of a message. Having demonstrated that some classic persuasion variables such as source credibility and a recipient's emotion can determine the extent of influence by affecting thought confidence, we have started to examine whether other classic phenomena in the attitude change literature can similarly benefit from a consideration of self-validation processes. We next describe how self-validation can provide a novel framework for understanding persuasion in two essential additional domains: attitudinal ambivalence and self-related phenomenon.

10.1. Ambivalence

Although we generally think of attitudes as being positive or negative, some attitudes are characterized as being *ambivalent* in that the attitude object is associated with both positive and negative features rather than being one-sided or univalent (e.g., Kaplan, 1972). People typically report feeling conflicted when they endorse both positive and negative aspects of the same attitude object. Understanding ambivalence is important as it can prevent people from changing undesired behaviors (e.g., smoking) into desired ones. Ambivalence can emerge from multiple sources (e.g., Priester & Petty, 2001; Thompson et al., 1995; see, Petty & Briñol, 2009), and has been associated with important consequences, such as enhanced scrutiny of the information in a persuasive message (Briñol et al., 2006; Maio et al., 1996; Petty et al., 2006), especially when that processing holds the promise of reducing the ambivalence (Clark et al., 2008).

In accord with the self-validation framework, DeMarree et al. (2008b) conducted some initial studies to examine the extent to which differential confidence in the positive or negative aspects of the attitude object contribute to the experience of ambivalence. To date, one puzzle is that consideration of the positive and negative features of an attitude object allows just a moderate prediction of the extent of subjective ambivalence (Priester & Petty, 1996; Thompson et al., 1995). This prediction can be improved by considering the extent to which the positive and negative aspects of an attitude object are simultaneously accessible (Newby-Clark et al., 2002). Furthermore, the self-validation approach suggests that prediction can be further improved by considering the confidence people have in the positive and negative aspects of an attitude. For example, by making people doubt one side of their reactions, the overall sense of ambivalence can be reduced. Conversely, by enhancing confidence in both positive and negative associations, the sense of ambivalence could be magnified. Thus, paradoxically, selectively instilling doubt might potentially lead to enhanced overall confidence, and instilling confidence in both sides would lead to more overall doubt.

In one of the studies conducted to examine this idea, participants were asked to generate both positive and negative thoughts regarding an attitude object. As one might expect, this mixed pattern of thoughts produced both objective and subjective ambivalence. After measuring how conflicted people felt, we manipulated the confidence associated with just one side of those mixed thoughts or both sides. Specifically, in one condition we provided participants with false feedback leading them to believe that only one half of their thoughts were shared and endorsed by other students, whereas the other half was rejected. In another condition, participants received false feedback suggesting agreement or disagreement with both sides. As described earlier, this social consensus induction has been previously found to influence thought-confidence in a paradigm in which participants' thoughts were polarized in just one direction (Petty et al., 2002, experiment 4). As expected from the self-validation logic, instilling doubt (in one side of the thoughts), paradoxically, led to overall confidence in the attitude, and instilling confidence (in both positive and negative associations) was associated with more doubt in one's overall position.

In addition to measuring confidence and ambivalence, in subsequent studies in this series, we assessed the potential consequences for persuasion by giving people the opportunity to receive different messages related to the attitude object, and assessing their reactions to them. In line with the self-validation logic outlined above, we found confidence (or doubt) associated with just one side of the thoughts (positive or negative) reduced ambivalence, and therefore undermined the need for information processing associated with the attitude object. Conversely, confidence associated

with both sides of the attitude object was shown to increase ambivalence, and enhance subsequent information processing of a relevant persuasive message.¹⁰

This line of work provides an important advance because all the work conducted so far on self-validation has examined the effects of confidence/doubt on all the thoughts that an individual has available at the time. Here, however, we focus on differential confidence in part of one's thoughts. The present line of work also has the potential to provide an important addition to prior work on ambivalence in suggesting a novel approach to reduce the conflict and thus the negative consequences that sometimes follow from ambivalence.

10.2. Personal relevance

In most of the persuasion literature, the self has been studied as a variable relevant at the primary level of cognition. For example, when motivation and ability to think are relatively low, merely linking an attitude object to the self can increase liking of it, assuming that people hold themselves in high regard (e.g., [Kahneman et al., 1991](#); see also [Greenwald et al., 2002](#); [Gawronski et al., 2009](#)). If thinking is not constrained to be high or low, however, then increasing self relevance before a persuasive message influences the amount of thinking about the message, increasing the effect of argument quality on attitude change ([Petty & Cacioppo, 1979](#); see also [Petty & Wegener, 1998](#)).

However, as is the case with any variable, the self can be also relevant at other levels of cognition, operating through a variety of processes (for a review, see, e.g., [Briñol et al., in press](#)). Thus, when thinking is already constrained to be high and the self relevance follows message processing, a link to the self can serve a validation role. In one study exploring this idea, [Petty and Briñol \(2008c\)](#) first asked participants to read either strong or weak messages in favor of comprehensive exams. This manipulation led participants to generate either positive or negative thoughts toward the proposed policy. Importantly, those thoughts were *subsequently* made more or less self-relevant by asking participants to think either about the self-relevance or the general implications of the policy. Consistent with the self-validation notion, the thoughts generated regarding the proposal had a greater impact on attitudes when they were made self-relevant than when they were not. Among other things, this research reveals that self-validation can account for an already well-established persuasion outcome (e.g., a greater argument quality effect under high- vs low- personal relevance),

¹⁰ This suggests that differential confidence in the two sides of an issue decreases ambivalence.

but by a different process than postulated previously (through thought confidence vs amount of thoughts). This work also specifies the conditions under which each process is more likely to operate. That is, self relevance introduced before the message influences the amount of thinking (Petty & Cacioppo, 1979), whereas self relevance induced after the message affects thought-confidence.

In the above line of research thoughts were linked to the self by asking participants to think about the self-relevance of the policy. There are other ways to link thoughts to the self, and thus increase self-relevance. For example, a self-link can be created by making the outcomes relevant to the self (vs. others). Another approach relies on making the self (vs. others) the origin of the thoughts. The perceived origin of the thoughts is an important dimension of meta-cognition (Petty et al., 2007). In one of the studies examining the perceived origin of one's thoughts, Briñol et al. (2008a) asked participants to generate positive or negative thoughts regarding their bodies. Then, participants were led to believe that their thoughts were originated externally (by an external source) or internally (by the self). Specifically, thoughts about the body were said to emerge from the particular views of their culture through socialization (external origin) or to emerge from deep down inside of the self. Because participants had more confidence in their thoughts in the later than in the former condition, the direction of their thoughts generated had a greater impact on how satisfied they felt with their bodies when the origin of the those thoughts was perceived to be the self rather than an external source. As a result, perceiving positive thoughts to come from the self (vs. others) made people feel better about their body image, but produced the opposite effect for those with negative thoughts.

In another study in this line of research, we replicated these findings for attitudes toward fast food. Specifically, after thinking about the benefits or costs of eating fast food, participants were led to believe that food-related thoughts were learned from others (external source) or were innate (internal source). As expected, the direction of the thoughts (positive or negative) had a greater impact on the attitudes and behavioral intentions regarding eating fast food when people perceived the self (vs. others) as the source of the thoughts.

11. CONFIDENCE APPLIED TO CONFIDENCE: A SELF-VALIDATION ANALYSIS

We have described how the thought-confidence induced by source, message, recipient, and context variables can influence persuasion. Our review on the effects of self-validation processes has also examined some

cases in which these variables influenced not only thoughts in response to a persuasive proposal, but also other kinds of cognitions such as self-related thoughts or thoughts about other people. Thus, research on self-validation suggests that confidence can also be applied to any primary cognition. As mentioned earlier, the self-validation view argues that meta-cognitive confidence can magnify the effect of any content that is currently available in people's minds, including not only the different kinds of thoughts reviewed so far, but also other cognitions. That is, confidence applies to whatever the salient or available mental contents are at the time.

Given that meta-cognitive confidence can be applied to any cognition, an interesting case to examine would be when people have confidence (or doubt) in their own confidence or doubt. Especially interesting would be the case in which people doubt their own doubts. That is, doubt can be the content of primary cognition, and therefore people can vary in the extent to which they have confidence or doubt in the original self-doubt (i.e., second order cognition). For example, consider a person who suffers from chronic self-doubt which is typically conceptualized and measured as a belief about oneself (e.g., "*I am an insecure person*"; Oleson et al., 2000). If people with chronic doubt are given a situational induction of certainty, they might apply this sense of confidence to the chronic doubt which would further reinforce the doubt (e.g., "I'm confident that I am an insecure person"). On the other hand, if people with the same chronic doubt were given a situational induction of doubt, they might apply this doubt to the accessible chronic doubt, which could lead to the opposite conclusion (e.g., "I'm not confident that I am insecure; therefore, I might be a secure person"). If these processes occur, then a person with chronic doubt who was given a doubt induction would feel more certainty than a person with the same chronic doubt who was given a certainty induction. This prediction stands in stark contrast to what would be predicted from an additive combination of chronic and state uncertainty, in which cases of "double doubt" would be associated with extreme uncertainty.

These predictions were examined in a series of studies in which doubt was present at both the level of primary and secondary cognition. Indeed, a traditional perspective on the accessibility of doubt holds that multiple sources of doubt activation should lead to increased levels of uncertainty (e.g., Bargh et al., 1986; Srull & Wyer, 1980). In contrast, we proposed and found that under some conditions two sequential sources of doubt activation result in *decreased* levels of uncertainty. In one study about doubting your own doubt (Wichman et al., 2008), participants were first primed with doubt or certainty and then exposed to a manipulation associated with either confidence (e.g., head nodding) or doubt (head shaking; see Briñol & Petty, 2003). Supporting the idea that people can either trust or doubt their own doubts, head nodding (vs. shaking) accentuated (vs. attenuated) the impact of the initial doubt versus certainty manipulation (see Fig. 2.8).

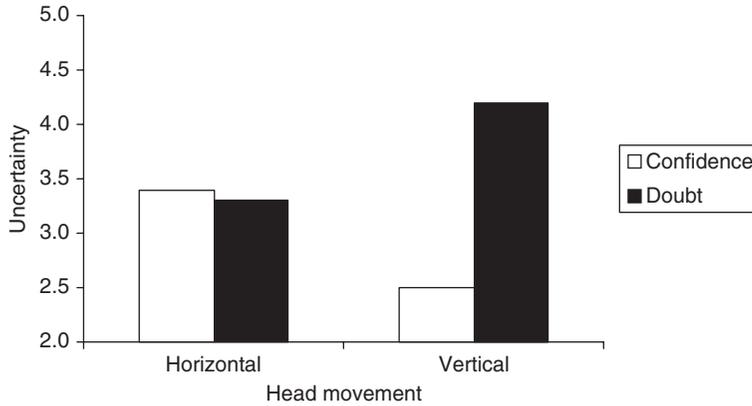


Figure 2.8 Uncertainty as a function of head movements and initial confidence or doubt. Adapted from [Wichman et al. \(2008, Experiment 2\)](#).

This meta-cognitive idea that doubt following doubt can undermine doubt (i.e., doubt + doubt = confidence) has important implications for persuasion. For example, in one study [Wichman et al. \(2008, cf. Briñol et al., in press\)](#) manipulated the extent to which participants relied on their own doubt as measured with the self-doubt scale ([Oleson et al., 2000](#)). To test the processing implications of double doubt, a sample of high self-doubt individuals was randomly assigned to either a doubt priming or neutral priming condition. Thus, half the participants were essentially placed in a state of single-doubt (high chronic self-doubt with the neutral prime) and half were placed in a state of double-doubt (high chronic self-doubt with the doubt prime). Then, participants were randomly assigned to receive strong or weak arguments in favor of a foster care program. The gist of a strong argument in favor of the foster program was that brothers and sisters are an additional source of love and support for the social development of the child. In contrast, the gist of a weak argument in favor of the foster program was that the program recognizes that children need other children to fight with, and brothers and sisters provide an ideal opportunity for this to occur. As noted, considerable prior research has shown that when people are either unable or unmotivated to process a message, the impact of the quality of the arguments on judgment is less than when thinking is high ([Petty & Cacioppo, 1986](#)). Based on previous literature on uncertainty and message processing (e.g., [Briñol et al., 2006](#); [Petty et al., 2006](#); [Tiedens & Linton, 2001](#); [Weary & Edwards, 1997](#)), those in a state of single-doubt were expected to process information more carefully and therefore to discriminate between weak and strong persuasive arguments more so than individuals experiencing double doubt. This is because double doubt should lead to *less* uncertainty. Consistent with this reasoning the results revealed that conditions associated with single doubt (e.g., high chronic self-doubt with the neutral prime) produced

greater information processing (i.e., more argument quality effects) than conditions associated with double-doubt (e.g., high chronic self-doubt with the doubt prime).

This study reveals that people's primary beliefs about themselves (low vs high doubt) can be qualified by a situational uncertainty induction in a way consistent with the meta-cognitive logic, and that the results of double doubt are consequential for information processing and persuasion. As noted, this line of research is also consistent with the idea that meta-cognitive confidence (and doubt) can be associated with any type of cognition, including one's own doubts.

12. SELF-VALIDATION EFFECTS BEYOND THE PERSUASION CONTEXT

The research described in this review illustrates that self-validation can provide a useful framework for understanding how a wide variety of cognitions can be validated (or invalidated) by a diverse set of variables. Whether the manipulations involved source credibility, bodily responses of the recipient, message matching, or thought repetition, and whether the cognitions were about a persuasive proposal or had contents of a different nature, self-validation effects were apparent suggesting that people often look for ways to validate whatever mental contents have been activated. People can even have confidence (or doubt) in the validity of their own confidence (or doubt), and self-validation can explain those cases of double doubt leading to certainty. After having described how confidence can be applied to mental contents relevant for persuasion, next we briefly mention how confidence applies to whatever people have in mind, including emotions and other primed constructs.

12.1. Emotions

We have already explained how emotions can validate cognitions. We also argue that one's emotion-relevant thoughts can be validated or invalidated thereby affecting a person's emotional experience. In a test of the idea that emotion-relevant cognitions can be validated, [Rucker et al. \(2008a\)](#) used an ease of retrieval manipulation to induce a sense of confidence or doubt in one's thoughts. In one study, participants were asked to write about either a few (easy) or many (difficult) happy events from the last year. When generating happy experiences was easy, people had more confidence in these experiences and this led to greater reports of happiness than when generating these experiences was difficult. In another study, participants were asked to write about happy or sad experiences with either their

dominant or nondominant hand. Writing emotional experiences with the dominant hand should lead to greater confidence in the experiences and greater emotional feelings than when writing with the nondominant hand (Briñol & Petty, 2003). In accord with this assumption, writing about emotional experiences with the dominant hand led to a larger biasing impact of the activated emotion on subsequent judgments of the likelihood of irrelevant emotional events than writing with the nondominant hand.

These studies revealed that emotional thoughts can be affected by meta-cognitive confidence, thereby influencing the emotion experienced. Given the prominent role of emotions in persuasion (for a review, see Petty et al., 2003), understanding all the ways in which thoughts are validated by emotions and emotional thoughts are validated (Briñol et al., 2006) seems to be a very fruitful avenue for future research.

It is important to note that the research described above focused on how the confidence associated with one's thoughts affected the experience of emotions. Other research has examined how, after people have already experienced an emotion, confidence can affect whether the emotion is used in subsequent judgments (e.g., Gasper & Bramesfeld, 2005). For example, Pham (2004) found that manipulating people's trust in their feelings affected whether people used their emotions in subsequent judgments. This finding is analogous to work on attitude-behavior consistency whereby people trust equivalent attitudes differentially when they are held with different degrees of confidence (e.g., Fazio & Zanna, 1978; Rucker et al., 2008b). In our self-validation research, however, confidence did not affect trust and use of the emotion, but rather confidence in emotion-relevant thoughts led to different perceptions of the extent of the emotion itself. This difference suggests that confidence can have multiple and independent effects both on assessing one's degree of emotion (as in the research by Rucker et al., 2008a) and in determining whether to use one's emotion (as in the research by Pham and others).

12.2. Priming

One of the most intriguing areas of research in recent years has concerned how subtle primes of various sorts (e.g., stereotypes, goals, etc.), can affect judgments and behavior (e.g., Higgins, 1996). In one study examining self-validation processes in this domain, DeMarree et al. (2008b) subliminally primed participants with words related to the Black (vs. White) stereotype. Following this induction, participants were instructed to use their heads to follow a ball moving vertically or horizontally on the screen. Consistent with the self-validation logic for vertical versus horizontal head movements, we found that the direction of the prime affected participants' felt aggression on an implicit measure as well as their deliberative ratings of closeness to African-Americans in the head nodding but not the head shaking condition.

Thus, as was the case with head nodding affecting confidence in thoughts to a persuasive message (Briñol & Petty, 2003), so too did head nodding appear to affect the validity and use of subtly activated mental content via priming.

In another experiment of this series, participants subliminally primed with the concept of resistance (vs. persuasion), showed more resistance to subsequent persuasive proposals. However, this only occurred when participants were nodding (compared with shaking) their heads immediately following the priming induction. In still other studies on priming we activated a goal followed by a validation manipulation (DeMarree et al., 2008a) and in each case the behavioral effects of the goal were more evident when the goal priming was followed by a confidence rather than a doubt induction. As was the case with emotional thoughts, our studies on priming provide several key advances other than extending the range of mental contents that are subject to meta-cognitive influence. For example, this research shed light on the study of self-regulation by testing whether the kind of validating variables described in this review (such as nodding, power, emotion) can be associated with either impulse (e.g., spending more money and engaging in more risky behaviors) or control (e.g., spending less money and engaging in less risky behaviors) depending on the direction of the primed goals that confident people (e.g., power holders, people nodding) have in mind. One of the ironic implications of the self-validation process is that highly confident people (e.g., high power individuals) might sometimes engage in less action than their low confidence partners (e.g., low power individuals) depending on the salient mental contents available.



13. MULTIPLE ROLES OF CONFIDENCE

Before closing this review, it is important to note that although we have focused on the validating role for confidence, like other variables, confidence can play different roles in information processing and judgment depending on the circumstances. As noted earlier, examining the validity of thoughts is a form of meta-cognition, and therefore it requires high thinking conditions (Petty et al., 2007). Indeed, research on the self-validation hypothesis has demonstrated that this mechanism requires a level of elaboration that is sufficiently high for individuals to both generate thoughts, and to care about their validity.

Under other circumstances, however, confidence can affect judgment by alternative mechanisms. In accord with the ELM, confidence, like any other variable, can affect judgments not only by validating thoughts, but also

by affecting the direction and amount of thoughts, and by serving as an argument or a simple cue.¹¹ We briefly describe these roles next.

First, when thinking is low, confidence should serve as a simple associative cue and produce judgments consistent with its valence. Given that confidence is often seen as something good, and doubt as something bad (e.g., Briñol et al., 2006), confidence can operate through low effort mechanisms, such as serving as input to a confidence heuristic. For example, when the extent of thinking is low, a person might draw direct inferences from confidence, such as “if I feel confident, I must like it.”

Second, when thinking is high, confidence can serve in other roles. First, confidence can be evaluated as evidence when it provides diagnostic information about the merits of an object. For example, one’s own confidence can be evaluated as evidence when deciding whether to apply for high (vs. low) competitive jobs. Also, when thinking is high, confidence can bias thoughts in a positive manner, again assuming that confidence is positively valenced. If people are thinking about themselves, confidence is likely to make the self-thoughts generated more positive than they would be in the absence of such confidence. In such cases, confidence (relative to doubt) would be likely to increase self-evaluations by biasing the self-thoughts that come to mind. As a consequence of this unrealistic optimism, even when engaged in careful and detailed thinking, confidence can lead people to overestimate their skills and underestimate their own faults.¹²

When people are thinking about things other than themselves, such as a persuasive proposal, self-confidence could sometimes result in negative outcomes. That is, when thinking about a proposal is high, confidence (vs. doubt) can lead people to defend their own existing attitudes more, and as a consequence, generate more counter-arguments against the proposal or derogate the source.

Third, when 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., Briñol et al., 2006; Petty et al., 2006; Tiedens & Linton, 2001; Weary & Edwards, 1997). 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

¹¹ Although there might be other processes relevant to understanding how confidence operates, we focus on this particular set of processes articulated by the ELM because they have been the most fruitful way to account for how many variables other than confidence can affect judgment (see, Petty & Briñol, 2006, for a discussion). Thus, we consider that each of these processes can be applied to social judgment more broadly.

¹² Also under high thinking conditions, if confidence was made salient and people perceived it as a possible biasing factor, they might attempt to correct their judgments for the perceived contaminating impact of their own confidence (Wegener & Petty, 1997).

likely to seek out and carefully scrutinize information that might provide a more validated opinion. Consistent with predictions, as noted earlier, when confidence has been induced prior to message exposure, and elaboration was not constrained to be high or low, confidence (whether stemming from power, emotion, or other factors) affected the extent of information processing, with confident people engaging in less thought than people lacking in confidence (e.g., Briñol et al., 2007b,c). Also consistent with this view, other forms of doubt (stemming from a variety of self-discrepancies, such as explicit–implicit conflict) have been found to increase information processing (see Petty & Briñol, 2009, for a review).

In sum, the ELM has described a finite number of ways in which any variable can affect judgment. In accord with this framework, we have described in this section how confidence can operate by: (1) serving as a simple cue, (2) serving as a piece of substantive evidence (i.e., an argument), (3) affecting the direction of processing (i.e., introducing a bias to the ongoing thinking), and (4) affecting the extent of information processing by influencing motivation or ability to think. In this review, we focused on a fifth mechanism through which confidence (whether stemming from emotion, bodily movements, or credible sources) can work, self-validation, which also appears to have considerable integrative potential.

14. FINAL REMARKS

We have described the basic mechanisms by which confidence can affect attitudes and persuasion, highlighting the role of a recently discovered process, *self-validation*. In this final section, we describe some remaining issues relevant to confidence and its influence on social judgments. First, although self-validation focuses on confidence as the main meta-cognitive dimension, it is important to note that other meta-cognitive aspects can be also explored in relation to thoughts. For example, it is well-established that thoughts and mental constructs that are highly accessible are more consequential in terms of durability and subsequent impact than less accessible thoughts (e.g., DeMarree et al., 2007). Although accessibility and other features of thoughts (e.g., importance) are often related to confidence, they are relatively independent features of cognition (for a review, see, Petty et al., 2007). In this review, we also have differentiated between confidence and other previously studied dimensions, such as desirability, likelihood, and diagnosticity.

Second, in the present review, we have emphasized relatively transitory situational (e.g., source credibility) and individual (e.g., body postures, ease) factors that can influence thought confidence. In addition to these situational determinants of thought confidence, there also are dispositional determinants of the use of mental contents. As described, individual differences in the

operation of meta-cognitive processes such as self-validation have been identified previously (e.g., need for cognition). Furthermore, we have recently examined chronic individual differences in the use of mental contents.

In particular, we found that attitudes were more in line with participants' thoughts when participants were high rather than low in self-confidence. Specifically, across several studies, DeMarree et al. (2008a) showed that increases in self-confidence (measured as self-esteem certainty, attitude certainty, self-attributes certainty, trait self-confidence, and judgmental confidence) were associated with increased use of mental contents. As self-confidence increased, participants' attitudes became more congruent with their thoughts. Results held across different thought inductions, and after controlling for self-esteem and other related constructs. Furthermore, as expected from a self-validation approach, these findings were moderated by amount of elaboration (i.e., only occurred among individuals engaging in effortful thought) and mediated by thought-confidence. This line of research provides a more complete understanding of the diverse nature of the determinants of thought confidence.

Finally, one might wonder whether many of the self-validation effects are due to the manner in which a variable (e.g., source credibility, recipient power, nodding, or positive mood) amplifies thought-confidence or how that variable (e.g., low credibility) diminishes confidence in thoughts. Without a control group it can be difficult to know whether the reviewed effects on thought-confidence resulted from validation or invalidation of thoughts. We argue that even though having a control group can allow for more precise statements, ultimately it is not necessarily critical for our contribution. That is, although we have found that, for example, both happy and sad emotions are each capable of producing a difference from a neutral mood control group (Briñol et al., 2007a, experiment 4), whether positive or negative emotions would always have greater impact over a neutral mood group would depend on many background factors. For example, if we used a persuasion topic for which people had high knowledge, the default level of thought confidence should be relatively high making the sad (low confidence) group more likely to differ from the control. On the other hand, if knowledge of the topic was low (i.e., it was unfamiliar), default (control) thought confidence would likely be low leading the happy condition to show the greater difference from the control. Given that in any one study other background factors would also come into play by affecting the default level of confidence, reading too much into the control group in any one study is potentially misleading if people view a control group in a particular context to imply a bidirectional effect that will be equivalent in magnitude across different issues, people, and situations. In the real world, the background level of confidence would vary dramatically from situation to situation and thus whether the "action" would be in the confidence or doubt condition would vary with these real world background factors.



15. SUMMARY AND CONCLUSION

In this article we have argued that although persuasion is complex, it can be understood by breaking the processes responsible for attitude change into a finite set as articulated by the elaboration likelihood model of persuasion. By focusing on underlying mechanisms, we now know that the extent and nature of a person's thoughts to external information are often more important than the information itself, and that the thoughts people generate only determinate judgments to the extent that people have confidence in them. Thus, in each of the studies reviewed, we showed that not only does the content of what is activated matter (e.g., thoughts in response to a persuasive proposal), but so too does the perceived sense of confidence in one's mental contents. Whether the validating manipulations involve power or head nodding, or whether the primary cognitions are about persuasive proposals, or oneself, or are emotional or rational in nature, the self-validation logic suggests that people sometimes look for ways to validate whatever mental contents have been activated. Together, these studies illustrate that self-validation can provide a useful framework for understanding how a wide variety of cognitions can influence (or not) judgment and behavior by being validated (or invalidated) by a diverse set of variables.

We have examined how self-validation not only relates to some classic topics in the psychology of the source of persuasion (e.g., credibility, similarity), the message (e.g., matching), the recipient (e.g., bodily responses, emotions, self-affirmation, power, and ease of retrieval), and the context of persuasion (e.g., social consensus, repetition) but also to more recent, or relatively novel phenomenon (e.g., oneself as a source, self vs other origin of thoughts). Furthermore, self-validation processes have shed light on a variety of phenomenon relevant to attitude change from a meta-cognitive perspective, such as attitudinal ambivalence and self-relevance.

Research on self-validation has shown that this new mechanism can account for some already established persuasion outcomes (e.g., more persuasion with happy than sad mood, with high than low credibility sources, when argument generation is easy rather than difficult, when nodding rather than shaking one's head), but by a different process than postulated previously. Moreover, we have been also able to obtain findings opposite to those typically observed (e.g., more persuasion when shaking than nodding or for low than high credible sources). Thus, a consideration of self-validation processes might expand our understanding of the dynamics of other unexplored variables that could influence persuasion either by increasing (e.g., visualization) or decreasing (e.g., negation) thought-confidence.

In closing, it is worth noting that research conducted on self-validation has examined the effect of thought confidence with regard to a variety of attitude objects, ranging from consumer products (e.g., cell phones) to health policies (e.g., mandatory vaccinations), to social issues (e.g., foster care programs), to the self (oneself as a job candidate). The use of a wide variety of topics, including some that are relatively important to our participants (e.g., a change in crucial university policies), increase the potential applicability of the self-validation process. Furthermore, the obtained findings on different dependent measures support the notion that the current results have real-world implications.

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