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## 9 Self-validation processes

### The role of thought confidence in persuasion

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What determines whether or not people change their attitudes? Early empirical research focused on the idea that attitude change depended on the extent to which people were able to comprehend and retain the information contained in a persuasive message (e.g., Hovland, Janis, & Kelley, 1953; Hovland, Lumsdaine, & Sheffield, 1949). Later, it was shown that the ability to learn the information (e.g., message arguments) was not as important in attitude change processes as how individuals cognitively responded to or elaborated upon that information (e.g., Brock, 1967; Greenwald, 1968; McGuire, 1964; Petty, Ostrom, & Brock, 1981).

This *cognitive response* approach contends that persuasion depends on the extent to which individuals generate and rehearse their own idiosyncratic thoughts to the information presented. The cognitive response perspective maintains that individuals are active participants in the persuasion process who attempt to relate message elements to their existing repertoires of information. According to this framework, an appeal that elicits issue-relevant thoughts that are primarily favorable toward a particular recommendation would be expected to produce agreement, whereas an appeal that elicits issue-relevant thoughts that are predominantly unfavorable toward the recommendation would be expected to be ineffective in achieving attitude change. Experimental research is consistent with this view and has shown that the polarity of one's issue-relevant thoughts (e.g., positive minus negative thoughts) is a good predictor of post-message attitude change, especially when a person's motivation and ability to think are high (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986).

In the present chapter we focus mostly on situations in which people are active processors of the information provided to them. However, the available research has demonstrated clearly that attitude change can occur even in situations where people are not thinking very carefully or effortfully about the information provided to them (e.g., see Chaiken, Liberman, & Eagly, 1989; Petty & Cacioppo, 1981, 1986; Petty & Wegener, 1999). In contemporary models of persuasion such as the elaboration likelihood model (ELM; Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM; Chaiken et al., 1989), the extent of thinking is understood as a

continuum ranging from low to high amounts of message-relevant thought (e.g., Chaiken, Duckworth, & Darke, 1999; Kruglanski & Thompson, 1999; Petty, Wheeler, & Bizer, 1999). When thinking is high, attitude change is related to the number and valence (i.e., favorable and unfavorable) of issue-relevant thoughts that people generate. When thinking is low, attitude change is determined less by one's issue-relevant thoughts and more by a variety of lower effort processes such as classical conditioning (Staats & Staats, 1957), self-perception (Bem, 1972), and the use of decision heuristics (Chaiken, 1980; see Eagly & Chaiken, 1993; Petty & Wegener, 1998). Changed attitudes based on a low amount of thinking tend to be less accessible, enduring, and resistant to subsequent attacking messages than attitudes based on careful processing (Petty, Haugtvedt, & Smith, 1995; see Petty & Krosnick, 1995, for more on the determinants and consequences of attitude strength).

We postulate that under high elaboration conditions, another aspect of thinking—meta-cognition—can play an important role in attitude change. Meta-cognition refers to people's awareness of and thoughts about their own or others' thoughts or thought processes (i.e., cognition about cognition; see Jost, Kruglanski, & Nelson, 1998). In this chapter, we argue for the conceptual importance of and utility of examining the impact of one meta-cognitive factor—thought confidence—in persuasion. More specifically, the goal of this chapter is to review recent research that has shown that in addition to generating mostly favorable thoughts, individuals also need to have confidence in the validity of their thoughts in order for thoughtful attitude change to occur. Furthermore, with respect to resistance, thoughtful individuals not only need to generate counterarguments, but they also need to have confidence in those counterarguments. After documenting the importance of meta-cognitive processes and thought confidence in particular, we discuss a number of variables that can influence people's confidence in their thoughts and thereby influence the extent of attitude change.

### Meta-cognitive responses

The topic of meta-cognition has received considerable theoretical and research attention recently, being considered one of the "top 100 topics" of psychological research (Nelson, 1992, p. ix). Meta-cognition is important because it enables individuals to better manage their thoughts and cognitive skills. In general terms, meta-cognitions have important consequences for people's judgments and behavior (see Koriat & Goldsmith, 1996; Nelson & Narens, 1994). For example, the stronger one's feeling of knowing about an elusive name, the more time one is likely to spend searching for it before giving up (e.g., Costermans, Lories, & Ansay, 1992; Nelson & Narens, 1990). The urge to bring the search to an end is all the more intense when one feels that the name is on the "tip of the tongue" and is about to emerge into consciousness (Yzerbyt, Lories, & Dardenne, 1999).

The meta-cognition of interest in this chapter concerns people's subjective confidence in their thoughts. The idea that people evaluate their thoughts is prevalent in a number of psychological domains. For instance, evaluating one's thoughts is critical to some forms of clinical practice. Indeed, the main goal of cognitive-behavior therapy is to get individuals to decrease the perceived validity of or confidence in negative or irrational thoughts by questioning them or assessing the evidence for them (e.g., Beck & Greenberg, 1994; Ellis, 1962). The role of thought confidence in judgment also plays a prominent role in social-cognitive theories. For example, Kruglanski's (1980, 1989) lay epistemic theory emphasizes a two-phase sequence of thinking in which hypotheses (beliefs) are first generated and then validated. Validating one's hypotheses would presumably enhance confidence in them, whereas invalidating them would reduce confidence.

### Confidence in thoughts and persuasion

In considering the role of meta-cognition in attitude change, it should matter whether or not people have confidence or doubt in the validity of the thoughts that they generate while thinking about an attitude issue or in response to a persuasive message.<sup>1</sup> Specifically, when one's attitude-relevant thoughts are perceived as valid, they should have a strong impact on attitudes, but when one's attitude-relevant thoughts are perceived as invalid, they should not. The proposed relationship between thought confidence and attitudes in many ways parallels the relationship between attitude confidence and corresponding behavior (for a review, see Gross, Holtz, & Miller, 1995). That is, the more confidence one has in one's attitude, the more one is willing to act on it (e.g., Fazio & Zanna, 1978). Attitude confidence is defined in this context as a subjective sense of conviction or validity regarding one's attitude (Festinger, 1950, 1954). Similarly, thought confidence refers to a sense of conviction or validity regarding one's thoughts. Just as confident attitudes are more likely to guide behavior, we suggest that confident thoughts will be more likely to guide attitudes.<sup>2</sup>

Applying this *self-validation hypothesis* to persuasion suggests that increasing confidence in one's own thoughts could conceivably increase or decrease

<sup>1</sup> We note that the current work is focused on meta-cognitions about the *contents* of one's thoughts. It may prove equally fruitful to examine meta-cognitions about one's thought *processes* in persuasion settings. For example, to the extent that people become aware that they have followed the peripheral route to persuasion and that this has produced an unsatisfactory outcome, they might switch to the central route (Mazursky & Schul, 2000). Prior work on how one's desired level of confidence matches one's obtained level is consistent with a meta-cognitive perspective on persuasion processes (see Bohner, Rank, Reinhard, Einwiller, & Erb, 1998; Chaiken et al., 1989).

<sup>2</sup> Overall confidence in a thought could be based on a number of factors. For example, confidence in the thought that "If we raise tuition, I'll find the books I need in the library" might

attitude change as could increasing doubt in one's thoughts. The effect obtained would depend on the nature of the thoughts elicited by the persuasive communication. When the thoughts in response to a message are primarily favorable, increasing confidence in their validity should increase persuasion, but increasing doubt about their validity should decrease persuasion. When thoughts are primarily unfavorable, however, increasing confidence in their validity should decrease persuasion, but increasing doubt about their validity should increase persuasion. Thus, the meta-cognitive factor of confidence should interact with the dominant thought valence in determining persuasion.

### *Initial self-validation experiments*

In an initial series of studies designed to test the self-validation hypothesis, Petty, Briñol, and Tormala (2002) found evidence supporting the notion that thought confidence can increase or decrease persuasion depending on the favorability of the cognitive responses to a message. In one of the studies (Petty et al., 2002, Study 1), participants were asked to read a persuasive message about a campus issue, to think carefully about the proposal, and to list what they thought might be some of its consequences. Following this task, participants reported the overall confidence they had in the consequences they listed as well as their attitudes toward the proposal. In accord with the self-validation hypothesis, the relationship between thoughts (i.e., direction of the consequences listed) 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.

In a second study, rather than asking participants to list all the thoughts they had while reading a message, they were asked to generate and to write down only pro-arguments in favor of the message or only counterarguments against it. Because measuring thought confidence before attitudes (as in the first study) could increase its accessibility, thought confidence was measured after the attitude reports in Study 2. In addition, thought confidence was assessed individually for each thought (rather than for all thoughts together). We replicated the self-validation pattern observed in the first study. Again, thoughts became more important in determining attitudes as confidence was increased. 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. Thus, these two studies showed that the amount of confidence people have in their thoughts can moderate the ability of cognitive responses to predict attitudes. Nevertheless, because confidence in participants' thoughts was measured rather than manipulated in both studies, it was important to manipulate thought confidence to isolate the causal effects of this variable.

Thus, in a third experiment, both the valence of the thoughts and the confidence in those thoughts were manipulated. In order to ensure that participants generated mostly positive or negative thoughts, the cogency of the arguments in the persuasive message was varied (Petty, Wells, & Brock, 1976). Individuals who received strong arguments were expected to produce mostly favorable thoughts, whereas individuals who received weak arguments were expected to produce mostly unfavorable thoughts. In order to manipulate thought confidence, after listing their thoughts about the topic, participants were asked to recall personal experiences in which they had felt confidence or doubt in what they were thinking (ostensibly as part of an unrelated experiment). This manipulation was expected to influence the confidence with which people held their thoughts through a misattribution-like procedure. Both manipulations were successful. Individuals exposed to the strong message generated mostly favorable thoughts, whereas people exposed to the weak message generated mostly unfavorable thoughts. Furthermore, when confidence in those thoughts was assessed following the confidence manipulation, people who wrote about past experiences of confidence expressed greater confidence in the validity of their thoughts than did individuals who wrote about past experiences of doubt.

In this study we also measured the extent to which people reported thinking about the issue. Individuals who reported relatively high amounts of thinking (as determined by a tertiary split on this measure) showed the self-validation effect. That is, manipulated thought confidence interacted with argument quality to influence attitudes (see Figure 9.1). Participants exposed to the strong message reported more favorable attitudes when confidence was manipulated to be high rather than low. In contrast, participants exposed to the weak version of the message reported less favorable attitudes when confidence was manipulated to be high rather than low. These findings provide initial evidence that having confidence in one's thoughts *causes* people to be more reliant on them when expressing attitudes in response to a persuasive message—at least when the level of thinking is high.

### *Role of elaboration likelihood*

The fact that the self-validation effect was obtained in Study 3 only for individuals who reported relatively high amounts of thinking about the issue is consistent with the notion that self-validation effects are not typically automatic, but instead requires some attention and cognitive effort. When

be based on one's confidence in the likelihood that this will occur (Smith & Swinyard, 1988) or confidence in the desirability of the consequence. Confidence in likelihoods or desirabilities might reflect the range of likelihoods or desirabilities considered plausible (Petty et al., 2002). That is, the greater the range of likelihoods or desirabilities considered reasonable, the less confidence one has in any particular likelihood or desirability.

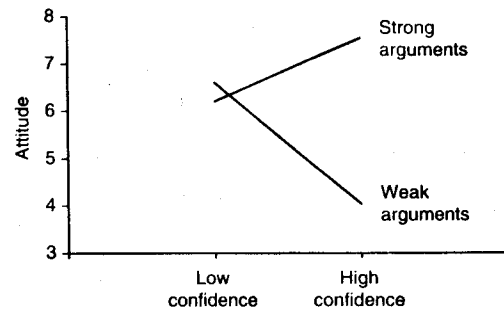


Figure 9.1 The two-way interaction on post-message attitudes between argument quality and thought confidence for high elaboration participants (adapted from Petty, Briñol, & Tormala, 2002).

attempting to implement a meta-cognition (i.e., thoughts about one's own cognitive responses), controlled thinking is often required. Meta-cognitive beliefs such as "I'd rather not think like this" or "Something is wrong with this thought" appear to involve some conscious control (e.g., Wegner, 1989), at least until such thinking becomes routinized (Smith, Stewart, & Buttram, 1992) such as when an attitude issue becomes overly familiar.

In accord with this reasoning, self-validation effects are expected to be most apparent when the likelihood of thinking is high. There are at least two reasons for this. First, if people have few thoughts about a persuasive communication, there would be few thoughts to validate or invalidate, thereby attenuating any effects. Second, the same factors that would likely motivate high amounts of message scrutiny in general (e.g., high personal importance of the issue, accountability, and so on; see Petty & Cacioppo, 1986) would also likely motivate people to scrutinize and evaluate the validity of their thoughts.

In order to motivate participants to elaborate upon the information presented, in the first two studies described earlier (Petty, et al., 2002, Exps. 1 and 2), we used a topic with high personal relevance and participants explicitly were asked to pay attention to and think about the information. In Study 3, participants were divided into two different groups according to their own reports about the extent to which they paid attention to the message and thought about its content. The results of these studies were consistent with the idea that confidence in thoughts affects attitude change when the likelihood of elaboration is relatively high.

The effects of these studies are especially interesting to compare with prior work on high elaboration and persuasion. Past studies have been reasonably consistent in their finding that under high thinking conditions people are more responsive to the quality of the arguments in a persuasive message than under low thinking conditions (see Petty & Wegener, 1998, for a review). The research on self-validation (Petty et al., 2002) shows that the impact of

argument quality on attitudes under high elaboration conditions can be attenuated and even eliminated when thoughtful people lack confidence in the thoughts that they have generated.

### Thought confidence and other thought dimensions

Thought confidence refers to an individual's subjective assessment of the validity of his or her own thought. Thus, thought confidence can be distinguished from other properties of thoughts that have already proven important in attitude change, such as the expectancy (i.e., likelihood) and the value (i.e., desirability) properties of beliefs (Fishbein & Ajzen, 1975; Petty & Wegener, 1991; Wegener, Petty, & Klein, 1994). We argue that having high (or low) confidence in a thought such as "If we raise taxes, the roads will be improved" does not necessarily imply that fixing the roads is better or worse, or more or less likely to occur if taxes are raised. To verify this, we conducted two studies to demonstrate that thought confidence accounted for variance in attitudes above and beyond the likelihood and desirability components of thoughts (Petty et al., 2002).

In one study (Petty et al., 2002, Exp. 1), we asked participants to read a persuasive message and to list what they thought might be some of its consequences. Following this task, participants reported the confidence they had in the consequences they listed, as well as how likely and desirable they thought each consequence was. As noted earlier, in this study we found that the relationship between thoughts (i.e., direction of consequences) and attitudes was greater to the extent that confidence was relatively high rather than low. Furthermore, although we found that thought confidence was reliably correlated with thought likelihood and desirability, these constructs did not account for the role that thought confidence had in moderating the relationship between thought valence and attitudes.

In a second study conducted in order to differentiate thought confidence from other properties, participants wrote down consequences that they thought would be relatively likely, and consequences that would be relatively unlikely to occur if marijuana were to be legalized. Then, confidence in those thoughts was manipulated by asking participants to recall previous experiences of confidence or doubt. Results showed that increasing confidence had opposite effects on the relatively likely and unlikely consequences. That is, increasing confidence in relatively likely consequences increased the perceived likelihood of occurrence, but increasing confidence in relatively unlikely consequences decreased perceived likelihood. Thus, across the full range of consequences, likelihood and confidence were uncorrelated. In sum, these studies demonstrated that thought confidence, likelihood, and desirability are not only conceptually distinct but are empirically separable.

Our research also suggested that thought confidence is relatively independent of the objective accuracy or inherent quality of the thoughts. For example, in one of our studies (Petty et al., 2002, Exp. 2), we had impartial

judges rate the thoughts that the participants generated for quality, and there was no relationship between a person's confidence in a thought and its rated quality. Even more compelling evidence comes from the studies in which perceived confidence was manipulated (Petty et al., 2002, Exps. 3 and 4). Since participants were randomly assigned to the high and low confidence manipulation which followed the listing of thoughts, participants in the high and low confidence conditions must have generated thoughts of equal quality. Nevertheless, when confidence in thoughts was manipulated to be low, people relied on those thoughts less than when confidence was manipulated to be high.

In consonance with findings outside the persuasion domain, (see reviews by Deffenbacher, 1984; Wells & Murray, 1983), our studies clearly indicate that people's confidence in their thoughts can be independent of their actual quality. Future research should explore, however, the specific circumstances under which thought confidence might be associated with thought quality. For example, thought confidence can be based on a careful consideration of information that is diagnostic for the validity of the thought, or it can be based on the elaboration of irrelevant information. When the confidence with which people hold their thoughts is based on effortful analyses of diagnostic information, then such thought confidence would not only predict attitudes but may also be associated with qualities such as accessibility, durability, stability, and resistance. On the other hand, when thought confidence is based on less relevant information or less careful thought, the confidence might be relatively weaker in terms of accessibility, durability, stability, and resistance. Importantly, future research should also explore whether attitudes based on the former form of confidence would be more accurate and functional, whereas attitudes based on the later type of weak confidence may be associated with overconfidence effects.

### *Summary*

We presented evidence showing that the extent to which people have confidence in the validity of their cognitive responses can play a significant role in persuasion. In accord with the self-validation hypothesis, as thought confidence increased, valenced cognitive responses were more predictive of attitudes. Importantly, across our 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. We measured confidence both before and after attitude expression. We also used different ways to vary the valence of thinking. None of these differences changed the self-validation effects observed. That is, with respect to attitude change, the current research showed that when people's thoughts were largely favorable (either because they were instructed to be favorable or because favorable thoughts were naturally produced to strong arguments), increasing

thought confidence (whether measured or manipulated) increased persuasion. On the other hand, when people's thoughts were largely unfavorable (either because they were instructed to counterargue or because unfavorable thoughts were naturally produced to weak arguments), increasing thought confidence reduced persuasion.

Another contribution of our initial research has been to specify under what circumstances the evaluations of our own thoughts are more likely to influence our judgments. We postulated and found that self-validation effects are fostered when motivation and ability to think are high rather than low. Finally, across the studies 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.

### *Implications of self-validation*

There are a number of important implications of the self-validation notion. On a practical level, for example, persuasion researchers might not only get respondents to rate their thoughts for valence, but also for subjective confidence because additional heretofore unexplained variance in attitudes can be captured by this dimension. Prior research has shown clearly that thoughts are more predictive of attitudes under high than low elaboration conditions (e.g., Chaiken, 1980; Petty & Cacioppo, 1979), but even under high elaboration conditions, attitude-thought correlations are often only modest (e.g., .5 to .6; for a review see Petty & Cacioppo, 1986). The self-validation hypothesis suggests, however, that the typical correlations reported under high elaboration conditions may conceal additional and previously unrecognized differences that exist between individuals who have relatively high versus low confidence in their thoughts. In fact, combining the data from the studies we reported in the earlier section (Petty et al., 2002), we found that attitude-thought correlations were higher for individuals with high confidence in their thoughts, and lower for individuals with low confidence in their thoughts. Thus, although previous work has clearly shown that persuasion depends on the thoughts that are generated in response to a message—at least when the elaboration likelihood is high (Petty et al., 1981), the self-validation research demonstrates that what people think about their cognitive responses is a potentially important additional factor to consider.

Another example of the potential utility of the self-validation framework comes from the extent to which thought confidence might affect overall confidence in one's attitude. Confidence in attitudes is important because attitudes held with great confidence are stronger than those held with low confidence (see Petty & Krosnick, 1995, for a review of attitude strength work). That is, confident attitudes guide judgments and behavior better than attitudes about which one has doubt, and are more resistant to change (e.g., Fazio & Zanna, 1978; see Gross et al., 1995 for a review). In one of the studies described earlier in this chapter (Petty et al., 2002, Exp. 2), we found that

attitudes based on highly confident thoughts were not only more evaluatively congruent with those thoughts than attitudes based on thoughts held with low confidence, but the resulting attitudes were also held with greater confidence. Thus, we showed that thought confidence can have implications for attitude strength, at least when attitude strength is assessed by subjective confidence in the attitude. Of course, future research should examine whether attitudes based on highly confident thoughts are also more stable, accessible, resistant to further challenges, and better predictors of future behavior than attitudes based on thoughts held with low confidence. We suspect, as noted earlier, that the basis of the thought confidence may have important implications for the impact of thought confidence on attitude confidence.

In brief, the current research indicates that there is a third important dimension of thinking in addition to the *extent* of thinking (i.e., amount) and *direction* of thinking (i.e., valence) that have garnered the lion's share of prior research attention in the persuasion literature (see Petty & Cacioppo, 1986; Petty & Wegener, 1999). This meta-cognitive dimension—thought confidence—has been shown to be able to increase or decrease persuasion depending on the nature of the thoughts generated in response to a persuasive proposal. As a consequence, based on self-validation processes, there are implications for a new conceptual understanding of a diversity of attitude change phenomena. That is, variations in thought confidence might provide a plausible alternative explanation for a number of attitude change effects that had been attributed previously to other mechanisms. As an example of the potential utility of the self-validation framework to provide a novel explanation for diverse attitude change phenomena, we next describe two recent lines of research. In each case, we examine a well-known paradigm in the literature of persuasion that can be reinterpreted in terms of self-validation processes.

### **Applying self-validation to various persuasion phenomena**

#### ***Effects of overt head movements on persuasion***

One effect to which self-validation processes appear to apply is the effects of overt head movements on persuasion. In the original study on this topic, Wells and Petty (1980) asked participants to move their heads in an up-and-down (vertical or “yes”) manner, in a side-to-side (horizontal or “no”) manner, or gave no instructions about head movements, as they listened to music and an editorial over headphones. The primary result was that attitudes were more in accord with the position advocated in the message when participants nodded rather than shook their heads. In a conceptual replication of this finding, Tom, Pettersen, Lau, Burton, and Cook (1991) found that nodding head movements resulted in the establishment of increased preference for a previously neutral object, whereas shaking head movements led to a decline in preference for the neutral object (see Förster & Strack, 1996, for another application of this paradigm).

There are a number of possible explanations for the impact of head movements on attitudes. First, Wells and Petty argued that head movements could have biased the content of people's thoughts about the message or attitude object and these biased thoughts made attitudes more favorable in the vertical than in the horizontal head movement conditions. Although thought content was not assessed, Wells and Petty speculated that when nodding, favorable thoughts would be facilitated and unfavorable thoughts inhibited, but when shaking, unfavorable thoughts would be facilitated and favorable thoughts inhibited. A second possibility is that head movements might induce a simple inference that leads one to agree with or reject the proposal (e.g., if I shook my head I must not like it; cf., Chaiken, 1987). Finally, head movements might induce positive or negative affective states that become associated with the advocacy through a classical conditioning process (see Tom et al., 1991; for this point of view).

The self-validation hypothesis holds out yet another possible explanation for the persuasive effects of head movements. This analysis also assumes that head movements prime the agreement and disagreement concepts, but that agreement/disagreement is associated with one's thoughts about the message rather than the message position per se. That is, just as vertical movements from others would enhance the perceived validity of what you are saying because others agree with you (i.e., social validation, see Festinger, 1954), one's own vertical head movements might instill greater confidence in what one is thinking through a process of self-validation (i.e., “I agree with my thoughts”).

One key implication of the self-validation hypothesis that differs from all the others is that in the self-validation framework either vertical or horizontal head movements can increase or decrease persuasion depending on the nature of the thoughts elicited by the message. If thoughts are predominantly favorable, then, relative to shaking, nodding should enhance persuasion because such movements would inspire confidence in (or signal approval of) these favorable thoughts. This is the direction of the effects found in all prior studies on head movements. More interestingly, the self-validation hypothesis makes a unique prediction when individuals' thoughts are predominately negative. Here, nodding should reduce persuasion relative to shaking because it would inspire confidence in one's unfavorable thoughts about the communication. Shaking would enhance persuasion relative to nodding by undermining confidence in one's negative thoughts. This reverses the typical effect of head movements found in all prior studies.

To examine the self-validation hypothesis that one's own head movements can serve as a cue to the validity of what one is thinking, we conducted several experiments (Briñol & Petty, 2003). In the first study, we instructed participants to nod or shake their heads in conjunction with a message containing either strong or weak arguments on a topic of interest to the college student participants. The primary finding was a message quality  $\times$  head movement interaction (see Figure 9.2). When participants generated mostly

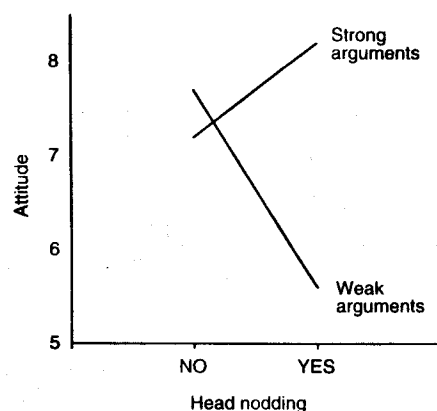


Figure 9.2 The two-way interaction on post-message attitudes between argument quality and direction of head nodding (from Briñol & Petty, 2003).

favorable thoughts (i.e., to the strong arguments), nodding produced more agreement with the proposal than shaking, replicating the original Wells and Petty (1980) findings. In stark contrast, however, shaking actually led to more persuasion than nodding when the message contained weak arguments and people's thoughts were largely unfavorable rather than favorable.

Following a similar paradigm, in a second study we examined whether this self-validation effect would occur mostly when the likelihood of thinking about the message was low or high. As described earlier, our hypothesis was that the self-validation effect should be more likely to occur when the likelihood of thinking is high since people need motivation and ability to evaluate the thoughts they have generated. Elaboration was manipulated with a combination of motivational and ability factors. In the low elaboration condition, the message was made to seem less important and it was also presented a bit faster over the headphones. As expected, a three-way interaction (head movement  $\times$  argument quality  $\times$  elaboration) emerged on the measure of attitude toward the focal issue. Under the high elaboration conditions, we replicated the two-way interaction of head movements and argument quality found in Exp. 1. Under low elaboration conditions, no significant effects were obtained.

In another study in this series, we replicated the attitude findings from the previous studies, and also showed that head movements have an effect on confidence in thoughts, but not in the nature (valence) of the thoughts themselves. Furthermore, confidence in one's thoughts mediated the effects of head movements on attitudes. In summary, our studies demonstrated that head nodding enhances confidence in one's own thoughts relative to shaking, and can thereby either enhance or reduce persuasion depending on the valence of the dominant thought.

### Effects of ease of retrieval on persuasion

In persuasion paradigms, the ease of retrieval idea suggests that people who try to generate many favorable thoughts about a position can be less persuaded than people who try to generate few favorable thoughts (see Wänke, Bless, & Biller, 1996). The dominant explanation for this surprising effect is based on the availability heuristic (Tversky & Kahneman, 1973). The explanation begins with the assumption that generating few arguments is easy, but that generating many arguments is difficult. When people have a hard time generating arguments, they might infer that there are few such arguments available, but when they have an easy time generating arguments, they might infer that there are many such favorable arguments. These inferences of argument availability translate into inferences about how good the position is (Rothman & Schwarz, 1998). That is, one's subjective experience of ease or difficulty of argument generation leads to a simple inference about argument availability. This simple availability heuristic inference, like other simple inferences (e.g., Chaiken, 1980), is postulated to be more impactful on judgments when the extent of cognitive processing is relatively low (e.g., Chen & Chaiken, 1999; Rothman & Schwarz, 1998; Schwarz, Bless, Strack, Klumpp, Rittenauer-Schatka, & Simons, 1991; see also Wänke & Bless, 2000).

In accord with the self-validation hypothesis, the ease of retrieval effect might be explained by an alternative psychological mechanism. That is, when it is easy to generate arguments, people might have more confidence in the arguments they generate than when it is more difficult to generate them. According to the self-validation hypothesis, we predicted the ease of retrieval effects would be mediated by the confidence individuals have in their thoughts with greater ease of retrieval producing more thought confidence, and ultimately more thought-congruent attitudes. Furthermore, since considering thought confidence requires sufficient motivation and ability to think and assess one's thoughts, we expected the ease of retrieval effects to be more likely to occur under high elaboration conditions than under low elaboration conditions (see, Benjamin & Bjork, 1996; Gill, Swann, & Silvera, 1998 for other links between fluency and confidence).

Tormala, Petty, and Briñol (2002) conducted a number of studies in which participants were asked to read a persuasive message and were induced to generate either a low or high number of positive (or negative) thoughts in response to it. According to the self-validation notion, we predicted that under high elaboration conditions, generating a high number of thoughts would be difficult, and thus people would rely on these thoughts less than when generating a smaller and easier number of thoughts. That is, the effect of generation difficulty on attitudes would be mediated by the confidence participants had in the thoughts they listed. Under low elaboration conditions, we expected that thought confidence would not matter, since under these conditions participants are less motivated (or able) to attend to their

own thinking. In accord with prior research on the number heuristic (Pelham, Sumarta, & Myaskovsky, 1994; Petty & Cacioppo, 1984), low elaboration participants were expected to be more influenced by the actual number of thoughts they generated (e.g., favoring the issue more after listing ten than two favorable thoughts).

As expected, Tormala et al. (2002, Exp. 1) found in one study that high elaboration participants opposed a new policy more after generating few rather than many arguments *against* a message supporting the policy. This study demonstrated that experienced ease of generating arguments can decrease persuasion under high elaboration conditions when the thoughts generated are unfavorable toward the proposal. In two additional studies, Tormala et al. (2002, Exps. 2 and 3) found that high elaboration participants favored a new policy more after generating few rather than many *positive* thoughts in response to a message supporting the policy. Importantly, we argued and found in these studies that the effects were mediated by the confidence participants had in the thoughts they listed in response to the persuasive message. That is, the easier it felt to generate positive thoughts (because only few were requested), the more confidence one had in those thoughts, and the more favorable attitudes that resulted. Confidence in the thoughts that underlie one's attitudes might be responsible for the enhanced attitude confidence that has been observed when people find it easy rather than difficult to generate thoughts on an issue (Haddock, Rothman, Reber, & Schwarz, 1999).<sup>3</sup>

Finally, individuals engaging in a high level of elaboration seem to be the most motivated to assess their own thought confidence and then rely on this meta-cognition to include or discount their thoughts when forming an attitude on the issue. Low elaboration participants, on the other hand, tended to show the opposite results, reporting more thought-congruent attitudes after generating a high number of such thoughts.

In conclusion, our work on the self-validation hypothesis suggests that individuals who are highly motivated to think pay close attention to their subjective feelings of confidence while generating thoughts. Although in the prior work on self-validation described earlier in this chapter (Petty et al.,

2002) confidence was manipulated fairly directly, we argued that other components of subjective experience (e.g., experienced ease of retrieval; head movements) might also affect confidence for individuals attuned to that experience (i.e., those motivated and able to think about the issue). Our studies on ease of retrieval are consistent with this argument, and inconsistent with the previous notion that ease of retrieval affects attitudes solely by an availability heuristic process that operates when motivation or ability to think are low. In fact, our findings suggest that ease of retrieval effects do not necessarily reflect the availability heuristic as assumed in previous research (e.g., Schwarz, 1998), but may stem from a consideration of the confidence people have in their thoughts.

### Conclusions: A new role for variables in persuasion

Our work on self-validation shows that in addition to the *extent* (i.e., amount) of thinking and *direction* (i.e., valence) of thinking, a new dimension of thinking—thought confidence—can play a significant role in persuasion. In accord with the self-validation hypothesis, the effects of the valence of a person's cognitive responses were shown to be greater for people with high thought confidence than those with relatively low thought confidence. In operational terms, as thought confidence increased, favorable and unfavorable cognitive responses were more predictive of attitudes.

Self-validation processes have clear implications for current persuasion theory. Within the framework of the elaboration likelihood model (ELM) of persuasion (Petty & Cacioppo, 1986), for example, the current research appears to suggest a new role that variables can take on in persuasion settings. Prior research on the ELM has focused on four roles that persuasion variables can assume in different situations. That is, any one variable (e.g., source credibility, mood) can, depending on the elaboration likelihood, affect persuasion by invoking different mechanisms. The ELM holds that when the elaboration likelihood is high, a variable can serve as an argument (i.e., a piece of evidence regarding the merits of the issue) if it is relevant to the merits of the issue, or the variable can determine the nature of the ongoing information-processing activity (e.g., it might bias the ongoing thinking). On the other hand, when the elaboration likelihood is low, evaluations are likely to be the result of relatively simple associations or inferences based on salient cues and thus variables are likely to influence attitudes in this way when thinking is low. Finally, when the elaboration likelihood is moderate, people may examine the persuasion context for indications (e.g., is the source credible?) of whether or not they are interested in or should process the message.

Research on self-validation suggests another role for variables in persuasion. That is, under high elaboration conditions a variable might influence attitudes by affecting people's confidence in their thoughts (see Petty &

3 To ensure that attitude confidence did not account for our thought confidence effects, in one study we measured both and showed that controlling for attitude confidence did not eliminate the thought confidence effects. Although attitude and thought confidence bear some relation, they are independent constructs (Petty et al., 2002). Notably, whereas attitude confidence effects in the ease paradigm are readily derived from the availability heuristic (i.e., greater perceived information available on an issue could translate into greater global attitude confidence), thought confidence effects are not as readily derived from the availability heuristic. That is, greater perceived information available in general should not affect confidence in any individual component of that knowledge. Rather, the feeling of ease of generating the thoughts *per se* is what presumably produces the confidence (i.e., unmediated by the perceived availability of arguments).



Briñol, 2002, for a review of multiple roles in persuasion).<sup>4</sup> For example, in this chapter we described how people's overt behavior (i.e., head nodding; Briñol & Petty, 2003) can influence persuasion by increasing (e.g., nodding) or decreasing (e.g., shaking) the confidence with which people hold their own thoughts in response to a message. We also presented evidence demonstrating that the ease with which thoughts come to mind can have an impact on persuasion by influencing thought confidence (Tormala et al., 2002). When it is easy to generate arguments, thought confidence increases, enhancing thought-congruent attitudes. However, when it is more difficult to generate thoughts, thought confidence decreases, reducing thought-congruent attitudes. Of course, there may be a wide variety of other variables that instill or reduce confidence in people's thoughts. The factors affecting confidence likely range from individual variables such as a person's current mood state (Briñol, Petty, & Barden, 2004; Wyer, Clore, & Isbell, 1999) to situational factors like the credibility of the source associated with the message (Briñol, Petty, & Tormala, 2004). The research we reviewed in this chapter suggests that some persuasion variables are capable of influencing people's confidence in their thoughts. Many other such variables may also be amenable to a self-validation analysis, and if so the self-validation hypothesis may ultimately prove useful in providing a novel explanation for diverse attitude change phenomena.

As one final example, consider classic work on the sleeper effect whereby a message that is initially ineffective gains in impact over time (e.g., Kelman & Hovland, 1953). Contemporary research strongly indicates that the sleeper effect is most likely to occur when people first receive a compelling message that is then discredited by declaring it false, or associating it with a low credibility source (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). The most prominently mentioned account for the increased impact of this discredited message is that over time people disassociate the discrediting cue from the message position (e.g., Cook, Gruder, Hennigan, & Flay, 1979). However, it is possible that self-validation processes are also at work. That is, a person might have many favorable thoughts to a strong message, but lose

confidence in these thoughts when the message is discredited (e.g., "everything I was thinking must be wrong"). Over time, however, confidence in one's own thoughts might increase again, thus restoring the impact of the message. Our point is not that the self-validation hypothesis necessarily explains the sleeper effect finding, but rather that there may be numerous source, message, context, and recipient variables that influence attitudes by affecting people's confidence in their thoughts, and thereby have an impact on persuasion. These issues should be investigated in future studies.

In closing, we note that the self-validation framework might also be extended from understanding attitudes about issues (as in the examples provided in the present chapter) to other attitude domains, such as attitudes about oneself (i.e., self-esteem). For instance, we conducted an experiment to provide additional evidence of the potential of the self-validation hypothesis to explain the impact of overt behavior on thought confidence and its implications for self-esteem (Briñol & Petty, 2003, Exp. 4). As part of a presumed graphology study, participants in this experiment were required to think about and write down their best or worse qualities (thought-direction manipulation) using their dominant or non-dominant hand (overt behavior manipulation). Then, participants rated the confidence in those thoughts and reported their self-esteem. Since writing with the non-dominant hand is very infrequent and difficult, and whatever is written with the non-dominant may appear "shaky," we expected and found that using the non-dominant hand decreased the confidence with which people held the thoughts they listed. As found in the head nodding studies, this impact of behavior on thought confidence occurred despite the fact that the actual quality of the thoughts did not vary across the hand conditions. As a consequence of the differential thought confidence, the effect of the direction of thoughts (positive/negative) on current self-esteem was significantly greater when participants wrote those thoughts with their dominant rather than their non-dominant hand. That is, writing positive thoughts about oneself with the dominant hand increased self-esteem relative to writing positive thoughts with the non-dominant hand, but writing negative thoughts with the dominant hand resulted in the reversed effect. Thus, as head nodding did, using the dominant hand affected participants' attitudes (toward themselves) by influencing the confidence in the validity of their own thoughts.

The studies described in this chapter have shown that what people do (e.g., head movements and use of dominant hand) while they process relevant information (e.g., listening to a persuasive message or self-generating arguments and thoughts) can influence the confidence people have in their thoughts, and this confidence mediates the effects of behavior on attitudes. Thus, it might be worthwhile for future research to examine other behavioral treatments that could be linked to self-validation processes. Future research might explore whether facial expression of emotions during thinking could signal that one is happy or displeased with one's cognitions. Future research might explore the self-validation role of different body postures and actions

<sup>4</sup> When confidence is induced prior to message exposure, and elaboration is not constrained to be high or low, confidence might affect the extent of information processing, with confident people engaging in less thought than people lacking in confidence (Tiedens & Linton, 2001). If confidence is induced after extensive message processing, as in the current research, however, it appears to affect confidence in the thoughts that have been generated—enhancing persuasion if the thoughts were favorable, but reducing persuasion if the thoughts were unfavorable. If confidence is induced prior to a message and elaboration is constrained to be low (e.g., by presence of distraction; Petty et al., 1976), then a feeling of confidence might enhance using one's own attitude as a peripheral cue. If confidence is induced prior to a message and elaboration is high, then confidence might enhance attitudinally biased information processing (Lord, Ross, & Lepper, 1979). The multiple possible roles for feelings of confidence should be explored in future research.

(e.g., arm flexion and extension) during information processing. The research we reported in this chapter suggests that the self-validation framework has the potential to generate novel explanations for existing findings as well as generate new effects.

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