

Self-Validation of Cognitive Responses to Advertisements

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Two studies tested the notion that the confidence consumers have in their cognitive responses to an ad can increase or decrease the favorability of product attitudes. Increasing confidence in positive thoughts enhanced advertisement effectiveness. Increasing confidence in negative thoughts reduced advertisement effectiveness. These self-validation effects occurred regardless of the type of product and regardless of whether thought confidence was measured or induced through an experimental manipulation. The present research also demonstrated that source credibility can influence consumer attitudes by affecting thought confidence. Finally, thought confidence was distinguished from other potentially related thought dimensions. Antecedents, moderators, and consequences of self-validation effects are described.

Cognitive responses, which refer to the thoughts and ideas evoked by advertisements and other types of persuasive messages, have long been viewed as critical determinants of consumer persuasion. Considerable prior research has shown that such thoughts often determine both immediate (e.g., Brock 1967; Greenwald 1968; Petty, Ostrom, and Brock 1981; Wright 1973) and long-term acceptance of persuasive communications (e.g., Chattopadhyay and Alba 1988). Thus, thought-listing measures are a commonly used method for assessing individuals' idiosyncratic responses to advertisements (e.g., Batra and Ray 1986; Petty, Cacioppo, and Schumann 1983; Shavitt and Brock 1990). In accord with contemporary models of persuasion such as the Elaboration Likelihood Model (ELM; Petty and Cacioppo 1986; Petty and Wegener 1999) and the Heuristic-Systematic Model (HSM; Chaiken, Liberman, and Eagly 1989), the cognitive response approach contends that attitude change depends on

both the amount and direction of thoughts generated by consumers. With respect to amount, it has been shown that depending on a variety of situational and individual difference factors, people can vary in the extent of thinking they will direct toward a persuasive communication. With respect to direction, or valence, it has been shown that messages that elicit primarily favorable thoughts toward a particular recommendation produce more agreement than messages that elicit primarily unfavorable thoughts (see Petty and Wegener 1998 for a review).

In addition to the amount and direction of thought, another more metacognitive dimension of thought has recently come under scrutiny. Specifically, it has been shown that the confidence people have in their thoughts can play an important role in persuasion (Petty, Briñol, and Tormala 2002). In short, having greater confidence in one's thoughts increases the impact of those thoughts on attitude change, but this is so only under conditions in which people are engaged in relatively extensive information processing (i.e., high elaboration). This idea is consistent with various prior theories of human judgment. For example, Kruglanski's (1980) lay epistemic theory of causal attribution emphasizes a two-phase sequence of thinking in which hypotheses (beliefs) are first generated and then validated. Thus, in response to a persuasive message, people might first generate and then validate their own thoughts. Similarly, Feldman and Lynch (1988) have proposed an accessibility-diagnostics model in which two features of thoughts determine whether they have an impact on judgment. That is, to have an impact, thoughts must be both accessible (i.e., available for use) and diagnostic (i.e., perceived relevant to the decision at hand).

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Confidence in one's thoughts can be viewed as one determinant of the perceived utility or diagnosticity of the thoughts.

The primary goal of the current article is to argue for the importance of examining the role of thought confidence as a determinant of advertising effectiveness. Importantly, we will also extend the prior work of Petty et al. (2002) in a number of ways. First, we will distinguish the thought confidence construct from other thought dimensions that might be related to it. Some of these have been explored in the consumer literature before (e.g., likelihood confidence; Smith 1993), and some have not (e.g., desirability confidence). Second, we will expand our understanding of the range of situational variables that can affect thought confidence processes. Specifically, we will examine the new possibility that source credibility, a classic persuasion variable, can influence persuasion by determining the amount of confidence consumers have in their cognitive responses to an ad. It is important to show that variables that are common and natural to persuasion situations, such as source credibility, can have an impact on thought confidence. To the extent that this is true, the current work would also point to a novel mechanism by which source credibility can play a role in persuasion. Third, we will test for the first time the notion that, for thought confidence to have an impact on attitude change, there must be a clear pattern of valenced (directional) thoughts. We expect that, when people's thoughts are more mixed in response to an ad (i.e., no dominance of positive or negative thoughts), varying confidence in those thoughts will not affect persuasive outcomes. If people have confidence in both sides of an issue, there is no clear direction for attitude change. Finally, we will discuss thought confidence in a broader context of potential antecedents, moderators, and consequences.

METACOGNITIVE RESPONSES

The topic of metacognition has received considerable attention in recent years (see Nelson 1992). In essence, metacognition refers to thinking about thinking, or thoughts about thoughts. Whereas some scholars conceive of metacognition mainly as one's knowledge about one's own knowledge (Alba and Hutchinson 2000), others construe metacognition more broadly (Wright 2002). For example, Jost, Kruglanski, and Nelson (1998) argue that metacognition encompasses (a) people's beliefs about their own and others' mental states and processes, (b) momentary sensations and enduring naive theories, and (c) beliefs about how the mind works and/or ought to work. Also interesting, metacognition can vary in a number of ways, such as its level of specificity, its ease of access, its verbalizability, and its level of awareness (Cornoldi and Vianello 1992).

These different aspects of metacognition have been shown to affect persuasion in a variety of ways (e.g., see Bless and Forgas 2000 and Yzerbyt, Lories, and Dardenne 1999 for reviews). For example, some people might believe that seeing an attractive model associated with a commercial product would lead them to view that product favorably. As a consequence, if individuals are motivated and able to do so,

they could try to correct for this unwanted bias when forming an attitude toward the product (Wegener and Petty 1995). Of course, such metacognitions need not be grounded in reality (Alba and Hutchinson 2000). For example, although there is ample evidence that explicit persuasive communications are capable of changing attitudes (Petty and Wegener 1998), whereas subliminal messages are less effective in this regard (Trappey 1996), people tend to believe the opposite is true. As a consequence, people are more willing to expose themselves to strong persuasive arguments (that change their attitudes) than subliminal messages (that do not change their attitudes; see Wilson, Gilbert, and Wheatley 1998).

People's metacognitions about persuasion have also been argued to play a role in consumer behavior (Wright 2002). Friestad and Wright (1994), for instance, argue that people's beliefs about persuasion determine how they deal with persuasion attempts. According to this view, people use their knowledge (beliefs) about persuasion as a basis for interpreting and responding to ads or sales presentations. Such beliefs about persuasion have been shown to differ from experts to laypeople (Friestad and Wright 1995) and to influence impressions of an influence agent (such as a salesperson) but only when they are made salient and people are able to think carefully about the information (Campbell and Kirmani 2000).

CONFIDENCE IN THOUGHTS AND PERSUASION

One source of metacognitive information that has received a great deal of research attention involves the sense of epistemological certainty or uncertainty (e.g., Kruglanski 1980; Nelson, Kruglanski, and Jost 1998). In the present article, we argue that considering the certainty, or confidence, with which people hold their thoughts can contribute to a better understanding of consumer persuasion. According to the self-validation hypothesis (Petty et al. 2002), two people may have the same thought with respect to an advertisement (e.g., "this detergent should help my clothes get clean"), but one person might have considerably more confidence in that thought than the other. Furthermore, the person with more confidence in that thought should be more reliant on that thought in determining his or her attitude.

In other words, the self-validation hypothesis holds that the more confidence one has in one's thoughts, the greater will be the impact of those thoughts on attitudes. In this sense, the proposed relationship between thought confidence and attitudes is conceptually similar to the relationship between attitude confidence and behavior (for a review, see Gross, Holtz, and Miller 1995). Attitude confidence is defined in this context as a subjective sense of conviction or validity regarding one's attitude (Festinger 1954). Similarly, thought confidence refers to a subjective sense of conviction or validity regarding one's thoughts. Just as the more confident one is in one's attitude, the better that attitude predicts behavior (e.g., Fazio and Zanna 1978), we propose that the

more confident one is in one's thoughts, the better those thoughts will predict and guide attitudes.

Petty et al. (2002) demonstrated that the confidence or doubt people have in their own thoughts can either increase or decrease persuasion depending on the nature of the thoughts elicited by the message. In one study, for example, participants were exposed to a strong or a weak persuasive message and then recorded their thoughts, thought confidence, and attitudes. As in prior research, people generated mostly favorable thoughts to the strong message and mostly unfavorable thoughts to the weak message (Petty and Cacioppo 1986). However, thought confidence moderated the impact of argument cogency (and thus thoughts) on attitudes. When the message arguments were strong and thoughts were mostly positive, increased confidence in one's thoughts increased persuasion. However, when the message arguments were weak and thoughts were mostly negative, increased confidence in one's thoughts reduced persuasion. In another study (Petty et al. 2002), thought confidence was manipulated by inducing participants to think about past situations in which they felt confidence or doubt with respect to their thoughts. Again, increasing thought confidence increased persuasion when the message arguments were strong and thoughts were favorable, but decreased persuasion when the message arguments were weak and thoughts were unfavorable.

The findings proved quite robust across methodological variations. The self-validation hypothesis was supported whether thought confidence was measured or manipulated. We also used different measures of thought confidence across studies—assessing confidence in each individual thought or in a more general way with respect to all of the thoughts at once. We measured thought confidence both before and after attitude expression. We also used different ways to manipulate the valence of thoughts (argument cogency and directed valenced thinking). None of these differences dampened the self-validation effects. Across studies, as thought confidence increased, cognitive responses were more predictive of attitudes.

Despite the reliable impact of thought confidence on attitudes, the role that thought confidence might play in consumer persuasion has yet to receive much attention. Our goal is to provide evidence that in addition to generating mostly favorable thoughts toward advertisements, individuals also need to have confidence in the validity of those thoughts in order for attitude change to occur. Similarly, counterarguments alone should be insufficient to produce resistance to persuasion. Again, individuals must have confidence in those counterarguments. In addition to extending our research into the domain of consumer persuasion and advertisements, as noted earlier, the current research also had the following goals: (1) to distinguish thought confidence from other dimensions of thoughts, (2) to examine a new determinant of thought confidence—source credibility, and (3) to examine a moderator of thought confidence effects—whether the thoughts are mixed or one sided.

CONFIDENCE AND OTHER THOUGHT DIMENSIONS

Prior research (Petty et al. 2002) has demonstrated that thought confidence can be conceptually and empirically distinguished from other properties of thoughts important to attitude change, such as the expectancy (i.e., likelihood) and the value (i.e., desirability) components of thoughts and beliefs (Fishbein and Ajzen 1975; see also Ahtola 1975). However, it could be argued that thought confidence would be related to other aspects of consumers' thoughts, such as confidence in the likelihood or desirability components. Indeed, confidence in likelihood has been the focus of attention in prior consumer studies (e.g., Smith 1993). In this work, Smith suggested that, when consumers assess the likelihood that a product has a given attribute, they can have relatively high or low confidence in their assessment. Thus, although someone might think the likelihood that a new mobile phone has enhanced reception is .8, he or she could have very high or very low confidence in that expectancy. Smith and Swinyard (1982) found that consideration of this type of confidence (i.e., in expectancy or likelihood) can improve the ability of expectancy-value models to predict attitudes.

Although these findings are interesting and informative, we argue that they do not answer the present research questions with respect to general thought confidence. From a conceptual standpoint, it makes sense to think of thought confidence as broader than likelihood confidence alone. Although likelihood confidence may be one determinant of general thought confidence, thought confidence might also be influenced by desirability confidence, a heretofore unexplored construct in the consumer or psychological literature. Or, as we predict, thought confidence might be broader than both likelihood and desirability confidence in that it has a diversity of origins.

To examine the separability of these constructs, we conducted a study in which we exposed 46 participants to an advertisement about a detergent product (unpublished data 2002). Participants were instructed to list four potential consequences of this product (i.e., thoughts), which they subsequently rated on a variety of dimensions including valence, thought confidence, likelihood, likelihood confidence, desirability, and desirability confidence (these measures were counterbalanced). When we entered all of these predictors and their interaction terms into a hierarchical regression analysis, predicting product attitudes, only the main effect for thought valence ($\beta = 0.46, p < .03$) and the thought valence \times thought confidence interaction ($\beta = 4.58, p < .02$) were significant. Thus, when controlling for the effect of thought confidence, none of the effects involving either likelihood confidence or desirability confidence were significant.

We expected thought confidence to emerge as the best moderator of thought valence in predicting attitudes because it is broader than likelihood confidence or desirability confidence alone. Consistent with this reasoning, in a follow-up analysis, we submitted thought valence, likelihood, de-

sirability, likelihood confidence, and desirability confidence to a hierarchical regression analysis predicting thought confidence. This analysis revealed significant main effects for both likelihood confidence ($\beta = 0.31, p = .05$) and desirability confidence ($\beta = 0.29, p < .05$) on thought confidence. Thus, it appears to be the case that, although thought confidence is predicted by likelihood confidence, it is also predicted by a new and unexplored construct—desirability confidence. That both of these variables contribute to thought confidence more generally suggests that thought confidence is indeed a broader construct than has been examined in past consumer research. Furthermore, the fact that these indices combine to make up approximately 18% of the variance in thought confidence suggests that thought confidence may be picking up more than is accounted for by these particular aspects of people's thoughts or beliefs. That is, thought confidence may be based in part on likelihood and desirability confidence, but it may also be based on other factors, such as how quickly the thought comes to mind (Tormala, Petty, and Briñol 2002) or the credibility of the source to which one is cognitively responding—the focus of study 2. In summary, thought confidence can be distinguished both conceptually and empirically from other belief dimensions such as likelihood, desirability, and confidence in likelihood and desirability.

OVERVIEW OF THE PRESENT RESEARCH

The present research was conducted to examine whether self-validation processes can contribute to an understanding of people's evaluations of advertisements and whether common features of the persuasion situation, such as source credibility, can influence thought confidence. We hypothesized that increasing confidence in thoughts can increase, decrease, or have no effect on product attitudes depending on the nature of the thoughts elicited by an ad. In each of two studies, participants generated cognitive responses to an advertisement. In one study, we measured thought confidence in an attempt to capture it as it exists in its natural state. In a second study, we manipulated source credibility to examine its impact on thought confidence and to examine whether thought confidence could, under specifiable conditions, account for the effect of source credibility on product attitudes.

EXPERIMENT 1

Experiment 1 was designed to study natural variations in thought confidence as a determinant of consumer persuasion. In order to ensure that participants generated mostly positive or negative thoughts, we designed an advertisement in which the cogency of the arguments was manipulated (see Areni 2002; Petty and Cacioppo 1986). Thus, participants were exposed to an ad composed of relatively strong or weak arguments. Participants were asked to think carefully about the ad and to list their thoughts in response to it. The extent to which participants had confidence in their

thoughts was then measured. Based on the self-validation hypothesis, we expected thought confidence to increase or decrease persuasion depending on the valence (positive or negative) of the dominant thoughts to the ad.

H1: Thought confidence was expected to interact with argument cogency to influence attitudes. Increasing thought confidence was expected to be associated with more attitude change for participants exposed to the strong version of the ad. Increasing thought confidence was expected to be associated with reduced attitude change for participants exposed to the weak version of the ad.

When thought confidence is relatively high, people will view their positive and negative thoughts as valid and rely on them in forming product attitudes. When thought confidence is relatively low, however, we expected people to view their positive and negative thoughts as less valid and to rely on them less in forming product attitudes.

Second, the self-validation framework predicts that the effects of thought confidence should be most apparent when the likelihood of elaboration (thinking) is high. There are at least two reasons for this. First, if people have few thoughts about an ad or product, then there would be few thoughts to validate or invalidate. Second, the same factors that motivate high amounts of scrutiny and elaboration of an ad (e.g., high personal importance of the product or accountability; see Moorthy, Ratchford, and Talukdar 1997; Petty and Cacioppo 1986) are also likely to motivate people to scrutinize and evaluate the validity of their thoughts. To compare the role of thought confidence for individuals engaged in relatively more versus less thinking, participants' need for cognition was measured at the end of the study (Cacioppo, Petty, and Kao 1984). Considerable prior research (e.g., Haugtvedt, Petty, and Cacioppo 1992) has shown that high need for cognition individuals engage in more extensive message processing than low need for cognition individuals (see Cacioppo et al. 1996).

H2: Self-validation effects were expected to be most apparent for individuals engaged in a high level of elaboration of the ad (i.e., high need for cognition participants).

Participants and Procedure

Ninety-three undergraduates at a large Spanish university participated in the experiment in partial fulfillment of a course requirement. The students were randomly assigned to read an advertisement containing either strong or weak arguments. Afterward, they reported their thought confidence and need for cognition.

Participants were told that we were conducting research on people's "responses to the media" and that they would be asked to evaluate an advertisement. The advertisement presented a new cellular phone called "Ginex." Participants received a strong or weak version of the ad in favor of the

cellular phone and were asked to list the thoughts they had while reading the ad. After the thought-listing task, participants were told that, as a control measure, additional information concerning the thoughts they listed was necessary. Participants were then asked to report the extent to which they had confidence in their thoughts. Next, participants were told that, because their personal views of the product might have influenced their responses to the earlier questions, it was important to know what their opinions were. Finally, participants completed the need for cognition scale.

Independent Variables

Argument Cogency. The ad contained either strong or weak arguments in favor of the product. This manipulation was designed to influence the overall favorability of participants' cognitive responses (Petty and Cacioppo 1986). Examples of strong arguments in favor of the new cellular phone included (1) Ginex is waterproof and shock-resistant; (2) Ginex is extremely low in battery consumption; and (3) Ginex includes a calendar, an alarm, and a video recorder. Examples of weak arguments were (1) Ginex has a clock, (2) Ginex is able to convert international currencies with a sophisticated and complicated formula, and (3) Ginex's password has only three digits. In the weak ad, it was also noted that Ginex was investing a great deal of money in an ad campaign, which meant it would be popular soon and thus a good choice.

In developing these arguments, an initial pool of potential strong and weak arguments was generated by asking a sample of 25 marketing students (who owned cellular phones) what they would like to see in a new phone. Based on these responses, we selected the five best and worst arguments (based on our own assessments) to compose the strong and weak version of the ad. A new sample of 20 students listed their thoughts for each version of the ad. Analysis of the thoughts listed revealed that, on average, the strong ad elicited primarily favorable thoughts (77.8%) about the product, whereas the weak ad provoked primarily unfavorable thoughts about the product (63.6%). More specifically, the strong ad elicited more favorable ($M = 2.89$, $SD = 1.76$) than unfavorable thoughts ($M = .89$, $SD = .78$), $t(8) = 4.98$, $p = .001$. For the weak version of the ad, participants generated more unfavorable ($M = 2.55$, $SD = 2.02$) than favorable thoughts ($M = 1.45$, $SD = 1.81$) $t(10) = 2.66$, $p < .05$.

Thought Confidence. After listing their thoughts to the ad, all participants were asked to rate the extent to which they had confidence in the validity of the thoughts they listed. Thought confidence was rated on seven-point scales (anchored at "not at all" and "extremely"), including confident, certain, and valid. As in previous research on thought confidence (Petty et al. 2002), these items were selected based on their unidimensional properties. Ratings were highly consistent with each other ($\alpha = .80$), and were averaged to form a single index of thought confidence for each

participant. Thought confidence scores were not affected by any of the other independent variables, $F < 1$.

Need for Cognition. Participants completed the 18-item version of the need for cognition scale (Cacioppo et al. 1984). Need for cognition (NC) refers to the tendency to engage in and enjoy effortful thought. This scale contains statements such as "I prefer complex to simple problems" and "Thinking is not my idea of fun" (reversed score). Participants respond to each statement on a five-point scale anchored at "extremely uncharacteristic of me" and "extremely characteristic of me." Responses to each item were averaged to form a composite NC score ($\alpha = .86$). Scores were not related to thought confidence or the argument cogency manipulation, F 's < 1 . Because this study was conducted at a Spanish university, participants completed the Spanish version of the NC scale (Falces et al. 2001). In addition to exploratory and confirmatory factor analyses, a number of steps were taken to validate the Spanish version of the scale. For example, in one study, the validity of the measure was tested by asking 561 respondents to rate their satisfaction with the campus' cafeteria services, list their thoughts about those services, and complete the NC scale. The scale showed robust reliability properties (e.g., $\alpha = .84$), and the number of relevant thoughts generated was significantly greater for individuals with higher NC scores. In another study (Falces et al. 2001), in which the scale again showed high internal consistency ($\alpha = .87$), participants with higher scores were shown to think more about the content of a persuasive message, generate more cognitive responses, recall more arguments, and be more persuaded by a strong than weak version of a persuasive message. This evidence suggests that the Spanish NC scale has adequate reliability and validity.

Dependent Measures

Thought Favorability. Following the ad, participants were instructed to list the thoughts they had as they read the advertisement. Ten boxes were provided for their individual thoughts. They were told to write one thought per box without worrying about grammar or spelling (see Cacioppo and Petty 1981 for additional details on the thought-listing procedure). An index of favorability of message-related thoughts was formed by subtracting the number of unfavorable message-related thoughts from the number of favorable message-related thoughts and dividing this difference by the total number of message-related thoughts.

Attitude. Participants' attitudes were assessed using a series of nine-point semantic differential scales (i.e., unfavorable-favorable, negative-positive, bad-good, boring-interesting, nonattractive-attractive, unpleasant-pleasant, undesirable-desirable, and nonuseful-useful) on which they rated the product. These items demonstrated high internal consistency ($\alpha = .87$), and we averaged responses to create a composite attitude index.

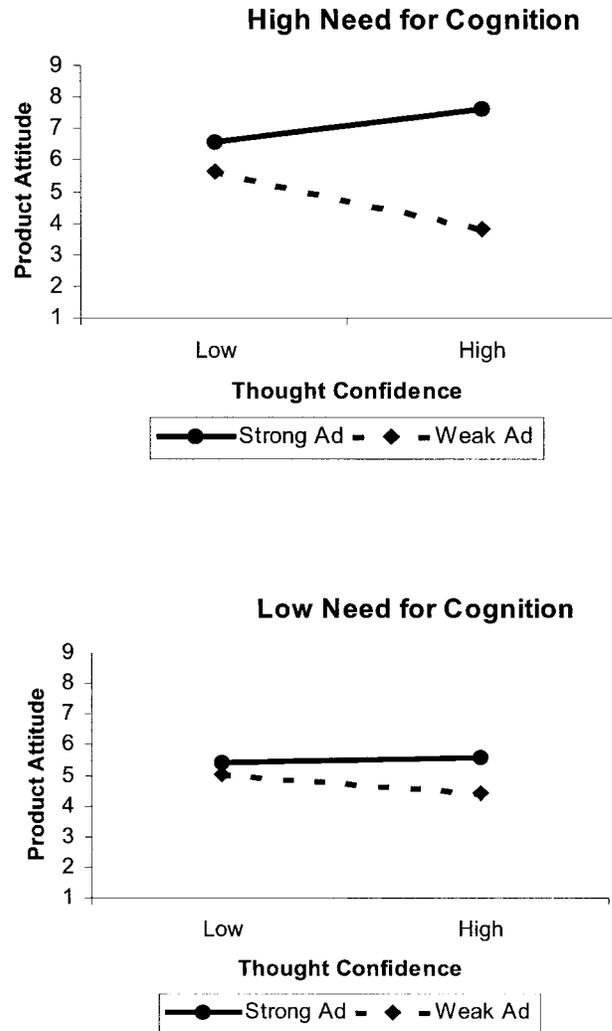
Results

Thoughts Favorability. Two judges, unaware of experimental conditions, coded cognitive responses. Thoughts were classified as favorable, unfavorable, or neutral toward the ad or product. Judges agreed on 93% of the thoughts coded, and disagreements were resolved by discussion. Prior to analysis of the thought index, all variables were standardized. The thought data were then submitted to a hierarchical regression analysis, with thought confidence (continuous), NC (continuous), and argument cogency (dummy coded) as predictors. Following the recommendation of Cohen and Cohen (1983), main effects were interpreted in the first step of the regression, two-way interactions in the second step, and the three-way interaction in the third step. Consistent with our expectations, participants' thoughts were more favorable toward the product after receiving the strong ($M = .15$, $SD = .70$) rather than the weak ($M = -.40$, $SD = .65$) version of the ad ($\beta = -.39$, $t(91) = -4.26$, $p < .0001$). In addition, a significant negative relationship between thought favorability and thought confidence also appeared, such that, as thought favorability decreased, thought confidence increased ($\beta = -.31$, $t(91) = -3.39$, $p < .01$). No other effects emerged (p 's $> .25$).

Attitudes. Attitude items were scored such that higher values represented more favorable attitudes toward the product. We conducted a hierarchical regression analysis predicting attitudes with thought confidence, NC, and argument cogency as the predictors. Again, prior to the hierarchical regression analysis, all variables were standardized. As expected, this analysis revealed a main effect for argument cogency on product attitudes ($\beta = -.52$, $t(92) = -5.77$, $p < .0001$). Attitudes toward the product were more favorable following the strong version of the ad ($M = 5.86$, $SD = 1.20$) than following the weak version of the ad ($M = 4.36$, $SD = 1.36$). More germane to our primary concerns, the predicted interaction between argument cogency and thought confidence was significant ($\beta = -.33$, $t(92) = -3.59$, $p = .001$). This interaction indicated that thought confidence had opposite effects on attitudes depending on the direction of the thoughts. Individuals who generated primarily positive thoughts (strong ad) showed more favorable attitudes toward the product as thought confidence increased ($\beta = .36$, $t(46) = 2.65$, $p = .01$). In contrast, individuals who generated primarily negative thoughts (weak ad) showed the opposite pattern—less favorable attitudes toward the product as thought confidence increased ($\beta = -.35$, $t(45) = -2.51$, $p = .01$).

In addition, consistent with hypothesis 2, a three-way interaction emerged between argument cogency, confidence, and NC ($\beta = -.18$, $t(92) = -1.99$, $p < .05$). To examine the basis of this interaction, high ($M = 3.94$, $SD = .27$) and low ($M = 2.92$, $SD = .36$) NC participants (as determined by a median split, $Mdn = 3.5$) were analyzed separately. As illustrated in figure 1 (graphed at $+1$ and -1 SD of the thought confidence mean), these analyses revealed

FIGURE 1
EXPERIMENT 1: PRODUCT ATTITUDE AS A FUNCTION OF NEED FOR COGNITION, THOUGHT CONFIDENCE, AND ARGUMENT COGENCY



that the two-way interaction between argument cogency and thought confidence was restricted to the high NC participants ($\beta = -.41$, $t(46) = 3.28$, $p = .002$), and did not occur for low NC participants ($\beta = -.17$, $t(45) = -1.18$, $p = .24$). For high NCs who generated primarily positive thoughts (strong ad), increasing thought confidence increased persuasion ($\beta = .45$, $t(27) = 2.58$, $p = .01$), whereas for those who generated primarily negative thoughts (weak ad), increasing thought confidence decreased advertisement effectiveness ($\beta = -.49$, $t(17) = -2.26$, $p < .05$). For low NCs, only a significant main effect for argument cogency emerged ($\beta = -.33$, $t(45) = -2.41$, $p < .05$), such that attitudes were more favorable in the strong ad condition ($M = 5.35$, $SD = .89$) than in the weak ad condition ($M = 4.77$, $SD = 1.12$).

Quality and Number of Thoughts. As a final analysis in experiment 1, we examined the thoughts listed by participants. First, because the actual quality of thoughts participants listed could have influenced their thought confidence ratings, we also analyzed the quality of participants' cognitive responses. Participants' thoughts were rated by two judges on the extent to which they were high quality/persuasive thoughts or low quality/unpersuasive thoughts in favor of or against the product (see Petty et al. [2002] for a similar procedure). Judges were unaware of participants' self-reported thought confidence and the experimental hypotheses. Judges agreed on 84% of the thoughts coded, and disagreements were resolved by discussion. Analysis revealed that thought confidence was not related to thought quality ($r = -.03, p = .77$). In addition, we found that thought confidence was not related to the number of thoughts listed ($r = -.02, p = .78$).

Discussion

The results of experiment 1 were consistent with the self-validation hypothesis in showing that the extent to which people have confidence in their cognitive responses can play a key role in determining product attitudes. It is important that thought confidence was not related to the overall number or quality of thoughts people generated. As predicted by hypothesis 1, the confidence with which participants held their thoughts had opposite effects on persuasion depending on the dominant type of thought generated in response to the ad. When participants were exposed to the strong version of the ad, they generated predominantly favorable thoughts and showed more favorable attitudes toward the product when their thoughts were held with relatively high confidence. When participants were exposed to the weak version of the ad, however, they generated predominantly negative thoughts and the effect of thought confidence was reversed. That is, these participants showed less favorable attitudes toward the product when they had relatively high thought confidence. Furthermore, as predicted by hypothesis 2, these findings were more evident when elaboration was high (i.e., high NC).

In summary, experiment 1 suggests that, in addition to the extent (i.e., amount) and direction (i.e., valence) of thinking, a new dimension of thinking—thought confidence—can play a significant role in advertising effectiveness. Having established that thought confidence influences consumer persuasion, it becomes important to examine factors in the advertising context that can influence thought confidence. There might be a host of individual and situational factors that influence consumer persuasion though thought confidence. Experiment 2 was designed to examine one such variable that is commonly studied in the consumer literature—source credibility.

EXPERIMENT 2

Experiment 2 was designed to extend the results of experiment 1 and to assess the implications of the self-validation hypothesis for source credibility, a variable of classic importance in persuasion research.

Prior studies in this area have demonstrated that source credibility, like other variables, can influence persuasion through different mechanisms in different situations. Depending on the likelihood of elaboration, source credibility has been found to affect attitude change by serving as a peripheral cue (Petty, Cacioppo, and Goldman 1981), by affecting the motivation to think about the message (Priester and Petty 1995), by influencing the direction of thoughts that come to mind (Chaiken and Maheswaran 1994), and by serving as an argument or an issue-relevant piece of evidence (Kruglanski and Thompson 1999). Some consumer studies have directly examined the multiple roles for source credibility within a single experiment. For example, Moore, Hausknecht, and Thamodaran (1986) found that source credibility served as a simple cue when elaboration was low but influenced the extent of thinking when elaboration was moderate. Experiment 2 was designed to test the notion that source credibility can also influence persuasion through a new and previously unexplored mechanism based on variations in thought confidence. Particularly in cases where the motivation to think is relatively high, we predicted that source credibility information can validate or invalidate one's thoughts about a product or ad.

H3: If source credibility is high, one's thoughts about a product should be held with greater confidence. If credibility is low, one's thoughts about a product should be held with relatively less confidence.

Our hypothesis relies on the assumption that source credibility can influence the perceived validity of the information in an advertisement. Consistent with this assumption, Kaufman, Stasson, and Hart (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 argue that, when one has already thought about information in an advertisement and then discovers that it came from a high or low credibility source, one's thoughts can also be validated or invalidated by this 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 it. That is, if the credibility of the information in an ad is undermined, confidence in one's thoughts that were based on that information are likely to be undermined as well.

In the present study, all participants were exposed to an ad promoting phosphate-based laundry detergents and were asked to list their thoughts about it. The ad was presented on a computer and contained either strong or moderate arguments in favor of phosphate-based laundry detergents. We expected people to generate a clear pattern of favorable

thoughts toward the product only in the condition in which the ad contained convincing arguments (Petty and Cacioppo 1986). When the ad was moderate, thoughts were expected to be mixed (i.e., both favorable and unfavorable). After receiving the ad and listing thoughts, but before reporting attitudes, source credibility was manipulated. Finally, a measure of participants' need for cognition was also included in this experiment to assess elaboration. We expected this design to replicate the self-validation effects found in experiment 1 for the strong version of the ad. However, when thoughts were not largely positive or largely negative (i.e., moderate ad), we did not expect thought confidence to affect attitudes. Indeed, the self-validation hypothesis predicts that there must be a clear profile of valenced thoughts for confidence in those thoughts to push attitude change in a particular direction.

H4: Confidence in thoughts induced by source credibility was expected to increase advertising effectiveness only for participants exposed to a strong ad. When the ad contained moderate arguments, thought confidence was not expected to affect persuasion.

H5: Confidence in thoughts was predicted to mediate the effect of source credibility on attitudes only when elaboration was high. Under low-elaboration conditions, we expected source credibility to influence attitudes by serving as a peripheral cue.

Participants and Procedure

Seventy-five undergraduates at a midwestern university participated in the experiment in partial fulfillment of an introductory psychology course requirement. They were randomly assigned to source credibility (high or low) and argument cogency (strong or moderate) conditions and completed the 18-item version of the NC scale (Cacioppo et al. 1984). In groups of up to 10, participants were welcomed by an experimenter and seated in a room with computer terminals arranged to prevent visual contact. All instructions were provided on computer using MediaLab 2000 software (Jarvis 2000). The opening screen led participants to believe they would be reading about an issue garnering recent media attention—the ordinary household use of phosphate-based laundry detergents. This product has been used successfully in previous research involving source manipulations (see Pratkanis et al. 1988). Furthermore, by changing the product from the first study, we enhanced the generality of our conclusions. Following these instructions, participants received an advertisement about phosphate detergents that contained arguments that were either strong or moderate with respect to the product. Immediately after the ad, participants listed their thoughts, and they were subsequently led to believe that the information in the ad came from either a high or a low credibility source. This order was used to ensure that

participants in the high and low credibility conditions would have generated basically the same thoughts overall, which could then be validated or invalidated by the source information. Participants then rated the confidence they had in their thoughts and reported their attitudes toward the product. Finally, at the end of the experiment all participants completed the NC scale.

Independent Variables

Argument Cogency. Participants were randomly assigned to receive a message (adapted from Pratkanis et al. 1988) composed of either strong or moderate arguments. This manipulation was designed to influence the favorability of cognitive responses. In the strong argument condition, participants were told that in comparison with nonphosphate detergents, phosphate detergents were considerably less expensive, safer, and superior in cleaning power, which helps clothes last longer. In the moderate argument condition, participants were told that the packaging of most phosphate detergents was more attractive and colorful, which enhanced their appearance for shoppers. In this condition, participants were also told that phosphate detergents smelled as good as other detergents and weighed 5% less than others, making them easier to carry.

In order to pretest these messages, we asked a sample of 67 students to read each one and list their thoughts in response. Analysis of their thoughts revealed that on average, the strong ad elicited more favorable ($M = 2.48$, $SD = 2.13$) than unfavorable thoughts ($M = .57$, $SD = 1.00$; $t(34) = 6.89$, $p < .0001$). The moderate ad elicited a more mixed profile of thoughts, with a reduced advantage for favorable ($M = 1.56$, $SD = 1.99$) relative to unfavorable thoughts ($M = 1.15$, $SD = 1.43$; $t(31) = 4.42$, $p < .0001$). Moreover, the relative proportion of favorable to unfavorable thoughts with respect to the total thoughts was significantly greater for the strong ad ($M = .57$, $SD = .69$) than for the mixed ad ($M = .16$, $SD = .84$; $t(59) = 2.10$, $p < .05$).

Source Credibility. Following the ad and thought-listing task, source credibility was manipulated. In the high credibility condition, participants were told that the information they had just read was taken from a pamphlet produced by a government agency that investigates consumer products and strongly urges people to use phosphate detergents. In the low credibility condition, participants were led to believe that the information they had just read was taken from a pamphlet from a major soap and detergent company that makes phosphate detergents and strongly urges people to use them. This manipulation was designed to make the source seem more or less trustworthy, respectively.

Need for Cognition. At the close of the experiment, participants completed the 18-item version of the NC scale (Cacioppo et al. 1984). The items on this scale showed high internal consistency ($\alpha = .89$), so responses to each item

were averaged to form a composite score. Scores were not affected by the manipulations (F 's < 1).

Dependent Measures

Thought Favorability. Following the ad, participants were instructed to list the thoughts they had as they read the ad (Cacioppo and Petty 1981). At the end of the experiment, each participant was presented with the thoughts that he or she had listed and was asked to classify each one as positive, negative, or neutral in content and as ad-relevant or irrelevant. As an index of the favorability of thoughts, we subtracted the number of unfavorable ad-related thoughts from the number of favorable ad-related thoughts and divided the difference by the total number of ad-related thoughts.

Confidence in Thoughts. After the source manipulation but before measuring attitudes toward the product, participants were asked to think back to the thoughts they had listed about the phosphate detergents and to rate their overall confidence in them (as a group). Thought confidence was rated on three scales, asking participants how confident they were in their thoughts, how certain they were about them, and how valid they believed the thoughts were. Scales for these items ranged from 1 to 7 and were anchored at "not at all" and "extremely." Responses to these items showed adequate reliability ($\alpha = .70$) and were thus averaged to create a composite measure of confidence in thoughts.

Attitudes. Participants were informed that it was important to assess their attitudes toward the issue as their opinions about phosphate detergents might have influenced their responses to other items. Attitudes toward phosphate detergents were assessed using a series of nine-point semantic differential scales with the following anchors: bad-good, foolish-wise, negative-positive, and beneficial-harmful. Internal consistency was high ($\alpha = .81$), so responses were averaged to create a composite attitude measure.

Results

All dependent measures were first submitted to a hierarchical regression analysis, treating NC as a continuous variable and dummy coding the manipulated variables. To decompose interaction effects from the regression analyses, we subsequently conducted 2 (source credibility: high or low) \times 2 (argument cogency: strong or mixed) \times 2 (NC: high or low) between participants analyses of variance, for which NC was dichotomized on the basis of a median split.

Thought Favorability We first submitted the thought favorability index to a regression analysis. Consistent with our expectations, analysis revealed that participants' thoughts were more favorable toward the product after receiving strong arguments ($M = .67$, $SD = .60$) as opposed to moderate arguments ($M = .14$, $SD = .86$; $\beta = .34$, $t(69) = 3.04$, $p < .01$). No other effects were significant.

Confidence in Thoughts. For the thought confidence index, analysis revealed a main effect of source credibility ($\beta = .50$, $t(74) = 4.87$, $p < .0001$). Consistent with hypothesis 3, participants in the high credibility condition had more confidence in their thoughts ($M = 6.29$, $SD = 2.09$) than participants in the low credibility condition ($M = 4.00$, $SD = 1.97$). It is important to note that there was also a two-way interaction between source credibility and NC ($\beta = .26$, $t(74) = 2.78$, $p < .01$). This interaction revealed that the effect of source credibility on thought confidence was especially pronounced among high NCs ($F(1, 67) = 31.97$, $p < .001$). For high NCs, thought confidence was much higher in the high credibility condition ($M = 7.33$, $SD = 1.11$) than in the low credibility condition ($M = 3.61$, $SD = 1.35$). For low NCs, however, there was only a marginally significant difference in thought confidence between the high ($M = 5.59$, $SD = 2.32$) and low credibility conditions ($M = 4.47$, $SD = 2.50$; $F(1, 67) = 3.19$, $p = .07$).

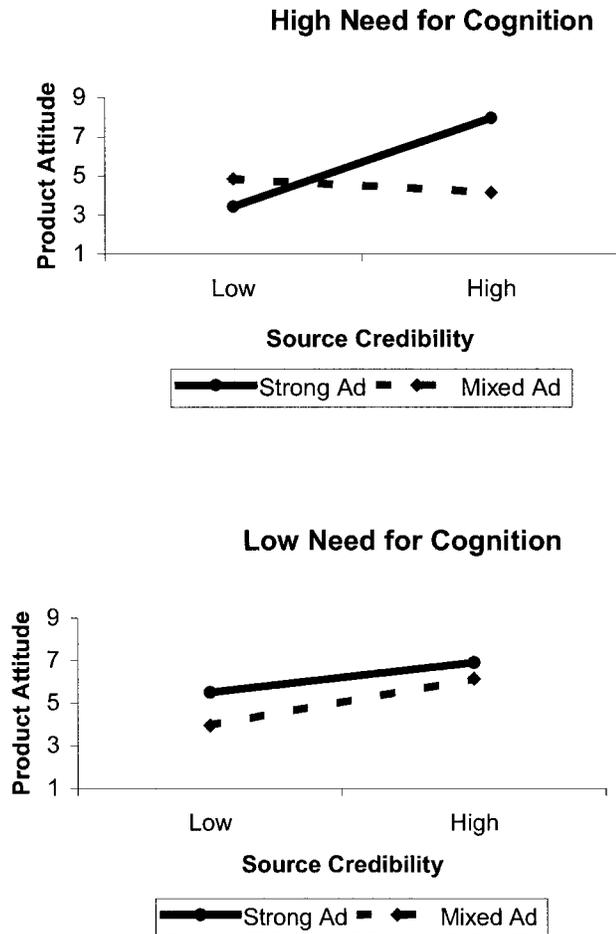
Attitudes. Responses to the semantic differential scales were scored such that higher values represented more favorable attitudes toward the product. The regression analyses revealed a significant main effect of argument cogency, such that participants who received the ad with strong arguments held more favorable attitudes toward the product ($M = 5.84$, $SD = 2.62$) than those who received the ad with moderate arguments ($M = 4.96$, $SD = 1.47$; $\beta = .20$, $t(74) = 2.05$, $p < .05$). Also, as expected, a significant main effect of source emerged ($\beta = .44$, $t(74) = 4.43$, $p < .0001$), revealing that the high credibility source induced more attitude change ($M = 6.46$, $SD = 2.04$) than the low credibility source ($M = 4.40$, $SD = 1.81$).

More important, a two-way interaction between argument cogency and source credibility emerged ($\beta = .23$, $t(74) = 2.34$, $p < .05$), thus supporting hypothesis 4. This interaction revealed that participants who received an ad containing strong arguments reported significantly more favorable attitudes toward phosphate detergents when credibility was high ($M = 7.40$, $SD = 1.99$) rather than low ($M = 5.36$, $SD = 2.29$; $F(1, 67) = 26.83$, $p < .001$). For the ad containing moderate arguments, the difference in attitudes toward the product between participants under high ($M = 5.48$, $SD = 1.61$) and low ($M = 4.44$, $SD = 1.13$) credibility conditions was marginal ($F(1, 67) = 2.89$, $p = .09$).

Of greatest interest, the three-way interaction between argument cogency, source, and NC was significant ($\beta = 2.87$, $t(70) = 3.08$, $p < .01$). As illustrated in figure 2, these analyses revealed that the two-way interaction between argument cogency and source credibility was restricted to high NCs ($F(1, 36) = 26.30$, $p < .0001$). For these individuals, those who received the strong ad reported significantly more favorable attitudes toward phosphate detergents when credibility was high ($M = 7.96$, $SD = 1.31$) than when it was low ($M = 3.42$, $SD = 2.18$); $F(1, 36) = 46.38$, $p < .0001$. For the moderate ad, however, there was no difference between the high ($M = 4.16$, $SD = .88$) and low credibility

FIGURE 2

EXPERIMENT 2: PRODUCT ATTITUDE AS A FUNCTION OF ARGUMENT COGENCY, COGENCY, NEED FOR COGNITION, AND SOURCE CREDIBILITY



conditions ($M = 4.83$, $SD = .72$; $F(1, 36) = .75$, $p = .39$). This finding supports the self-validation hypothesis prediction that the effects of thought confidence on attitudes depend on the extent to which thoughts have a clear overall valence.

For low NCs, the pattern of results was quite different, with only a significant main effect for source credibility emerging ($F(1, 35) = 8.72$, $p = .006$). Regardless of argument cogency, low NCs showed more favorable attitudes toward the product under high credibility conditions ($M = 6.48$, $SD = 1.95$) than low credibility conditions ($M = 4.78$, $SD = 1.84$). The lack of an argument cogency effect for low NCs is consistent with past research suggesting that low NCs are less likely to elaborate on information contained in a persuasive message and more likely to base their attitudes on peripheral cues (Haugtvedt et al. 1992).

Mediation of the Credibility Effects. One important goal in this study was to determine if thought confidence mediated the effect of source credibility on product attitudes and, if so, how this mediation differed across levels of NC. To examine this issue, we used the technique recommended by Baron and Kenny (1986) and tested the mediation separately for high and low NCs.

For high NCs, we found evidence for the expected mediation. First, there was a significant positive effect of source credibility on product attitudes ($\beta = .51$, $t(35) = 3.51$, $p = .001$) and on confidence in thoughts ($\beta = .83$, $t(35) = 8.69$, $p < .02$). Moreover, there was a significant positive relationship between confidence in thoughts and product attitudes ($\beta = .64$, $t(35) = 4.85$, $p < .001$). However, when both source credibility and confidence in thoughts were included as predictors in the regression equation, confidence in thoughts still predicted product attitudes ($\beta = .68$, $t(35) = 2.83$, $p < .001$), but source credibility did not ($\beta = -.04$, $t(35) = -.20$, $p = .84$). The decrease in the direct effect of credibility on product attitudes was significant ($z = 1.81$, $p = .03$ [one-tailed]). In other words, the effect of source credibility on product attitudes for high NCs was mediated by confidence in thoughts. This finding is consistent with the self-validation predictions (see hypothesis 5). As expected, additional analyses indicated that the mediational pattern occurs in the strong but not the moderate argument conditions.

For low NCs, a different pattern was uncovered. First, for low NCs, there was a significant effect of source credibility on product attitudes ($\beta = .41$, $t(38) = 2.75$, $p < .01$), but there was no effect of source credibility on confidence in thoughts ($\beta = .23$, $t(38) = 1.44$, $p = .15$). There was also no relationship between confidence in thoughts and product attitudes ($\beta = .13$, $t(38) = 0.84$, $p = .40$). Furthermore, when both source and confidence in thoughts were entered as predictors in the regression equation, the direct effect of source remained significant ($\beta = .40$, $t(38) = 2.58$, $p < .01$). Thus, confidence in thoughts did not mediate the effect of source credibility on product attitudes for low NCs. This finding is also consistent with the self-validation hypothesis.

Discussion

Our findings in the second study conceptually replicated the findings from experiment 1 in showing that thought confidence can affect consumer persuasion. The predicted self-validation effects for strong ads (hypothesis 4) were obtained despite changing the product and advertisement, modifying the presentation medium, and inducing differences in thought confidence by experimentally manipulating source credibility. It is important that, while extending the implications of the self-validation processes, we also introduced a new explanation for how source credibility can influence consumer persuasion through changes in thought confidence.

In study 2, argument cogency affected the direction of

participants' cognitive responses, provoking mostly favorable thoughts in response to the strong ad and mixed thoughts in response to the moderate ad. Second, source credibility influenced the confidence with which participants held their thoughts, as predicted by hypothesis 3. Furthermore, in accord with the self-validation hypothesis, thought confidence induced by source credibility influenced persuasion only under high elaboration conditions (high NC). For high NCs, the persuasive impact of source credibility was mediated by changes in thought confidence, which is consistent with hypothesis 5. Furthermore, for high NCs, confidence in thoughts only affected attitude change when a clear profile of thoughts had been produced by the (strong) ad. When the ad contained moderate arguments, however, the thoughts of high NCs were more mixed in terms of favorability and thought confidence no longer mattered. This effect is also consonant with the self-validation notion (hypothesis 4) that thought confidence will impact attitudes only when the thoughts are primarily positive or primarily negative.

For people low in NC, confidence in thoughts did not mediate the attitude effects, which is consistent with prior research suggesting that low elaboration individuals rely on source information as a cue to whether or not they should be persuaded (e.g., Petty et al. 1983). Study 2 thus extended the elaboration likelihood model notion that a given variable can play a number of different roles in the persuasion process, depending on elaboration conditions (Petty and Cacioppo 1986). In the present study, when elaboration was relatively low, credibility served as a peripheral cue. When elaboration was relatively high, however, credibility influenced the confidence with which participants held their thoughts in response to the ad. Because the source credibility information followed the thought-listing task, it could not have affected how much thinking people did or the general valence of the thoughts.

GENERAL DISCUSSION

Prior conceptual treatments of cognitive responses in consumer persuasion have focused on the number and valence of thoughts people generate during ad processing. The present research provides support for another important factor. Specifically, it shows that the confidence people have in the validity of their cognitive responses to advertisements can play a significant role in advertising effectiveness. In accord with the self-validation hypothesis, people's valenced thoughts in response to advertisements became more influential in determining attitudes as thought confidence increased.

It is important to note that, across our studies, the self-validation hypothesis was supported whether thought confidence was measured (experiment 1) or experimentally induced through source credibility (experiment 2). We also used two different kinds of products—a mobile phone (experiment 1) and a phosphate-based laundry detergent (experiment 2). The two studies also used different presentation media (i.e., electronic advertisement vs. print ad). The self-

validation effects were observed across this variety of changes.

Another contribution of the present research is to delineate the conditions under which thought confidence is likely to influence consumer judgments. Based on prior research (Petty et al. 2002), we knew that self-validation effects were confined to high elaboration conditions. We replicated these findings in the present research, but we also extended them by showing that self-validation effects also require that individuals have a clear pattern of valenced thoughts. Again, confidence increased advertising effectiveness when thoughts to the ad were mostly favorable (strong ads; experiments 1 and 2) and decreased it when thoughts were mostly unfavorable (weak ad; experiment 1). However, when thoughts were mixed (moderate ad; experiment 2), the effects of thought confidence on attitudes disappeared because when people's thoughts are in both directions, enhancing confidence in both sides provides no obvious direction for change.

Other Roles for Confidence

In the current studies, thought confidence was measured or manipulated after the ad had been processed and thoughts had been generated. In the second experiment, for instance, source information was provided only after the ad had been observed. It is reasonable to surmise that had confidence been measured or manipulated prior to ad exposure, its role in the persuasion process might have been quite different.

For example, although some researchers have manipulated source credibility following message exposure (e.g., Pratkanis et al. 1988), others have provided source information before the persuasive message and uncovered different effects under high thinking conditions (e.g., Chaiken and Maheswaran 1994). In Chaiken and Maheswaran's (1994) work, participants knew who the source of a persuasive message was prior to message exposure and thought generation. Chaiken and Maheswaran (1994) found that under these conditions, source credibility influenced the direction of issue relevant thought. When presented before the message, source credibility information has also been shown to influence the amount of thinking that takes place, as long as elaboration is not already constrained to be high or low (see Moore et al. 1986).

In accord with the ELM (Petty and Cacioppo 1986), we suggest that thought confidence, like other variables, can take on multiple roles in persuasion settings. When confidence is induced after ad exposure and conditions favor careful information processing, as in the second study and our past research (Petty et al. 2002), it appears to affect confidence in the thoughts that have already been generated. When confidence is induced prior to ad 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 (see Tiedens and Linton 2001). Such an effect would fit well with the idea that, when seeking accuracy, people may process more if their current level of attitudinal

certainty is below the desired level (Chaiken et al. 1989). We further submit that, if thought confidence were induced prior to message exposure and elaboration were constrained to be low (e.g., by distraction), confidence might lead people to rely on their own attitudes as peripheral cues. Were confidence to be induced prior to a message while elaboration was constrained to be high, it might lead to attitudinally biased information processing (Lord, Ross, and Lepper 1979). In any case, the multiple possible roles for confidence should be explored in future research.

Antecedents of Thought Confidence

Within the framework of the ELM (Petty and Cacioppo 1986), the current research presents a new role that variables such as source credibility can take on in persuasion settings. We argue that there may be numerous other source, message, context, and recipient variables that influence advertising effectiveness by affecting consumers' confidence in their own thoughts.

One possibility is that thought confidence might be related to properties of the ad. That is, the confidence with which consumers hold their thoughts might be influenced by characteristics of the ad, such as its structure, length, number of arguments, complexity, and so forth. In the present research, argument cogency was the only manipulated ad property. Based on previous research showing that negative information receives more attention and is weighted more heavily than positive information (e.g., Ahluwalia 2002), one might have expected negative thoughts (from the weak ad) to be held with more confidence than positive thoughts (from the strong ad). However, we did not find a main effect of argument cogency on thought confidence in our two studies, though we did find that, in study 1, people with negative thought profiles generally had higher confidence. Future research should examine when argument cogency or other ad properties (e.g., irrelevant product information; Meyvis and Janiszewski 2002) might influence thought confidence.

Second, temporary receiver characteristics might influence thought confidence. For example, consider research on ease of retrieval, which 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 (Wänke, Bohner, and Jurkowitsch 1997). In one demonstration, Wänke et al. asked participants to generate either one (easy) or 10 (difficult) reasons to drive a given automobile (e.g., BMW). They found that participants favored the automobile more after listing one reason to drive it than after listing 10 reasons. The dominant explanation for this effect has been that one's subjective experience of ease or difficulty in argument generation leads to a simple inference about argument availability (Rothman and Schwarz 1998). This availability inference is postulated to play a larger role in judgment when the extent of cognitive processing is relatively low (e.g., Rothman and Schwarz 1998; Schwarz et al. 1991). In other recent research on the self-validation hypothesis, however, we predicted and found that ease of retrieval effects can be mediated by thought

confidence, such that the easier it is to retrieve thoughts, the more confident individuals are in those thoughts and the more thought-congruent resulting attitudes are (Tormala et al. 2002). Furthermore, consistent with the notion that thought confidence requires sufficient motivation and ability to think and assess one's thoughts, we found that ease of retrieval effects were more likely to occur under high elaboration conditions than under low elaboration conditions. Future research should explore conditions under which ease of retrieval effects might be more pronounced under low versus high elaboration conditions.

Third, the general context in which an ad is presented might have an impact on thought confidence. For example, certain thoughts in response to an ad might be more accessible after a specific context has been primed (Mandel and Johnson 2002; Yi 1990), and the increased accessibility of those thoughts could lead to more thought confidence, as in recent work on ease of retrieval effects (see Tormala et al. 2002).

Fourth, thought confidence might be related to the medium or channel through which an ad is received. For example, it could be useful to examine thought confidence based on information acquired via traditional in-store shopping versus home shopping (by television or catalog). Similarly, it could be useful to compare thought confidence resulting from direct versus indirect experience with a product (i.e., sampling vs. ads; Fazio and Zanna 1978).

Fifth, information about the source of a message appears to affect thought confidence. Aside from source credibility, source characteristics such as attractiveness, similarity, or the number of sources might influence consumer persuasion by affecting thought confidence. This would be a potentially useful direction for future research.

Finally, chronic or stable individual differences might predict thought confidence. To begin with, the two studies presented herein suggest that individuals who are highly motivated to think (high NC) pay more attention to their subjective feelings of thought confidence than individuals who are low in motivation to think (low NC). As a caveat, because elaboration was measured in both studies (rather than manipulated), it is not completely clear why high NC is associated with greater self-validation effects. High NC individuals might not only be more motivated to think about the information they receive but also be more aware of their own thoughts or more sensitive to metacognitive activity, or both. In addition, there might be other individual differences that affect the motivation to attend to and use thought confidence information—for example, self-awareness (Duvall and Wicklund 1972), self-monitoring (Snyder 1974), uncertainty orientation (Sorrentino and Short 1986), self-esteem (Rosenberg 1979), and self-confidence (Bearden, Hardesty, and Rose 2001). Individual differences in ability, prior knowledge, or expertise (e.g., Alba and Hutchinson 1987) could also play a role.

Consequences of Thought Confidence

Conceptually, the current research has attempted to provide a more complete understanding of the cognitive processes underlying consumer persuasion. On a practical level as well, the present research demonstrates that what consumers think about their cognitive responses is a potentially important moderating variable of the attitude-thought relationship. Thus, thought confidence has considerable predictive utility. Just as thought confidence can enhance attitude-thought consistency, it might also have potential implications for attitude-behavior consistency. That is, attitudes based on high thought confidence might be stronger and more predictive of behavior than attitudes based on low thought confidence. Future research might examine whether (or when) attitudes based on highly confident thoughts are more predictive of behavior, more stable over time, more accessible in memory, and more resistant to persuasive challenges than attitudes based on thoughts that are held with low confidence. In general, we think it would be interesting and potentially important to examine whether thought confidence has implications for attitude strength and its numerous consequences.

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