

When credibility attacks: The reverse impact of source credibility on persuasion

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Abstract

Recent research on the self-validation hypothesis suggests that source credibility identified after message processing can influence the confidence people have in their own thoughts generated in response to persuasive messages (Briñol, Petty, & Tormala, 2004). The present research explored the implications of this effect for the possibility that high credibility sources can be associated with more *or less* persuasion than low credibility sources. In two experiments, it is demonstrated that when people generate primarily positive thoughts in response to a message (e.g., because the message contains strong arguments) and then learn of the source, high source credibility leads to more favorable attitudes than does low source credibility. When people have primarily negative thoughts in response to a message (e.g., because it contains weak arguments), however, this effect is reversed—that is, high source credibility leads to less favorable attitudes than does low source credibility.

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Source credibility, which refers to a message source's perceived expertise and trustworthiness (e.g., Kelman & Hovland, 1953), has a rich history in persuasion research. In an early investigation, Hovland and Weiss (1951) demonstrated that high credibility sources produced more attitude change than low credibility sources. In fact, whether the emphasis is on expertise (e.g., Rhine & Severance, 1970) or trustworthiness (e.g., Mills & Jellison, 1967), high credibility sources have typically been found to be more persuasive than low credibility sources (see Petty & Wegener, 1998; Pornpitakpan, 2004). This effect is so widely established that recent attention has focused on understanding the mechanism(s) through which it occurs.

Consistent with the predictions of the elaboration likelihood (ELM; Petty & Cacioppo, 1986; Petty, Wheeler, & Tormala, 2003) and heuristic-systematic (HSM; Chaiken, Liberman, & Eagly, 1989) models of persuasion, researchers have uncovered a number of mechanisms for source

credibility effects. Depending on message recipients' extent of thinking, source credibility has been found to operate as a peripheral cue or heuristic (e.g., Hovland & Weiss, 1951; Kiesler & Mathog, 1968; Petty, Cacioppo, & Goldman, 1981), to bias thoughts (Chaiken & Maheswaran, 1994), to serve as a piece of evidence relevant to the central merits of an issue (Kruglanski & Thompson, 1999), or even to determine the amount of processing that occurs (e.g., DeBono & Harnish, 1988; Eagly, Chaiken, & Wood, 1981; Heesacker, Petty, & Cacioppo, 1983; Priester & Petty, 1995). Most germane to the present concerns, source credibility has also been found to influence the confidence versus doubt people have in the thoughts they generate in response to a persuasive message (Briñol, Petty, & Tormala, 2004).

The self-validation hypothesis

The self-validation hypothesis (Petty, Briñol, & Tormala, 2002) contends that in addition to the two aspects of thinking traditionally emphasized by persuasion researchers—the

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amount and direction of issue-relevant thought (see Eagly & Chaiken, 1993; Petty & Cacioppo, 1986; Petty, Ostrom, & Brock, 1981)—persuasion also depends on the confidence people have in their thoughts (see also Briñol & Petty, 2003; Tormala, Petty, & Briñol, 2002). Thoughts held with high confidence have a strong impact on attitudes, whereas thoughts held with low confidence do not. Thus, according to the self-validation hypothesis, thought confidence can increase or decrease persuasion depending on what thoughts are elicited by a message. When thoughts are primarily favorable, increasing confidence in their validity increases persuasion and increasing doubt about their validity decreases persuasion. When thoughts are primarily unfavorable, however, increasing confidence in their validity decreases persuasion and increasing doubt about their validity increases persuasion.

Recent research has revealed that source credibility can determine the confidence people have in their thoughts about a persuasive message. The logic behind this effect is that source credibility affects the perceived validity of information in a message (e.g., Kaufman, Stasson, & Hart, 1999; see also Fragale & Heath, 2004) and, thus, has implications for the confidence people have in their thoughts based on that information. When thoughts have been generated in response to valid information (high credibility), people can be confident in those thoughts. When thoughts have been generated in response to potentially invalid information (low credibility), people should have less confidence in those thoughts, because the arguments upon which the thoughts are based are suspect. In recent demonstrations, Briñol and colleagues (Briñol et al., 2004; Briñol, Tormala, & Petty, 2002) presented people with messages and measured the thoughts generated in response to these messages. Following the thought listings, Briñol et al. led participants to believe that the messages came from high or low credibility sources, after which they assessed thought confidence and attitudes. These studies revealed that people held their thoughts with greater confidence when the messages came from high rather than low credibility sources. Moreover, this difference in thought confidence had implications for attitude change. More confidence in favorable thoughts led to more persuasion.

In addition to highlighting the role of thought confidence in source credibility effects, the Briñol et al. studies identified some of the limiting conditions on this role. First, Briñol et al. (2002) found that source credibility only affects thought confidence when source information follows the persuasive message. When source information precedes the message, it affects persuasion through other mechanisms (e.g., determining the amount of thinking that occurs or biasing the direction of thoughts people have). In short, source credibility only affects thought confidence when people have already processed the message and generated their thoughts. Furthermore, as predicted by the self-validation hypothesis, Briñol et al. (2004) found that the thought confidence mechanism for source effects is confined to high elaboration, or high thought, instances. Specifically,

Briñol et al. (2004) showed that thought confidence explained source credibility effects among high but not low need for cognition (Cacioppo & Petty, 1982) individuals. Thus, source effects are only guided by thought confidence when people have the motivation and ability to think about their thoughts and gauge their confidence in them.

Although it is as yet untested, the most intriguing implication of the self-validation hypothesis for source credibility is that increasing the credibility of the source of a persuasive message might sometimes undermine the persuasive potential of that message. Specifically, if credibility can influence thought confidence, high credibility might lead to less persuasion than low credibility when message recipients' thoughts are predominantly negative—for example, when the message contains weak arguments (see Petty & Cacioppo, 1986). Indeed, as thought confidence increases, people rely more on their thoughts in forming their attitudes, and more confidence in negative thoughts would lead to more negative attitudes. Unfortunately, the Briñol et al. studies were unable to examine this reverse effect because they did not use any messages that elicited primarily negative thoughts.

The present research was designed to explore the prediction from the self-validation framework that under some conditions high source credibility backfires and results in *less* persuasion than does low source credibility. In two experiments, we presented participants with a strong or weak persuasive message from a high or low credibility source. Based on the Briñol et al. findings, we created high elaboration conditions for all participants, and always presented source information *after* the persuasive message. We predicted that when participants' thoughts were primarily favorable (strong argument conditions), high and low source credibility would be associated with more and less favorable attitudes, respectively. When participants' thoughts were primarily unfavorable (weak argument conditions), we expected to reverse this effect.¹

Experiment 1

Methods

Participants and design

Sixty-nine undergraduates at Ohio State University participated in partial fulfillment of a course requirement.

¹ Past research has shown that high source credibility can sometimes backfire when people receive the credibility information before weak arguments, but the postulated mechanism is different. For example, when recipients learn the source prior to processing the message, increased credibility can lead to increased message processing (e.g., DeBono & Harnish, 1988; Heesacker et al., 1983). To the extent that weak arguments are presented, more processing would result in less persuasion. In addition, Bohner, Ruder, and Erb (2002) argued that weak arguments might violate people's expectancies for experts, leading to more negative thoughts and less persuasion. In the current paper, we explore a different mechanism for high source credibility backfiring under weak argument conditions. Because we manipulated credibility after the message, credibility could not affect the thoughts generated during the message.

They were randomly assigned to conditions in a 2 (source credibility: high or low) \times 2 (argument quality: strong or weak) between-participants factorial design.

Procedure

Upon arrival, participants were welcomed by an experimenter and seated in a room with 10 partitioned computer terminals. Experimental materials were presented using MediaLab research software (Jarvis, 2000). The opening screen led participants to believe that our research pertained to the development of a variety of new aspirin products. Participants were told that we were examining one of these products (“Comfrin”), which had recently received considerable media attention. To motivate careful thinking, participants were told that they were part of a very small group of people being asked to participate in this research, so their responses were very important to us (see Petty, Harkins, & Williams, 1980).

Participants received a persuasive message promoting Comfrin with strong or weak arguments. After the message, participants listed the thoughts they had as they read the message. Ten boxes were provided for their individual thoughts, appearing one at a time on the computer screen. Participants were told to list as many thoughts as they had, but to enter only one per box, and not to worry about spelling or grammar (see Cacioppo & Petty, 1981). Following this procedure, participants were given source information and then completed a series of dependent measures.²

Independent variables

Argument quality. Participants received strong or weak arguments promoting Comfrin. This manipulation was designed to influence the overall valence, or direction, of participants’ thoughts. In both conditions, the arguments were presented on a single computer screen, with a heading that read: *Comfrin: New Strides in Pain Relief*. Thus, the message was framed as arguing in favor of the product. In the strong arguments condition, the message stated that Comfrin works 50% faster than other aspirins, lasts 3 hours longer than other aspirins, has no harmful side effects, and recently received a perfect score of 10 in quality and efficiency testing. In the *weak arguments* condition, the message stated that Comfrin lasts about as long as other aspirins, has very few harmful side effects, contains only small amounts of caffeine and sodium, and recently received a score of 6 out of 10 in quality and efficiency testing.

Source credibility. Following the message and thought listing task, participants received source credibility information. In the *high credibility condition*, participants

were told that the information about Comfrin was taken from a pamphlet from a federal agency that conducts research on medical products. In the *low credibility condition*, participants were led to believe that the information about Comfrin was taken from a class report written by Jonathon Bower (age 14), a local high school freshman. This manipulation was designed to influence perceived source expertise.

Dependent measures

Attitudes. Immediately following the source credibility information, participants reported their attitudes toward Comfrin. Participants rated Comfrin on two semantic differential scales, each ranging from 1 to 9, with the following anchors: *very negative–very positive*, *very much against–very much in favor*. Higher values reflected more favorable attitudes. Responses to these items were highly correlated ($r = .88, p < .001$), so we averaged them to form a global attitude index.

Confidence in thoughts. After reporting their attitudes, participants were asked to think back to the thoughts they listed about Comfrin and rate their overall confidence in them. Participants reported how much confidence they had in their thoughts on a scale ranging from 1 (*none at all*) to 9 (*very much*). This item was adopted from Petty et al. (2002).

Perceived expertise. Following the thought confidence measure, participants were asked to report the extent to which they thought the source of the message was an expert on the topic. Responses were provided on a scale ranging from 1 (*not at all*) to 9 (*very much*).

Self-reported elaboration. To determine if participants were engaging in relatively high elaboration, as intended, we asked them to report how deeply they had thought about the information in the message. Responses were provided on a scale ranging from 1 (*not at all deeply*) to 9 (*very deeply*).

Thought favorability. At the end of the experiment, participants were presented with each of the thoughts they had listed, and were asked to classify each one as positive, negative, or neutral with respect to Comfrin or the persuasive message. As an index of thought favorability for each participant, we subtracted the number of unfavorable thoughts from the number of favorable thoughts and divided the difference by the total number of thoughts listed. Higher values indicated a greater proportion of positive relative to negative thoughts.

Results

All dependent measures were submitted to 2 \times 2 analyses of variance with source credibility and argument quality as the independent variables.

² To assess the potential role of demand characteristics in our experiments, we included thorough debriefings and suspicion probes at the end of each study. Across studies, not a single participant expressed any concern or suspicion about the research, and no one was able to identify the research goal or guess our hypotheses. All participants appeared to accept the cover story at face value.

Preliminary analyses

Extent of thinking. There were no significant differences in self-reported elaboration across conditions, $F_s < 1$. As intended, the grand mean ($M = 5.75$, $SD = 1.77$) was greater than the scale midpoint (5), $t(68) = 3.54$, $p < .01$. Thus, participants reported that they had thought relatively deeply about the information in the persuasive message.

Perceived expertise. Source expertise was perceived as greater in the high ($M = 5.86$, $SD = 2.02$) relative to low ($M = 3.42$, $SD = 1.46$) credibility condition, $F(1, 65) = 31.87$, $p < .001$. There was neither a main effect of argument quality, $F(1, 65) = 2.32$, $p > .13$, nor a credibility \times argument quality interaction, $F < 1$.

Thought favorability. Thoughts were more favorable when participants had been exposed to strong ($M = .26$, $SD = .50$) as opposed to weak ($M = -.76$, $SD = .87$) arguments, $F(1, 65) = 28.75$, $p < .001$. No other effects approached significance, $F_s < 1$.

Primary analyses

Confidence in thoughts. As predicted, thought confidence was greater in the high ($M = 7.03$, $SD = 1.36$) rather than low ($M = 4.76$, $SD = 2.47$) credibility condition, $F(1, 65) = 22.90$, $p < .001$. There was also a significant main effect of argument quality, $F(1, 65) = 5.45$, $p < .03$, suggesting that thought confidence was higher in the weak ($M = 6.51$, $SD = 1.98$) rather than strong ($M = 5.29$, $SD = 2.43$) argument condition. There was also an unexpected marginal interaction, $F(1, 65) = 2.95$, $p < .10$, indicating that the effect of source credibility on thought confidence was slightly greater in the strong (high credibility: $M = 6.88$; low credibility: $M = 3.89$), $F(1, 65) = 20.89$, $p < .001$, rather than weak (high credibility: $M = 7.16$; low credibility: $M = 5.75$), $F(1, 65) = 4.76$, $p < .04$, argument condition, though it was significant in both.

Attitudes. Finally, we analyzed the attitude index. As expected, there was no main effect for source credibility, $F < 1$, but there was a significant main effect for argument quality, $F(1, 65) = 46.30$, $p < .001$. Attitudes were more favorable in the strong ($M = 6.13$, $SD = 2.17$) than weak ($M = 3.21$, $SD = 1.47$) argument condition. This finding was consistent with prior research demonstrating argument quality effects under high elaboration conditions (Petty & Cacioppo, 1986). As predicted by the self-validation hypothesis, though, this effect was qualified by a significant source credibility \times argument quality interaction, $F(1, 65) = 8.62$, $p < .01$ (see Fig. 1). When thoughts were favorable (strong arguments), high credibility was associated with more favorable attitudes than was low credibility, $F(1, 65) = 3.71$, $p < .06$. When thoughts were unfavorable (weak arguments), however, this effect was reversed, $F(1, 65) = 4.96$, $p < .03$. Compared to low source credibility, then, high credibility produced more persuasion when

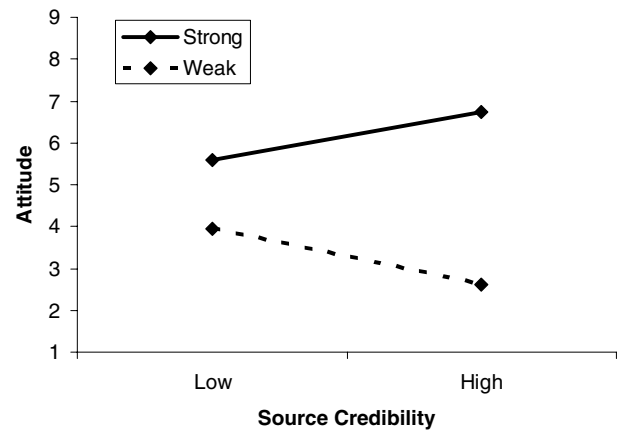


Fig. 1. Attitudes in Experiment 1 as a function of source credibility and argument quality.

message arguments were strong, but less persuasion when message arguments were weak.

Discussion

Experiment 1 demonstrated that source credibility can affect thought confidence, and that increasing source credibility can lead to relatively favorable or unfavorable attitudes, depending on the valence of thoughts elicited by a persuasive message. If a message is strong and produces primarily favorable thoughts, high source credibility is more persuasive than low source credibility. If a message is weak and produces primarily unfavorable thoughts, high source credibility can actually backfire and be less persuasive than low source credibility.

As a caveat to this conclusion, it might be argued that the “weak” arguments in Experiment 1 actually opposed the product. Although the message was framed as promoting Comfrin, some of the arguments were somewhat negative (e.g., although it had very few, there were some harmful side effects). If these arguments were negative, rather than positive but weak, less favorable attitudes could actually be interpreted as suggesting more persuasion—that is, attitudes that were more consistent with the source’s anti-Comfrin position. Given that the potential reversal of credibility effects on attitudes is a unique prediction of the self-validation perspective, it is important to demonstrate that high credibility can be less persuasive than low credibility when the message unambiguously promotes an attitude object, albeit with weak arguments. We addressed this issue in the next experiment.

A final consideration of Experiment 1 relates to a potential ambiguity in the thought confidence measure. Although participants were asked to report the thoughts they had while reading the persuasive message, it is possible that participants rated their confidence in thoughts occurring to them both during and after the message and source information. Given that our primary interest is in the notion that participants’ confidence in the thoughts they already had can be influenced by subsequent source information,

we focused this measure on those thoughts in the next experiment.

Experiment 2

Methods

Participants and design

One hundred and six undergraduates at Indiana University participated in partial fulfillment of a course requirement. They were randomly assigned to conditions in a 2 (source credibility: high or low) \times 2 (argument quality: strong or weak) between-participants factorial design.

Procedure

In general, this experiment closely paralleled Experiment 1, with a few exceptions. First, we used a different attitude object. The opening computer screen led participants to believe our research addressed the development and marketing of phosphate-based laundry detergents. We selected this topic because participants were likely unfamiliar with it, and because it has been used successfully in previous research involving source manipulations (see Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). We instructed all participants to pay close attention using the same strategy as before. Following the introduction, participants received a persuasive message in favor of phosphate detergents containing strong or weak arguments, after which they listed the thoughts they had during the message. The thought listing procedure was the same as in Experiment 1. Participants then received source credibility information and completed dependent measures.

Independent variables

Argument quality. Participants received a message containing strong or weak arguments in favor of phosphate detergents. As in the last experiment, this manipulation was designed to influence thought valence. Of importance, though, the message was designed (and pretested) to argue unambiguously in favor of phosphate detergents in both the strong and weak argument conditions. In both conditions, arguments were presented on a single screen, with a heading that read: *The Benefits of Phosphate-Based Laundry Detergents*. Complete messages can be found in Appendix A.

Source credibility. Following the message and thought listing, participants received either high or low source credibility information. In this experiment we manipulated source trustworthiness. In the *high credibility condition*, participants were told that the information in the message was taken from a pamphlet from a consumer advocacy group that investigates products with the express purpose of helping consumers make sound decisions. In the *low credibility condition*, participants were led to believe that the information in the message was taken from a pamphlet from a major soap and detergent manufacturer that sells phos-

phate detergents and, thus, encourages people to use them. Given its clear vested interest in the product, the latter source was expected to be viewed skeptically.

Dependent measures

Attitudes. Immediately following the source credibility manipulation, attitudes toward phosphate detergents were assessed using one general item, taken from Experiment 1. Specifically, participants rated phosphate detergents on a scale ranging from 1 (*very negative*) to 9 (*very positive*).

Confidence in thoughts. After reporting their attitudes, participants were asked to indicate their overall level of thought confidence using the same item as in Experiment 1. However, the instructions preceding this item were modified such that they clearly directed participants to indicate their confidence in the thoughts they had *during* (i.e., while they were reading) the message.

Source trustworthiness. To measure source perceptions, we asked participants to rate the source of the message on a scale ranging from 1 (*not honest at all*) to 9 (*very honest*).

Self-reported elaboration. Self-reported elaboration was assessed using the same measure as before.

Thought favorability. At the end of the experiment, participants classified each of the thoughts they listed as positive, negative, or neutral with respect to phosphate detergents or the persuasive message. An index of thought favorability was computed in the same manner as before.

Results

All dependent measures were submitted to 2 \times 2 analyses of variance with source credibility and argument quality as the independent variables.

Preliminary analyses

Extent of thinking. There were no effects on the self-reported elaboration measure, $ps > .20$. Again, the grand mean ($M = 5.53$, $SD = 2.06$) was greater than the scale midpoint (5), $t(105) = 2.64$, $p < .01$, suggesting a high degree of thought overall.

Perceived trustworthiness. The source was perceived to be more honest in the high ($M = 5.07$, $SD = 1.91$) rather than low ($M = 3.94$, $SD = 1.64$) credibility condition, $F(1, 102) = 10.31$, $p = .002$. There were no other effects on this index, $F_s < 1$.

Thought favorability. Thoughts were more favorable in the strong ($M = .36$, $SD = .61$) rather than weak ($M = -.08$, $SD = .90$) argument condition, $F(1, 102) = 7.95$, $p < .01$. No other effects were significant, $F_s < 1.5$, $ps > .22$.

Primary analyses

Confidence in thoughts. As predicted, source credibility affected thought confidence, $F(1,102) = 16.79, p < .001$, such that participants reported more confidence in their thoughts when the source was high ($M = 6.53, SD = 1.69$) rather than low ($M = 5.08, SD = 2.27$) in trustworthiness. Unlike Experiment 1, there was no main effect for argument quality, $F(1,102) = 1.21, p > .27$. There was also no interaction, $F(1,102) = 2.09, p > .15$.

Attitudes. Replicating Experiment 1, there was no main effect of source credibility on attitudes, $F < 1$, but there was a significant effect for argument quality, $F(1,102) = 16.83, p < .001$. Attitudes were more favorable following strong ($M = 6.91, SD = 1.75$) rather than weak ($M = 5.44, SD = 1.91$) arguments. Of greatest importance, there was a significant interaction between source credibility and argument quality, $F(1,102) = 10.72, p = .001$. As illustrated in Fig. 2, under strong argument conditions, attitudes were more favorable when source credibility was high rather than low, $F(1,102) = 6.72, p < .02$. Under weak argument conditions, attitudes were more favorable when source credibility was low rather than high, $F(1,102) = 4.00, p < .05$.

Discussion

Experiment 2 provided more evidence for the reverse effect of credibility on attitudes under weak argument conditions, using a weak message that clearly promoted the attitude object. Thus, Experiment 2 bolsters the self-validation prediction that when message arguments are weak, high source credibility following a message can actually backfire and result in less persuasion than low source credibility. We also advanced the findings from the first experiment by obtaining the predicted effects despite using a different manipulation of source credibility, focusing on trustworthiness rather than expertise. Apparently, discrediting a message by associating it with either a non-expert or an untrustworthy source can undermine the confidence people have in the thoughts they generated in response to

that message. Finally, we used greater specification in our thought confidence measure in Experiment 2 to insure that participants were rating the thoughts that occurred to them during the message.

General discussion

The current research examined the predictions of a new framework for source credibility effects in persuasion. As predicted by the self-validation perspective, the confidence people had in their cognitive responses to a persuasive message was affected by the credibility of the source of that message. Two experiments provided evidence consistent with this notion, despite changes in the attitude objects, messages, and source credibility manipulations. Most crucial to the present concerns, our perspective had unique implications for the direction of source credibility effects. When the persuasive message was strong, high credibility sources produced more persuasion than did low credibility sources. When the persuasive message was weak, high credibility sources produced *less* persuasion than did low credibility sources. Thus, high source credibility can backfire relative to low source credibility. This finding adds to a growing body of evidence suggesting that the self-validation framework can enhance our understanding of a variety of paradoxical effects in persuasion (e.g., head shaking yielding more persuasion than head nodding, Briñol & Petty, 2003; generating few arguments yielding more persuasion than generating many arguments; Tormala et al., 2002).

It is important to note that in past research (e.g., Briñol et al., 2004) we have argued that there must be a clear profile of valenced thoughts for thought confidence to affect attitude change. In Experiment 1 of the present research, thoughts were clearly positive and negative in the strong and weak argument conditions, respectively. In Experiment 2, however, the pattern was not as clear. In particular, one might ask why attitudes in the weak argument condition became more negative as thought confidence increased when the mean for the thought favorability index in that condition was only $-.08$. Although $-.08$ was not significantly different from zero, other measures of central tendency suggested that it was more appropriate to view thoughts in this condition as negative rather than neutral. Indeed, the median and mode thought favorability scores in this condition were $-.33$ and -1.0 , respectively. Thus, several measures of central tendency suggested that thoughts were leaning in the negative direction. Based on this tendency we argue that, on average, participants likely *perceived* their thoughts to be negative. In fact, from past research on positivity offset and the negativity bias, we know that stimuli that are just mildly negative often garner considerable attention due to people's general expectancies for positivity (e.g., Cacioppo, Gardner, & Bernston, 1997). This type of phenomenon may have led participants to view their thoughts as rather negative in the weak argument condition. As long as most participants perceived their

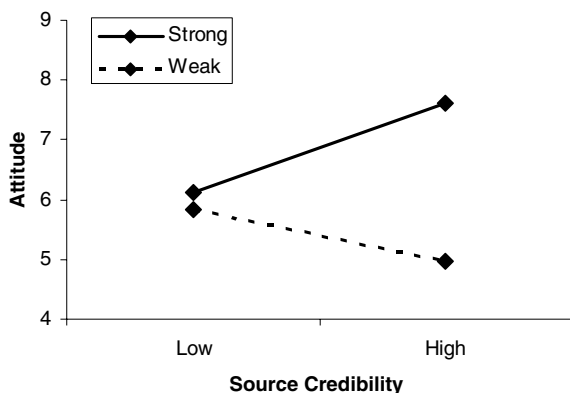


Fig. 2. Attitudes in Experiment 2 as a function of source credibility and argument quality.

thoughts to be at least somewhat negative (which, according to their thought ratings, they did), increasing thought confidence would be expected to make attitudes more negative as well.

Conclusion

Metacognitive factors have been the focus of increased attention in recent attitudes and persuasion research (see Petty, Briñol, Tormala, & Wegener, in press, for a review). The self-validation hypothesis (e.g., Petty et al., 2002) focuses on one specific type of metacognition—thought confidence. The goal of the current research was to understand the implications of thought confidence for source credibility effects in persuasion. By considering the role of thought confidence, we predicted and found that a high credibility source can yield either more or less persuasion than a low credibility source, depending on the nature of people's thoughts in response to a persuasive message. This pattern of results expands our understanding of the dynamic nature of source effects in persuasion. It is our hope that this research will stimulate fresh perspectives on classic topics in the attitudes and persuasion domain.

Appendix A. Strong message in Experiment 2

Among the various brands of laundry detergents currently on the market, those containing phosphates are far and away the best. To begin with, phosphate detergents are considerably less expensive than non-phosphate detergents. This is partly because they are cheaper to make, and also packaged more efficiently, which decreases consumer cost. Furthermore, phosphate detergents are vastly superior in cleaning power to other detergents. They clean clothes more thoroughly and leave them smelling much better compared to other forms of detergent. As a result, they allow clothes to be cleaned less frequently, which further reduces detergent costs and extends the life of clothing. Perhaps because phosphate detergents are cheaper and more effective, they have consistently topped the charts in customer satisfaction over the past few years.

Perhaps more important, phosphate detergents are significantly less harmful to the environment than non-phosphate detergents. Indeed, for ordinary household use, it is now widely accepted that phosphate detergents are the cleanest and safest type of detergent on the market. In fact, non-phosphate detergents typically contain EDTA, a chemical additive associated with harmful environmental consequences even in small amounts. Thus, it is wisest to use phosphate detergents for household laundry.

Weak message in Experiment 2

Among the various brands of laundry detergents currently on the market, it appears that those containing phosphates are the ones to buy. To begin with, phosphate detergents are less expensive than traditional detergents.

This is because manufacturers are offering mail-in rebates, ranging in value from 10 to 15 cents, depending on the size of the purchase. That translates into savings of up to 1.4%! These rebates usually arrive within a few months of being mailed. In addition, the packaging of phosphate detergents is specially designed to be more visually appealing, often containing bright colors and modern patterns. This enhances the appearance of detergent containers, meaning you no longer have to find cabinet space to store them. In fact, you might leave them out in the open as pieces of art.

How effective are phosphate detergents? Well, they excel in this department too. Phosphate detergents have been found to be useful in cleaning a wide range of materials! In fact, phosphate detergents have been shown in clinical tests to help reduce stains. Another feature of these detergents is that they have no scent, so your clothes will always smell like you. Bolstering these facts are results from recent surveys conducted at supermarkets around the country. At one store, 7 out of 10 shoppers said they would take a free sample of phosphate detergents to try at home. One woman, Cynthia Thompson, remarked, "That's a pretty good deal. I'll give it a try." Mrs. Thompson's husband, a middle school math teacher, shared her enthusiasm. "If it ends up working," he said, "I'll recommend it to parents."

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