
Resistance to Persuasion and Attitude Certainty: The Moderating Role of Elaboration

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Recent research (Tormala & Petty, 2002) has demonstrated that when people resist persuasive attacks, they can under specifiable conditions become more certain of their initial attitudes. The present research explores the role of elaboration in determining when this effect will occur. Using both self-reported differences in situational elaboration (Study 1) and chronic individual differences in the need for cognition (Study 2), it is demonstrated that resisting persuasion increases attitude certainty primarily when elaboration is high. When elaboration is low, resisting persuasion does not appear to impact attitude certainty. These findings shed light on the role of metacognitive factors in resistance to persuasion, pinpointing the conditions under which these factors come into play.

Keywords: attitudes; persuasion; resistance; attitude strength; metacognition; certainty

The study of metacognition, or people's awareness of their own cognitive states and processes, has become increasingly important within social psychology in recent years (e.g., see Bless & Forgas, 2000; Jost, Kruglanski, & Nelson, 1998; Yzerbyt, Lories, & Dardenne, 1998). The impact of metacognitive perspectives in the areas of attitude change and persuasion, however, is of more recent vintage. Nevertheless, as has been discovered (e.g., Petty, Briñol, & Tormala, 2002; Petty, Wegener, & White, 1998; Tormala & Petty, 2002), metacognitive perspectives have a lot to offer in these areas. The present research addresses the role of metacognition in resistance to persuasion, asking under what conditions certain kinds of metacognitive factors are most likely to come into play when people resist persuasive attacks.

In a recent investigation of the role of metacognition in resistance to persuasion, Tormala and Petty (2002)

explored the possibility that when people resisted persuasive attacks, they could perceive this resistance and form specifiable attribution-like inferences about their own attitudes. In addition, Tormala and Petty sought to determine whether these inferences had implications for attitude certainty, which refers to a person's subjective sense that his or her attitude is correct, or valid (see Gross, Holtz, & Miller, 1995, for a review). In a series of experiments, Tormala and Petty presented participants with a counterattitudinal message, which they were instructed to counterargue. The results indicated that after resisting persuasion, people became more certain of their initial attitudes than they were in the first place, as long as they both perceived that they resisted and believed the resisted persuasive attack was strong. When people resisted a persuasive attack perceived to be weak, attitude certainty was unchanged, presumably because resisting a feeble attack was less diagnostic regarding the validity of the initial attitude. Lending support to their metacognitive framework for these effects, Tormala and Petty held actual message strength constant across conditions and varied the mere perception that the attack was strong or weak. Furthermore, Tormala and Petty found that participants' counterarguments did not differ in any measurable way across the perceived strong and weak message conditions. Thus, even though people resisted the same message in the same way and to the

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same degree, only those who believed it was strong showed an increase in attitude certainty.

Consistent with past research on attitude certainty (Bassili, 1996; Fazio & Zanna, 1978; Gross et al., 1995; Wu & Shaffer, 1987), the Tormala and Petty (2002) research revealed that the certainty effects had implications for other important evaluative outcomes. Specifically, they found that when people became more certain of their attitudes, these attitudes also became more predictive of behavioral intentions and more resistant to a subsequent persuasive attack. When people resisted persuasion but did not become more certain, their attitudes did not show these consequences. Therefore, understanding the effects of resistance on attitude certainty, and the conditions under which these effects emerge, is an important undertaking.

Prior to the work by Tormala and Petty (2002), attitude change and resistance research had been guided by the assumption that when people resisted persuasive attacks, their initial attitudes were completely unchanged.¹ Implicit in this assumption was the notion that when a would-be persuader was unsuccessful in modifying a target attitude, he or she had at least done no harm to his or her cause. The Tormala and Petty findings undermined this assumption, indicating instead that unsuccessful persuasive attacks can backfire by increasing the strength of the target attitude. In short, failed persuasion can actually harm the cause of the would-be persuader.

THE PRESENT RESEARCH

The goal of the present research is to expand our understanding of the conditions under which resisting persuasion will increase attitude certainty. We investigate the role of elaboration in this regard. That is, we examine whether message recipients' extent of thinking moderates the impact of resistance on attitude certainty. According to the elaboration likelihood model (ELM; Petty & Cacioppo, 1986; Petty & Wegener, 1999) and heuristic-systematic model (HSM; Chaiken, Liberman, & Eagly, 1989) of persuasion, elaboration is important to understanding attitude change. To begin with, it has been shown to determine the role a given variable will play in persuasion (e.g., Chaiken & Maheswaran, 1994; Petty, Schumann, Richman, & Strathman, 1993). For example, although source credibility can affect persuasive outcomes under both high and low elaboration conditions, the mechanism through which the effect occurs is different when elaboration is high versus low (e.g., Briñol, Petty, & Tormala, 2004; Chaiken & Maheswaran, 1994). Elaboration also has been shown to determine how strong a given attitude will be following attitude formation or change. Specifically, attitudes formed through high elaboration tend to be stronger (e.g.,

more stable over time, more resistant to persuasion, more predictive of behavior) than attitudes formed through low elaboration (e.g., Cacioppo, Petty, Kao, & Rodriguez, 1986; Haugtvedt & Petty, 1992; see Petty, Haugtvedt, & Smith, 1995, for a review).

What is the role of elaboration in determining the effect of resistance on attitude certainty? Based on our metacognitive framework for these effects, we suspect that resistance is most likely to boost certainty when elaboration is high. Consistent with this notion, the original Tormala and Petty (2002) experiments were conducted under conditions that likely induced relatively high levels of elaboration. As we will explain shortly, though, it is theoretically possible that resisting persuasion increases attitude certainty under low elaboration conditions as well, although the mechanism for such an effect would presumably be quite different. In other words, just as source credibility (in addition to other variables) has been shown to influence persuasion under high and low elaboration conditions through different mechanisms, it is possible that resistance fosters certainty at both high and low levels of elaboration through different mechanisms. Given the implications of elaboration for the strength and long-term consequences of attitudinal judgments (Petty et al., 1995), it is important to identify the conditions under which resistance does or does not increase attitude certainty.

Evidence Favoring High Elaboration

Recent work on the self-validation hypothesis (Briñol et al., 2004; Petty et al., 2002; Tormala, Petty, & Briñol, 2002) suggests that people pay more attention to metacognitive information when they are highly motivated and able to think. Petty et al. (2002), for example, assessed participants' cognitive responses (i.e., thoughts) to persuasive communications and measured (or manipulated) their confidence in these cognitive responses. Petty et al. found that confidence in thoughts played an important role in determining attitude change or resistance, but only when elaboration was high—for instance, when individuals were high in need for cognition (Cacioppo & Petty, 1982) or topics were high in personal relevance (Petty & Cacioppo, 1979b). When elaboration was low (e.g., low need for cognition, low personal relevance), the impact of this metacognitive information was attenuated.

Based on these findings, and the metacognitive perspective we take in the present research, we expect resisting persuasion to increase attitude certainty particularly when people are motivated and able to engage in extensive information processing. As mentioned earlier, supporting this prediction is the fact that each of the prior experiments examining the effect of resistance on certainty (Tormala & Petty, 2002) likely induced high moti-

vation to think. Indeed, the target issue in each experiment was counterattitudinal and personally relevant to participants so it presumably elicited considerable elaboration (see Petty & Cacioppo, 1986). In addition, participants were explicitly instructed to think carefully about the information that was presented. Thus, the findings were compatible with the position that people attend to and reflect on their own resistance when motivation to think is high. Nevertheless, because that research was not designed to address this question, there was no low elaboration group against which to compare the results.

Evidence Favoring Low Elaboration

In contrast to the notion that these effects only emerge when elaboration is high, it is also possible that resistance increases attitude certainty under low elaboration conditions, albeit through a different mechanism. For example, given that the impact of resistance on certainty is argued to stem from people's perceptions of their own reactions (i.e., resistance) to a persuasive communication, the effect might be viewed as parallel to work on self-perception theory (Bem, 1965). According to self-perception theory, when people's internal states (e.g., attitudes) are ambiguous or unclear, people will infer these states from their observations of their own behavior. Moreover, research on this phenomenon has shown that people rely on self-perception inferences more when elaboration is relatively low compared to when it is relatively high. Taylor (1975), for example, asked female participants to evaluate pictures of men and gave them false feedback regarding their physiological reactions to the pictures. When asked to report their liking of the men, participants relied more heavily on their (false) perceptions of their own physiological responses when the relevance of the task (and thus the likelihood of thinking) was low rather than high. These findings have been conceptually replicated by others (see Chaiken & Baldwin, 1981; Wood, 1982). Thus, if people observe their own behavior (i.e., resistance) and form inferences about the underlying characteristics of their attitudes based on this observation, resistance might affect certainty when elaboration is relatively low.

Of course, perceiving one's own resistance (a largely cognitive phenomenon) is quite different from perceiving one's own behavior, as is typical in self-perception research. In the self-perception literature, the focus is usually on some rather salient overt behavior in which one has just engaged (or an ostensible physiological reaction, as in Taylor, 1975), making inferences that follow from this behavior a relatively simple matter. Perceiving one's own resistance to persuasion, however, may be a more elaborative cognitive phenomenon. In the Tormala and Petty (2002) research, for instance, the

effects depended on people attending to internal characteristics (i.e., whether their attitudes changed) and correcting for subtle situational factors (i.e., whether the message resisted was perceived to be strong or weak). This process presumably required a higher level of thought (Gilbert, Pelham, & Krull, 1988; Wegener & Petty, 1995). In short, taking a self-perception approach to the effects of resistance on attitude certainty would lead to the prediction that these effects can occur under relatively low elaboration conditions. However, the attributional reasoning involved in increasing certainty after resistance appears to be relatively complex. Therefore, we thought it was more likely that these effects would occur under relatively high levels of elaboration.

STUDY 1

Our first study was designed to provide an initial test of the hypothesis that the effects of resisting persuasion on attitude certainty are greater when elaboration is relatively high. In this study, we presented participants with a counterattitudinal persuasive message advocating a new policy at their university. To induce resistance to persuasion, we instructed participants to carefully read and counterargue the message, which they were led to believe was composed of either strong or weak arguments. At the end of the session, all participants were asked to report the extent to which they had thought about and elaborated on the persuasive message.

Method

PARTICIPANTS AND PROCEDURE

Thirty-one undergraduates from Ohio State University participated in partial fulfillment of a requirement for their introductory psychology course. Each participant was randomly assigned to one of two experimental conditions (the perceived strong message condition or the perceived weak message condition) and completed measures of self-reported elaboration. All sessions were conducted on computers using MediaLab 2000 software (Jarvis, 2000).

When participants arrived, they were seated in a room containing eight computer stations with partitions between them. They were welcomed to the session and were asked to read instructions on their monitors and begin the experiment. The opening screen informed participants that their university had recently begun to consider implementing senior comprehensive exams as a graduation requirement in the very near future. They were told that students who failed these exams would be required to enroll in remedial course work and then successfully retake the exam before they would be allowed to graduate. We told participants that we were interested in assessing students' reactions to this policy. Along these

lines, participants were instructed that we were interested in collecting the arguments they might raise against comprehensive exams, so after reading the proposal, they would be asked to list as many counterarguments as they could. Previous research has shown these kinds of instructions to be an effective way to induce resistance (Killeya & Johnson, 1998; Tormala & Petty, 2002). Participants were then exposed to the proexam message, and they generated a list of counterarguments against it. Counterarguments were entered individually on a series of computer screens (see Tormala & Petty, 2002). No specific number of counterarguments was requested. Participants were permitted to list as many or as few counterarguments as they wanted. Finally, participants completed measures of attitudes, attitude certainty, and situational elaboration. At the end of the session, all participants were debriefed.

MESSAGE MANIPULATION

Participants were assigned to one of two conditions: the perceived strong message condition or the perceived weak message condition. In each condition, participants actually read the same persuasive message. This manipulation, adopted from Tormala and Petty (2002), was designed to isolate the proposed metacognitive mechanism by varying the perception of how strong or weak the message was while holding actual message strength constant. The actual message all participants read contained two strong and two weak arguments adapted from Petty and Cacioppo (1986). Specifically, participants read arguments indicating that implementing the exam policy would improve grades (strong), allow the university to take part in a national trend (weak), increase the average starting salary of graduates (strong), and allow students to compare their scores with those of students at other universities (weak). Based on random assignment, however, the message was explicitly described as strong or weak (the manipulated word is in parentheses):

Beginning on the next screen is a summary of the Board's proposal to implement comprehensive exams. In order to get reactions to all kinds of arguments in favor of the exam policy, we are presenting some students with strong arguments and some with weak arguments. In this experiment, we have included only the strongest (weakest) arguments raised in favor of the exam policy.

MEASURES

Attitudes. Following the message and counterargument procedure, participants reported their attitudes toward comprehensive exams. Participants rated comprehensive exams on three 1 through 9 semantic differential scales with the following anchors: *good-bad*, *favorable-unfavorable*, and *positive-negative*. On each scale,

higher numbers reflected more favorable attitudes. Internal consistency was quite high ($\alpha = .98$) so responses were averaged to form a composite attitude index.

Attitude certainty. After reporting their attitudes, participants completed an attitude certainty measure, which contained a single question: "How certain are you of your attitude toward comprehensive exams?" This item was adapted from prior research (Fazio & Zanna, 1978; Tormala & Petty, 2002). Responses were provided on a 1 through 9 scale anchored at *not at all certain* and *extremely certain*.

Self-reported elaboration. At the end of the experiment, participants were presented with four items designed to assess self-reported situational elaboration (adapted from Petty et al., 2002). In summary, these items asked participants how much attention they paid to the message, how much effort they put into reading the message, how personally involved they felt with the exam issue, and how deeply they had thought about the issue. Responses were provided on 1 through 9 scales anchored at *none (not) at all* and *very much*. Responses had high internal consistency ($\alpha = .93$) so we averaged them to form an overall index of self-reported elaboration. This index was not affected by the message manipulation, $F < 1$.

Counterarguments. We also analyzed the counterarguments participants generated against comprehensive exams. To begin with, we examined the number of counterarguments generated. This analysis was conducted to address the possibility that differences in the extent of counterarguing could account for any effects with respect to attitude certainty. We also examined the quality of the counterarguments. Two judges, unaware of experimental conditions and hypotheses, rated each counterargument listed on a scale ranging from 1 to 9, anchored at *not at all convincing* and *extremely convincing*. Each participant ended up with two quality scores, one representing the average of the individual argument ratings from one judge and the other representing the average of the individual argument ratings from the other judge. Mean quality ratings of the two judges were highly correlated ($r = .83$, $p < .001$) so we averaged them to form a single index.

Results

ATTITUDES

We began by submitting the attitude data to a hierarchical regression analysis where self-reported elaboration was treated as a continuous predictor variable and perceived message strength was dummy coded (0 = perceived weak, 1 = perceived strong). We centered the elaboration index (i.e., set the mean to zero; see Aiken &

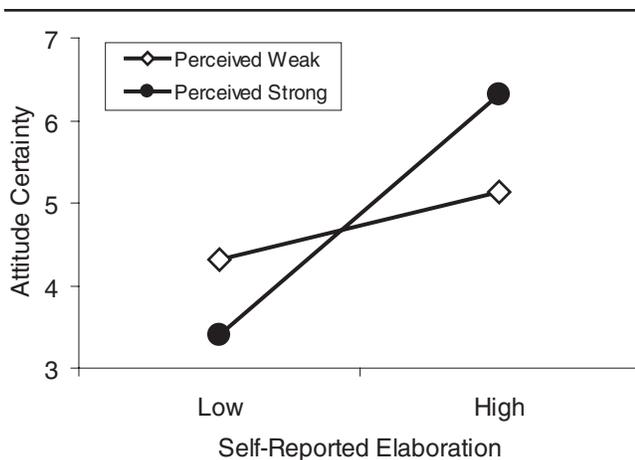


Figure 1 Attitude certainty in Study 1 as a function of perceived message strength (strong or weak) and self-reported elaboration (at +1 *SD* and -1 *SD* of the mean of the elaboration index).

West, 1991) and followed the standard hierarchical regression procedures outlined by Cohen and Cohen (1983): Elaboration and perceived message strength were entered first to test for main effects and their product was entered next to test for the interaction. As expected, there were no main effects for either perceived message strength, $\beta = -.12$, $t(26) = -.63$, $p > .53$, or self-reported elaboration, $\beta = -.30$, $t(26) = -1.61$, $p > .12$, and there was no Elaboration \times Perceived Message Strength interaction, $\beta = -.35$, $t(25) = -1.35$, $p > .18$.

ATTITUDE CERTAINTY

Analysis of the attitude certainty data revealed a different picture. First, although there was no main effect for the perceived message strength manipulation, $\beta = .11$, $t(26) = .75$, $p > .45$, there was a significant relationship between attitude certainty and self-reported elaboration, $\beta > .62$, $t(26) = 4.09$, $p < .001$. The positive direction of this relation suggests that as self-reported elaboration increased, attitude certainty also increased, which is consistent with past research on elaboration and attitude strength (e.g., Petty et al., 1995). More germane to the present concerns, the interaction between perceived message strength and self-reported elaboration significantly predicted attitude certainty, $\beta = .53$, $t(25) = 2.76$, $p < .02$. As illustrated in Figure 1, this interaction conformed to the expected pattern. That is, perceived message strength had a significant effect on attitude certainty for high elaboration participants (analyzed at +1 *SD* of the self-reported elaboration index), $\beta = .44$, $t(25) = 2.45$, $p < .03$. Under these conditions, participants were more certain of their attitudes after resisting a message believed to be strong than after resisting a message believed to be weak. For low elaboration participants (analyzed at -1 *SD* of the self-reported elaboration

index), the effect of perceived message strength on attitude certainty was not significant, $\beta = -.38$, $t(25) = -1.70$, $p > .10$.

COUNTERARGUMENTS

As in past research, we also were interested in determining if there were any differences in counterarguing across conditions and, if so, whether these differences could account for the attitude certainty findings. First, we examined the extent of counterarguing in which participants engaged. Neither perceived message strength nor self-reported elaboration predicted the number of counterarguments, $ps > .41$. The interaction between these variables was also not significant, $\beta = -.37$, $t(25) = -1.38$, $p = .18$. We next analyzed the quality, or convincingness, of participants' counterarguments. There was a significant relationship between self-reported elaboration and the quality of counterarguments, $\beta = .57$, $t(26) = 3.41$, $p < .01$. As elaboration increased, the quality of counterarguments also increased. However, neither the main effect of perceived message strength, $\beta = -.05$, $t(26) = -.30$, $p > .76$, nor the Perceived Message Strength \times Elaboration interaction, $\beta = .32$, $t(25) = 1.38$, $p > .18$, approached significance. Thus, the interaction uncovered in the certainty data could not be accounted for by differences in the number or quality of participants' counterarguments.

Discussion

The findings from Study 1 matched our expectations. Specifically, when participants counterargued a persuasive attack and elaboration was high, they were more certain of their attitudes when they believed the attack was strong than when they believed it was weak. As elaboration decreased, this effect disappeared. Thus, the findings reported by Tormala and Petty (2002) were confined to the high elaboration conditions. As indicated by the analysis of the counterargument data, the interaction between perceived message strength and level of elaboration on attitude certainty could not be accounted for by differences in either the number or quality of counterarguments generated. This null result is consistent with the metacognitive framework proposed to account for these findings. Indeed, it appears that the certainty effect under high elaboration was driven by participants' perceptions of the message they had counterargued rather than any systematic differences in their actual resistance.

As an aside, it is perhaps worth noting that although the pattern of the interaction in Study 1 resembles the typical pattern of results shown on attitudes when actual argument quality is manipulated (i.e., a larger effect for argument quality when elaboration is high rather than low; see Petty & Cacioppo, 1986), the current effects are

in fact very different. Again, in the current study, the interaction is shown to occur with respect to attitude certainty, not the attitude ratings themselves, and the manipulation involves perceived argument quality, whereas actual argument quality was constant across conditions.

In short, the results of Study 1 extended prior findings regarding resistance and attitude certainty and were compatible with predictions. There are, however, caveats to be addressed. First, Study 1 did not have a control condition. Thus, it is impossible to be sure that resistance actually occurred in the first place (i.e., relative to baseline). It could be that although no differences in attitudes emerged from the regression analysis, all participants (on average) were persuaded by the attack. We suspect that this was not actually the case given that we used the same counterargument instructions and same persuasive messages as in the Tormala and Petty (2002) research, which did have control conditions and confirmed that resistance was occurring. Nevertheless, some ambiguity remains in the present study. Also relevant, the absence of a control condition makes the direction of the certainty effect unclear. We argue that certainty increased in the perceived strong condition for high elaboration participants. However, a control group would lend more credence to this claim.

A second, more important caveat might be raised with respect to our self-report measure of situational elaboration. Although this type of measure has proven effective in past research (e.g., Petty et al., 2002), it does carry some limitations. For example, because it taps transient (situational) differences in extent of thinking, it is potentially vulnerable to a host of contextual factors. Of course, as noted already, self-reported elaboration was not affected by the perceived message strength manipulation in Study 1. Nevertheless, given the importance of elaboration in the present research, we used a different operationalization of elaboration in Study 2—one that assesses stable, or chronic, individual differences in the motivation to think.

STUDY 2

In Study 2, we sought to replicate the findings from the first study while simultaneously addressing the issues it raised. First, we included a control condition. This condition permitted us to determine not only whether resistance occurred but also whether certainty increased relative to baseline, as predicted. In addition, we assessed the role of elaboration in this study using a highly reliable individual difference measure of motivation to think—the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984). Need for cognition (NC) has been shown in an extensive body of research to be a robust and effective measure of individual differences in information pro-

cessing (for a review, see Cacioppo, Petty, Feinstein, & Jarvis, 1996). We predicted that resisting a persuasive attack viewed as strong would increase attitude certainty when NC was relatively high, but not when NC was relatively low, even though the resistance itself would be essentially the same.

Method

PARTICIPANTS AND DESIGN

Forty-eight Ohio State University undergraduates participated in partial fulfillment of a requirement for their introductory psychology courses. Participants were randomly assigned to one of three message conditions (perceived strong, perceived weak, or control) and completed the 18-item version of the NC Scale (Cacioppo et al., 1984). Due to computer failure, 2 participants failed to complete the NC Scale and were removed from the data file, leaving a total sample size of 46 for all analyses.

PROCEDURE

All sessions were conducted on computers using MediaLab 2000 software (Jarvis, 2000). When participants arrived, they were seated in a room containing eight computer stations with partitions between them. The experimenter welcomed all participants to the session and asked them to read the instructions on their computer monitors and begin the experiment. Participants were led to believe that they were taking part in a market research study investigating people's reactions to advertisements. Participants in the two persuasive message conditions (i.e., perceived strong and perceived weak) were instructed more specifically that we were interested in the counterarguments, or negative thoughts, people could generate against advertisements. These participants read that they would be exposed to an ad and would be asked to list their "arguments against the product and/or advertisement" after they viewed it. They were encouraged to think of these counterarguments as they viewed the ad. Control participants did not receive the counterargument induction or the advertisement.

Following these general instructions, all participants learned that they would be reading about a new aspirin product called Comfrin. They were told that Comfrin had already received some negative press because, in trials, "human test subjects" complained that the pills were difficult to swallow and unpleasant tasting. Furthermore, participants were told that the aspirin contained a chemical additive that was "harmless to humans who ingest it but potentially damaging to the environment when produced in mass quantities." This information was intended to create somewhat unfavorable initial attitudes toward the aspirin, which would then make the ad

counterattitudinal and give participants some information to use against it.

On the next screen, participants in the persuasive message conditions were exposed to the advertisement (control participants read an irrelevant news article). The ad, which contained several bulleted arguments, appeared on the computer screen and remained until participants chose to continue. In summary, the ad, which was designed to be moderate in strength, claimed that Comfrin lasts as long as other aspirins, is safe, has a coating that makes it gentle on the stomach, is free of caffeine and sodium, is affordable, and received a relatively high score (8 out of 10) in quality testing.

After viewing the ad, participants in the perceived strong and weak message conditions were asked to list as many counterarguments as they could. The counterargument procedure was essentially identical to that used in Study 1. Finally, participants completed the dependent measures. Before leaving the session, all participants were debriefed.

INDEPENDENT VARIABLES

Perceived message strength. Just before viewing the advertisement, participants were randomly assigned to one of three message conditions: perceived strong, perceived weak, or control. In the perceived strong and weak conditions, participants were led to believe that the advertisement they were about to read was either strong or weak. More specifically, participants in these conditions read the following instructions: "In order to get reactions to all kinds of advertisements, we are presenting some people with ads containing very strong arguments in favor of Comfrin and other people with ads containing very weak arguments in favor of Comfrin." This sentence was followed by the manipulation (the manipulated word is indicated in parentheses): "In this experiment, you will see strong (weak) arguments." In actuality, all participants in these conditions saw the exact same ad. Unlike Study 1, participants were not told that these were the strongest or the weakest arguments available. Again, participants in the control condition read an irrelevant news article and did not list counterarguments.

Need for cognition. At the end of the experiment, participants completed the 18-item version of the NC Scale (Cacioppo et al., 1984). This scale contains statements such as, "I prefer complex to simple problems" and "Thinking is not my idea of fun" (reverse-scored). Participants responded to each statement on a 5-point scale anchored at *extremely uncharacteristic of me* and *extremely characteristic of me*. Because items on this scale were highly reliable ($\alpha = .86$), they were summed to form one overall NC index. The range of scores was 31 to 78 (possible

range is 18-90). Scores were not affected by the message manipulation, $F < 1$.

DEPENDENT MEASURES

Attitudes. Following the ad and counterarguing procedure (or following the irrelevant news article in the control condition), participants reported their attitudes toward Comfrin. Attitudes were reported on slightly different items in this study to give greater confidence in the null effect, if obtained. Participants rated Comfrin on a series of 1 through 9 scales with the following anchors: *like very much–dislike very much*, *very good–very bad*, *very favorable–very unfavorable*, *very positive–very negative*. On each scale, higher numbers reflected more favorable attitudes. Internal consistency was high ($\alpha = .92$), so responses were averaged to form a composite attitude index.

Attitude certainty. After reporting their attitudes toward Comfrin, participants completed an attitude certainty measure, which was essentially the same as in the first study, "How certain are you about your attitude toward Comfrin?" Responses to this item were provided on a 1 through 9 scale anchored at *not at all certain* and *extremely certain*.

Counterarguments. As in Study 1, we also analyzed the number and quality of counterarguments generated by participants in the persuasive message conditions. To assess quality, two judges who were unaware of experimental conditions and hypotheses rated each counterargument listed on a 1 through 9 scale ranging from *not at all convincing* to *extremely convincing*. Mean quality ratings of the two judges were highly correlated ($r = .87$, $p < .001$), so we averaged them to form a single quality index.

Results

For the attitude and attitude certainty data, we conducted two sets of analyses—one without the control condition in an attempt to replicate the findings from Study 1 and one with the control condition reinserted to determine the direction of key effects.

ATTITUDES

We began by submitting the attitude data to a hierarchical regression analysis where NC was treated as a continuous predictor variable and perceived message strength was dummy coded (0 = perceived weak, 1 = perceived strong). We centered NC and followed the hierarchical regression procedures outlined by Cohen and Cohen (1983): NC and perceived message strength were entered first to test for main effects and their product was entered next to test for the interaction. There were no main effects for either perceived message strength, $\beta = .12$, $t(26) = .65$, $p > .52$, or NC, $\beta = .21$, $t(26) = 1.11$, $p > .27$,

and no NC \times Perceived Message Strength interaction, $\beta = -.25$, $t(25) = -1.20$, $p > .27$.

To determine if resistance had actually occurred (which would be indicated by attitudes that were no different from those reported in the control group), we reinserted the control condition and conducted a hierarchical regression with NC and the three-level message condition variable (dummy coded with 2 new variables: Dum1 and Dum2). In this analysis, the significance test for message condition is an omnibus test of whether both Dum1 and Dum2 add significantly to the overall prediction of attitudes, above and beyond NC (West, Aiken, & Krull, 1996). Thus, in our hierarchical regression, we entered NC as the sole predictor of attitudes in the first step, the two terms for message condition (Dum1 and Dum2) in the second step, and the Message Condition \times NC interaction in the third step (which was also represented by two interaction terms: Dum1 \times NC and Dum2 \times NC). The critical tests in this analysis are whether the variables included in each step contribute overall to significantly greater prediction of attitudes than the variable(s) in the prior step. Thus, the focus will be on F statistics, as in analysis of variance (see West et al., 1996, for more details on this approach).

This analysis revealed a marginally significant relationship between NC and attitudes toward the aspirin product, $F(1, 43) = 3.12$, $p < .09$, suggesting that attitudes toward Comfrin became more favorable as NC increased. More germane to our primary concerns, perceived message strength had no effect on attitudes, $F_{\Delta}(2, 41) = .84$, $p > .43$. In other words, attitudes were essentially equivalent across the perceived strong ($M = 3.85$, $SD = 1.27$), perceived weak ($M = 3.71$, $SD = 1.20$), and control ($M = 4.20$, $SD = 1.03$) conditions, suggesting that participants in both the perceived strong and perceived weak message conditions resisted persuasion. Moreover, the interaction between perceived message strength and NC did not approach significance, $F_{\Delta}(2, 39) = 1.09$, $p > .34$.

ATTITUDE CERTAINTY

We used the same two-pronged approach in analyzing the attitude certainty data. That is, we began by replicating the analyses of Study 1, submitting the certainty data to a hierarchical regression (with NC centered) in which perceived message strength was a two-level variable (dummy coded: 0 = perceived weak, 1 = perceived strong). In this case, although there was no effect of NC, $\beta = -.13$, $t(26) = -.74$, $p > .46$, there was a significant main effect for perceived message strength, $\beta = .39$, $t(26) = 2.16$, $p < .05$, suggesting that as perceived message strength increased, attitude certainty also increased. However, this main effect was qualified by a Perceived Message Strength \times NC interaction, $\beta = .52$, $t(25) = 2.80$,

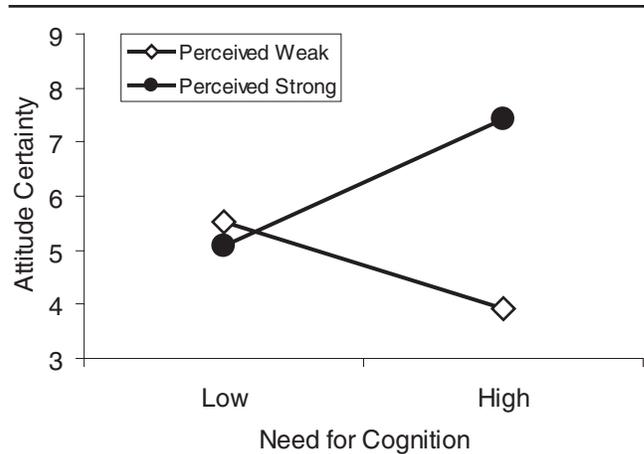


Figure 2 Attitude certainty in Study 2 as a function of perceived message strength (strong or weak) and need for cognition (at +1 SD and -1 SD of the Need for Condition [NC] mean).

$p < .02$. The pattern of this interaction, shown in Figure 2, provided a conceptual replication of Study 1. That is, high NCs (analyzed at +1 SD on the NC index) were significantly more certain of their attitudes after resisting a message believed to be strong rather than weak, $\beta = .89$, $t(25) = 3.71$, $p < .01$. For low NCs (analyzed at -1 SD on the NC index), there was no difference in certainty between these conditions, $\beta = -.12$, $t(25) = -.48$, $p > .63$.

To determine the direction of the certainty effects, we reinserted the control condition and conducted a hierarchical regression using the same approach as with the attitude data. This analysis revealed the predicted pattern of results. To begin with, there was no relationship between NC and attitude certainty, $F < 1$. Adding message condition to the equation, however, marginally contributed to the overall prediction of attitude certainty, $F_{\Delta}(2, 41) = 2.96$, $p = .06$. Replicating the results of Tormala and Petty (2002), participants who had just resisted persuasion became more certain in the perceived strong condition ($M = 6.36$, $SD = 2.16$) than in either the perceived weak ($M = 4.58$, $SD = 1.72$) or control ($M = 4.97$, $SD = 1.28$) conditions. Orthogonal contrasts revealed that certainty was significantly higher in the perceived strong condition than in the perceived weak and control conditions, $F(1, 43) = 7.88$, $p < .01$, which did not differ from each other, $F < 1$. Most germane to the present concerns, the main effect of message condition was qualified by a significant interaction between message condition and NC, $F_{\Delta}(2, 39) = 6.69$, $p < .01$. This interaction revealed that the effect of perceived message strength on attitude certainty was confined to high NCs (analyzed at +1 SD of the NC mean), $F(2, 39) = 9.26$, $p = .001$. Among low NCs (analyzed at -1 SD of the NC mean), the effect was not significant, $F(2, 39) = 1.31$, $p > .28$. In short, among high NCs, attitude certainty

increased when participants believed they had resisted a strong message but not when they believed they had resisted a weak message. Among low NCs, there were no such certainty effects.

COUNTERARGUMENTS

As in Study 1, we also analyzed the number and quality of counterarguments generated in the perceived strong and weak message conditions (control participants did not list counterarguments). Analysis of the number of counterarguments revealed that there were no main effects for either NC, $\beta = .01$, $t(26) = .07$, $p > .95$, or perceived message strength, $\beta = .09$, $t(26) = .44$, $p > .63$. There was, however, a marginally significant interaction between NC and perceived message strength, $\beta = .43$, $t(25) = 1.98$, $p < .06$. Because the interaction had a low probability level, we tested the simple effects. There was no effect of perceived message strength on number of counterarguments for low NCs (analyzed at -1 SD), $\beta = -.33$, $t(25) = -1.18$, $p > .25$, but there was a marginally significant effect for high NCs (analyzed at $+1$ SD), $\beta = .50$, $t(25) = 1.79$, $p < .09$. That is, high NCs generated slightly more counterarguments when they thought the message was strong ($M = 3.83$) than when they thought it was weak ($M = 2.80$). Viewed differently, there was no relationship between NC and number of counterarguments when the message was believed to be weak, $\beta = -.23$, $p > .37$, but there was a marginal relationship when the message was believed to be strong, $\beta = .52$, $p < .09$, such that as NC increased, the number of counterarguments generated also increased. In any case, it is important to note that this marginal difference in number of counterarguments could not account for the certainty effect. When controlling for the number of counterarguments generated among high NCs, the main effect of message condition on attitude certainty remained significant, $\beta = .72$, $p < .01$, whereas the number of counterarguments failed to predict attitude certainty, $\beta = -.05$, $p > .83$. Finally, analysis of the quality of counterarguments did not uncover any effects that approached significance, β s $< .24$, p s $> .29$. In short, the certainty effects could not be explained by differences in the extent or quality of participants' counterarguments.

Discussion

In Study 2, we replicated and extended the key findings of Study 1. Of particular importance, we added a control condition that helped establish both that participants were indeed resisting and that attitude certainty was indeed increasing. We also used a different measure of elaboration, the NC Scale, which both increased the generalizability of our findings and demonstrated that in addition to differences in self-reported situational information processing (as in Study 1), more chronic differ-

ences in motivation to think also moderate the impact of resistance on attitude certainty. It is also worth noting that in Study 2 we used a different attitude object and a different message than Study 1, further enhancing the generalizability of the findings. Taken together, the findings from Studies 1 and 2 are consistent with the notion that the strengthening effect of resistance on people's initial attitudes is most likely to occur when elaboration is high.

GENERAL DISCUSSION

The current research demonstrated that when individuals resist persuasion, they can become more certain of their initial attitudes. Replicating previous studies (Tormala & Petty, 2002), this effect was limited to conditions in which the persuasive attack was believed to be strong. In addition to replicating previous effects, the current research also extended these effects. By pinpointing an additional moderator of the impact of resistance on attitude certainty, we expanded our understanding of this phenomenon, particularly in terms of when it will occur and when it will not. In summary, whether the focus was on self-reported differences in situational elaboration (Study 1) or chronic differences in the motivation to think (Study 2), the boost in certainty only occurred when elaboration was relatively high. When elaboration was relatively low, resisting persuasion had no impact on attitude certainty. This finding adds to a growing set of studies in the metacognition literature suggesting that metacognitive factors in general can play a more prominent role in attitude change and persuasion when the likelihood of thinking is high (see Briñol et al., 2004; Petty et al., 2002; Tormala et al., 2002, Tormala & Petty, 2004b).

But why do high elaboration conditions strengthen the role of metacognition? As discussed earlier, to engage in metacognitive processing one must have not only thoughts but also thoughts about those thoughts, which implies more total thoughts. Indeed, metacognitive reasoning can be cognitively complex in that it involves attention to internal thought characteristics and, in the present case at least, correction for situational factors. Therefore, the elevated level of thinking associated with high elaboration conditions enables one to engage in metacognitive processing. In addition to increasing the amount of thought and thus one's ability to attend to one's thoughts, however, high elaboration conditions also might frequently increase one's motivation to attend to one's thoughts—that is, the extent to which one cares about or is concerned with one's thoughts. It could be that high elaboration conditions foster the effects of metacognition in persuasion because they tend to involve high levels of both amount of thought and concern with thought. We assume that in

the present studies, high elaboration participants were high on both of these dimensions (i.e., they had many thoughts and also cared about their thoughts). Yet, there may be some situations that involve high amounts of thought but low concern with thought. We suspect that under high elaboration conditions of this nature (i.e., in which extent of thinking is high but concern with thinking is low), the impact of metacognitive factors would be less pronounced. To be sure, amount of thought and concern with thought may often go hand in hand, but we think they are theoretically separable constructs and suggest that future researchers in metacognition might consider exploring both of these variables.

As a caveat to the current findings and discussion, it is important to keep in mind that in both studies we assessed elaboration using a correlational approach. Both the self-reported elaboration measure and the NC scale have been validated and proven effective in past research (see Petty et al., 2002; Cacioppo et al., 1996, respectively), but these measures, similar to all self-report measures, have limitations with respect to causal inference. Given the importance we ascribe to elaboration in determining the impact of resisting persuasion on attitude certainty, it would be useful to experimentally manipulate elaboration in the present paradigm. Again, the measures used in the present research have proven reliable in the past and have been shown to parallel manipulated elaboration variables in other research, but a manipulation of elaboration would be useful.

Mechanisms of Resistance

One interesting direction for future research would be to explore the role of the mechanism a person uses to resist persuasion. The mechanism we used to induce resistance in each of the present studies was counterarguing. Counterarguing is a common and well-established resistance strategy (e.g., Brock, 1967; Jacks & Cameron, 2003; Killeya & Johnson, 1998) but it is perhaps somewhat different from other strategies.

First, counterarguing is an active resistance strategy that has been shown to be especially powerful when processing motivation (Petty & Cacioppo, 1979a) and ability (e.g., Wood, Rhodes, & Biek, 1995) are high. However, there are other resistance mechanisms that might be more likely to occur under low elaboration conditions (see Jacks & Cameron, 2003; Petty, Tormala, & Rucker, 2004; Wegener, Petty, Smoak, & Fabrigar, 2004). For example, people have been shown to resist persuasion by experiencing negative affect and attributing it to the message or source of a message (Cacioppo & Petty, 1979; Zuwerink & Devine, 1996; see also Brehm, 1966) by writing off or derogating the source of a message (Tannenbaum, Macauley, & Norris, 1966) or by simply avoiding attitude-incongruent information (Frey, 1986;

Gilbert, 1993). It would be interesting to examine these strategies and determine if they have differential implications for attitude certainty at different levels of elaboration.

Second, counterarguing might be unique in the sense that it is viewed as a legitimate means by which to resist persuasion. Indeed, counterarguing typically involves processing the information in a message and generating somewhat thoughtful responses. Some of the other mechanisms—for example, source derogation or avoiding attitude-incongruent information—might be viewed as less legitimate. We surmise that when people resist persuasion, they have metacognitive perceptions not only about whether resistance occurred but also about how it occurred. Recent research by Jacks and Cameron (2003) supports this assumption, suggesting that people do have some awareness of the mechanisms through which they resist persuasion. If people perceive that they resisted by illegitimate means, we would not expect them to become more certain of their initial attitudes. In fact, given such perceptions, individuals might sometimes become even less certain after resisting persuasion (for related discussions, see Tormala & Petty, 2002, 2004a). We intend to examine this possibility in future research.

Conclusion

The present research revealed that when people resisted persuasion, the certainty with which they held their initial attitudes increased, but only when cognitive elaboration was relatively high—that is, when individuals were high in self-reported situational elaboration or high in their need for cognition. This finding is generally compatible with other recent work exploring the role of metacognitive factors in social judgment (e.g., Hirt, Kardes, & Markman, 2004; Petty et al., 2002; Tormala et al., 2002). Moreover, this finding is potentially important in that judgments formed under high elaboration tend to last longer and exert greater impact on thought and behavior than judgments formed under low elaboration (e.g., Petty et al., 1995). Thus, we assume that the effect of resistance on attitude certainty (under perceived strong argument conditions) is relatively durable and consequential. As a final aside, it is worth mentioning that some researchers have suggested that the impact of metacognitive factors on judgment might not always be so thoughtful (e.g., Chen & Chaiken, 1999; Koriat & Levy-Sadot, 1999; Schwarz, 1998). In future research, we intend to examine the possibility that some aspects of metacognition might ultimately play a role in resistance to persuasion under both high and low elaboration conditions, although this role would presumably differ across levels of elaboration (for a recent example, see Briñol, Rucker, Tormala, & Petty, 2004).

NOTE

1. In his classic work on inoculation theory, McGuire (1964) showed that attempting to counterargue an initial message could make one's attitude become more resistant to subsequent change, but this was not postulated to be due to any change in strength in the initial attitude. Rather, the threat and practice in defending the attitude motivated and enabled people to counterargue future messages (see Tormala & Petty, 2002, for further discussion).

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