

What Doesn't Kill Me Makes Me Stronger: The Effects of Resisting Persuasion on Attitude Certainty

Zakary L. Tormala and Richard E. Petty
Ohio State University

The present research proposes a metacognitive framework for understanding resistance to persuasion. It is suggested that when people resist persuasion, they can become more certain of their initial attitudes. Several experiments demonstrated that when participants resisted persuasion, attitude certainty increased, but only when the attack was believed to be strong. For attacks believed to be weak, certainty was unchanged. It was also demonstrated that attitude certainty only increased when people actually perceived that persuasion had been resisted. This increased certainty was shown to have implications for resistance to subsequent attacks and the correspondence between attitudes and behavioral intentions. These findings suggest that when people perceive their own resistance, they form inferences about their attitudes that adjust for situational factors.

Throughout the history of persuasion research, investigators have been concerned primarily with making persuasion work. In their seminal book on attitude change, for instance, Hovland, Janis, and Kelley (1953) sought to identify a sequence of information processing stages that were critical to the success of persuasive communications. This work was revised substantially by the reception-and-yielding (McGuire, 1968) and cognitive response (e.g., Brock, 1967; Greenwald, 1968; Petty, Ostrom, & Brock, 1981) approaches to persuasion, but its fundamental emphasis on making persuasion successful has been retained over the years. Researchers have on occasion shown explicit interest in understanding resistance to persuasion (e.g., Brehm, 1966; McGuire, 1964; Zuwerink & Devine, 1996), but interestingly, among both persuasion and resistance researchers, the typical assumption has been that once resistance has occurred—that is, the valence or extremity of an individual's attitude has not changed—the impact of the persuasive message on the target attitude has been essentially nil. The present research questions this widespread assumption, and suggests instead that when people resist persuasion, the certainty with which they hold their original attitude can increase. We apply a metacognitive framework to this phenomenon in an attempt to gain a new understanding of the inferences people form about their own attitudes after resisting persuasion.

Metacognition, Resistance, and Attitude Certainty

In essence, *metacognition* refers to people's awareness of their own cognition—that is, their thoughts about their thoughts or thought

This research was supported in part by a National Science Foundation (NSF) graduate research fellowship awarded to Zakary L. Tormala and NSF Grant SBR 95-20854 awarded to Richard E. Petty. We thank Pablo Briñol, Michael Sargent, and members of the 2000–2001 Group for Attitudes and Persuasion at Ohio State University for extremely helpful comments regarding this research. We also thank Kiana Russell, Michael Sheehan, Gary Fischer, Courtney Hall, and Nick Smith for their assistance with response coding in these experiments.

Correspondence concerning this article should be addressed to either Zakary L. Tormala or Richard E. Petty, Department of Psychology, Ohio State University, 1885 Neil Avenue Mall, Columbus, Ohio 43210-1222. E-mail: tormala.3@osu.edu or petty.1@osu.edu

processes. Although it has been accepted for many years that people sometimes form inferences about themselves on the basis of their own behavior (e.g., Bem, 1965) and affect (e.g., Schwarz & Clore, 1983), research addressing the role of “cognitive feelings” (Clore & Parrott, 1994) in this regard has a much shorter history (see Bless & Forgas, 2000; Jost, Kruglanski, & Nelson, 1998). In particular, scant attention has been given to the role of metacognitive processes in persuasion (see Petty, Briñol, & Tormala, 2002, for a review).

The position we examine in the present research is that when people resist persuasion, they can become more confident in their initial attitudes. We propose a metacognitive account of this phenomenon, whereby people think about their own resistance and draw corresponding (attributional) inferences about their attitudes. In other words, we posit that when people perceive that they have resisted persuasion successfully, they might infer that their attitude is correct, or valid, and thus feel more certain about it. After all, if their position is invalid, they should have abandoned it when they received a persuasive communication. Just as an objective observer might infer confidence on the part of a person who successfully resisted persuasion, so too might the individual draw this inference from his or her own resistance (see Bem, 1965).¹

¹ Our perspective obviously assumes that people can have some perception of their own attitude change following a persuasive attack. This assumption is generally supported by the metacognition literature (see Bless & Forgas, 2000), but it is worth noting that some research suggests that people often miscalculate the degree to which their attitudes have either changed or remained the same over time (Ross, 1989). At first glance, this finding might appear to compromise our metacognitive perspective on resistance. Of importance, though, the present analysis does not assume that people are necessarily accurate in their perceptions of change or resistance. Rather, we hypothesize that perceived successful resistance can boost confidence regardless of whether one has actually resisted. Even still, it may well be that people are more accurate in assessing change or resistance in a typical persuasion paradigm. Most of the research cited in support of people's inability to track their own change or stability examines these phenomena over a large period of time. In the typical persuasion context, however, events unfold over a relatively brief timeframe, making it more likely that people would realize whether they have changed their attitudes or not, particularly if they are attending to this information (e.g., see Aderman & Brehm, 1976).

Correction for Situational Factors

Prior literature on metacognition draws heavily on the logic of attribution theory to explain the influence that subjective experience and thoughts about thoughts can have on people's judgments (e.g., Strack & Förster, 1998). Indeed, in most metacognitive research it is assumed that people observe their thoughts, affect, or cognitive feelings, and then rely on this information to make a judgment to the extent that it seems diagnostic. When metacognitive information is determined to be nondiagnostic, reliance on it is attenuated. Just as salient situational causes for someone else's behavior tend to dampen a perceiver's dispositional attributions for that person (see Gilbert, 1998, for a review), salient alternative explanations for one's own metacognitive experience have been shown to lead people to "discount" (Kelley, 1967) or correct for that experience (e.g., Jacoby & Kelley, 1987; Schwarz et al., 1991; Schwarz & Clore, 1983; Wegener & Petty, 1997).

We extend this attributional logic to the present research and posit that when people resist persuasion they attend to situational factors before making inferences about their attitudes. The situational factor we consider in the present research is the *perceived strength of the persuasive attack*. We predict that resisting a message viewed as cogent should confer more confidence in one's attitude than resisting a message viewed as specious. A clearly weak attack is less challenging to one's attitude, and resistance to it should therefore be perceived as less diagnostic. Indeed, resisting a weak attack leaves open the possibility that there are stronger arguments out there that might have been more successful in effecting some degree of attitude change. In short, if someone resists a persuasive message viewed as cogent, he or she might think, "I just resisted a strong message. Now I know I'm right!" By contrast, if he or she resists a message viewed as specious, he or she might be more likely to think, "I resisted the message, but it seemed pretty weak. I don't know if I could resist a stronger one."

In summary, we argue that when people resist persuasive attacks, they can reflect upon their own resistance and form inferences about their attitudes that adjust for the perceived strength of the attacks.² For resistance to increase attitude certainty, we posit that the message recipient must both believe persuasion has been resisted and view the persuasive communication as reasonably strong. If one or both of these conditions are not met, attitude certainty is not expected to increase.³

Attitude Certainty

Attitude certainty refers to a person's sense of conviction about his or her attitude, or the extent to which a person views his or her attitude as correct (Abelson, 1988; Festinger, 1950, 1954; Gross, Holtz, & Miller, 1995). Much of the contemporary attitudes literature assumes that people are concerned about holding correct attitudes (e.g., Petty & Cacioppo, 1986). Research on attitude certainty has shown that attitudes about which we are certain tend to be stronger than attitudes about which we have doubt. This is potentially important because strong attitudes last longer over time, show greater resistance to attack, and have a greater impact on judgments and behavior (see Petty & Krosnick, 1995).

What is more, attitude certainty has been linked with each of these outcomes. For instance, in research pertaining to direct attitude-relevant experience, Fazio and Zanna (1978) found that the more certain participants were about their attitudes, the more

these attitudes predicted behavior. Attitude certainty has also been shown to facilitate resistance to persuasion (e.g., Babad, Ariav, Rosen, & Salomon, 1987; Bassili, 1996; Krosnick & Abelson, 1992; Swann, Pelham, & Chidester, 1988; Wu & Shaffer, 1987). In his work on "meta-attitudinal" versus "operative" measures of attitude strength, for example, Bassili (1996) used a telephone survey to examine people's attitudes and attitude certainty with respect to various issues. Bassili found that on all of the target issues, the more certain respondents were about their attitudes, the less attitude change they evinced in response to persuasive arguments. Bassili also found that the more certain respondents were about their attitudes, the more stable these attitudes were over a 2-week period. Certainty is clearly an important characteristic of people's attitudes that has numerous evaluative implications, yet no prior work has explored the possible effects of resisting persuasion on attitude certainty.

Historical Context

There is some prior research, however, that is consistent with the notion that resisting persuasion might strengthen attitude certainty. In his classic work in the 1960s, McGuire (1964; McGuire & Papageorgis, 1961) developed "inoculation theory," which proposed that just as people's bodies could be inoculated against diseases, beliefs could be inoculated against persuasive attacks through exposure to an initial mild attack that could be refuted easily. In the first test of inoculation theory, McGuire and Papageorgis (1961) gave people messages attacking cultural truisms—beliefs that are widely shared in society and rarely, if ever, disputed (e.g., "It's a good idea to brush your teeth after every meal if possible."). McGuire reasoned that these types of beliefs would be most vulnerable to persuasion, because people have little or no experience defending them. That is, people are unlikely to have developed "antibodies" for these beliefs, or the motivation and ability to counterargue persuasive attacks. In their now famous study, McGuire and Papageorgis discovered that when people were first exposed to a mild attack, they showed less attitude change to a subsequent stronger attack than if they had not been exposed to a mild attack in the first place. According to McGuire (1964), exposure to an initial persuasive communication fostered resistance in two ways. First, it increased the perceived vulnera-

² Our concern is not with demonstrating the sequence of these steps in the resistance process. We simply argue that this type of mechanism describes the general processes that are involved. These processes might occur serially or in parallel.

³ Another potentially important factor would be the message recipient's processing experience while resisting persuasion. We assume that the present framework applies to persuasive contexts in which resistance is experienced as relatively easy. Prior research by Schwarz et al. (1991) has demonstrated that one's metacognitive experience of ease versus difficulty in generating certain kinds of thoughts can determine the impact of those thoughts on subsequent judgments about oneself (or one's attitude; see Tormala et al., 2002). In each of the present experiments, participants were instructed to generate as many counterarguments as they could against a persuasive message. Because they were not required to generate a specific (difficult) number of counterarguments, we assume it was relatively easy for them to complete the procedure. Had a large (difficult) number of counterarguments been required, we suspect that participants' inferences about their attitudes may have changed. This issue is addressed further in the General Discussion.

bility of the belief, thereby motivating defense building. Second, it gave people practice counterarguing a mild attack, which increased their ability to resist future messages.

Inoculation theory was a truly innovative approach to the study of resistance and we do not challenge it here. It is worth noting, however, that although inoculation effects are similar on the surface to those suggested by the current conceptualization, the perspectives diverge in a number of ways. First, we propose a new mechanism to account for future resistance to persuasion. Our hypothesis is that initial resistance can bolster certainty. In contrast, inoculation theory suggests that the first attack sparks doubt, which is a sensible proposition for beliefs that are already held with maximal certainty (e.g., truisms). The present framework is designed to apply to attitudes more generally, which are not typically viewed as unassailable. Second, although inoculation theory was capable of explaining a person's future resistance (i.e., through enhanced motivation and ability to counterargue), our certainty explanation permits a broader set of predictions pertaining not only to future resistance, but also to attitude-behavior correspondence and attitudinal persistence. Third, inoculation theory postulated that the initial attack needed to be mild to foster subsequent resistance. In contrast, we argue that as long as resistance does occur, the stronger the attack is perceived to be, the stronger the predicted effects will be. Finally, the classic inoculation theory work provided no evidence that the first attack had actually been resisted. Beliefs were assessed only *after* the first attack, making it ambiguous as to whether persuasion or resistance had occurred following the initial message. As hinted by McGuire (1964), it could be that partially succumbing to the first attack and thus undermining confidence is critical for inoculation effects *per se*.

Overview of the Present Research

In each of four experiments, we presented participants with a persuasive message on a counterattitudinal topic. We explicitly instructed participants to generate counterarguments in response to the message, which has long been established as an effective way to facilitate resistance to persuasion (e.g., Brock, 1967; Petty & Cacioppo, 1979a). To test the proposed metacognitive perspective on resisting persuasion and attitude certainty, we manipulated the perceived cogency of the persuasive attack, predicting that the certainty effects would be most apparent when the attack was perceived to be strong. We also tested the moderating role of people's perceptions that they had actually resisted persuasion and sought to provide evidence that increases in attitude certainty were mediated by people's assessments of how successful their own resistance had been. In two final experiments we assessed the implications of our framework for future resistance and behavioral intentions.

Experiment 1

The first experiment provided an initial test of our basic certainty hypothesis. Participants were presented with a counterattitudinal persuasive message supporting the implementation of a new policy at their university requiring seniors to pass a comprehensive examination prior to graduation (see Petty & Cacioppo, 1986). We assumed that because this issue was personally relevant and counterattitudinal for most participants, they would be moti-

vated to resist it (Petty & Cacioppo, 1979a, 1979b, 1986). To ensure resistance, however, we explicitly instructed participants to counterargue the message. In addition, we manipulated the *perceived* strength of the persuasive message. That is, participants were induced to think the message was either strong or weak, although in reality everyone received the same message arguments. This manipulation was developed in an attempt to provide a direct test of the metacognitive mechanism we have proposed. A control condition in which participants did not receive a persuasive message was also included to permit an assessment of the direction of attitude certainty effects as well as an assessment of whether resistance occurred in the two message conditions.

Finally, we examined participants' counterarguments. As an alternative to our perspective, it could be argued that people would generate more and/or better counterarguments against the perceived strong message, if in order to resist that message they thought they had to put more effort into the task. If this were the case, increases in attitude certainty might still accompany resistance, but for a completely different reason than the one we propose—that is, certainty might increase because people develop more extensive or compelling arguments (i.e., increased knowledge). We expect that the certainty effects need not stem from differential counterarguing, but can result from the simple consideration of what type of attack has been resisted.

Method

Participants and Procedure

Fifty-six 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 three experimental conditions: perceived strong message condition, perceived weak message condition, or control condition. All sessions were conducted on computers using MediaLab 2000 software (Jarvis, 2000).

When participants arrived, they were seated in a room containing 10 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 read that their university had recently begun to consider implementing senior comprehensive exams as a graduation requirement and that this requirement could be implemented within the next 2 years. They were told that failure to pass these exams would mandate remedial work to be completed before degrees could be conferred. As justification for the experiment, participants were led to believe that the University's Board of Trustees wanted to assess students' reactions. Participants in the perceived strong and weak message conditions then received the following instructions: "The university's Board of Trustees would also like to gather all possible arguments that students can raise against the issue. After you read the proposal, we would like you to list your arguments *against* the exam policy." Control participants did not receive these instructions. Previous research has shown that participants are able to comply with these kinds of instructions, and that directed negative thought can be an effective way to induce resistance to persuasion (Killea & Johnson, 1998).

Following these instructions, participants were exposed to a message (perceived strong, perceived weak, or control) and subsequently generated a list of as many counterarguments as they could (persuasive message conditions only). Prior to listing their arguments, participants in the relevant conditions received the following instructions: "Below is the first of several boxes you can use to list your arguments against the senior comprehensive exam policy. Please list as many as you can, but enter only one argument per box. Press 'enter' after each one, and press 'escape' when you are done." Finally, all participants completed measures of

attitudes and attitude certainty. Before leaving the session, all participants were debriefed as to the fictitious nature of the exam policy and the purpose of our research.

Message Manipulation

There were three message conditions: perceived strong, perceived weak, and control. In the perceived strong and weak message conditions, participants actually read the exact same arguments. In both conditions, participants read more detailed versions of the following arguments (adapted from Petty & Cacioppo, 1986): Grades would improve if the exam policy were adopted (strong), implementing the exams would allow the university to take part in a national trend (weak), the average starting salary of graduates would increase (strong), and implementing the exams would allow students to compare their scores with those of students at other universities (weak). The message contained both strong and weak arguments so that the same overall message content could be interpreted as either strong or weak, depending on instructions.

In the perceived strong and perceived weak message conditions, participants received the following instructions before reading the proexam message (manipulated words are noted in parentheses):

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) of all the arguments raised in favor of the exam policy. In other words, the message you will read contains the best (worst) possible reasons to implement the exams.

As already mentioned, we also included a control condition, designed to provide a baseline for attitudes and attitude certainty. In this condition, participants did not read a persuasive message about comprehensive exams, but instead read an irrelevant news article that was similar to the persuasive message in both appearance and length.

Dependent Measures

Attitudes. Following the persuasive message and counterarguing task (or immediately following the message in the control condition), participants reported their attitudes toward the senior comprehensive exam policy. Participants rated comprehensive exams on six 1–9 semantic differential scales with the following anchors: *good–bad*, *favorable–unfavorable*, *positive–negative*, *in favor–against*, *beneficial–harmful*, *wise–foolish*. On each scale, higher numbers reflected more favorable attitudes. Internal consistency was quite high ($\alpha = .94$), so responses were averaged to form a composite attitude index.

Attitude certainty. After reporting their attitudes toward the exam policy, participants completed the attitude certainty measure, which contained a single question: “How certain are you of your opinion toward the comprehensive exam policy?” This item was adapted from Fazio and Zanna (1978). Responses to this item were provided on a 1–9 scale anchored at *not at all certain* and *extremely certain*.

Counterarguments. We also analyzed the number, quality, and focus of counterarguments generated by participants. First, we counted the number of counterarguments generated. This analysis was conducted to address the possibility that differences in the *extent* of counterarguing could account for any certainty effects obtained. To examine the *quality* of the counterarguments generated, two judges, unaware of experimental conditions and hypotheses, rated each counterargument listed on a 1–9 scale ranging from *not at all convincing* to *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 ($r = .69, p < .001$), so we averaged them to form a single quality index.

Finally, it was possible that even without varying in extent or quality, the counterarguments participants generated could have differed in their *focus*. More specifically, it could be that participants in the perceived strong and perceived weak message conditions attended differentially to the strong and weak arguments contained in the message. Perhaps participants led to believe the message was strong, for instance, focused overwhelmingly on the two strong arguments and tried to counterargue them, whereas participants led to believe the message was weak focused primarily on the two weak arguments. If this were indeed the case, we would not be in a position to argue that participants really received the same message, or that they were resisting the message in the same basic way.

To address these issues, we coded participants’ counterarguments for which part of the message they attacked. Two judges who were unaware of our hypotheses and experimental conditions coded each counterargument listed for whether it addressed or referred to a strong argument from the message, a weak argument from the message, or the topic more generally without actually pertaining to a particular argument raised in the message (i.e., general disagreements; see Crano, Gorenflo, & Shackelford, 1988). The two judges agreed on 92% of the counterarguments listed and resolved disagreements through discussion. An index of the focus of counterarguments was computed by subtracting the number of counterarguments against weak arguments from the number of counterarguments against strong arguments, and then dividing this difference by the total number of negative thoughts for each participant (i.e., [counterarguments against strong – counterarguments against weak]/[counterarguments against strong + counterarguments against weak + general disagreements]).

Results

Attitudes

To examine whether the persuasive messages had been resisted, we submitted the attitude data to a one-way analysis of variance (ANOVA), with type of message (perceived strong, perceived weak, or control) as the independent variable. As expected, given that participants in both persuasive message conditions engaged in counterarguing, there was no effect of type of message on attitude ratings, $F(2, 53) = 0.16, p = .85$. As illustrated in Table 1, attitudes were equivalent across message conditions, suggesting that resistance had occurred (i.e., attitudes in the message conditions were no different from attitudes in the control condition, where no message had been presented).

Attitude Certainty

We submitted the attitude certainty index to the same one-way ANOVA. In contrast to the analysis of the attitude data, this

Table 1
Attitudes and Attitude Certainty as a Function of Message Condition in Experiment 1

Dependent measure	Message condition		
	Control (<i>n</i> = 19)	Perceived weak (<i>n</i> = 18)	Perceived strong (<i>n</i> = 19)
Attitudes			
<i>M</i>	4.82 _a	4.91 _a	5.03 _a
<i>SD</i>	1.52	1.80	1.91
Certainty			
<i>M</i>	5.10 _a	4.33 _a	6.16 _b
<i>SD</i>	1.79	1.91	1.95

Note. All scales ranged from 1 to 9. Subscripts should be interpreted within rows only. Means with the same subscript do not differ from each other.

analysis revealed a significant effect for message condition, $F(2, 53) = 4.38, p < .02$ (see Table 1). Consistent with our expectations, orthogonal contrasts showed that participants in the perceived strong message condition were significantly more certain of their attitudes than participants in both the perceived weak and control conditions, $F(1, 53) = 7.31, p < .01$, which did not differ from each other, $F(1, 53) = 1.55, p = .22$.

Counterarguments

As noted earlier, we also examined the number, quality, and focus of participants' counterarguments in the perceived strong and weak message conditions. There was no difference in the number of counterarguments generated, $F(1, 34) = 0.68, p = .42$. Participants in the perceived strong message condition generated about the same number of counterarguments ($M = 2.94, SD = 1.30$) as participants in the perceived weak message condition ($M = 3.44, SD = 2.18$). There was also no difference in the quality of counterarguments across conditions, $F(1, 34) = 1.23, p = .28$. That is, participants in the perceived strong message condition generated counterarguments that were no different in quality ($M = 5.41, SD = 0.93$) than those generated by participants in the perceived weak message condition ($M = 5.69, SD = 0.56$). Finally, analysis revealed no difference in the focus of counterarguments generated by participants in the perceived strong ($M = -0.04, SD = 0.22$) and weak message conditions ($M = -0.05, SD = 0.37$), $F(1, 34) < .01, p = .97$. We also conducted separate analyses to determine if any differences existed in the proportion of counterarguments that addressed weak message arguments (weak/total) or strong message arguments (strong/total), or expressed general disagreements (general disagreements/total). None of these analyses revealed any differences ($F_s < 1, p_s > .47$). Therefore, the attitude certainty effect could not be accounted for by any differences in the counterarguments generated.

Discussion

In Experiment 1, we found that resisting a persuasive message can increase the certainty with which people hold their initial attitudes. Of importance, attitude certainty only increased when participants believed the persuasive message they resisted was cogent. When the message was believed to be specious, resisting it produced no change in attitude certainty, presumably because resisting a weak attack is less diagnostic about one's own attitude. Resisting an attack believed to be weak might indicate that one's attitude is correct, but it also leaves open the possibility that an attack with stronger arguments would have been more successful. This finding is consistent with our metacognitive framework.

The certainty findings are particularly telling given that participants in the strong and weak message conditions actually received the exact same message arguments. Thus, people appeared to base their attitude certainty judgments on relatively basic inferences derived from their perception that the attack was either strong or weak. Further consistent with this idea, there were no differences in the amount, quality, or focus of the counterarguments generated across conditions. On the contrary, participants' resistance was essentially equivalent across message conditions, but had different implications for their reports of attitude certainty depending on the perceived quality of the persuasive message.

Experiment 2

In Experiment 2, we had two primary objectives. The first was to manipulate perceived attitude change. Our metacognitive approach posits that increases in attitude certainty are contingent upon people's perceptions that they have successfully resisted a strong persuasive attack. We directly manipulated perceived attitude change in this experiment by informing participants that they had or had not changed their attitudes after reading the message. We expected that certainty increases would be limited not only to conditions in which the persuasive attack was believed to be strong, but also to conditions in which participants were led to believe their initial attitudes had not been changed.

Another important goal in Experiment 2 was to address the issue of mediation of the certainty effect. We predict that when individuals believe their attitudes have not changed, they view their resistance as having been more successful to the extent that the persuasive attack is perceived as strong. In other words, we postulate that when individuals believe they have not changed their attitudes, they should feel as though they have done a better job resisting when the message is seen as stronger, and this assessment should mediate the certainty effect.

The idea that perceived resistance can be associated with certainty has been raised in the past. In a study on consumer opinions, White, Tashchian, and Ohanian (1991) argued that perceived resistance relates to confidence in one's opinions. Conceptually, this idea seems very close to the present one, but these researchers treated perceived resistance as the subjective perception that one's opinion *could* resist persuasion *if it were* attacked. That this perception would be correlated with confidence in one's opinion is not surprising, but the direction of the effect is ambiguous. Indeed, in the White et al. research, perceived resistance was measured, making it unclear as to whether this was a product or a determinant of attitude confidence. In the present experiment, we conceptualized perceived resistance differently, treating it as the observation that one has, in fact, already resisted persuasion. In addition, our manipulation of this variable afforded clearer directional inferences.

Method

Participants and Design

One hundred thirteen Ohio State University undergraduates participated in partial fulfillment of a requirement for their introductory psychology courses. From this sample, 72 participants were randomly assigned to experimental conditions in a 2 (perceived attitude change: change or no change) \times 2 (perceived message strength: strong or weak) between-participants design.⁴ The remaining 41 participants were randomly assigned to a control condition, in which they read an irrelevant message.

Procedure

Experiment 2 followed essentially the same procedure as Experiment 1, with a few exceptions. First, this experiment included a premessage attitude assessment that was designed to make the perceived change manip-

⁴ Although conceptually this manipulation could be described as *perceived resistance*, we use the term *perceived change* to be consistent with the wording of the false feedback participants received. We thought telling participants they had changed their attitudes or not would be easier for them to understand than telling them they had resisted or not.

ulation more believable. Prior to reading the message in favor of comprehensive exams, participants were asked to report the extent to which they agreed or disagreed with the idea of comprehensive exams, the extent to which they liked or disliked the idea of comprehensive exams, and the extent to which they thought it would be fair or unfair to implement comprehensive exams. Responses to each item were given on scales ranging from 1 to 5, where higher numbers indicated more favorable attitudes. The wording and scales were deliberately changed from those used in the postmessage attitude assessment to reduce participants' ability to track their attitude ratings and translate their responses from Time 1 to Time 2. The second modification to Experiment 1 was the manipulation of perceived attitude change, which came in the form of false feedback after participants had generated counterarguments and reported their postmessage attitudes. Participants then reported attitude certainty and completed new measures assessing their perceptions of message strength and the success of their own resistance. Finally, participants read a debriefing that explained the fictitious nature of the exam policy and the purpose of the research.

Independent Variables

Message manipulation. This manipulation was identical to the one used in the first experiment.

Perceived attitude change. As discussed by Ross (1989), people can exaggerate the stability or change they have recently experienced when a situational cue suggests change has or has not occurred. After counterarguing the message and reporting their postmessage attitudes, we capitalized on this phenomenon by giving the participants bogus feedback regarding attitude change from Time 1 to Time 2. Participants were randomly assigned to receive feedback that their attitudes had changed or not changed. As an introduction to this manipulation, participants received the following information:

A great deal of research in psychology has clearly demonstrated that when people reflect on an issue at either a conscious or an unconscious level, they sometimes change their attitudes and opinions about that issue. Moreover, this research has shown that people need not be aware of this change. That is, sometimes people's attitudes change even when they do not realize it. Furthermore, this research has found that sometimes people believe their attitudes have changed when they actually have not. Now that you have reported your attitude toward the comprehensive exam policy twice, the computer is programmed to give you feedback regarding the extent to which your attitude has changed.

When participants clicked *continue* a brief message appeared in the center of the screen instructing them to wait for their results. This message remained on the screen for three seconds to suggest that the computer was processing attitude change scores. Participants were then given the false feedback. At the top of the next screen, all participants received the following information:

Below, you are presented with your *attitude change index*. This index reflects the computer's analysis of the extent to which you changed your attitude toward senior comprehensive exams since reporting it the first time. This index can range from 1–10. If your index is *greater than 5*, that indicates that your attitude has changed. If your index is *5 or less*, that indicates that your attitude has not changed. You will only see this number once.

At the bottom of the same screen, participants were presented with an "attitude change index." Participants in the change condition read the following: "Your attitude change index is 9. This score indicates that you have changed your attitude toward the exams." In the no-change condition, the feedback was altered: "Your attitude change index is 2. This score indicates that you have *not* changed your attitude toward the exams." Control condition participants were not exposed to this manipulation.

Manipulation Checks

Message strength. Because we intended to provide mediational evidence in this study, we included a measure of perceived message strength. Specifically, we asked participants in the perceived strong and weak message conditions to rate the message for persuasiveness on a 1–9 scale, anchored at *not at all persuasive* and *extremely persuasive*. Control condition participants did not receive this question.

Perceived attitude change. We also included a measure of perceived attitude change. Participants were asked to report the extent to which they had changed their attitudes toward comprehensive exams on a 1–9 scale, anchored at *not at all* and *very much*. Again, control participants did not receive this question.

Dependent Measures

Attitudes and attitude certainty. A composite postmessage attitude index was created using the same six semantic differential scales as in the first experiment ($\alpha = .95$). The certainty measure was also identical to the one used in the first experiment.

Perceived success in resisting. To examine participants' assessments of how well they had resisted, we asked them at the end of the experiment how strong or weak they thought their counterarguments were, how effective or ineffective they thought their counterarguments were, how successful or unsuccessful they thought they were in counterarguing the message, and how satisfied or unsatisfied they were with the counterarguments they generated. Responses to these questions were provided on 1–9 scales with higher numbers reflecting more favorable assessments of their own counterarguments. The measures were averaged to form a single composite index ($\alpha = .83$). Control participants did not complete these measures.

Counterarguments. As in Study 1, we analyzed the number, quality, and focus of counterarguments that participants generated. Quality ratings from two judges, unaware of experimental conditions and hypotheses, were provided for each counterargument on a 1–9 scale anchored at *very weak argument* and *very strong argument*. We modified this index slightly from the one used in the first experiment to increase our confidence in the null effect, if obtained. For each judge, we created a single mean quality score for every individual participant. Mean quality ratings of the two judges were highly correlated ($r = .76, p < .001$), so we averaged them to form one overall quality index. We coded the focus of participants' counterarguments using the same index as in the first experiment. Again, counterarguments were coded by two judges. They agreed on 89% of the counterarguments and resolved disagreements through discussion.

Results

Manipulation Checks

Message strength. We began our analyses by submitting the message strength ratings to a 2×2 ANOVA, with perceived message strength (strong or weak) and perceived attitude change (change or no change) as the independent variables. As expected, this analysis revealed a significant main effect for perceived message strength, $F(1, 68) = 8.70, p < .01$, such that participants rated the message as more persuasive when they were told it was strong ($M = 6.08, SD = 2.19$) than when they were told it was weak ($M = 4.61, SD = 2.04$). There was no main effect for perceived change, $F(1, 68) = 1.87, p = .18$, nor an interaction between type of message and perceived change, $F(1, 68) = 0.67, p = .42$. These results suggest that the manipulation of perceived message strength was successful.

Perceived attitude change. We submitted the perceived change scores to the same 2×2 ANOVA. This analysis also revealed a successful manipulation. There was a significant main

effect for the perceived change manipulation, $F(1, 68) = 7.60, p < .01$, indicating that participants believed their attitudes had changed more when they were in the change condition ($M = 3.80, SD = 2.22$) than when they were in the no-change condition ($M = 2.49, SD = 1.22$). No additional effects were significant in this analysis ($F_s < 1, p_s > .40$).

Primary Analyses

Attitude change. Given that we had both premessage and postmessage attitude ratings in this study, we first sought to determine if there was significant attitude change overall from Time 1 to Time 2, and if so, whether it differed across message conditions. To answer these questions, we transformed the attitude scores at both time points such that they ranged from 0 to 1, and submitted the data to a 2 (time: premessage and postmessage) \times 3 (type of message: perceived strong, perceived weak, or control) mixed ANOVA. There was neither a main effect for time of attitude measurement, $F(1, 110) = 0.12, p = .74$, nor an interaction between this factor and message condition, $F(2, 110) = 0.99, p = .38$. Comparable attitudes, then, were observed in the experimental and the control groups. Time 1 attitudes (reported on 5-point scales) were no different across the perceived strong ($M = 2.73, SD = 0.82$), perceived weak ($M = 2.59, SD = 0.90$), and control conditions ($M = 2.87, SD = 0.92$), $F(2, 110) = 0.92, p = .40$. Similarly, Time 2 attitudes (reported on 9-point scales) were equivalent across these conditions ($M_s = 4.74 [SD = 1.87], 4.65 [SD = 1.86],$ and $5.09 [SD = 1.80]$, respectively), $F(2, 110) = 0.61, p = .55$.

To further examine attitude change in an analysis including the perceived attitude change manipulation, we submitted the attitude data to a 2 (time: premessage and postmessage) \times 2 (perceived message strength: strong or weak) \times 2 (perceived attitude change: change or no change) mixed ANOVA. There were no significant effects ($F_s < 1.70, p_s > .19$).

Attitude certainty. The attitude certainty data revealed a different picture. The certainty index was first submitted to a 2 \times 2 ANOVA, with perceived message strength (strong or weak) and perceived attitude change (change or no change) as the independent variables. There was no effect for perceived change, $F(1,$

$68) = 0.32, p = .57$, but we found a significant main effect for perceived message strength, $F(1, 68) = 4.58, p < .04$. As in our first study, participants reported being more certain about their attitudes after resisting a message believed to be strong ($M = 6.22, SD = 1.77$) than after resisting a message believed to be weak ($M = 5.33, SD = 1.83$). This effect was qualified, however, by the predicted interaction between perceived message strength and perceived attitude change, $F(1, 68) = 4.50, p < .04$. As illustrated in Figure 1, participants in the no-change group felt considerably more certain about their attitudes after resisting a message believed to be strong rather than a message believed to be weak, $F(1, 68) = 8.39, p < .01$. Participants led to believe their attitudes had changed, however, showed no difference in attitude certainty across message conditions, $F(1, 68) < .01, p = .98$.

Viewing the interaction differently, when participants counterargued the message perceived as strong, they reported marginally more attitude certainty when they believed they had resisted than when they believed they had been persuaded, $F(1, 68) = 3.52, p < .07$. When participants counterargued a message perceived as weak, it did not appear to matter whether they believed they had resisted or not, $F(1, 68) = 1.25, p = .27$. This finding is consistent with the notion that perceived resistance has greater implications for attitude certainty when the persuasive attack is perceived as relatively strong. If the attack is seen as weak, believing one resisted it has no impact on certainty.

To determine if the effects in the no-change condition replicated the findings from the first study, we included the control group along with the no-change conditions and submitted the certainty data to a one-way ANOVA, with type of message (perceived strong, perceived weak, or control) as the independent variable. This analysis revealed a significant effect, $F(2, 51) = 6.31, p < .01$, that replicated the pattern obtained in Experiment 1. Orthogonal contrasts revealed that participants who had resisted a message perceived as strong were significantly more certain about their attitudes ($M = 6.78, SD = 1.50$) than participants in the perceived weak ($M = 5.00, SD = 1.26$) or control conditions ($M = 5.24, SD = 1.71$), $F(1, 51) = 13.37, p = .001$, who did not differ from each other, $F(1, 51) = 0.23, p = .63$. Of importance, the same analysis was conducted for those participants who were

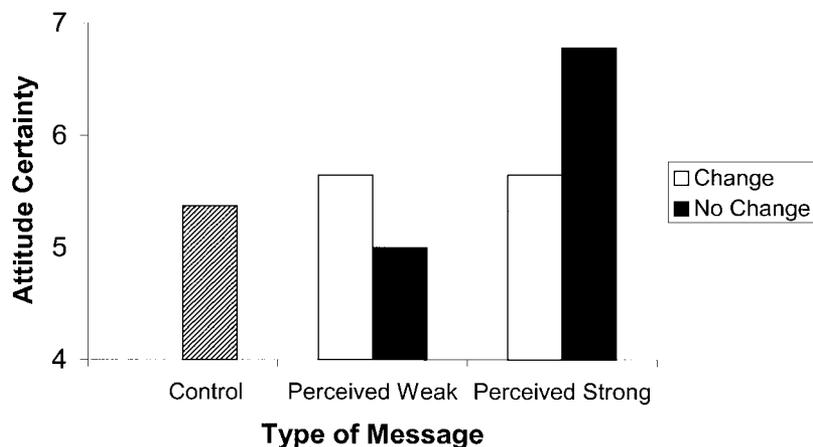


Figure 1. Attitude certainty as a function of perceived attitude change and perceived message strength (Experiment 2). Control condition shows the baseline.

led to believe they had changed their attitudes, and there were no differences in attitude certainty across the perceived strong, perceived weak, and control conditions ($M_s = 5.66$ [$SD = 1.86$], 5.65 [$SD = 2.18$], 5.37 [$SD = 1.68$], respectively), $F(2, 56) = 0.04$, $p = .96$. This finding is consistent with the notion that people must have the perception that they have resisted for certainty to increase.

Perceived success in resisting. The index of perceived success in resisting was submitted to a 2×2 ANOVA with perceived message strength (strong or weak) and perceived attitude change (change or no change) as the independent variables. This analysis uncovered two main effects. First, there was a significant effect for the perceived attitude change manipulation, $F(1, 68) = 4.56$, $p < .04$, such that participants who were led to believe they did not change their attitudes rated their own counterarguments as having been more successful ($M = 5.53$, $SD = 1.89$) than those who were told they did change their attitudes ($M = 4.65$, $SD = 1.64$). Second, there was a marginally significant main effect for perceived message strength, $F(1, 68) = 3.48$, $p < .07$, such that participants in the strong message condition rated their counterarguments as having been more successful ($M = 5.48$, $SD = 1.87$) than participants in the weak message condition ($M = 4.71$, $SD = 1.68$). The interaction was not significant, $F(1, 68) = 0.17$, $p = .68$.

Mediation. To this point, our findings were consistent with the metacognitive perspective that increases in attitude certainty require both the perception that persuasion has been resisted and the perception that the resisted attack was strong. To provide direct evidence that these attitude certainty effects were mediated by participants' perceptions of the success of their resistance efforts, we conducted a mediational analysis using the technique recommended by Baron and Kenny (1986). For this analysis, we used the continuous measure of perceived message strength rather than the manipulation, because this index directly represented perceptions of message strength and was potentially more sensitive for our correlational analyses.

Using only the data for individuals in the no-change condition (because attitude certainty effects in the change condition were not significant), we found evidence for the predicted mediation. First, perceptions of message strength predicted both attitude certainty, $\beta = .34$, $t(31) = 2.03$, $p = .05$, and perceived success in resisting, $\beta = .38$, $t(31) = 2.31$, $p < .03$. In addition, perceived success in resisting predicted attitude certainty, $\beta = .58$, $t(31) = 3.98$, $p < .001$. As illustrated in Figure 2, when perceived message strength and perceived success in resisting were simultaneously placed in the regression model predicting attitude certainty, the effect of perceived success remained significant, $\beta = .53$, $t(30) = 3.33$, $p <$

.01, but the direct effect of perceived message strength did not, $\beta = .14$, $t(30) = 0.88$, $p = .39$. A Sobel test revealed that the difference in the direct effect between the nonmediated and mediated models was significant ($z = 1.95$, $p = .05$). Thus, the effect of perceived message strength on attitude certainty in the no-change group was mediated by participants' perceptions of how successfully they had resisted.

Counterarguments. We submitted both number and quality of counterarguments to the same 2×2 ANOVA and replicated our earlier null effects ($F_s < 1$, $p_s > .45$). We also analyzed the index of counterargument focus, and found that there were no main effects ($F_s < 1$, $p_s > .52$) and no interaction between perceived message strength and perceived attitude change, $F(1, 68) = 1.46$, $p = .23$. Finally, we conducted separate analyses to determine if any differences existed in the proportion of counterarguments focusing on weak message arguments, strong message arguments, or general disagreements. None of these analyses revealed any significant effects ($F_s < 1.52$, $p_s > .22$). Therefore, there were no differences in the extent, quality, or focus of participants' counterarguments across conditions.

Discussion

In Experiment 2, we obtained the predicted interaction between perceived attitude change and perceived message strength on attitude certainty. This interaction indicated that resisting a persuasive attack can produce an increase in attitude certainty, but only to the degree that the message recipient believes both that the attitude was unchanged by the attack and that the attack was relatively strong. If the individual believes he or she was persuaded, attitude certainty does not increase. Moreover, even if the individual thinks he or she has resisted the message, resistance does not strengthen certainty if the message that was resisted is not perceived as relatively strong or persuasive. This experiment was also informative in that it provided mediational evidence for the certainty effects. The data indicated that in the current context, when certainty increases, it is mediated by perceptions of having successfully resisted. In essence, when people feel they have done a good job resisting a strong message, they can infer that their attitude must be a valid one. Together, the data provide support for the metacognitive framework we have proposed to explain the effects of resisting persuasion on attitude certainty. Also fitting with this logic was the absence of effects on any of the counterargument measures, which again suggests that participants were actually resisting the message in the same manner, but simply interpreting their resistance differently depending on situational factors.

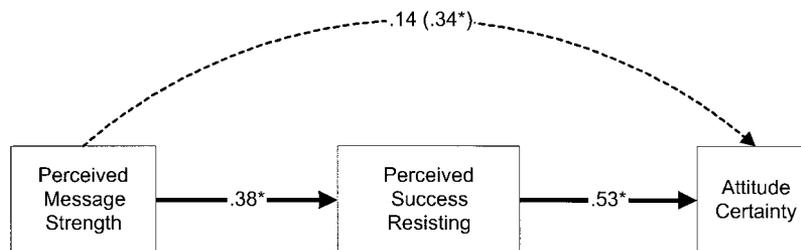


Figure 2. Mediation model for Experiment 2. Asterisks indicate significant effects at $p < .05$ or better. Value in parentheses represents the direct effect of perceived message strength on attitude certainty before the mediator was added to the model.

Experiment 3

As reviewed earlier, attitude certainty has been found to be associated with a number of important attitude-related outcomes. For instance, high certainty attitudes tend to be more resistant than low certainty attitudes to persuasive attacks (e.g., Bassili, 1996). In Experiment 3, we sought to extend the certainty findings from the first two experiments by demonstrating that they had these kinds of implications. Specifically, we tested the extent to which people's metacognitive inferences following initial resistance would have consequences for future resistance as well. On the basis of the data from the first two studies, we expected participants who first resisted a message viewed as strong to be more resistant to a subsequent persuasive message than participants who first resisted a message believed to be weak.

It is important to note that although we explicitly instructed participants in this experiment to counterargue the first message (as in the previous experiments), they were given no such instructions for the second persuasive attack. The purpose of the counterargument set for the first message has been to facilitate resistance for everyone (see Brock, 1967; Petty & Cacioppo, 1979a). However, now that our interest turned to resistance as an outcome, it was desirable to have more variability in attitudinal responses to the second message. To permit this more natural variation across participants, counterargument instructions were not provided before the second message. Also important, having already shown that certainty is affected by initial resistance to a message perceived to be strong, and recognizing the potential for demand effects if the certainty measure were included, we removed the certainty index from this experiment.

Method

Participants and Design

Seventy 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 three experimental conditions: the perceived strong message condition, the perceived weak message condition, or the control condition. All participants completed attitude measures twice—once after the first message (Time 1), and again after receiving a second message later in the experiment (Time 2). Thus, this experiment had a 3 (message condition: perceived strong, perceived weak, or control) \times 2 (time: Time 1 or Time 2) mixed design.

Procedure

The first half of the experiment was identical to Experiment 1. Participants were introduced to the possibility of comprehensive exams at their university, and then read either a persuasive message in favor of the exams or an irrelevant control message. Before reading the message, participants in the two persuasive message conditions were informed that they would be asked to generate counterarguments to the message after reading it. As in the previous study, participants were then exposed to the same message under the pretense that it was either strong or weak.

After listing their counterarguments and reporting their attitudes (Time 1), participants engaged in an unrelated filler task for approximately 15 min. This task required participants to read a series of words on the screen, one at a time, and type in the first word that came to mind. They were given no further explanation for this task, but it is worth noting that the stimuli contained positive, negative, and neutral words of varying extremity and that all participants were exposed to the same words in the same order (which had been randomized).

Following the word association procedure, participants in all three conditions were told that now that the first bit of information about comprehensive exams had had a chance to "settle in," we would provide them with some more information, which they should read carefully in order to answer some questions afterwards. Because participants in all three conditions had been told about the exam policy at the beginning of the experiment, these instructions were met with no skepticism. We then presented a second message containing three new strong arguments in favor of implementing the comprehensive exam policy. The basic arguments contained in the second message were that comprehensive exams would improve the quality of teaching, increase the amount of financial aid available for students, and increase students' chances of being accepted into graduate or medical schools. Thus, this message was in the same direction as the first. Again, there were no counterargument instructions given with this message. After reading it, participants reported their attitudes toward the exams a second time (Time 2). At the end of the experiment, all participants were fully debriefed, as in Experiments 1 and 2.

Message Manipulation

The message manipulation for the first message was an exact replication of the manipulation used in Experiments 1 and 2. There was no manipulation for the second message.

Dependent Measures

Attitude change. After reading the first message, participants reported their attitudes on four semantic differential scales with the following anchors: *good–bad*, *positive–negative*, *favorable–unfavorable*, and *in favor–against*. These items, which ranged from 1–9 with higher numbers indicating more favorable attitudes, were averaged to form a composite Time 1 attitude index ($\alpha = .88$). Following the filler task and second message, participants reported their attitudes again on the same four scales. Responses at this time were averaged to form a composite Time 2 attitude index ($\alpha = .90$). The primary focus of our analysis in this study was the amount of attitude change across conditions from Time 1 to Time 2.

Counterarguments. We also analyzed the number, quality, and focus of counterarguments generated, using the same measures as in Experiment 2. Mean quality ratings from two judges were highly correlated ($r = .75$, $p < .001$), so we averaged them to form one overall quality index. Moreover, two judges coded the focus of all counterarguments, agreeing on 93% and resolving disagreements through discussion.

Results

Time 1 Attitudes: Initial Resistance

To demonstrate that the first persuasive message had not produced attitude change, it was necessary to analyze Time 1 attitudes independently. We submitted the Time 1 attitude index to a one-way between-participants ANOVA, with message condition as the independent variable. There was no effect of message condition on attitudes, $F(2, 67) = 0.04$, $p = .97$. As illustrated in Figure 3, attitudes were very similar across all three conditions. Participants who counterargued the perceived strong and weak messages were no more favorable toward comprehensive exams than participants in the control condition, who did not receive a persuasive message.

Time 2 Attitudes: Subsequent Resistance

Given that participants resisted the first message to an equivalent degree, our central concern was with the extent to which attitudes toward comprehensive exams would prove resistant to a

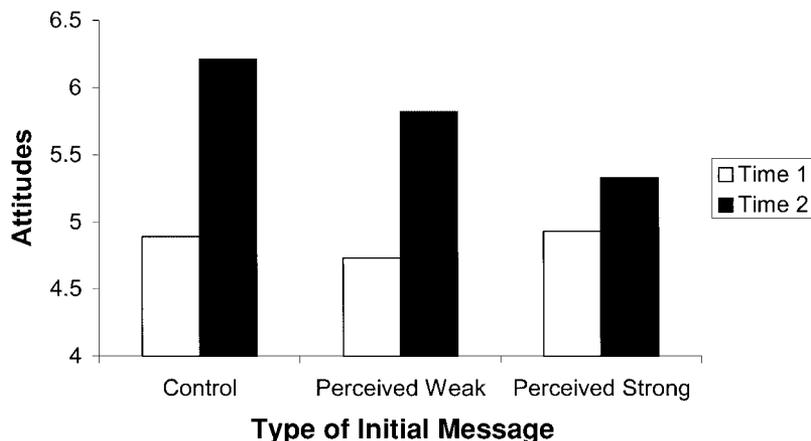


Figure 3. Attitude change from Time 1 (after first message) to Time 2 (after second message) as a function of message condition in Experiment 3.

follow-up persuasive attack. To answer this question, we submitted attitudes to a 3×2 mixed ANOVA, with message condition (perceived strong, perceived weak, or control) and time (Time 1 or Time 2) as the between- and within-participants variables, respectively. This analysis matched our expectations. As illustrated in Figure 3, we found that there was a significant main effect for time of attitude measurement, $F(1, 67) = 38.39, p < .001$, such that attitudes were more favorable at Time 2 ($M = 5.79, SD = 1.95$) than at Time 1 ($M = 4.85, SD = 1.75$). This effect makes sense given that all participants had read an additional set of arguments in favor of comprehensive exams before the Time 2 attitude assessment. This main effect was qualified, however, by a significant interaction between message condition and time of attitude measurement, $F(2, 67) = 3.40, p < .04$. As shown in Figure 3, the difference between Time 1 and Time 2 attitudes was smaller in the perceived strong message condition than in the perceived weak or control message conditions. In fact, analysis of within-participant simple effects revealed that attitude change from Time 1 to Time 2 was significant in both the control condition, $F(1, 67) = 26.10, p < .001$, and in the perceived weak message condition, $F(1, 67) = 16.36, p < .001$, but not in the perceived strong message condition, $F(1, 67) = 2.43, p = .12$. Consistent with predictions, then, participants in the perceived strong message condition were more resistant to subsequent persuasion than were participants in either of the other two conditions.

Counterarguments

Analyses of the number of counterarguments, $F(1, 44) = 1.69, p = .20$, as well as the quality and focus of counterarguments ($F_s < 1, p_s > .64$), yielded no significant effects. Again, separate analyses on the proportion of counterarguments focusing on weak arguments, strong arguments, or general disagreements also revealed no significant effects ($F_s < 1, p_s > .37$). Counterargument profiles were thus very similar across conditions.

Discussion

In Experiment 3, we found that participants showed greater resistance to a second persuasive attack after they had first resisted what they believed to be a strong message. These findings suggest

an important qualification to McGuire's (1964) inoculation theory research. That is, resisting an initial message is not sufficient in its own right to increase future resistance, as might be expected from inoculation theory (McGuire, 1964). Instead, when attitude certainty is the mechanism by which increased resistance is conferred, one must have the perception that one has initially resisted a potent persuasive attack. If someone resists an initial attack but perceives it as weak, subsequent resistance is not enhanced. Because this finding is incompatible with McGuire's earlier suggestion that initial resistance should be to a weak message, it suggests a new mechanism by which subsequent resistance can be conferred. More specifically, Experiment 3 suggests that metacognitive inferences and attitude certainty can also foster future resistance after an initial attack.

There is, however, a caveat to our findings. Given that participants were told that the first message contained the strongest or weakest arguments available, they might have had differential expectations for the arguments contained in the second message. After being told that the arguments in the first message were the best possible reasons to implement the exams (see instructions in Experiment 1), for example, they might have expected the second message to contain weaker arguments, and thus not processed it as they had already seen the best arguments. After being told that the arguments in the first message were the worst possible reasons to implement the exams, however, the second message might be expected to contain relatively stronger arguments, which would presumably be worth processing. Similarly, participants in the control condition might be expected to process the second message more because they had yet to receive any arguments related to the exam topic. If processing of the second message were increased in the perceived weak and control conditions, more persuasion would be expected for those two conditions, as the second message contained only strong arguments (Petty & Cacioppo, 1986). Prior research is consistent with the notion that attitude certainty influences resistance, but without a measure of certainty (which we removed to eliminate demand characteristics), we cannot definitively attribute the resistance effects to certainty rather than an alternative mechanism. In Experiment 4, we sought to address this issue by examining a new consequence (one that processing dif-

ferences could not explain) and including a measure of certainty to assess its role in guiding the key outcome.

Experiment 4

In Experiment 4, we examined the implications of our certainty findings for the relationship between attitudes and behavioral intentions. It is important to note that in previous research, behavioral intentions have been shown to be the single best and most proximal predictor of actual behavior (e.g., Fishbein & Ajzen, 1975). We expected attitudes to prove more predictive of behavioral intentions to the extent that they were held with relatively greater certainty (see Fazio & Zanna, 1978; Gross et al., 1995). In other words, we predicted that attitudes and behavioral intentions would be more highly correlated after participants resisted a persuasive attack believed to be strong. After resisting a persuasive attack believed to be weak, we expected attitudes to be no more predictive of behavioral intentions than in the control condition, where no resistance had occurred. We also tested the extent to which the effect remained significant after controlling for attitude certainty.

Method

Participants and Procedure

One hundred twelve Ohio State University undergraduates participated in partial fulfillment of a requirement for their introductory psychology courses. They were randomly assigned to one of three message conditions: perceived strong, perceived weak, or control. The procedure for this experiment was essentially the same as that from Experiment 1. The critical modification was the addition of a new measure of behavioral intentions at the end of the experiment. As in the previous experiments, all participants were thoroughly debriefed.

Dependent Measures

Attitudes and attitude certainty. A composite attitude index was created using the same six semantic differential scales as in the first two experiments ($\alpha = .96$). Attitude certainty was also assessed using the same measure as in the first two experiments.

Behavioral intentions. The key analysis in this experiment involved the relationship between attitudes and behavioral intentions. To assess this relationship, we included a measure of voting intentions at the end of the experiment. Specifically, participants received the following instructions immediately before the debriefing: "The Ohio State University's Board of Trustees is considering holding a student vote on the comprehensive exam policy issue. If this issue is placed before OSU students, how do you intend to vote on the comprehensive exam policy?" To permit greater variability in scores on this measure for the correlational analyses, responses were given on a 1–9 scale ranging from *Definitely Against* to *Definitely In Favor*, with a midpoint (5) labeled *Undecided*.

Counterarguments. We also repeated the analysis of the number, quality, and focus of counterarguments generated by participants in the two persuasive message conditions. These measures were calculated in the same manner as the previous experiments. The mean quality ratings of the two judges were highly correlated ($r = .66, p < .001$), so we averaged them to form one overall quality index. Similarly, the classifications of counterargument focus from the first judge and a second judge were in agreement 90% of the time, with all disagreements being resolved through discussion.

Results

Attitudes

We began by submitting the attitude data to a one-way ANOVA, with message condition as the independent variable. As expected, this analysis failed to produce a significant effect, $F(2, 109) = .22, p = .81$. As illustrated in Table 2, mean attitudes were nearly identical across conditions, indicating that neither the perceived strong nor the perceived weak message produced attitude change as compared with the control group, where no persuasive message had been presented.

Attitude Certainty

Unlike the first two experiments, analysis of the attitude certainty data did not reveal a significant effect overall, $F(2, 109) = 2.33, p = .10$. Because the probability level was low and replicated the pattern observed in Experiments 1 and 2, however, we proceeded with orthogonal contrasts. As shown in Table 2, participants in the perceived strong message condition reported being significantly more certain about their attitudes than participants in the other two conditions, $F(1, 109) = 4.63, p < .04$, who did not differ from each other, $F(1, 109) = 0.03, p = .86$.

Behavioral Intentions

Prior to analyzing the attitude–behavioral intention correlations, we submitted the behavioral intention index to analysis to determine if there were any differences on this measure across message conditions. The effect of message condition on behavioral intentions was not significant, $F(2, 109) = 0.49, p = .61$. That is, voting intentions were essentially the same across the perceived strong ($M = 4.03, SD = 2.23$), perceived weak ($M = 4.39, SD = 2.07$), and control ($M = 3.89, SD = 2.50$) conditions. The critical test, however, involved the correspondence between attitudes and behavioral intentions. As mentioned earlier, high certainty attitudes tend to be more highly correlated with behavior than low certainty attitudes. Thus, we expected the attitude–behavioral intention correlation to be higher in the perceived strong message condition than in the other two conditions. Our findings were consistent with

Table 2
Attitudes, Attitude Certainty, and Attitude–Behavioral Intention Correlations as a Function of Message Condition in Experiment 4

Dependent measure	Message condition		
	Control (<i>n</i> = 37)	Perceived weak (<i>n</i> = 38)	Perceived strong (<i>n</i> = 37)
Attitudes			
<i>M</i>	4.68 _a	4.96 _a	4.81 _a
<i>SD</i>	1.96	1.73	1.86
Certainty			
<i>M</i>	4.83 _a	4.78 _a	5.39 _b
<i>SD</i>	1.20	1.11	1.73
Attitude–Behavior	<i>r</i> = .68 _a	<i>r</i> = .72 _a	<i>r</i> = .89 _b

Note. All scales ranged from 1 to 9. Subscripts should be interpreted within rows only. Means with the same subscript do not differ from each other.

these expectations. Although attitudes and behavioral intentions were highly correlated overall ($r = .80, p < .001$), this relationship was moderated by message condition. As can be seen in Table 2, the correlation was significantly higher in the perceived strong message condition ($r = .89, p < .001$) than it was in either the perceived weak message condition ($r = .72, p < .001; z = 2.13, p < .02$) or the control condition ($r = .68, p < .001; z = 2.46, p < .01$). The perceived weak and control message conditions did not differ from each other ($z = 0.33, p = .37$).

To examine the degree to which the attitude-behavioral intention correspondence effect was attributable to differences in attitude certainty, we conducted hierarchical regression analyses in which we treated behavioral intentions as the criterion and attitudes as a predictor. This analysis enabled us to determine the extent to which attitudes interacted with message condition to predict behavioral intentions, and whether this interaction remained statistically significant when controlling for the impact of attitude certainty. For this analysis we focused on the perceived strong and perceived weak message conditions given that our primary hypothesis was that resisting an attack believed to be strong would confer more certainty and attitude-behavioral intention consistency than resisting an attack believed to be weak. We began by entering attitudes and message condition (dummy coded) in the first step, and the interaction term (i.e., product) in the second step of a hierarchical regression analysis predicting behavioral intentions. This analysis replicated the simple correlation findings. That is, attitudes predicted behavioral intentions, $\beta = .80, t(72) = 11.60, p < .001$, as did the Attitude \times Message Condition interaction, $\beta = .33, t(71) = 1.96, p = .05$, which encompasses the simple correlations already reported. That is, attitudes and behavioral intentions were more highly correlated in the perceived strong condition than the perceived weak condition.

Having shown that the Attitude \times Message Condition interaction was significant, the next step was to demonstrate that the Attitude \times Certainty interaction also predicted behavioral intentions, which is what we would expect if attitude certainty were assuming an important role in the attitude-behavioral intention effect. Thus, we submitted the behavioral intention measure to another hierarchical regression analysis that included attitudes and attitude certainty as predictors in the first step, and the Attitude \times Certainty interaction term in the second step. Behavioral intentions were predicted by both attitudes, $\beta = .80, t(72) = 11.06, p < .001$, and the Attitude \times Attitude Certainty interaction, $\beta = .50, t(71) = 1.83, p = .07$. The interaction revealed the predicted impact of certainty on attitude-behavioral correspondence—that is, attitudes became more predictive of behavioral intentions as certainty increased. Finally, in a third step of the same hierarchical regression analysis, we added the original Attitude \times Message Condition interaction and found that it no longer predicted behavioral intentions, $\beta = .18, t(70) = 0.96, p = .34$. In short, when we controlled for the Attitude \times Certainty interaction, the Attitude \times Message Condition interaction became nonsignificant, consistent with the notion that certainty played a key role in determining attitude-behavioral intention consistency.

Counterarguments

We again analyzed the counterarguments generated by participants in the perceived strong and perceived weak message conditions, as in the previous experiments. We found that there were no

differences in the number, quality, or focus of counterarguments ($F_s < 1, p_s > .40$). The counterargument profiles were thus very similar for participants in the perceived strong and perceived weak message conditions.

Discussion

In Experiment 4, we demonstrated for the first time that resisting persuasion can increase the correspondence between one's initial attitude and subsequent behavioral intention. After first replicating the pattern of effects on the certainty measure, we found that attitudes became more predictive of behavioral intentions after participants had resisted a message believed to be strong, but not after they had resisted a message believed to be weak. This finding helps allay concerns that may have arisen with respect to the interpretation of the findings in Experiment 3, given that the levels of processing explanation does not provide a viable account for the behavioral intention data. In other words, considering the evidence from Experiments 3 and 4 renders the processing explanation unlikely as an alternative account for our results. Attitude certainty provides a much more parsimonious explanation for the data across studies. Furthermore, empirical evidence for the role of certainty comes from the regression analyses from Experiment 4, which were consistent with the notion that attitude certainty played a prominent role in determining the differential attitude-behavioral intention correspondence across conditions.

General Discussion

The data from four experiments suggest that when people believe they have successfully resisted a persuasive message (i.e., showed no attitude change), they can become more certain about their initial attitudes, but only when situational factors (e.g., the perceived strength of the attack) suggest that the resistance is diagnostic with respect to the validity of the initial attitude. If the resisted attack is believed to be strong, the natural metacognitive inference is that the attitude is a good one, and the individual feels more certain about it. Of importance, we found that this increase in attitude certainty makes initial attitudes more resistant to a subsequent attack and more predictive of behavioral intentions. However, if the resisted attack is believed to be weak, the inference that the attitude is a good one cannot be made as confidently, because it is possible that stronger arguments exist that might not have been resisted. Under these circumstances, resisting persuasion does not increase certainty, future resistance, or the consistency between attitudes and behavioral intentions. These findings are compatible with the metacognitive perspective we have taken on resistance, especially given the fact that participants' counterarguments did not differ in number, quality, or focus in any of the experiments. Resistance was essentially equivalent across conditions, but had different implications depending on the perceived strength of the attack.

In Experiment 2, it was shown that the predicted effects were limited to conditions in which participants were led to believe they had not changed their attitudes. One interesting question, then, is why the predicted effects on attitude certainty were obtained in the other experiments in which participants were not explicitly told they had resisted persuasion, and whether the present effects occur in real life situations in which this information is not made salient by an outside source. We suspect that people often do have some

sense that they have either changed or not changed their attitude after a persuasive communication. As noted earlier, there is a growing literature centered on the notion that people frequently form judgments based on their metacognitive awareness (for reviews, see Bless & Forgas, 2000; Jost et al., 1998). In Experiments 1, 3, and 4, we assume the majority of participants believed they had resisted persuasion, which was generally true. In Experiment 2, the false feedback in the no-change condition most likely confirmed what participants already believed—that is, that they had resisted. The false feedback in the change condition, however, appeared to trick participants into thinking they had evinced some degree of attitude change, as indicated by the self-reported attitude change data and the certainty data, which no longer conformed to the earlier pattern of findings. In short, Experiment 2 demonstrated that given that resistance has already occurred, *perceiving* it plays a causal role in determining attitude certainty.

Another important question relates to our manipulation of perceived message strength. Our position is that when people resist ostensibly weak attacks, they do not become more certain, because doubt remains as to other potentially stronger persuasive arguments that could have been presented. That is, people might realize they resisted a weak attack and not feel confident that a stronger attack would also have been resisted. To directly test this notion in the current experiments, we explicitly told participants that the message contained the “best possible” or “worst possible” arguments in support of the policy (see Experiment 1 instructions). Therefore, participants in the weak message condition were led to believe there could be stronger arguments available that were not being presented. However, people do not typically receive this information so explicitly in the real world. Indeed, although we believe inferences about other unseen arguments are an important part of the process, we do not think people have to be told directly that the arguments presented are the *strongest* or *weakest* ones available.

To test whether our findings were restricted to the particular manipulation of perceived message strength we used, we ran a follow-up experiment that was a conceptual replication of Experiment 1. In this study (Tormala & Petty, 2002), 48 Ohio State University undergraduates were led to believe they were participating in a market research project designed to assess reactions to a new aspirin product (“Comfrin”). Participants were told that this issue would have potentially important consequences for them personally as it would impact the type of aspirin products they choose to purchase in the future. To encourage participants to think carefully about the persuasive message, we also told them they were part of a small sample of students taking part in the study, so each and every one of their responses was important (see Petty, Harkins, & Williams, 1980). As in the current experiments, all participants were instructed to generate counterarguments to a message (an advertisement promoting Comfrin), and they 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 contained strong or weak arguments (though they were actually the same), but participants were *not* told that the arguments were the “strongest” or “weakest,” or that they were the “best possible” or “worst possible” arguments; nor were they told anything about what other arguments might exist in favor of the product. That is, participants were only told that the arguments

they received were strong or weak. Participants in the control condition read an irrelevant news article.

In this experiment, we replicated the basic effects. There was no effect of message condition on attitudes, $F(2, 45) = 1.04, p = .36$, indicating that neither the perceived strong advertisement ($M = 3.82, SD = 1.23$) nor the perceived weak advertisement ($M = 3.64, SD = 1.20$) produced attitudes that differed from the control ($M = 4.20, SD = 1.03$). There was, however, a significant effect on attitude certainty, $F(2, 45) = 5.97, p < .01$. This effect replicated our earlier findings, such that participants who had just resisted persuasion became more certain in the perceived strong condition ($M = 6.61, SD = 2.28$) than in either the perceived weak ($M = 4.48, SD = 1.72$) or control conditions ($M = 4.97, SD = 1.28$), $F(1, 45) = 11.14, p < .01$. The perceived weak and control conditions did not differ from each other, $F(1, 45) = 0.63, p = .43$. These findings show that the present effects are not contingent on people being told directly or indirectly about the other arguments that exist on the topic.⁵

Linking Certainty With Resistance and Behavior

In the present research, as in past research, attitude certainty has been linked with other meaningful consequences—specifically, future resistance and attitude-behavioral intention consistency. An interesting question, though, is *why* certainty has these consequences. That is, what is it about attitude certainty that fosters both future resistance and greater correspondence between attitudes and behavior? Although consideration of these issues is speculative and beyond the scope of this article, one noteworthy possibility is that people gain confidence in their attitudes when they believe the attitudes are correct (see Festinger, 1950, 1954). In the current paradigm, people would reason that if their attitudes can withstand a cogent attack, they must be correct. In other words, the perceived validity of an attitude might underlie one’s confidence in it, and one’s willingness to both defend it and act upon it (for a related discussion, see Petty & Wegener, 1998). Unfortunately, we do not have data from the present experiments that enable us to test this idea directly, but future research elucidating the mechanism or mechanisms through which certainty affects resistance and attitude-behavior consistency would be a worthwhile endeavor.

⁵ To provide even more compelling evidence for the ecological validity of our primary findings, we conducted a final study in which people were not told anything about how strong or weak the message was, but received a message that was actually strong or weak. In this study, 57 Ohio State University undergraduates received a message containing either four strong or four weak arguments in favor of senior comprehensive exams (adapted from Petty & Cacioppo, 1986). All participants were instructed to counterargue, which was effective in producing equivalent postmessage attitudes in each group, $t(55) = 0.81, p = .42$. Nevertheless, despite the fact that participants receiving the strong ($M = 5.18, SD = 2.23$) and the weak ($M = 4.73, SD = 2.01$) messages had comparable attitudes, participants who counterargued the strong message held their attitudes with greater certainty ($M = 5.81, SD = 1.91$) than participants who counterargued the weak message ($M = 4.89, SD = 1.64$), $t(55) = 1.97, p = .05$. This further enhances the ecological validity of our findings and suggests that people who resist messages that are actually strong will make the same inferences about their attitudes as people who resist messages explicitly labeled as strong.

When Does Resisting Persuasion Increase Attitude Certainty?

It is also useful to consider other factors in addition to perceived message strength that might moderate the effects of resisting persuasion on attitude certainty. For instance, what determines whether people actually engage in the kind of metacognitive processing we have examined? What other variables affect the perceived diagnosticity of one's resistance? Do resistance mechanisms differ in their effects on attitude certainty? These and other questions will likely prove important in future research.

Extent of Thinking

Recent work on the *self-validation hypothesis* (Petty et al., 2002; Tormala, Petty, & Briñol, 2002) may provide some clues as to when people will attend to their resistance and draw inferences from it. The self-validation work has shown that people pay more attention to metacognitive information when they are highly motivated to think. In several studies, Petty et al. (2002) assessed participants' cognitive responses to a persuasive message and asked participants to report their confidence in these cognitive responses, or experimentally induced participants to feel confidence or doubt in them. These studies indicated that participants' feelings of confidence in their thoughts played a key role in persuasion, but only when the motivation to think was high—for example, when the message topic was high in personal relevance (Petty & Cacioppo, 1979b) or the participants were high in their need for cognition (Cacioppo & Petty, 1982).

Given the metacognitive perspective we have taken in the present research, the self-validation hypothesis leads us to expect resisting persuasion to increase attitude certainty primarily when people are motivated to engage in extensive information processing. Consistent with this view, each of the current experiments likely induced high motivation to think, because the attitudinal issue was counterattitudinal and personally relevant to participants (Petty & Cacioppo, 1979b, 1986, 1990). In the aspirin study as well, all of our participants were encouraged to think carefully about their responses and the information in the message. Thus, our findings are consistent with the notion that people pay attention to their own resistance when motivation to think is high, but because the present research was not designed to answer this question, we did not have a comparison group that was low in motivation to think. We intend to examine this issue in future research.

Processing Experience

As noted in Footnote 3, processing experience may also play a role in the present effects. In short, the easier one finds it to resist a persuasive attack, the more confidence one should have in his or her initial attitude, especially if the attack seems strong. Consistent with this notion, Haddock, Rothman, Reber, and Schwarz (1999) have shown that ease of processing has implications for attitude certainty and other strength dimensions. In addition, Tormala et al. (2002) found that the easier it is for people to generate a list of counterarguments against a persuasive message, the more confidence they have in those counterarguments, and the more they base their attitudes on them. Given that thought confidence has been shown to predict attitude confidence more generally (Petty et al.,

2002), this research also points to a possible link between processing experience and attitude certainty when one attempts to resist persuasion. As a caveat, we should point out that although we expect increases in certainty to be attenuated when resistance is experienced as difficult, it is possible that people would become more certain about their attitudes when it is difficult to resist if they interpret this difficulty as a sign of message strength, thus concluding that they "rose to the challenge." This too would be a useful issue to examine in future work.

Resistance Mechanism

Another important factor might be the type of mechanism one uses to resist persuasion. Although counterarguing is a straightforward and accepted way to produce resistance (Brock, 1967; Petty & Cacioppo, 1979a), it is perhaps somewhat different from other resistance mechanisms in the sense that it is active and directed right at the persuasive attack. It is possible that when people resist by other means, such as bolstering their initial attitude (Lewan & Stotland, 1961; Ross, McFarland, Conway, & Zanna, 1983), they might be less likely to become more certain. In the early work on inoculation theory (McGuire, 1964), in fact, belief bolstering (i.e., supportive defense) was not always as effective as counterarguing (i.e., refutational defense) in fostering resistance to later attacks. It would be interesting and useful to determine whether the difference McGuire (1964) found between counterargument and bolstering conditions could be accounted for by differences in attitude certainty.

Even if counterarguing were found to produce greater increases in certainty relative to other resistance strategies, there are likely limitations to these effects. Extremely strong persuasive attacks, for instance, might be difficult or impossible to counterargue, and by attempting to do so, one might become even less certain than one was before. In such cases, other resistance strategies, like attitude bolstering or generating negative affect (e.g., Zuwerink & Devine, 1996), might prove more effective in that they do not highlight the validity of the opposing attitudinal position. In any case, future research should explore the numerous mechanisms of resistance to better understand the dynamic interplay between the persuasive attack, the resistance mechanism, and attitude certainty (see also Petty, Tormala, & Rucker, in press).

Reducing Certainty

Another promising avenue for future research would be to explore the conditions under which attitude certainty might actually *decrease* when people resist persuasion. We speculate that even after resisting, individuals might sometimes begin to doubt the validity of their attitudes—that is, lose confidence—when they are not impressed by their resistance. Doubt about one's resistance could conceivably stem from several sources, such as experiencing difficulty generating counterarguments, generating weak counterarguments (Tormala & Petty, in press), or recognizing that one did not resist by "legitimate" means (e.g., "I just ignored the arguments").

In the minority influence literature (e.g., Crano & Chen, 1998), it has been found that when people resist persuasion from a minority source, they can show greater evidence of change in the direction of the minority position when measured later, particularly when the persuasive message was strong. Given the connection

between attitude certainty and stability over time (e.g., Bassili, 1996), this finding fits with the notion that the minority source's strong influence attempt might have reduced attitude certainty. Indeed, it could be that when people resist strong messages from minority sources, they not only discover that valid arguments conflict with their attitudes, but also recognize that they did not thoughtfully resist those arguments. Consequently, they might have reason to doubt whether they could have resisted had they actually attempted to dispute the arguments, which could provoke doubt about the validity of the attitude.

Also germane is Crano and colleagues' (Crano et al., 1988; Crano & Sivacek, 1984) work on overjustification and attitude change. Crano et al. (1988), for example, found that when people are given rewards for supporting a proattitudinal position (i.e., overjustification), they infer that there is less consensus for their attitudes, and become more vulnerable to subsequent persuasion than if they had not been rewarded in the first place. Crano et al.'s reasoning is that a perceived lack of consensus renders the attitude invalid. Although no initial persuasive attack was resisted in this research, the findings are clearly consistent with the notion that attitude certainty can be undermined even when persuasion has not occurred.

Conclusion

Attitude change and resistance research has typically been conducted under the assumption that when someone resists a persuasive attack, that attack has failed to impact the target attitude. Overlooked by this assumption is the possibility that even though the persuasive message did not produce attitude change by conventional standards, it may have had other meaningful effects. The current research has uncovered one of these meaningful effects—that is, when people resist persuasion, the target attitude can be significantly changed in terms of attitude certainty. This finding is important, because attitude certainty has implications for future resistance, behavior, and attitudinal stability over time. Although theorists have tended to view resistance to persuasion as an endpoint in their research, our evidence suggests that it can be useful to view resistance as a starting point for the exploration of other effects that have traditionally remained hidden.

It is our hope that researchers will recognize the utility of taking a metacognitive perspective on persuasion and resistance. Although metacognition has had an impact on a number of domains in social psychology (see Bless & Forgas, 2000; Jost et al., 1998), its application to attitude change research has been much more limited thus far (see Petty et al., 2002). We believe there is much to be gained by considering the role of metacognition in persuasion and resistance processes. Indeed, a metacognitive perspective should help researchers understand more fully the range of variables impacting persuasive outcomes, and also provide a richer appreciation of the various effects persuasive attacks can have, whether they appear to have produced attitude change or not. Although much work remains to be done, we believe the present research takes a useful step in this direction.

References

- Abelson, R. P. (1988). Conviction. *American Psychologist*, 43, 267–275.
- Aderman, D., & Brehm, S. S. (1976). On the recall of initial attitudes following counterattitudinal advocacy: An experimental reexamination. *Personality and Social Psychology Bulletin*, 19, 59–62.
- Babad, E. Y., Ariav, A., Rosen, I., & Salomon, G. (1987). Perseverance of bias as a function of debriefing conditions and subjects' confidence. *Social Behaviour*, 2, 185–193.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Bassili, J. N. (1996). Meta-judgmental versus operative indexes of psychological attributes: The case of measures of attitude strength. *Journal of Personality and Social Psychology*, 71, 637–653.
- Bem, D. J. (1965). An experimental analysis of self-persuasion. *Journal of Experimental Social Psychology*, 1, 199–218.
- Bless, H., & Forgas, J. P. (Eds.). (2000). *The message within: The role of subjective experience in social cognition and behavior*. Philadelphia: Psychology Press.
- Brehm, J. W. (1966). *A theory of psychological reactance*. San Diego, CA: Academic Press.
- Brock, T. C. (1967). Communication discrepancy and intent to persuade as determinants of counterargument production. *Journal of Experimental Social Psychology*, 3, 296–309.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116–131.
- Clore, G. L., & Parrott, W. G. (1994). Cognitive feelings and metacognitive judgments. *European Journal of Social Psychology*, 24, 101–115.
- Crano, W. D., & Chen, X. (1998). The leniency contract and persistence of majority and minority influence. *Journal of Personality and Social Psychology*, 74, 1437–1450.
- Crano, W. D., Gorenflo, D. W., & Shackelford, S. L. (1988). Overjustification, assumed consensus, and attitude change: Further investigation of the incentive-aroused ambivalence hypothesis. *Journal of Personality and Social Psychology*, 55, 12–22.
- Crano, W. D., & Sivacek, J. (1984). The influence of incentive-aroused ambivalence on overjustification effects in attitude change. *Journal of Experimental Social Psychology*, 20, 137–158.
- Fazio, R. H., & Zanna, M. P. (1978). Attitudinal qualities relating to the strength of the attitude–behavior relationship. *Journal of Experimental Social Psychology*, 14, 398–408.
- Festinger, L. (1950). Informal social communication. *Psychological Review*, 57, 271–282.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, MA: Addison-Wesley.
- Gilbert, D. T. (1998). Ordinary personology. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 2, pp. 89–150). Boston: McGraw-Hill.
- Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion, and attitude change. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological foundations of attitudes* (pp. 147–170). New York: Academic Press.
- Gross, S., Holtz, R., & Miller, N. (1995). Attitude certainty. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 215–245). Mahwah, NJ: Erlbaum.
- Haddock, G., Rothman, A. J., Reber, R., & Schwarz, N. (1999). Forming judgments of attitude certainty, intensity, and importance: The role of subjective experiences. *Personality and Social Psychology Bulletin*, 25, 771–782.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. New Haven, CT: Yale University Press.
- Jacoby, L. L., & Kelley, C. M. (1987). Unconscious influences of memory for a prior event. *Personality and Social Psychology Bulletin*, 13, 314–336.

- Jarvis, W. B. G. (2000). MediaLab [Computer software]. Columbus, OH: Empirisoft.
- Jost, J. T., Kruglanski, A. W., & Nelson, T. O. (1998). Social metacognition: An expansionist review. *Personality and Social Psychology Review*, 2, 137–154.
- Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska Symposium on Motivation* (Vol. 15, pp. 192–240). Lincoln: University of Nebraska Press.
- Killeya, L. A., & Johnson, B. T. (1998). Experimental induction of biased systematic processing: The directed-thought technique. *Personality and Social Psychology Bulletin*, 24, 17–33.
- Krosnick, J. A., & Abelson, R. P. (1992). The case for measuring attitude strength in surveys. In J. Tanur (Ed.), *Questions about questions* (pp. 177–203). New York: Russell Sage.
- Lewan, P. C., & Stotland, E. (1961). The effects of prior information on susceptibility to an emotional appeal. *Journal of Abnormal and Social Psychology*, 62, 450–453.
- McGuire, W. J. (1964). Inducing resistance to persuasion: Some contemporary approaches. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 1, pp. 191–229). New York: Academic Press.
- McGuire, W. J. (1968). Personality and attitude change: An information-processing theory. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological foundations of attitudes* (pp. 171–196). New York: Academic Press.
- McGuire, W. J., & Papageorgis, D. (1961). The relative efficacy of various types of prior belief-defense in producing immunity against persuasion. *Journal of Abnormal and Social Psychology*, 62, 327–337.
- Petty, R. E., Briñol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology*, 82, 722–741.
- Petty, R. E., & Cacioppo, J. T. (1979a). Effects of forewarning of persuasive intent and involvement on cognitive responses. *Personality and Social Psychology Bulletin*, 5, 173–176.
- Petty, R. E., & Cacioppo, J. T. (1979b). Issue-involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 37, 1915–1926.
- Petty, R. E., & Cacioppo, J. T. (1986). The Elaboration Likelihood Model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). New York: Academic Press.
- Petty, R. E., & Cacioppo, J. T. (1990). Involvement and persuasion: Tradition versus integration. *Psychological Bulletin*, 107, 367–374.
- Petty, R. E., Harkins, S. G., & Williams, K. D. (1980). The effects of group diffusion of cognitive effort on attitudes. An information processing view. *Journal of Personality and Social Psychology*, 38, 81–92.
- Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences*. Mahwah, NJ: Erlbaum.
- Petty, R. E., Ostrom, T. M., & Brock, T. C. (Eds.). (1981). *Cognitive responses in persuasion*. Hillsdale, NJ: Erlbaum.
- Petty, R. E., Tormala, Z. L., & Rucker, D. (in press). Resistance to persuasion: An attitude strength perspective. In J. T. Jost, M. R. Banaji, & D. Prentice (Eds.), *The yin and yang of progress in social psychology: Perspectivism at work*. Washington, DC: American Psychological Association.
- Petty, R. E., & Wegner, D. T. (1998). Attitude change: Multiple roles for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 1, pp. 323–390). New York: McGraw-Hill.
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, 96, 341–357.
- Ross, M., McFarland, C., Conway, M., & Zanna, M. P. (1983). Reciprocal relation between attitudes and behavior recall: Committing people to newly formed attitudes. *Journal of Personality and Social Psychology*, 45, 257–267.
- Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology*, 61, 195–202.
- Schwarz, N., & Clore, G. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513–523.
- Strack, F., & Förster, J. (1998). Self-reflection and recognition: The role of metacognitive knowledge in the attribution of recollective experience. *Personality and Social Psychology Review*, 2, 111–123.
- Swann, W. B., Pelham, B. W., & Chidester, T. R. (1988). Change through paradox: Using self-verification to alter beliefs. *Journal of Personality and Social Psychology*, 54, 268–273.
- Tormala, Z. L., & Petty, R. E. (2002). [Effects of resisting consumer persuasion on attitude certainty]. Unpublished raw data.
- Tormala, Z. L., & Petty, R. E. (in press). Resistance to persuasion and attitude certainty: A metacognitive analysis. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion*. Mahwah, NJ: Erlbaum.
- Tormala, Z. L., Petty, R. E., & Briñol, P. (2002). Ease of retrieval effects in persuasion: A self-validation analysis. *Personality and Social Psychology Bulletin*, 28, 1700–1712.
- Wegner, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141–208). San Diego, CA: Academic Press.
- White, J. D., Tashchian, A., & Ohanian, R. (1991). An exploration into the scaling of consumer confidence: Dimensions, antecedents, and consequences. *Journal of Social Behavior and Personality*, 6, 509–528.
- Wu, C., & Shaffer, D. R. (1987). Susceptibility to persuasive appeals as a function of source credibility and prior experience with the attitude object. *Journal of Personality and Social Psychology*, 52, 677–688.
- Zuwerink, J. R., & Devine, P. G. (1996). Attitude importance and resistance to persuasion: It's not just the thought that counts. *Journal of Personality and Social Psychology*, 70, 931–944.

Received December 3, 2001

Revision received June 18, 2002

Accepted June 21, 2002 ■