
Resistance Can Be Good or Bad: How Theories of Resistance and Dissonance Affect Attitude Certainty

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This research investigated how lay theories about resisting persuasion can affect attitude certainty. Specifically, people who believed that resistance was negative (i.e., implies close-mindedness) showed different levels of attitude certainty after resisting persuasive messages than people who believed resistance was positive (i.e., implies intelligence). When people held positive lay theories of resistance and overcame ostensibly strong arguments, they showed increased attitude certainty (compared to those who overcame ostensibly weak arguments). However, individuals who believed that resistance was negative did not show increases in attitude certainty when overcoming strong arguments. Experiment 2 suggests that the effect of lay theories and perceived argument strength on attitude certainty was due to dissonance created by believing that resistance is undesirable but nonetheless resisting persuasion.

Keywords: attitudes; attitude certainty; resistance; lay theories; cognitive dissonance

Attitudes have been viewed by many (e.g., Allport, 1935) as the “indispensable concept” in social psychology. Therefore, understanding how attitudes are changed via persuasion, and conversely how such persuasive appeals can be resisted, has long been central to research in the social psychological tradition (McGuire, 1964). Much of the classic research on resistance to persuasion focuses on McGuire’s work regarding inoculation, which found that success at resisting arguments can facilitate subsequent resistance attempts. More recent research has begun to investigate how successfully resisting persuasion can have effects not just on attitude valence or extremity but also on other strength-related properties of attitudes. Much of the new research in the area of resistance has focused on how the process of resistance affects certainty about one’s attitude in situations where persuasive attempts are resisted (e.g.,

Tormala & Petty, 2002). The current work extends research that has focused on how attributions about responses to a persuasive message can make resistance more likely (e.g., Petty, Briñol, & Tormala, 2002). In particular, what is the effect of resisting persuasion on people’s attitudes?

To answer this question, research on resisting persuasion has focused on how subtle influences can have effects on the strength-related properties of attitudes that can sometimes be overlooked when only the evaluative properties of attitudes are examined. The current work examines one important strength-related property: attitude certainty. Attitude certainty is “the sense of conviction with which one holds one’s attitude or one’s subjective assessment of the validity of his or her attitude” (Tormala & Petty, 2004a, p. 67). Attitude certainty is important to understand because it is influenced by or even inferred via metacognitions about the attitude object. Metacognition is defined as thoughts about ongoing thought processes and includes beliefs about one’s own or others’ thoughts, lay theories about how one should act in certain situations, and beliefs about how people process information (Briñol, Rucker, Tormala, & Petty, 2004). In research on attitude certainty and metacognition, Tormala and Petty (2002) have shown that when participants resisted an argument that they perceived as strong, they became more certain of their attitudes, whereas no change in attitude certainty

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was shown when arguments were perceived as weak. Tormala and Petty (2002, 2004a) explain these results using attribution theory. Specifically, when people perceive that they have resisted a strong argument (a task that should be difficult), they attribute their ability to resist to holding their position with great certainty. When people resist what they perceive as a weak argument, their attitude certainty is unchanged because resisting a weak message does not require that people hold an attitude with certainty; instead, the ability to resist is attributed to the weak message.

In support of this attributional logic, Tormala and Petty (2002) showed that increased attitude certainty in response to resisting an ostensibly strong argument did not occur when people were led to believe that their attitudes had changed in response to a persuasive message. Thus, when people thought that their attitude had changed in response to an ostensibly strong argument (even though it actually had not changed), they were no longer able to conclude that they overcame the argument and, thus, attitude certainty was unaffected. Also consistent with this attributional logic, Tormala and Petty (2004b) showed that the effects of perceived attitude strength on attitude certainty happen only in situations when argument elaboration is greater.

One question that has not been addressed is whether message recipients' lay theories about resistance (e.g., resistance suggests intelligence, resistance suggests stubbornness; see Kruglanski & Webster, 1996) may be important for understanding the effects of resistance on attitude certainty. Not all people believe that resisting persuasion is necessary or even logical in all situations. To the contrary, people who are incorrect or uninformed about an issue should change their attitude when given substantive, compelling, counterattitudinal information. However, people do differ in their ability to resist persuasive messages (Briñol et al., 2004), and some of these differences may reflect people holding different lay theories about resistance. Naturally, if people hold the belief that resistance is positive, they should be more likely to resist persuasion, whereas when people believe that resistance is negative, they should be less likely to resist persuasive attempts (Briñol et al., 2004; Wegener & Petty, 1997).

Despite these inevitable effects of lay theories of resistance on basic tendencies to resist persuasion, several interesting situations arise when individuals' lay theory of resistance violates their behavior. What happens, for example, when people hold a negative view of resistance (e.g., it implies stubbornness) but actually do resist a persuasive attempt? Even when people believe that those who resist persuasion are close-minded (Kruglanski & Webster, 1996), they will inevitably resist some attempts at persuasion. As previously discussed, successfully resist-

ing an ostensibly strong argument may lead an individual to infer that an attitude is held with great certainty. We hypothesized, however, that this is likely only when individuals believe that resisting persuasive arguments is a good thing. Certain resistance situations, however, can lead individuals to be unsure as to whether they should infer certainty from resisting an ostensibly strong argument. In such situations, successful resistance should not imply a strongly held attitude. For example, if individuals believe that resisting persuasive appeals is a sign of stubbornness, successful resistance may not lead to greater attitude certainty. As such, we hypothesized that attitude certainty should not increase after resistance when people hold lay theories of resistance as negative, regardless of the perceived strength of persuasive appeals resisted. In other words, lay theories will moderate the extent to which people can infer attitude certainty from their responses to persuasive attempts.

Why might lay theories of resistance moderate the effects of perceived argument strength on attitude certainty? We propose that these effects rely on the fact that people who believe resistance is negative behave in a way that violates their beliefs. Specifically, participants with negative beliefs about resistance believe one thing (i.e., resistance is close-minded) yet act in a manner inconsistent with their beliefs (i.e., they resist persuasion). When people believe that resistance is negative yet they resist the persuasive appeal, their beliefs and behaviors are inconsistent. This inconsistency could lead not only to uncertainty (Tormala & Petty, 2002, 2004a) but also to cognitive dissonance (Stone, 2001). Thus, we also hypothesized that cognitive dissonance processes may underlie any failure to infer greater attitude certainty after overcoming perceived strong arguments when resistance is viewed negatively. When people believe resisting persuasion is positive and they actually resist persuasive messages, there is no inconsistency between lay beliefs and resistance and, therefore, they should not experience cognitive dissonance. In this case, people who believe that resistance is positive are acting in line with their lay theories and should infer greater attitude certainty from resisting ostensibly strong arguments. Two experiments were conducted to test these hypotheses. Both experiments test the extent to which lay theories of resistance moderate the extent to which people infer attitude strength from successful resistance. The second study was designed to test dissonance as a potential mechanism underlying the observed effects.

EXPERIMENT 1

The first experiment tested the logic that having different lay theories about resisting persuasion will influence the level of attitude certainty experienced following successful resistance. Whereas past research (e.g.,

Tormala & Petty, 2002) reliably finds that attitude certainty increases after resisting ostensibly strong arguments, the first experiment tested if having a negative lay theory about resistance (i.e., people who resist are stubborn) would eliminate the effect of perceived argument strength on attitude certainty. We hypothesized that people who hold negative views about resisting persuasion would not show these effects because under these conditions they are less likely to infer certainty from their resistance because their inconsistent beliefs and actions likely induce dissonance (this reasoning was tested in Experiment 2). The first experiment used methods similar to those of Tormala and Petty (2002) and included an additional manipulation of participants' lay theories of resisting persuasion.

Method

PARTICIPANTS

A sample of 37 undergraduates at Miami University participated in return for research credit in their introductory psychology courses. Participants were randomly assigned to a 2 (resistance manipulation: resistance is positive, resistance is negative) \times 2 (perceived argument strength: strong, weak) between-subjects factorial.

PROCEDURE

Participants arrived in the laboratory in small groups. After providing informed consent, participants were randomly assigned to one of the experimental conditions. Participants were then provided a packet of materials that included the resistance manipulation, the manipulation of perceived argument strength, the arguments in favor of senior comprehensive exams, and instructions to resist the arguments. After the manipulations and arguments, participants completed measures of counterarguing against senior comprehensive exams, an attitude measure, and a measure of attitude certainty. After completing all manipulations and measures, participants were thanked and debriefed.

MATERIALS

Resistance manipulation. First, participants in the experimental conditions were randomly assigned to receive information about whether resistance was positive (in italics) or negative (in brackets). Participants read the following:

The scientific literature on resisting persuasion has shown that people who resist persuasive attempts are *intelligent and have greater insight into their feelings and opinions* [unintelligent and have little insight into their feelings and opinions]. When people are able to resist a persuasive attempt, *it shows that they are independent thinkers who are able to hold on to their beliefs even in response to clever attempts at persuasion* [it shows that they are stubborn peo-

ple who will hold on to their often flawed beliefs even when there are compelling reasons to change them].

As a manipulation check, participants then completed a questionnaire in which they rated their attitudes about people who resist persuasion. To assess these perceptions of resistance, participants provided their evaluation of people who resist persuasion on a feeling thermometer that ranged in temperature from 0° to 100°, with greater scores indicating more positive attitude toward people who resist persuasion.

Manipulation of perceived argument strength. Next, participants read about a plan for instituting senior comprehensive exams at their university. Specifically, they were told,

In this study, you will be reading a series of statements that was given by members of the university's Board of Trustees. Miami University has recently considered implementing senior comprehensive exams as a graduation requirement and this requirement could be implemented in the next few years.

Thus, all participants were led to believe that senior comprehensive exams could be instituted and that this policy could affect them personally (Petty & Cacioppo, 1979; Tormala & Petty, 2004b). Only high-involvement conditions were examined in the current work because, as mentioned previously, the effects of perceived argument strength on attitude certainty are only observed when argument elaboration is greater (Tormala & Petty, 2004b).

All participants then read four arguments in favor of instituting senior comprehensive exams. Although all participants read the same moderate strength arguments for instituting senior comprehensive exams (i.e., the arguments were constructed using two strong arguments and two weak arguments from Petty & Cacioppo, 1986), before reading the arguments half of the participants were led to believe that the arguments that they would be reading were strong ("In this session, we have included only the strongest of all the arguments raised in favor of the exam policy") and half of the participants were led to believe that they were about to read weak arguments ("In this session, we have included only the weakest of all the arguments raised in favor of the exam policy") (Tormala & Petty, 2002).

Resistance instructions and counterargument measure. All participants were instructed to resist the arguments presented in favor of senior comprehensive exams (see Killeya & Johnson, 1998). Specifically, they were told to write, in several boxes provided, "as many thoughts that you had *against* the senior comprehensive exams proposed by the Board of Trustees."

Attitudes. Participants then completed five semantic differential scales by using 9-point scales to characterize their evaluation of instituting senior comprehensive exams: *good-bad*, *pleasant-mean*, *agreeable-disagreeable*, *caring-uncaring*, and *kind-cruel*. The mean score for the scales was computed such that greater scores indicated more positive evaluations of senior comprehensive exams ($\alpha = .91$).

Attitude certainty. Finally, to examine attitude certainty, participants responded to the following question, "How certain are you of your attitudes toward comprehensive exams?" on a scale ranging from 1 (*not at all certain*) to 9 (*extremely certain*).

Results

MANIPULATION CHECK

To examine if our resistance manipulation was effective, a 2 (resistance manipulation) \times 2 (perceived argument strength) between-subjects ANOVA was conducted on perceptions of resistance scores. The results showed only the predicted main effect of resistance manipulation, $F(1, 33) = 58.34, p < .001$. As expected, participants who were told that resistance was positive had more positive attitudes toward those who show resistance ($M = 70.95$) than those who were told that resistance was negative ($M = 35.51$). Thus, the manipulation of perceptions of resistance was effective.

RESISTING PERSUASION

To make strong claims about the effects of lay theories on attitude certainty after successfully resisting persuasion, it is important to show that participants who were confronted with arguments in favor of senior comprehensive exams actually resisted the persuasive message. Moreover, to draw meaningful comparisons across conditions, it is important to show that participants in all experimental conditions were equally successful in counterarguing.

The counterarguments against senior comprehensive exams were examined on three dimensions relevant to resistance (Tormala & Petty, 2002). To examine the level of resistance to the message, the number of thoughts against instituting senior comprehensive exams was summed for each participant. Irrelevant thoughts and thoughts in favor of the exam policy were extremely rare (<3% in the current experiments) and were not used in the calculation of counterattitudinal thoughts. In addition, to examine if participants differed in the quality of the counterattitudinal thoughts they listed, two raters who were unaware of the experimental hypotheses rated each of the arguments given by each participant on a 9-point scale from 1 (*not at all convincing*) to 9 (*extremely convincing*). The raters' scores were highly correlated ($r = .81, p < .001$) and thus their scores

were averaged. The average ratings for the arguments of each participant were calculated and served as our measure of argument quality. To examine if participants selectively attacked the strong or weak arguments given in the message more (because the message did actually contain two strong and two weak arguments, see above), two raters determined which of the arguments the counterargument refuted. The raters were highly reliable (94% interrater agreement, with discrepancies resolved by discussion). To examine if the participants employed a different strategy of counterargument across different conditions (e.g., participants tended to argue against the weak arguments when they thought resistance was positive or tended to argue against the strong arguments when they thought resistance was negative), the proportion of strong to weak arguments counterargued for each participant was determined by subtracting the number of counterarguments against the strong argument from those against the weak arguments and dividing that number by the total number of counterarguments.

Participants' attitudes toward comprehensive exams, the number of counterattitudinal arguments listed, the quality of the counterattitudinal thoughts listed, and the type of message attacked were all examined with identical 2 (resistance manipulation) \times 2 (perceived argument strength) between-subjects ANOVAs (see Table 1). The results for attitudes indicated that, as instructed, all participants were equally able to resist persuasion, all $F_s < 1$. The results for the number of counterattitudinal arguments listed also showed no significant effects of any of the manipulations presented, all $F_s < 1.05, ns$. The results for argument quality showed no significant effects of the manipulations presented, all $F_s < 1, ns$. Finally, the results for type of message attacked showed no significant effects of the manipulations presented, all $F_s < 1, ns$. Thus, regardless of their perceptions of resistance or their perceptions of argument strength, participants were able to resist persuasion because the amount, quality, and strategy of resistance did not differ across experimental conditions.

ATTITUDE CERTAINTY

Because resistance was observed, our hypotheses about the effects of lay theories of resistance and perceived argument strength on attitude certainty were examined. The results for attitude certainty showed the predicted two-way interaction of resistance manipulation and perceived argument strength, $F(1, 35) = 7.21, p < .02$ (see Figure 1). Simple effects analyses were conducted for the effect of argument strength on attitude certainty for those who were in the positive and negative information about resistance conditions, separately. Participants who believed resistance was positive had

TABLE 1: Descriptive Statistics for Attitudes, Number of Counterarguments, Quality of Counterarguments, and Proportion of Counterarguments in Experiment 1

	<i>Positive Strong</i>	<i>Positive Weak</i>	<i>Negative Strong</i>	<i>Negative Weak</i>
Attitudes	4.70 (1.25)	4.80 (1.34)	4.78 (2.34)	4.77 (.97)
Number of counterarguments	3.88 (1.36)	4.36 (1.63)	3.70 (1.42)	4.25 (1.75)
Quality of counterarguments	4.25 (2.43)	4.91 (2.42)	5.10 (2.28)	5.12 (1.55)
Proportion of counterarguments	-.02 (.50)	-.03 (.30)	.00 (.58)	-.11 (.45)

NOTE: The mean of each condition is presented first; the standard deviation is presented in parentheses. In addition, none of the means within a row were significantly different from one another (Tukey's honestly significant difference [HSD]).

greater attitude certainty when they resisted what they perceived were strong arguments than those who resisted ostensibly weak arguments, $t(35) = 5.11, p < .001$; however, participants who believed that resistance was negative did not show an increase in attitude certainty when resisting ostensibly strong arguments as compared to resisting ostensibly weak arguments, $t(35) = .50, n.s.$

Discussion

Experiment 1 demonstrated that people who believed that resistance was negative did not show increased attitude certainty in response to overcoming a perceived strong argument. However, people who believed that resistance was positive and believed they resisted a strong argument did show increased attitude certainty (Tormala & Petty, 2002). Thus, holding a lay theory that resisting persuasion was negative did not allow people to infer greater attitude certainty in response to overcoming what they believed was a strong argument.

Although these data are consistent with our predictions, the question as to why negative theories about resistance eliminated the attitude certainty effect remains open. As mentioned earlier, one possibility is that when people's beliefs about resistance (i.e., resistance is close-minded) differ from their actual resistance behavior (i.e., resisting persuasion), they experience cognitive dissonance, and this interferes with the attributions necessary to increase attitude certainty after overcoming a strong argument. Hence, Experiment 2 sought to provide evidence that the failure to infer greater attitude certainty from resisting strong arguments in the negative lay theory condition may be due in part to cognitive dissonance.

EXPERIMENT 2

Experiment 1 found that when inconsistencies between lay theories about resistance and resistance behavior arise, perceivers do not infer high attitude certainty from their successful resistance. To the extent that inconsistencies arise between people's lay theories about resistance and their actual resistance behaviors, we propose that dissonance may result (Cooper & Fazio, 1984).

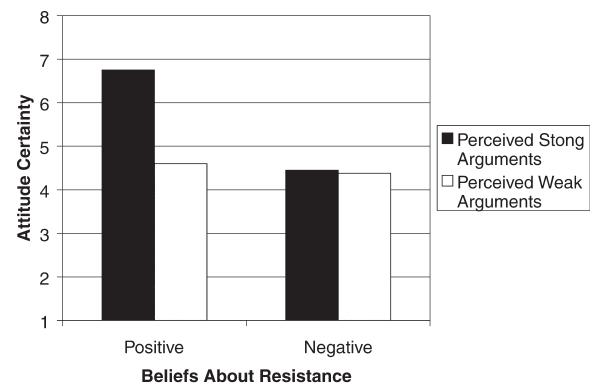


Figure 1 Attitude certainty as a function of resistance manipulation and perceived argument strength in Experiment 1.

If people hold a negative belief about resistance to persuasion, the attribution that people are especially certain of their attitudes after resisting strong persuasive arguments would be avoided if such an inference leads to dissonance.

If dissonance processes are a viable explanation for the effects observed in the negative lay theory condition in Experiment 1, we should observe increased attitude certainty even when believing that resistance is undesirable under conditions that have reliably been shown to eliminate dissonance effects. One way to experimentally eliminate dissonance is by utilizing a misattribution manipulation. In an illustrative misattribution study, Zanna and Cooper (1974) had participants take a pill before completing a writing task. As a between-subjects manipulation, participants were told that the pill was supposed to have no side effects or that one of the pill's side effects was that it would make them feel tense. In a subsequent task, participants then wrote a counterattitudinal essay under a high-choice condition (which aroused dissonance) or low-choice condition (which did not arouse dissonance). In the no side effect condition, those in the high-choice condition showed the typical dissonance-induced attitude change such that their attitudes were altered to be more consistent with the essay

they wrote. However, when participants were instructed that the pill would make them feel tense, no attitude change occurred. This occurred because participants mistakenly believed that the tension they felt from choosing to write a counterattitudinal essay was due not from attitude-discrepant behavior but to the side effects of the pill they had taken. Thus, the dissonance arousal was misattributed to the pill and not to writing the counterattitudinal essay (which was the true source of dissonance arousal). Because of this misattribution, there was no need for participants to change their attitudes about the essay topic to reduce dissonance.

In much the same way, Experiment 2 used a misattribution manipulation designed to permit participants to misattribute their dissonance from the inconsistency between beliefs about resistance and resistance-related behaviors to the room in which the experiment was conducted (Fried & Aronson, 1995). We hypothesized that if the dissonance that arises from the inconsistency between lay theories of resistance and actual resistance behavior is attributed to an external source, people will attribute their ability to overcome a strong argument to greater levels of attitude certainty, even though they believe that resistance is negative. Therefore, we predicted that under conditions that afforded no misattribution, we would closely replicate the pattern of data observed in Experiment 1, with negative lay theories about resistance eliminating the increase in attitude certainty from resisting persuasive appeals. When provided a misattribution manipulation, however, we predicted that participants would show greater attitude certainty after resisting persuasion, regardless of their lay theory of resistance.

Method

PARTICIPANTS AND DESIGN

A sample of 80 undergraduates at Miami University participated in return for research credit in their introductory psychology courses. Participants were randomly assigned to a 2 (resistance manipulation: resistance is positive, resistance is negative) \times 2 (perceived argument strength: strong, weak) \times 2 (misattribution condition: no misattribution, misattribution) between-subjects factorial.

PROCEDURE AND MATERIALS

The procedure (resistance manipulation, perceived argument strength) and measures (e.g., attitudes toward those who resist; attitude certainty; attitudes about senior comprehensive exams, $\alpha = .90$; counterattitudinal thoughts; attitudes about resistance) for Experiment 2 were the same as Experiment 1, with one modification. A

misattribution manipulation also was added after the counterarguing measure.

Misattribution manipulation. After resisting the arguments in favor of senior comprehensive exams, half of the participants were given the opportunity to misattribute arousal to the room in which they were participating (Fried & Aronson, 1995). Specifically, participants were told,

The Psychology Department has asked that we examine the usefulness of these rooms to assess laboratories to conduct psychological research. You will be asked to rate the room that you are participating in on various factors such as noise levels and lighting. These factors, although apparently subtle, could have very powerful effects on people who spend time in the room. This information will be made available to, and will be important for, future researchers using the lab to study sensitive factors such as emotions. (Fried & Aronson, 1995, p. 928)

Participants were then asked to rate the extent to which the lighting, size, noise, temperature, and the combination of these factors affected their ability to complete the experiment in which they were participating on 9-point scales. The ratings were very reliable ($\alpha = .96$) and their mean was computed such that greater scores indicated that more arousal was attributed to the room. Past research (Fried & Aronson, 1995) has shown that this misattribution manipulation is effective at eliminating dissonance effects. Participants in the no misattribution condition did not receive this questionnaire, perfectly replicating the procedure of Experiment 1.

Results

MANIPULATION CHECK

To examine if the resistance manipulation was effective, a 2 (resistance manipulation) \times 2 (perceived argument strength) \times 2 (misattribution condition) between-subjects ANOVA was conducted on the perceptions of resistance scores. The results showed only the predicted main effect of resistance manipulation, $F(1, 72) = 31.34$, $p < .001$. As expected, participants who were told that resistance was positive had more positive attitudes toward those who show resistance ($M = 71.23$) than those who were told that resistance was negative ($M = 48.26$). Once again, the manipulation of perceptions of resistance was effective.

RESISTING PERSUASION

As with the previous experiment, to make claims about the sequelae of successfully resisting persuasion, it is necessary to show that all participants successfully resisted persuasion. Again, the counterarguments produced against senior comprehensive exams were exam-

TABLE 2: Descriptive Statistics for Attitudes, Number of Counterarguments, Quality of Counterarguments, and Proportion of Counterarguments in Experiment 2

	<i>Positive Strong</i>	<i>Positive Weak</i>	<i>Negative Strong</i>	<i>Negative Weak</i>
No Misattribution Condition				
Attitudes	4.27 (2.26)	4.22 (1.26)	5.36 (1.53)	4.33 (2.56)
Number of counterarguments	4.50 (1.62)	4.50 (1.93)	4.36 (2.01)	3.67 (2.55)
Quality of counterarguments	4.67 (2.64)	4.58 (1.31)	4.73 (2.33)	4.44 (1.74)
Proportion of counterarguments	.03 (.22)	.00 (.35)	.14 (.23)	.01 (.52)
Misattribution Condition				
Attitudes	4.65 (2.02)	4.64 (1.75)	4.55 (1.29)	4.02 (1.63)
Number of counterarguments	4.90 (2.42)	4.67 (1.22)	4.44 (1.94)	5.80 (2.74)
Quality of counterarguments	4.90 (1.72)	5.55 (2.19)	4.78 (1.92)	5.00 (2.94)
Proportion of counterarguments	.02 (.56)	-.01 (.30)	.04 (.25)	-.09 (.23)

NOTE: The mean of each condition is presented first; the standard deviation is presented in parentheses. In addition, none of the means within a row were significantly different from one another (Tukey's honestly significant difference [HSD]).

ined on three dimensions relevant to resistance. The number of thoughts against instituting senior comprehensive exams was summed for each participant. The quality of the counterattitudinal thoughts listed was determined by two raters who were unaware of the experimental hypotheses by evaluating the arguments given by each participant on the same 9-point scale used in Experiment 1. The raters' scores were highly correlated ($r = .88$, $p < .001$) and thus their scores were averaged. To examine if participants more selectively attacked the strong or weak arguments given in the message, two raters determined which of the arguments the counterargument refuted. The raters were highly reliable (89% interrater agreement, with discrepancies resolved by discussion). To examine if the participants employed a different strategy of counterargument across different conditions, the proportion of strong to weak arguments counterargued for each participant was determined as in Experiment 1.

Participants' attitudes toward comprehensive exams and the number of counterattitudinal arguments listed were both examined with identical 2 (resistance manipulation) $\times 2$ (perceived argument strength) $\times 2$ (misattribution condition) between-subjects ANOVAs (see Table 2). The results for attitudes indicated that all participants were equally able to resist persuasion, all F s < 1.30 , *ns*. The results for counterattitudinal arguments also showed no significant effects of any of the manipulations presented, all F s < 1.85 , *ns*. The results for argument quality showed no significant effects of the manipulations presented, all F s < 2.17 , p s $> .14$. Finally, the results for type of message attacked showed no significant effects of the manipulations presented, all F s < 2.05 , p s $> .16$. Again, because resistance was observed, our hypotheses about the effects of resistance on dissonance arousal and attitude certainty could be examined.

MISATTRIBUTION

If dissonance is elicited by inconsistencies between lay theories regarding resistance (i.e., resistance is negative) and resistance behavior (i.e., participants resist persuasion), we should observe higher levels of misattribution among such participants. Thus, for participants who received the misattribution manipulation, the extent to which they believed that the room affected their performance was evaluated with a 2 (resistance manipulation) $\times 2$ (perceived argument strength) between-subjects ANOVA. The expected main effect of resistance manipulation was observed such that participants who learned that resistance was negative reported that the room in which the study took place affected their performance ($M = 3.46$) more than did participants in the positive information about resistance condition ($M = 2.11$), $F(1, 33) = 4.83$, $p < .04$.

ATTITUDE CERTAINTY

The results for attitude certainty showed the predicted three-way interaction between resistance manipulation, perceived argument strength, and misattribution condition, $F(1, 72) = 5.66$, $p < .03$. To investigate the nature of this interaction, it was decomposed into two, two-way interactions, one for each level of the misattribution condition. Participants in the no misattribution condition showed the predicted two-way interaction of the resistance manipulation and argument strength, strongly replicating the results of Experiment 1, $F(1, 38) = 14.96$, $p < .001$ (see Figure 2, top panel). Further simple effects analyses were conducted for the effect of argument strength on attitude certainty for those who were in the positive and negative information about resistance conditions, separately. As the top panel of Figure 2 shows, those in the positive information about resistance condition showed an effect of argument strength, $t(79) = 7.64$, $p < .001$, but this effect was

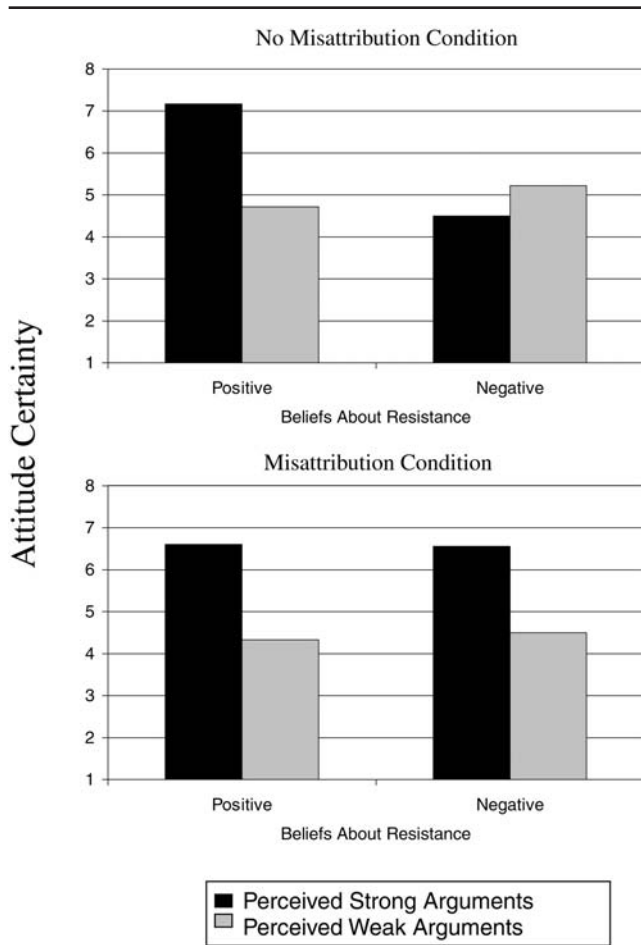


Figure 2 Attitude certainty as a function of resistance manipulation and perceived argument strength in the no misattribution condition (top panel) and in the misattribution condition (bottom panel) of Experiment 2.

not present in the negative information about resistance condition, $t(79) = -1.46$, *ns*. These results replicated Experiment 1, indicating that the effect of perceived argument strength on attitude certainty was moderated by lay beliefs about the value of resistance.

Participants who were given the opportunity to misattribute, however, did not show an interaction of resistance manipulation and perceived argument strength, $F < 1$. Instead, they showed only the predicted main effect of perceived argument strength, $F(1, 34) = 21.15$, $p < .001$ (see Figure 2, bottom panel), regardless of their perceptions of resistance. This pattern of results supports a dissonance mechanism for explaining the effects observed in Experiment 1. By allowing participants to misattribute their negative arousal to aspects of the environment, those with negative views of resistance inferred their attitude certainty from the strength of the arguments they overcame without experiencing the

arousal of acting (i.e., resisting) in a manner inconsistent with their beliefs (i.e., resisting is negative).¹

Discussion

Experiment 2 suggests that holding a theory that resistance is negative and then resisting persuasion led to dissonance. This dissonance seemed to interfere with the attributional processes by which attitude certainty is increased after resisting a seemingly strong argument (Tormala & Petty, 2002, 2004a). Thus, arousal resulting from resisting persuasion when believing that resistance is negative decreased attitude certainty under situations that usually increase attitude certainty. When arousal was misattributed to the room in which participants completed the experiment, however, people showed greater attitude certainty after resisting an ostensibly strong argument, even when they had discrepancies between their perceptions about resistance and their actual resistance behavior. In this condition, participants did not need to attach less certainty to their attitudes as a means to reduce dissonance; the misattribution of arousal to the room permitted the natural elicitation of attitude certainty following resistance of ostensibly strong arguments.

GENERAL DISCUSSION

Two experiments examined how lay theories about resistance and perceived argument strength affected attitude certainty. It was found that inferences of attitude certainty in response to resisting persuasion (i.e., "I am more certain of my attitude because I was able to resist a strong argument") were disrupted when lay theories cast resistance as negative (e.g., resistance implies stubbornness). Past research has shown that attitude certainty generally increases after people resist a persuasive attempt they believe to be strong (Tormala & Petty, 2002, 2004a); however, the current work extends this previous work by indicating some boundary conditions for these effects. Specifically, the current work demonstrated that this only holds for those with a positive view of resistance. When people have negative beliefs about resistance, the current research shows that they do not demonstrate increased attitude certainty after resisting strong arguments.

More generally, the current work adds to our understanding of the metacognitive processes involved in attitudes and persuasion. Recently, a surge of research has revealed the importance of metacognitions (e.g., Briñol et al., 2004; Briñol, Petty, & Tormala, in press; Jost, Kruglanski, & Nelson, 1998; Kruglanski & Webster, 1996), especially with respect to attitude certainty (e.g., Tormala & Petty, 2002, 2004b). The current findings are, generally, quite supportive of Tormala and Petty's attribution-based explanation for how resisting strong arguments increases attitude certainty. However, our

work also extends their account by demonstrating that other beliefs play a meaningful role (in this case, lay theories about resistance) in when inferences of attitude certainty are made.

Dissonance, Attribution, and the Roots of Attitude Certainty

The findings from Experiment 2 build on previous work investigating the mechanisms underlying the effects of resistance on attitude certainty. Specifically, the results from Experiment 2 suggest that having a negative view of resistance and then resisting persuasion induces dissonance, which disrupts the attributional process necessary for inferring increased attitude certainty from resisting a strong argument. Indeed, when people were able to misattribute their arousal to irrelevant situational factors (i.e., the experimental setting), even those with negative views of resistance showed increased attitude certainty in response to resisting an ostensibly strong argument. Yet, when people did not misattribute their arousal and their lay theories of resistance ran contrary to their own behavior, they did not infer greater attitude certainty from resisting a strong, persuasive message.

Thus, in the current research, the negative belief about resistance involves an explicit cue about being open-minded, which implies that uncertain attitudes may be desirable. This cue might thus suggest to perceivers that one way to resolve dissonance is to lower attitude certainty. Specifically, the context of our experiments could lead participants to recognize inconsistency in their beliefs about resistance and their actual level of resistance in the “resistance is negative” condition, leading to feelings of uncertainty as opposed to attempts at justification. Indeed, there are multiple ways that people can reduce dissonance in a situation in addition to attitude change (e.g., biased information processing, introducing new thoughts, discounting old thoughts, changing behavior, self-affirmation, reducing personal relevance; see Stone, 2001) and many ways that people can determine which inconsistencies produce dissonance. Because our manipulations of lay theories contained explicit manipulations of the value of resistance in response to a persuasive attempt, people could use this information as a cue to identify where they should restore consistency. Some past dissonance research, however, has shown that in different experimental contexts, dissonance can be reduced by strengthening attitudes (e.g., Darley & Cooper, 1972). Thus, it is important to note that dissonance need not only be reduced by reducing attitude certainty. To the contrary, given the myriad means of reducing dissonance arousal in different contexts, it is certainly plausible that other experimental contexts may show different or even opposite effects on attitude certainty.

Although our results in Experiment 2 support a dissonance explanation, they are not intended to rule out additional potential contributors to the effect, such as Tormala and Petty’s (2004a) “impressed-by-resistance” mechanism. Indeed, it might be possible to reinterpret the findings from Experiment 2 in light of Tormala and Petty’s proposed “impressed-by-resistance” mechanism, which might suggest that the misattribution finding shows that people were impressed by their ability to overcome persuasive attempts under difficult circumstances (i.e., a room that made performance difficult). Thus, the attitude certainty results in Experiment 2 could have been due to reduced dissonance arousal or could have been due to participants’ ability to resist persuasion when it should have been difficult. However, it also could be that people are less impressed when they perceive dissonance between their lay beliefs about resistance and their resistance of the persuasive message. Of interest, the aversive arousal in response to dissonance may itself cause people to discount their initial responses to the message (e.g., be less impressed), and the possible simultaneous role of both mechanisms merits further study.

Another important feature of this research is that participants were not given an opportunity to generate arguments that were supportive of the message presented. Indeed, thoughts supportive of the message may have been plentiful, especially because negation seems to occur only with considerable cognitive effort (Gilbert, Tafarodi, & Malone, 1993; Petty, Wells, & Brock, 1976). Thus, it is also possible that the manipulations in the present experiments could have diminished the number of argument supportive thoughts but only affected the extent to which counterattitudinal thoughts were generated. Although this could be the case, it is a criticism that can be leveled at much of the current research on resisting persuasion (see Killeya & Johnson, 1998; Tormala & Petty, 2002). We utilized counterarguing instructions to provide fidelity with the empirical work that this research extends. Thus, although this manipulation is well-established in the literature and is theoretically important for understanding resistance, it may not simulate some situations where people likely focus on both positive and negative thoughts about an attitude object and resistance still occurs. However, this research does examine a common, everyday event that has received little empirical attention, namely, what are the consequences of resisting attempts at persuasion when people believe that it is close-minded to do so?

It is important to address these concerns in future research. Specifically, if dissonance is the mechanism underlying the effects of attitude certainty in Experiment 2, we suspect that there are other ways in which these dissonance processes will be revealed. For example, provid-

ing people with an opportunity to self-affirm (e.g., Steele, 1988) after resisting persuasion should lead to increased attitude certainty regardless of one's lay beliefs. Such an outcome would be difficult to explain by an "impressed-by-resistance" account because self-affirmation would not likely lead to greater feelings of being impressed by resistance. In addition, recent resistance to persuasive attempts or even recent self-regulatory activities that were unrelated to the persuasion (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998) may limit one's ability to effortfully counterargue, reducing the metacognitive experience of successfully refuting the persuasive advances of others (which is the starting point for increases in attitude certainty). Thus, there are probably many differences (both situational and individual) that will affect how one responds to others' persuasion attempts and whether attendant changes in attitude certainty occur.

Conclusion

Perhaps the most important contribution of the current work is to display that not all resistance is the same. The lay beliefs that people hold about resisting persuasion have important consequences for the certainty with which attitudes are held. Thus, this research provides a fuller account of the consequences of resistance than has been documented in past work because it shows that lay theories of resistance have important implications for attitude certainty following resistance. In addition, this research suggests that changing people's lay theories about resistance may be one way to eventually change the attitudes of people with extreme or biased attitudes by changing their level of attitude certainty. Of interest, social psychologists often have ignored the role of disarming resistance (vs. amplifying persuasion) in social influence (Knowles & Linn, 2004). Because general lay theories of resistance are not related specifically to any particular topic, persuasion may be relatively easy to engineer by changing others' lay theories about resistance in ways that have no apparent connection to the topic where persuasion is desired, thus sidestepping a reactance-induced backlash (Sherman, Crawford, & McConnell, 2004). By understanding the interplay of attitude certainty, lay beliefs, and the qualities of persuasive appeals, we not only can learn about how persuasion is foiled but also about how it is realized.

NOTE

1. Our claim that participants resisted our message was further evaluated by using a separate control group of 13 participants (from the same university student population collected within 6 months of the original studies). These participants reported their attitudes and attitude certainty after reading the same high-elaboration introduction used in Experiments 1 and 2 but did not read the arguments in favor of comprehensive exams, were not given a perceived attitude strength

manipulation, were not given any manipulation of theories of resistance, and were not given any misattribution manipulation.

Participants in the resistance conditions had similar attitudes to those in the control condition (Experiment 1: $t < .32$, *ns*; Experiment 2: $t < .78$, *ns*). Thus, we can be more certain that equal resistance occurred in all conditions (as opposed to equal persuasion in all conditions) because participants who never read a persuasive message had similar attitudes to those who received the message and were given instructions to resist the message (see Tormala & Petty, 2002). Control participants' level of attitude certainty was used to examine the direction of the effects of the manipulations on attitude certainty. Analyses for Experiment 1 showed that participants who had positive beliefs about resistance and who received apparently strong arguments showed elevated levels of attitude certainty compared to control participants, $t(21) = 4.55$, $p < .001$. However, the control participants did not differ in attitude certainty from the other experimental conditions in Experiment 1, $t < .78$, *ns*. In addition, analyses with the control participants vis-à-vis Experiment 2 showed a similar pattern of results. As expected, Experiment 2 participants showed elevated levels of attitude certainty as compared to the control condition in the misattribution positive beliefs about resistance-perceived strong argument condition, $t(22) = 4.42$, $p < .001$, the misattribution positive beliefs about resistance-perceived strong argument condition, $t(22) = 3.27$, $p < .01$, and the misattribution negative beliefs about resistance-perceived strong argument condition, $t(22) = 3.04$, $p < .01$. The control participants did not differ in attitude certainty from any of the other experimental conditions, $t < 1.16$, $p > .25$. These additional data strongly suggest that resistance did occur and that the attitude certainty effects were due to increases in attitude certainty.

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