ATTITUDE STRENGTH
Antecedents and Consequences _____

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Edited by
Richard E. Petty
Jon A. Krosnick

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Dedicated to
Thomas M. Ostrom
a founder of the Ohio State Series on Attitudes and Persuasion,
a leading scholar on attitudes,
a good friend and colleague,
and an inspiration to countless social psychologists.

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Elaboration as a Determinant of Attitude Strength: Creating Attitudes That Are Persistent, Resistant, and Predictive of Behavior

Richard E. Petty
Curtis P. Haugtvedt
Ohio State University

Stephen M. Smith
North Georgia College

This volume is devoted to understanding the antecedents and consequences of attitude strength. That is, what makes some attitudes persist over time, resist countervailing pressures to change, and impact on other judgments and behaviors?[1] A common strategy in much of the work on attitude strength is to measure

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[1] The Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1986b) identified three consequences of strong attitudes—greater persistence, resistance, and prediction of behavior with strong (central route) rather than weak (peripheral route) attitudes. To these consequences, Krosnick and Petty (ch. 1, this volume) suggested a fourth criterion: Strong attitudes should have a greater impact on other judgments than weak ones. It is important to note, however, that according to the ELM, attitudes can have an impact on other judgments in a number of ways (Petty, Cacioppo, & Haugtvedt, 1992). For example, attitudes could serve as a peripheral cue leading to favorable evaluations of positions that are close to one's own and unfavorable evaluations of deviant ones with little scrutiny of the merits of the positions. The stronger an attitude is, the more likely it is to serve as a cue when the elaboration likelihood is low. In addition, when the elaboration likelihood is high, strong attitudes can bias the ongoing cognitive activity by encouraging counterarguing of messages that take counterattitudinal positions but favorable thinking to proattitudinal appeals. Finally, strong attitudes can influence the extent of message processing (e.g., leading people to scrutinize counterattitudinal messages more closely than proattitudinal ones). Because little research has examined explicitly whether attitudes newly changed as a result of extensive elaboration play a greater biasing role in subsequent judgments than do attitudes changed with little elaboration, we will not discuss this consequence further.

some property of an existing attitude and then examine the strength consequences of attitudes having this property to varying degrees. For example, researchers have measured the extent of knowledge associated with an attitude object (see Davidson, ch. 12, this volume; Wood, Rhodes, & Biek, ch. 11, this volume), or how personally important the attitude object is (see Boninger, Krosnick, Berent, & Fabrigar, ch. 7, this volume), and have determined that the more knowledge associated with an attitude object and the more important the attitude object is perceived to be, the more persistent the attitude toward that object is, the more it is resistant to change, and the more predictive the attitude is of behavior. In contrast to this approach, this chapter is concerned with *creating* new attitudes that are strong rather than weak. That is, this chapter focuses on understanding the processes leading newly changed attitudes to vary in strength—whether this change is from no attitude to some attitude (e.g., no opinion to somewhat favorable), or from one attitudinal position to another (e.g., somewhat favorable to very favorable). We explain that some attitude change processes are likely to produce new attitudes that are relatively strong, but other change processes are more likely to produce weak attitudes.

Some of the earliest research on persuasion suggested that although it was often easy to change people's attitudes (e.g., Knower, 1935, 1936), many of these attitude changes were rather ephemeral and unrelated to people's behaviors (e.g., see Festinger, 1964). That is, the changed attitudes in these studies appeared to be rather weak. However, other studies produced attitude changes that were quite enduring and directive of action (e.g., see Cook & Flay, 1978).

The Elaboration Likelihood Model (ELM) of persuasion was proposed as a means of accounting for the fact that the attitude changes produced in some studies were rather strong, but the changes induced in others were quite weak (Petty, 1977; Petty & Cacioppo, 1981, 1986a). A key postulate of the ELM is that the strength of an attitude is based on the amount of issue-relevant thinking (elaboration) the person has done about the attitude object. That is, when an attitude changes as a result of careful thinking about the merits of the attitude object (*central route* to attitude change), the resulting attitude will be stronger than if the attitude changes because of a relatively simple *cue* in the persuasion setting that induces change by a direct association (e.g., Staats & Staats, 1958), on-line inference (e.g., Bem, 1972), or memory-based heuristic (e.g., Chaiken, 1987) process (*peripheral route* to attitude change). So, in order to understand the strength of attitudes, the ELM indicates that we need to understand the factors that determine whether the attitude is based on careful and effortful thinking rather than on simpler cue processes. According to the ELM, if a variable increases the likelihood that an attitude is based on careful thinking rather than simple cue processes, this variable would also increase the likelihood that the resulting attitude is strong rather than weak.

Understanding how to bring about changed attitudes that are strong rather than weak is of considerable practical as well as conceptual interest. For example,

creating unfavorable attitudes toward drugs does little good if these attitudes do not persist over time, resist peer pressure and lead to avoidance of drugs. Similarly, changing attitudes toward political candidates or consumer products does little good if these attitudes do not determine voting or purchases.

We address three issues in this chapter. First, we provide a brief review of the determinants of effortful thinking in persuasion situations. Second, we provide a critical examination of the empirical evidence for the proposition that variables that increase message elaboration encourage stronger attitudes. Finally, we address the issue of *why* increased elaboration would be expected to result in stronger attitudes.[2]

ELABORATION IN ATTITUDE CHANGE SETTINGS

People are confronted with a large number of persuasive communications each day. Because of this, it is impossible to give much thought to all of them—there just is not enough time in the day! Even if there were enough time to think about every message we received, we would not be able to think about them all because some messages are incomprehensible (e.g., presented in very technical language), or are presented too rapidly. Furthermore, even if these ability factors were not an issue, it is likely that some messages would be attended to more than others for motivational reasons. For example, some messages would be more important or interesting than others and thus receive greater scrutiny. In recognition of these factors, a key postulate of the ELM is that for reasons of both limited ability and varying motivation, the extent of careful scrutiny that a persuasive message receives varies with both situational and individual factors (Petty & Cacioppo, 1981, 1986b).

Assessing the Extent of Elaboration

Over the last three decades, considerable research attention has been devoted to uncovering the variables that influence the extent of thinking about a persuasive message. Two procedures have been used most frequently. In one procedure, the quality of the arguments in the message is manipulated along with the variable being tested (e.g., Petty, Wells, & Brock, 1976). The message quality manipulation is developed in pretesting. Two messages on the same topic are prepared such that one communication contains a set of compelling arguments that elicit mostly favorable thoughts and considerable attitude change when people are instructed to evaluate and think about them, and another communication contains a set of specious arguments that elicit mostly unfavorable thoughts and little

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[2]Although our focus here is on newly changed attitudes, the ELM also predicts that the strength of an existing attitude is tied to the extent to which the attitude is based on considerable issue-relevant cognitive activity rather than low effort cue processes.

attitude change or even boomerang when people are instructed to evaluate and think about them (see Petty & Cacioppo, 1986a; Petty, Wegener, Fabrigar, Priester, & Cacioppo, 1993). For example, if a researcher wanted to know if people thought more about a message of high rather than low personal relevance, the relevance of the message would be varied along with message quality. In order to do this, some college students might be told that a new university regulation was proposed for next year (and thus would have an impact on them) or was proposed for 10 years in the future (and thus would have no personal impact; Apsler & Sears, 1968). The high and low relevance messages would contain either the compelling or specious arguments in favor of the new regulation. If people are not thinking very much about the persuasive message under the low relevance conditions, their attitudes should be affected little, if at all, by the argument quality manipulation. However, if they are thinking carefully about the message under the high relevance conditions, argument quality should have a large effect on attitudes.

A second strategy to assess the extent of thinking in persuasion settings is to have people list their thoughts about the message either during or after exposure to it (e.g., Brock, 1967; Greenwald, 1968). If a variable such as personal relevance increases the extent of thinking about the message, increasing relevance might increase the total number of issue and/or message relevant thoughts generated (e.g., Burnkrant & Howard, 1984). Alternatively, enhanced thinking could increase thoughts that are consistent with the quality of the message, but decrease thoughts that are inconsistent with its quality. For example, if the message is strong, favorable thoughts would increase but unfavorable thoughts would decrease as effortful message evaluation increased, and the total number of issue-relevant thoughts could remain the same (Petty & Cacioppo, 1979). Finally, increased thinking about the message should produce attitudes that are more highly correlated with the valence of the message-relevant thoughts generated (e.g., Chaiken, 1980).[3]

Determinants of Ability to Think About a Message

Using the procedures just described to assess message processing, a number of studies have identified variables that influence a person's ability to think about a persuasive communication. For example, it is perhaps not surprising that people are less able to think about a message if they are distracted by external stimulation during the message presentation than if they are not (e.g., Festinger & Maccoby, 1964). It may be more surprising to realize that this means that including distraction with a message can increase persuasion when the message arguments are specious. This is because when they are distracted from thinking, people will be less able to realize the flaws in the arguments, and thus they are more persuaded

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[3]Other procedures to assess the extent of elaboration have included simply asking people how much effort they devoted to thinking about a message or issue, and physiological techniques (see Petty & Cacioppo, 1986a).

than when they are able to detect and think about the flaws. However, increasing distraction reduces persuasion when the arguments are compelling, because people are less able to appreciate the merits of the arguments (Petty et al., 1976).

Similar effects have been shown for other variables affecting ability to think about a persuasive message. For example, people are less able to think about a message when they have just completed some vigorous exercise (e.g., Sanbonmatsu & Kardes, 1988). On the other hand, if people are reclining comfortably, they are better able to think than if they are in a more distracting posture such as standing (e.g., Petty, Wells, Heesacker, Brock, & Cacioppo, 1983). People are not able to process some messages because they are incomprehensible (e.g., Eagly, 1974; Ratneshwar & Chaiken, 1991) or are presented too rapidly (e.g., Moore, Hausknecht, & Thamodaran, 1986; Smith & Shaffer, 1991; in press), or the audience has insufficient knowledge to appreciate either the strengths or flaws in the arguments (e.g., Wood, Kallgren, & Priesler, 1985).[4] When a message is sufficiently complex, thinking can be increased by repeating the message a few times (e.g., Cacioppo & Petty, 1989).

Determinants of Motivation to Think About a Message

Motivational factors are also important in influencing the extent of thinking. Perhaps the most studied motivational factor is the personal relevance or importance of the message topic (Johnson & Eagly, 1989). Petty and Cacioppo (1979, 1990) hypothesized that when people think that a message is on a topic of high personal relevance or importance (i.e., the message is relevant to a person's important outcomes, goals, values, groups, possessions, and so forth), they engage in greater message scrutiny than when the message is perceived to be of little relevance or importance.[5] The available evidence is quite consistent with this view (see Boninger et al., ch. 7, this volume; Crano, ch. 6, this volume; Petty, Cacioppo, & Haugtvedt, 1992; Thomsen et al., ch. 8, this volume). The extent to which a message is seen as personally relevant or important has been manipulated in a number of ways including varying the date or location of some policy recommendation so that it would affect the message recipient or not (e.g., Chaiken, 1980; Petty & Cacioppo, 1979), varying the self-relevance of the pro-

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[4]Knowledge might also have an impact on a person's motivation to think about a message. For example, providing people with a little information about an unfamiliar topic might whet their curiosity if it normally would have been low (e.g., a low involvement issue), but satisfy their curiosity if it is already high and thus diminish interest in processing yet additional information on the topic (see Johnson, 1994, for relevant data).

[5]There are, of course, various degrees of personal relevance, and the amount of thought about a message is expected to be tied to factors such as the perceived magnitude, immediacy, and duration of self-relevant consequences (see Petty & Cacioppo, 1986a). For example a message devoted to an important aspect of the self would elicit greater thought than a message devoted to a trivial aspect of the self, but a message devoted to a trivial aspect of oneself would elicit greater thought than a message devoted to a trivial aspect of someone else.

nouns used in the communication (e.g., Burnkrant & Unnava, 1989), and placing message recipients in front of a mirror so that they would see their self-reflection (Hutton & Baumeister, 1992).

Although inducing a perception of self-relevance is a powerful way to influence thinking, there are, of course, other ways to increase peoples' motivation to think about a communication. For instance, messages that violate peoples' expectancies and induce surprise are thought about more than messages that are consistent with what is expected. Thus, because people generally expect an expert source to provide strong arguments, when an expert presents weak arguments, thinking about the arguments is increased (Maheswaran & Chaiken, 1991). Also, when people find that they disagree with the majority of their peers or agree with the minority, they are surprised and thinking is enhanced over the more expected cases where people learn they agree with the majority or disagree with the minority (Baker & Petty, 1994). In addition, when people expect a message to present the benefits of taking some action but the message instead presents the costs of not taking the action, thinking is increased over cases where the message presents the type of arguments that were expected (Smith & Petty, in press).

Aspects of the message source also influence the extent of thinking about a persuasive communication. For example, when each argument in a message is presented by a different source, the arguments receive greater scrutiny than when all arguments are presented by the same source (e.g., Harkins & Petty, 1981; Moore & Reardon, 1987). This *multiple source effect* is especially likely when the additional sources appear to be providing independent assessments of the issue (e.g., the sources are dissimilar and have not conspired to generate the message; Harkins & Petty, 1987).

Chronic characteristics of the audience also influence their tendency to think about a message. Perhaps the most directly relevant personality variable in this regard is the *need for cognition* (Cacioppo & Petty, 1982). People high in need for cognition enjoy thinking and problem solving, but people low in need for cognition do not. Not surprisingly then, the attitudes of individuals high in need for cognition are based more on their scrutiny of the content of persuasive messages than are the attitudes of individuals low in need for cognition (e.g., Cacioppo, Petty, & Morris, 1983; Haugtvedt, Petty, & Cacioppo, 1992).

Temporary states of the audience can also motivate thinking. For example, being in a good mood can either enhance or reduce thinking about a communication. Positive mood reduces thinking about a message when the message topic is or is expected to be counterattitudinal or depressing (e.g., Bless, Bohner, Schwarz, & Strack, 1990; Worth & Mackie, 1987), but positive mood enhances thinking when the message is or is expected to be proattitudinal or pleasant (Howard & Barry, 1994; Wegener, Petty, & Smith, in press). This suggests that people in a positive mood are protective of their pleasant state and will process a message if it is mood maintaining but will not think about it if it is mood threatening (Petty, Gleicher, & Baker, 1991; Wegener & Petty, 1994). It is

interesting to note that simply increasing the momentary accessibility of the audience's attitudes on a topic can increase thinking (Priester, Fabrigar, Wegener, & Petty, 1994). Increasing accessibility might increase processing because when the accessibility of an attitude on a topic is increased, people infer that the topic is more important or relevant (Roese & Olson, 1994).

Various aspects of the persuasion situation itself can also influence motivation to think about the message. For example, thinking can be increased by making people feel personally responsible or accountable for message evaluation such as when they believe that they are the sole message evaluator rather than part of an evaluation team (e.g., Petty, Harkins, & Williams, 1980). In addition, thinking is increased when people are led to believe that they will have to discuss the message with an interviewer (e.g., Chaiken, 1980; see also Tetlock, 1990). A dramatic way to increase thinking about an advocacy is to get the target of influence to generate the message him or herself and then present it to another person (e.g., Greenwald & Albert, 1968; Janis & King, 1957).

Interactions Among Variables

So far, we have considered factors associated with the message, the source, the persuasion context, and the individual message recipient in isolation. However, numerous studies have indicated that various interactions among these variables are important to consider. For example, audience factors can interact with source factors in determining the extent of thinking about a persuasive message. Consider individual differences in self-monitoring (Snyder, 1979). High self-monitors are people who are especially concerned about projecting a desirable self-image. Thus, these individuals are more interested in thinking about what an attractive than an unattractive source says. However, source expertise has little impact on influencing the thinking of these individuals. Low self-monitors, on the other hand, are people who are especially concerned about validity and in projecting their true inner selves to others. Thus, low self-monitors are more likely to think about what an expert than a nonexpert says, but source attractiveness has no impact on the extent of thinking (Snyder & DeBono, 1987).

Other individual differences also interact with source factors. For example, people low in need for cognition (who like to conserve their cognitive resources) are less likely to think about what a clearly honest than a potentially dishonest source says (Priester & Petty, in press). An honest source can be trusted, and thus little scrutiny is needed. A potentially untrustworthy source, however, requires even cognitive misers to exert cognitive effort if they are not to be fooled. The tendency for people to think more about what a potentially untrustworthy rather than a trustworthy source says might account in part for the finding that Caucasian audiences tend to engage in greater thinking about a persuasive message when it is presented by a disliked minority or ethnic group than a liked one (White & Harkins, 1994).

Other interactions among variables have been observed as well. For example, summarizing the main points of a message as rhetorical questions rather than as statements has led to enhanced message processing when a message was low in personal relevance, but using rhetorical questions has disrupted processing when the message was of high relevance (Petty, Cacioppo, & Heesacker, 1981). That is, inserting questions in a message seems to encourage thinking when it normally would be low, but the questions appear to disrupt a person's chain of thought when motivation to think is already high. The potential for such interactions suggests that it is important to consider *all* of the variables present in an attitude change situation that could have an impact on thinking rather than considering variables in isolation.

Summary

The most important point from our discussion so far is that some attitude change situations are characterized by high amounts of thinking, but other situations are characterized by low amounts of thinking. According to the ELM, attitude changes can occur in both types of situations. In high thinking situations, attitude change is based on a careful assessment of the merits of the advocated position. If effortful scrutiny of the message leads to predominately favorable thoughts, then persuasion is likely. But if effortful scrutiny of the message leads to predominately unfavorable thoughts, resistance and even boomerang can occur. In low thinking situations, attitude change stems mostly from various peripheral processes such as identification with the source (Kelman, 1961), and reliance on decision heuristics (Chaiken, 1987; see Eagly & Chaiken, 1993; Petty, Priester, & Wegener, 1994, for reviews).

If the variables we have discussed such as personal relevance, need for cognition, and others, influence the extent to which attitude changes are based on issue-relevant cognitive activity, then these variables should also be associated with variations in the strength of newly changed attitudes. For example, attitudes changed under conditions of high personal relevance should be stronger than attitudes changed the same amount under conditions of low personal relevance. Similarly, the attitude changes produced in people who enjoy thinking should be stronger than the changes produced in people who do not. With this in mind, we next examine the evidence for the proposition that attitude changes that result from thinking about the merits of the advocated position are stronger than attitude changes that result from peripheral processes. We review evidence relevant to each of three strength consequences. Following this, we turn to the question of why issue-relevant thinking is likely to result in strong attitudes.

CREATING PERSISTENT ATTITUDES

The first strength characteristic we consider is the temporal persistence of newly changed attitudes. In our usage, *persistence* refers to the extent to which a newly changed attitude endures over time even if it is never attacked directly. In contrast, *resistance* refers to the ability of an attitude to hold up to an explicit attack. Of

course, the overall durability of newly changed attitudes is dependent in part on both persistence processes such as memory decay and resistance processes such as active counterarguing of attacking messages.

In this section, we review studies in which the durability of newly changed attitudes was assessed when no attacks were explicitly provided as part of the study. In a comprehensive review of the literature on attitude change persistence, Cook and Flay (1978) concluded that "overall, persuasion approaches have not often led to absolute persistence, and where they have it is not clear what the mediating variables might have been" (p. 45). In their summary of the research available at the time, Cook and Flay did not identify mediating variables responsible for persistence but instead concluded with a list of moderating variables that they believed discriminated studies that tended to find persistence from those that did not. For example, Cook and Flay noted that studies finding persistence "seem to have had a high degree of personal relevance for subjects" (p. 47).

Petty (1977) also reviewed the existing literature on attitude change persistence and concluded that the variables moderating persistence were those that influenced the likelihood that a person would be motivated or able to think about the message or issue under consideration. For example, research through the late 1970s showed that (a) the self-generation of arguments (e.g., Elms, 1966; Watts, 1967), (b) the use of interesting or involving communication topics (e.g., Ronis, Baumgardner, Leippe, Cacioppo, & Greenwald, 1977), (c) providing increased time to think about a message (e.g., Mitnick & McGinnies, 1958), (d) increasing message repetition (e.g., Johnson & Watkins, 1971), and (e) reducing distraction (e.g., Watts & Holt, 1979) were all associated with increased persistence. That is, the available literature was generally consistent with the notion that both attitude change and its persistence were facilitated when people were encouraged to generate considerable issue and message-relevant "cognitive responses" (Greenwald, 1968). Petty (1977) noted, however, that one problem with the general cognitive response model of persuasion was that attitude changes also could be produced in the absence of diligent cognitive activity (e.g., agreeing with a conclusion simply because the source was touted as an expert), and these cue-based (peripheral) attitude changes appeared to be more transitory. However, no study before 1977 had explicitly varied motivation or ability to think about a persuasive message in order to investigate the *elaboration-persistence hypothesis*—that attitude changes based on issue-relevant elaboration are more persistent than comparable changes based on peripheral cues.

In order to test this hypothesis, one would want to compare at least two groups of people—one group that showed attitude change as a result of engaging in effortful message elaboration, and one group that showed the same amount of change but without such effort. The group that changed following effortful cognitive activity should show greater attitude change persistence than a group that changed to the same extent but changed mostly due to lower effort peripheral

processes. Here we review the studies since 1977 that have attempted to provide a test of the elaboration-persistence hypothesis.[6]

Assessing Individual Differences in Elaboration to Examine Persistence

Haugtvedt and Petty (1992) examined the elaboration-persistence hypothesis by studying individual differences in the need for cognition. Recall that research has shown that individuals who are high in their need for cognition (Cacioppo & Petty, 1982) are more influenced by the arguments in a persuasive message and are less influenced by peripheral cues than those who are low in their need for cognition (e.g., Axsom, Yates, & Chaiken, 1987; Haugtvedt et al., 1992).

To test the elaboration-persistence hypothesis, individuals high and low in their need for cognition were exposed to a television advertisement for an answering machine in the context of a television program that contained several ads. The critical ad was designed to contain compelling arguments and sufficient peripheral cues to lead to comparable initial attitude change in both the high and low need for cognition groups. Following exposure to the program and advertisements, individuals completed an attitude questionnaire and responded to other questions. Two days later they returned to the lab and completed a second set of attitude questions about the product and listed their thoughts about it. Although both high and low need for cognition groups formed equally favorable attitudes toward the product immediately following message exposure, only high need for cognition subjects persisted in these attitudes over the 2-day period. The favorable attitudes of low need for cognition subjects showed significant decay over the time period (i.e., they became less favorable).

Although this study is suggestive, because individuals cannot be randomly assigned to high versus low need for cognition status, there might be unmeasured confounds with need for cognition that were responsible for the differential persistence observed. To avoid this potential problem, several studies attempted

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[6]Some studies have examined the temporal persistence of attitude changes in high and low message elaboration groups in which the two groups did not show equivalent initial attitude change. For example, in two studies Mackie (1987) examined the persistence of attitude change induced by exposure to majority and minority sources. Subjects who found themselves in disagreement with a majority showed change toward that position that persisted one week later. Subjects who found themselves in disagreement with a minority showed little change either initially or one week later. Although Mackie (1987) provided evidence that the initial change in response to the majority was mediated by message elaboration, this research does not provide a strong test of the elaboration-persistence hypothesis because the initial changes induced by the majority (high elaboration) and minority (low elaboration) sources were not comparable. Other studies have also found differences in the magnitude of attitude change due to some variable at Time 1 that persisted at Time 2 (e.g., Sorrentino, Bobocel, Gitta, Olson, & Hewitt, 1988). These studies do not allow a strong test of the elaboration-persistence hypothesis because they do not compare the persistence of thoughtful and nonthoughtful attitude changes. Thus, these studies will not be discussed further.

a procedure that would allow random assignment to high and low elaboration conditions. We discuss these next.

Manipulating Message Discussion/Transmission to Examine Persistence

A few studies have varied the likely extent of cognitive activity during message exposure by comparing message recipients who anticipated discussing the message with another person (cf. Cialdini, Levy, Herman, Kozlowski, & Petty, 1976) or transmitting the substance of the message to another individual (cf. Zajonc, 1960) to people who did not have these expectations when they were exposed to the message. In the first persistence study to use this procedure, Chaiken (1980, Experiment 1) told some undergraduates that they would be interviewed about their opinions on a particular topic and then would discuss their opinions in a group setting. Following this, the subjects read a sample interview on the topic that served as the persuasive message. Participants in the control group were led to believe that they would be interviewed on a topic different from that presented in the sample interview. The persuasive message began with the interviewee giving responses that made him appear either likable or unlikable. Following this, the interviewee presented two or six arguments in favor of the advocated position. Subjects' attitudes toward this position were assessed both immediately following receipt of the message and about 2 weeks later.

Chaiken (1980) hypothesized that subjects expecting to be interviewed on the message topic would be more careful in thinking about the substance of the message than control subjects and thus would be more influenced by the content of the interview (i.e., the manipulation of number of arguments). Control subjects were expected to be more influenced by the likability of the source (i.e., low effort "heuristic" attitude change) than were the interview subjects. Furthermore, if expecting to be interviewed focuses people more on thinking about the message substance, then the attitude changes of interview subjects should show greater persistence than the attitude changes of control subjects.

The results of this study were generally consistent with these hypotheses. For example, simple main effects comparisons indicated that the interview subjects were influenced by the number of message arguments but control subjects were not. Also, control subjects were influenced by the likability of the source, but interview subjects were not. Of particular interest, the attitude changes of subjects scheduled to be interviewed persisted over the time period. However, for control subjects, their initial attitude changes decayed, at least when the source was likable. No decay was present when the source was dislikable, but because this group showed relatively little initial change, a floor effect could have attenuated decay. In sum, the results of this study provide partial support for the elaboration-persistence hypothesis.

In a conceptually similar series of studies, Boninger, Brock, Cook, Gruder, and Romer (1990) examined the persistence of attitude change for individuals

exposed to a persuasive message after being placed in a "transmission" versus a "reception" set (Zajonc, 1960). The transmission set subjects were told that their task was to transmit the information in the message to another person. Subjects in the receiver set were informed that they would be receiving additional information on the issue. Following these inductions, subjects read a short persuasive message and reported their attitudes. From 8 to 20 weeks later (depending on the specific study), subjects' attitudes were assessed again in a phone interview. Control subjects received no induction, read an irrelevant message, and responded to the same attitude questions. In each of their studies, both transmission and reception subjects showed initial attitude change toward the advocated position. Of greatest interest, however, transmission subjects showed greater attitudinal persistence than reception subjects. Boninger et al. (1990) speculated that transmitters engaged in greater cognitive effort in processing the message than receivers and that this effort resulted in a more organized cognitive structure that was more likely to endure.[7]

In sum, both Chaiken (1980) and Boninger et al. (1990) found that expecting to transmit or discuss the message with another person at the time of message reception led to greater attitude change persistence than expecting to receive information on the topic or expecting to discuss a different topic. In both cases, the authors hypothesized that differential cognitive activity at the time of message presentation was responsible for the differential attitude change persistence. However, Lassiter, Pezzo, and Apple (1993) argued that the specific procedures used in studies such as these allow for an alternative explanation. In particular, Lassiter et al. (1993) argued that because the subjects never had the discussion (Chaiken, 1980) or never transmitted the information (Boninger et al., 1990), they might continue thinking about the uncompleted task following the message presentation. If so, then it might be the *subsequent* cognitive activity rather than differential thought *during* the message presentation that was responsible for the differential persistence observed.

To provide an initial test of this notion, Lassiter et al. (1993) replicated the Boninger et al. (1990) research but included a condition in which transmitter subjects actually transmitted their message summaries into a tape recorder. Lassiter et al.'s results provided a replication of the Boninger et al. findings when the transmitters left the experimental session with their assigned task incomplete. However, in the group where transmitters were allowed to complete their task at the first session, decay comparable to that of nontransmitters was observed. Thus

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[7]The persistence results from this research stand in contrast to the findings of Hennigan, Cook, and Gruder (1982), who found that receivers' attitudes persisted to a greater extent than those of transmitters. Boninger et al. suggested that in their research, transmitters tended to assume that the audience had been exposed to the transmission message whereas in the Hennigan et al. research subjects assumed that this was not the case. They speculate that when subjects think that the audience has not been exposed to the message already, more effort goes into memorizing the message rather than elaborating and organizing their impressions of it.

it is possible that a transmission or an interview set does not induce increased elaboration during exposure to the message, but instead increases elaboration following the message as a person continues to think about the message that they were not allowed to transmit or discuss. If people continue to think about the issue periodically until the time of the delayed attitude measure, this considerable post-message cognitive activity could be responsible for the attitude change persistence.

In a recent study, Downing (1994) attempted to replicate the Lassiter et al. (1993) research and also investigate the time course of the postmessage cognitive activity. In this study, control subjects who received an irrelevant message were compared with both uninterrupted transmitters (as in Lassister et al., 1993) and groups that were interrupted from transmitting (as in Boninger et al., 1990). The interrupted transmitter groups were delayed from transmitting their messages for periods ranging from just 15 minutes to 8 weeks. After reading a set of instructions that explained that their task was to read an essay and then pass on the information in the essay to someone else, subjects read the appropriate essay, and then completed attitude and thought listing measures. Following this, the uninterrupted transmitters gave a 2-minute talk on the issues raised in the essay they had read. The interrupted transmitters were told that there was not enough time in the session to engage in the transmission task, but they could engage in a separate study. In one interruption condition, subjects were informed that the next study started in 15 minutes. Prior to the initiation of this study, however, subjects were informed that had to transmit the information from the previous study in order to be eligible to participate. Thus in this group, the subjects initially believed that they would not have to transmit the information, but actually transmitted it about 15 minutes later. In the other interrupted conditions, subjects were contacted to participate in a second study either 3 days, 2 weeks, or 8 weeks after their initial participation. As in the 15-minute group, each subject was asked to transmit the information from the earlier study prior to participation in the new experiment. Ten weeks following their participation in the initial session, subjects were contacted by phone and asked about their opinions regarding the critical issue.

The results of the study were very straightforward. First, all groups that read the relevant essay initially displayed attitudes that were similar and more favorable toward the topic than control subjects who read an irrelevant essay. That is, the relevant message produced initial attitude change. When examined 10 weeks later, however, only the interrupted groups showed persistence of this change. The completed transmission group failed to persist. This finding is in accord with Lassiter et al.'s (1993) argument that whether the transmission task is completed or not is critical for the transmitter-persistence effect. Interestingly, however, it did not matter whether the delay in transmission was just 15 minutes or 8 weeks! All interrupted groups showed the same attitude persistence effect. This suggests that it is not the case that transmitter-persistence is due to the fact that people are thinking about the issue over the entire delay period. However, the study also suggests that the transmission set induction does not have its effect

on thought processes that take place during receipt of the persuasive communication. Rather, it appears that interrupting the transmission may lead people to engage in some additional thought following message exposure. For example, after learning that the transmission is cancelled, people might think about what they might have transmitted, and this extra period of postmessage elaboration is sufficient to enhance persistence.[8]

Manipulating the Personal Relevance of the Message to Examine Persistence

Given that the persistence results of the Chaiken (1980) and Boninger et al. (1990) studies might be explained by the fact that transmission and discussion sets increase thinking about a message following exposure (Downing, 1994; Lassiter et al., 1993) because people persevere in thinking, at least briefly, when a task is incomplete, it would be desirable to examine a manipulation of message elaboration that is not confounded with task completion. One such manipulation is the personal relevance of the communication. That is, high versus low personal relevance has been shown to increase processing of message arguments *during* message exposure and decrease reliance on peripheral cues (Petty et al., 1992).[9]

In one study examining the elaboration-persistence hypothesis by varying personal relevance, Haugtvedt and Strathman (1990) presented people with an advertisement for a bicycle and informed them just prior to the message presentation that the bike would soon be available in their local area (high relevance) or only in a distant market (low relevance; Petty, Cacioppo, & Schumann, 1983). The ad contained strong arguments and positive cues and was presented on a computer screen for a short time period in the context of six other advertisements. Subjects reported their attitudes toward the advertised brand just after exposure to the series of ads and again 2 days later. Both high and low relevance subjects had equivalent initial attitudes, but only high relevance subjects persisted in their favorability 2 days later.

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[8]Downing conducted a second study in which both completed and interrupted transmitters had an equivalent 15-minute delay before transmission. The results were the same in that interrupted transmitters showed attitude change persistence but completed transmitters did not.

[9]At least one other study has examined the persistence of attitude changes without confounding the elaboration manipulation with task completion. Chaiken and Eagly (1983) hypothesized that a written communication would elicit greater message elaboration than one presented on video or audiotape and as a result, attitude change in response to a written message should show greater temporal persistence than change produced in the other modalities. Differential persistence in the different modalities was not reliable in this research, however. Perhaps the persistence predictions were not supported because the modality manipulation did not produce clear differences in the extent of initial message content elaboration. Because there is no clear evidence that the modality of message presentation influences the extent of substantive message thinking from this or other studies, we focus on research varying the personal relevance of the message because this manipulation has been associated with differences in elaboration and message-based persuasion in several investigations.

In another study, Petty, Haugtvedt, Heesacker, and Cacioppo (1995, Experiment 1) varied the personal relevance of a message on the topic of instituting comprehensive exams for college seniors by telling some subjects just prior to the message presentation that the exam policy was being proposed for their own university (high relevance) or for a distant university (low relevance). One of two messages was presented. The "positive" message was attributed to a prestigious and credible source and presented six strong arguments in favor of the proposal. A second "negative" message was attributed to a low prestige, nonexpert source and contained six weak arguments in favor of the exams. This message was designed to produce a boomerang effect—attitude change away from the position advocated. Subjects reported their attitudes toward the exam proposal right after exposure to the message and again about 2 weeks later. A control group simply reported their attitudes on the topic at each time interval. The results for this study are presented in Fig. 5.1.

As shown in the figure, high relevance subjects showed only a main effect for message type. That is, the positive message led to more persuasion at both the initial and the delayed testing than did the negative message. This was expected because the high relevance subjects should have processed the substantive message arguments and persisted in the favorable and unfavorable attitudes that resulted from their message processing. However, for low relevance subjects, the effectiveness of the communications decayed over time. That is, although low relevance subjects were more favorable toward the positive than the negative message initially—just like the high relevance subjects—this difference was absent after 2 weeks. This was expected because the low relevance subjects should have been influenced mostly by the favorable or unfavorable cues in the message and these peripheral route attitudes should decay over time.
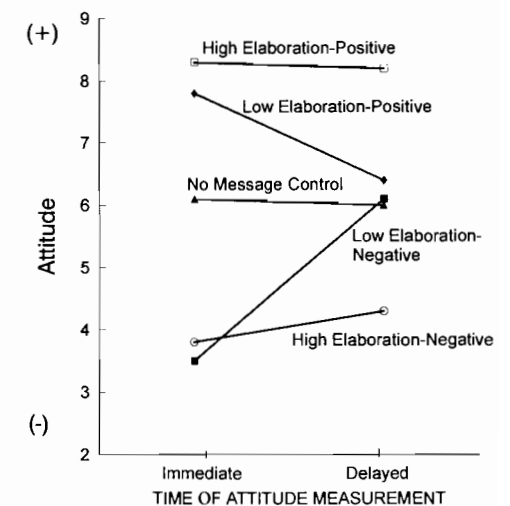

FIG. 5.1. Persistence of attitude change as a function of valence of message and extent of elaboration (as induced by varying issue-relevance). The positive message contained strong arguments and favorable source cues and the negative message contained weak arguments and unfavorable source cues (data from Petty, Haugtvedt, Heesacker, & Cacioppo, 1995, Experiment 1).

Summary

The studies attempting to test explicitly the hypothesis that attitude change persistence is enhanced in conditions where persuasion is associated with effortful message elaboration have provided reasonably good support for it. When attitude change was produced under high elaboration conditions, these changes persisted to a greater extent than the same attitude changes produced under low elaboration conditions. This differential persistence was observed whether the initial change was in the direction advocated by the speaker or in a direction opposite to that advocated.

One issue that warrants further investigation, however, is whether thinking about the message during message presentation is sufficient for persistence, or whether thinking about the message following exposure is necessary. The notion that postmessage thinking might be necessary for persistence is most plausible for studies in which subjects had a specific reason to continue thinking about the topic (e.g., they would be interviewed later on the topic; Chaiken, 1980; or felt tension over an uncompleted task; Boninger et al., 1990). However, even though research clearly demonstrates that being high in need for cognition or exposure to messages on topics of high personal relevance induces greater thinking *during* message exposure than being low in need for cognition or receiving a message on a topic of low personal relevance, it is possible that these situations also induce greater postmessage thought as well.

Because of this, the accumulated studies on the persistence of attitude changes, though suggestive, do not provide unequivocal support for the notion that elaboration during message presentation is responsible for creating strong attitudes. One solution to this problem is to investigate a strength consequence that does not require a delay period so that there would be little time for additional thinking following the message. The resistance paradigm allows for this. That is, in testing a newly changed attitude for its resistance to change, one can subject the new attitude to attack shortly after it is created. A similar case can be made for examining the ability of attitudes to predict behavior. Thus, we turn to these strength consequences next.[10]

CREATING RESISTANT ATTITUDES

In addition to temporal persistence, a second characteristic of strong attitudes is their tendency to be resistant to attacks. Strong attitudes would be expected to change less in the direction of an attacking message than weak attitudes, and strong

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[10]Another possible solution to the problem would be to measure thoughts at the time of message exposure for high versus low elaboration subjects and conduct mediational analyses. However, it seems likely that requiring low elaboration subjects to generate thoughts at the time of message exposure could modify the natural levels of elaboration that would occur. This induced elaboration could produce the very strength consequences that are under study.

attitudes would require a more vigorous attack than would weak attitudes in order to produce a given amount of change. Although persistence and resistance would commonly co-occur, the resistance and persistence consequences of attitude strength can be separated conceptually and empirically. That is, some attitudes are highly persistent only if they are not challenged. For example, cultural truisms such as "you should get 8 hours of sleep per night," tend to be persistent but not resistant (McGuire, 1964). Also, it is possible for some attitudes to be very resistant to change, but only in the short term. For example, as a result of reactance pressures, an attitude might be momentarily resistant even though it is not very persistent (Brehm, 1966).

As was the case with research on persistence, much of the previous literature has examined existing qualities of attitudes that render them resistant to influence. For example, as documented in other chapters in this volume, attitudes that are important (Boninger et al., ch. 7, this volume), based on extensive knowledge (e.g., Wood et al., ch. 11, this volume), accessible (Fazio, ch. 10, this volume), or structurally consistent (Eagly & Chaiken, ch. 16, this volume), are more resistant to attempts to change them.

A second category of studies has examined how to make existing attitudes more resistant to change. Perhaps the most well-known studies on attitude bolstering are McGuire's (1964) experiments on inoculation theory. McGuire exposed people to weak versions of messages attacking their views to encourage them to develop defenses against future attacks on their attitudes. McGuire's work focused on convincing individuals that their attitudes might be vulnerable to attack and examining different "pretreatments" that would decrease the susceptibility of the attitude. Results of studies inspired by McGuire's perspective have been generally supportive of his view that getting people to think about the strengths and weaknesses of their attitudes prior to an attack makes them more resistant (Adams & Beatty, 1977; Burgoon, Cohen, Miller, & Montgomery, 1978; Pfau & Burgoon, 1988; Suedfeld & Borrie, 1978; Szybillo & Heslin, 1973).

Still other investigators have shown that getting people to think about the underlying basis of their attitudes prior to an attack can increase resistance. Among the manipulations that have been shown to be effective in increasing thought prior to an attacking message and thereby increasing resistance are: (a) providing a forewarning of the topic and position of an impending counterattitudinal advocacy on an involving topic (e.g., Freedman & Sears, 1965, Hass & Grady, 1975; McGuire & Papageorgis, 1962; Petty & Cacioppo, 1977), (b) encouraging people to think about their past behaviors relevant to the attitude (e.g., Ross, McFarland, Conway, & Zanna, 1983), and (c) having subjects think about how their attitudes are related to important values they possess (e.g., Ostrom & Brock, 1968). Each of these manipulations uses thinking to strengthen the link between the attitude and the underlying supportive beliefs, values, and behaviors, and thereby makes it more resistant to change.

Our goal in this chapter, however, is to examine the question of whether attitudes that are newly changed as a result of issue-relevant elaboration are more

resistant to subsequent attacks than are comparable attitudes that are newly changed as a result of peripheral route processes. Below, we review studies that have provided evidence pertinent to this *elaboration-resistance hypothesis*.[11]

Examination of the Elaboration-Resistance Hypothesis in the Belief Perseverance Paradigm

One line of research relevant to the elaboration-resistance hypothesis concerns the phenomenon of belief perseverance. Belief perseverance refers to the tendency of individuals to maintain newly created beliefs in the face of subsequent contrary information. The general paradigm used in the belief perseverance work involves creating an initial belief about oneself (Ross, Lepper, & Hubbard, 1975, Experiment 1), another person (Ross et al., 1975, Experiment 2), or about the relationship between two variables such as "preferring risk" and "being a good firefighter" (Anderson, Lepper, & Ross, 1980). In a typical study, following the initial belief creation phase, individuals are then told that the information on which their new belief is based is fictitious. Yet, despite this "debriefing," individuals tend to maintain the initial belief.

According to the elaboration-resistance hypothesis, people whose initial beliefs are based on considerable thought should be especially resistant to the debriefing message. In a study relevant to this idea, Anderson et al. (1980, Experiment 2) first exposed subjects to information suggesting a positive link between risky behavior and firefighting success or a negative relationship between these two variables. Prior to the debriefing message (which indicated that the data they had processed were false), subjects in the high elaboration condition were asked to write an explanation of the relationships they observed. Writing such an explanation would require that people think carefully about the informational basis of their new belief. Subjects in the low elaboration condition received the debriefing without being asked to explain the relationship. Following the debriefing, subjects' own beliefs about the relationship between riskiness and firefighting success were assessed. These judgments were compared to a control group in which subjects provided their beliefs prior to the debriefing. The control subjects were not asked to write an explanation of the relationship observed and thus provide a good low elaboration control group for the low elaboration debriefing group.

The control subjects showed that in the absence of debriefing, the relevant beliefs were formed. That is, subjects exposed to the positive relationship data

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[11]We do not consider studies where there is no evidence that resistance is related to a variable known to influence elaboration processes. Nevertheless, some of this research is suggestive. For example, consider the consequences of attitudes formed as a result of personal experience with an object versus attitudes formed via passive exposure to third-party information. To the extent that information gleaned from personal experience is likely to be thought about more than information from third parties, attitudes changed as a result of personal experience should be more resistant to change than attitudes changed as a result of passive information exposure. This is in fact the case (see Wu & Shaffer, 1987).

believed that risky responses were indicative of firefighting success, whereas those exposed to the negative relationship data believed the opposite. Of greater interest is what happened in the two debriefing conditions where the informational basis of subjects' initial beliefs were challenged. Subjects in the low elaboration debriefing condition were still significantly influenced by the data they had processed even after they were told that it was false (i.e., the belief perseverance effect was obtained), though their beliefs were not as strong as those in the no-debriefing control condition. Subjects in the high elaboration debriefing condition, however, maintained their initial beliefs to a greater extent than did subjects in the low elaboration debriefing condition. That is, subjects who were instructed to write an explanation for (i.e., think about) the initial data appeared to be more resistant to the debriefing message—consistent with the elaboration-resistance hypothesis. Another explanation is possible, however, because this study failed to include a high elaboration no-debriefing control group. Because of this, it is possible that the elaboration induction caused high elaboration subjects to form more extreme *initial* beliefs than low elaboration subjects. If so, the difference in beliefs observed after debriefing could have been due not to differential resistance, but to extremity differences that were present prior to debriefing. So, although this study is consistent with the elaboration-resistance hypothesis, more confidence would come from research in which it was clear that the high and low elaboration groups had equivalent beliefs prior to presentation of the undermining communication.[12]

Examination of the Elaboration-Resistance Hypothesis in Persuasion Paradigms

Research using a more traditional attitude change paradigm has solved the problem of differential initial beliefs. In one relevant study, Haugtvedt and Petty (1992) provided subjects who were high or low in need for cognition with an initial message about the safety of a well-known food additive. This initial message contained strong arguments from an expert source and was followed by an opposing message containing weaker arguments from a different expert source. Although both high and low need for cognition individuals were persuaded equally by the initial message, the attitudes of the high need for cognition participants were more resistant to the attacking message (see top panel of Fig. 5.2).

In another study, Petty, Haugtvedt, Heesacker, and Cacioppo (1995, Experiment 2) presented two groups of university students with a message containing

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[12]In some research on belief perseverance attempting to examine the mediation of the resistance effect, peoples' thoughts about the critical issue have been assessed *after* the discrediting information is presented (e.g., Anderson, New, & Speer, 1985; Davies, 1993). This research has shown that the more a person's thoughts favor their initial beliefs, the more they resist the discrediting information. Because subjects' thoughts are assessed following the attacking message, however, this research does not allow one to determine the extent to which the initial beliefs are based on thought, and whether thoughtful initial beliefs are more resistant to change than nonthoughtful ones.
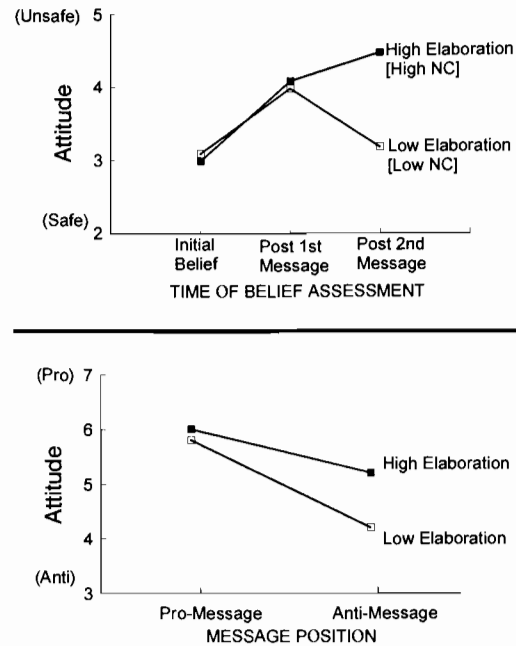
FIG. 5.2.   Resistance of attitudes to attack as a function of extent of elaboration of the initial attitude. In the top panel, elaboration is assessed with the need for cognition scale (data from Haugtvedt & Petty, 1992). In the bottom panel, elaboration is manipulated by varying issue-relevance and distraction (data from Petty et al., 1995, Experiment 2).

seven strong arguments in favor of requiring comprehensive exams as a requirement for graduation. Importantly, the message was also attributed to three college professors from Cornell, Purdue, and UCLA. Half of the subjects were relatively unmotivated to think about the message carefully because they were told that the exam policy was being proposed for a distant university. The experiment also made it somewhat difficult for these subjects to process the message because they were required to engage in a distracting secondary task while being exposed to the communication. The other half of the subjects were considerably more motivated and able to think about the communication because they were told that the proposal was being considered for their own university and the distraction task was made much easier to perform.

Following the initial pro-exam message, subjects reported their attitudes on the topic of senior comprehensive exams. After an irrelevant communication and an attitude assessment on this issue, subjects heard an anti-exam communication. This communication was attributed to a professor at Harvard University and contained somewhat weaker arguments than in the initial exam message. Following this message, subjects once again reported their attitudes on the exam

topic. A no-message control condition was included in this study to ensure that subjects showed equivalent changes to the initial pro-exam message.

The attitude results (see bottom panel of Fig. 5.2) revealed a main effect for message direction—people were more favorable toward the exams immediately following the pro- than the anti-exam message. More importantly, an Elaboration X Message interaction revealed that even though high and low elaboration subjects showed similar positive attitudes following the initial pro-exam message, high elaboration subjects were more resistant to the counterpropaganda message than were the low elaboration subjects. High elaboration subjects presumably resisted the second message because their careful analysis of the first message motivated or enabled them to counterargue the second one. Low elaboration subjects presumably succumbed to the second message because they were less motivated or able to defend their new attitudes.

The elaboration-resistance hypothesis suggests that given two equally strong (e.g., compelling arguments and positive cues) but opposite messages, people who think carefully about the first message will be more resistant to the second than people who think relatively little about the first message. Having thought about the initial position carefully not only enables people to bolster their initial attitudes and counterargue an opposing message, but likely gives them the motivational confidence to do so. However, in the tests of the elaboration-resistance hypothesis so far, researchers have used weaker arguments in the second message than in the first. A more stringent test of the hypothesis would come from research in which both the initial and the counter messages were equated in strength. A study by Haugtvedt and Wegener (1994) provided such a test.

Specifically, Haugtvedt and Wegener (1994) developed two messages of equal strength—one in favor of a position, and one opposed to it. The pro and anti messages were developed to contain strong arguments that when considered in isolation elicited the same preponderance of favorable to unfavorable thoughts. Some subjects received the pro–con order of messages, whereas others received the con–pro order. Attitudes were assessed following both messages in order to determine whether attitudes were more favorable toward the initial message (a *primacy effect* indicating relative resistance to the second message), or whether attitudes were more favorable toward the second communication (a *recency effect* indicating lack of resistance). Two separate experiments were conducted. In addition to varying the order of message presentation in each study, they also varied the personal relevance of the communication. In the first study, the relevance of a proposal to institute comprehensive exams for college seniors was manipulated by varying whether the students' own school or a distant university was considering implementation. In the second study, the relevance of a message on nuclear power plants was varied by indicating that the federal government had recommended that new plants be built in the students' own state and surrounding states (high relevance) or in distant states (low relevance). The relevance manipulation, of course, varies the recipients' motivation to think about the messages (Petty & Cacioppo, 1979).

In both studies, participants who encountered the messages under the high elaboration (high relevance) conditions were more influenced by the first than the second message (i.e., a primacy effect). Participants exposed to the messages under low elaboration (low relevance) conditions, however, were more influenced by the second than the first message. These results held regardless of whether the first message was the pro or anti communication. That is, consistent with the elaboration-resistance hypothesis, participants who processed the first message under high relevance conditions showed greater resistance to the second communication than individuals who processed the first message under low relevance conditions.[13]

Summary

The studies explicitly examining the hypothesis that attitude change resistance is enhanced in conditions where initial persuasion is associated with effortful message elaboration have provided consistent support for it. It is important to note that the studies on the resistance of attitude changes address an issue that remained open at the end of our review of studies on the persistence of persuasion. This issue concerned whether effortfully thinking about and elaborating a message during its presentation is sufficient to produce a strong attitude, or whether some thinking about the message following initial exposure is necessary. In studies on attitude resistance, the strength of a newly formed or changed attitude is tested immediately, not days or weeks later as in the persistence paradigm. Yet, the results of the persistence and resistance studies are conceptually identical. For example, just as attitudes formed by people high in need for cognition or in situations of high personal relevance persist over time, attitudes formed by people high in need for cognition or in situations of high personal relevance show resistance to an immediately attacking communication. The research on resistance therefore bolsters the notion that the extent of message elaboration during exposure to the communication is an important determinant of the strength of newly changed attitudes.

CREATING ATTITUDES THAT PREDICT BEHAVIOR

So far, we have argued that understanding the extent of elaboration at the time of attitude change is important for understanding whether a newly changed attitude

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[13]The elaboration-resistance prediction for message order (i.e., more primacy with greater elaboration of the first message) assumes that the two messages are generally equivalent and processed under similar elaboration conditions. However, if the second message contained much less favorable cues than the first message, then low elaboration subjects would be less likely to show recency because they would be negatively influenced by the unfavorable cues in the second message (Haugtvedt, Wegener, & Warren, 1994). Also, if the arguments in the second message are made much weaker than those in the first message, recency effects would become less likely especially if the elaboration conditions were enhanced between the first and second messages.

will persist over time and be resistant to countervailing messages. Is elaboration also important for understanding whether a new attitude will predict behavior?

In 1964, Festinger provided an early review of research examining the relationship between attitude change and behavior change. At that time he only was able to cite three studies, none of which was designed deliberately to assess this relationship, but also none of which indicated that attitude change translated into behavior change. Unfortunately, little has changed since Festinger's early review. Although a very large body of research has accumulated on the extent to which existing attitudes predict behavior, there is still minimal research in which investigators examine the ability of newly changed attitudes to predict behavior, and even less research where attitudes changed by different processes are compared in their abilities to predict behavior.[14]

Prediction of Behavior From Existing Attitudes

As just noted, most studies of attitude-behavior consistency look at the ability of pre-existing attitudes to predict behavior (see Ajzen, 1988). In a typical study, attitudes, behaviors, and some moderator variable are measured. Studies examining characteristics of the attitudes themselves as well as the people holding the attitudes have been explored and have provided support for the *elaboration-consistency hypothesis* that attitudes formed as a result of issue-relevant thinking are more predictive of behavior than attitudes formed as a result of more peripheral processes. For example, studies have shown that attitudes on policy issues that people consider important predict their voting behavior better than attitudes on unimportant policy issues (e.g., Krosnick, 1988; Schuman & Presser, 1981). To the extent that people have thought about important issues more than unimportant ones (Petty & Cacioppo, 1979; see also Boninger et al., ch. 7, this volume; Crano, ch. 6, this volume; Thomsen et al., ch. 8, this volume), these findings are consistent with the elaboration-consistency hypothesis. Other qualities of attitudes such as accessibility (e.g., Fazio, Powell & Herr, 1983; see Fazio, ch. 10, this volume), knowledge (e.g., Kallgren & Wood, 1986; see Wood et al., ch. 11, this

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[14]One notable exception is Wilson's program of research on the effects of analyzing reasons on attitude-behavior consistency (see Wilson, Dunn, Kraft, & Lisle, 1989, see Erber, Hodges, & Wilson, ch. 17, this volume). In this research, no persuasive message is presented but participants are simply told to analyze *why* they feel the way they do about some attitude object. The primary conclusion of this research is that if thinking about one's attitude causes a momentary change in attitude because a different set of factors is salient than is normally the case (e.g., the attitude is normally determined by emotional factors but due to the analyzing reasons manipulation the attitude expressed reflects mostly cognitive factors), the new attitude will be less predictive of subsequent behavior than the old one. Presumably if attitude changes that were produced by comprehensive thinking (i.e., considering both the cognitive and emotional factors relevant to the topic) versus focused thinking (i.e., considering only the negative or emotional factors relevant to any issue) were compared, the former attitudes would be more predictive of behavior than the latter ones, but this has not been examined.

volume), affective-cognitive consistency (e.g., Norman, 1975; see Chaiken et al., ch. 15, this volume), and extremity (e.g., Petersen & Dutton, 1975; see Abelson, ch. 2, this volume, Judd & Brauer, ch. 3, this volume) also moderate attitude-behavior consistency and provide support for the elaboration-consistency hypothesis to the extent that all of these variables are plausibly associated with issue-relevant elaboration.

More directly relevant to the elaboration-consistency hypothesis are studies that have examined differences in attitude-behavior consistency for individuals who have thought much versus relatively little about their attitudes. For example, Brown (1974) assessed the attitudes of high school students toward breaking various laws such as using drugs, obeying traffic laws, and so forth. He also measured self-reported compliance with these laws and found greater attitude-behavior consistency for students who reported much, rather than little, thinking about the law. Research on need for cognition (Cacioppo & Petty, 1982) has also supported this proposition. For example, Cacioppo, Petty, Kao, and Rodriguez (1986) found that the attitudes toward the presidential candidates of individuals high in need for cognition were more predictive of their votes than the attitudes of individuals low in need for cognition.

Other individual differences might also be relevant. For example, the attitudes of low self-monitors (Snyder, 1974) are more predictive of behavior than the attitudes of high self-monitors (e.g., Snyder & Swann, 1976; Zanna, Olson, & Fazio, 1980). Given that low self-monitors also tend to be more attentive to the quality of the arguments supporting an advocacy whereas high self-monitors are more concerned about image (e.g., Snyder & DeBono, 1987), differences in the extent of information processing activity may be responsible for this difference. Also, Rholes and Bailey (1983) found that people using higher levels of moral reasoning (Kohlberg, 1958) showed higher attitude-behavior consistency. To the extent that higher levels of moral reasoning correspond to higher levels of attitudinal elaboration, this supports the elaboration-consistency hypothesis. It has also been shown that individuals who assume greater responsibility for their acts are more likely to engage in attitude-consistent behavior (e.g., Ferrari & Leippe, 1992; Schwartz, 1973). Because personal responsibility is associated with elaboration (e.g., Petty et al., 1980), this result is also consistent with the elaboration-consistency hypothesis.

Prediction of Behavior From Newly Changed Attitudes

Although the studies on existing attitudes are suggestive, more confident conclusions could be drawn from research in which new attitudes are created by thoughtful or nonthoughtful means and attitude-behavior consistency assessed. As noted previously, increasing the personal relevance of a persuasive message has been shown to enhance message elaboration. Several studies have manipulated

or measured the personal relevance of a communication, measured postcommunication attitudes, and examined attitude-behavior consistency.[15]

In one pertinent study (Sivacek and Crano, 1982; Experiment 2), undergraduate subjects were informed that their university was exploring the possibility of implementing senior comprehensive exams and they then read a message describing these exams. Following message exposure, subjects were given the opportunity to sign petitions opposing the exams and to volunteer their services to a group that opposed the exams. Sivacek and Crano divided their sample into high, moderate, and low relevance groups on the basis of subjects' self-reports of whether the issue was of high or low personal relevance (i.e., would affect them or not). Correlations between subjects' attitudes toward senior comprehensive exams and the relevant petition-signing/volunteering behaviors were largest in the high relevance group. Thus, subjects for whom the message was more personally relevant demonstrated higher attitude-behavior consistency than subjects who considered the message less relevant. If subjects in the high relevance group engaged in greater issue-relevant thought during exposure to the persuasive communication than subjects in the other groups (as would be expected based on numerous studies), this research supports the elaboration-consistency hypothesis (see also, Crano, ch. 6, this volume).

In another study, Petty, Cacioppo, and Schumann (1983) exposed subjects to an advertisement for a consumer product under high or low relevance conditions. The product was endorsed either by a relatively likable or a neutral endorser and contained either strong or weak arguments in support of the product. In the high relevance conditions, subjects read the advertisement after being led to believe that the product would soon be available in their local area and that they would soon have to make a decision about the product category. In the low relevance conditions, subjects read the same ad after being led to believe that the product would not be available in their local area and that they would soon have to make a decision about a different product category. Importantly, the attitudes of the high relevance subjects were more predictive of their intentions to purchase the product ($r = .59$) than were the attitudes of low relevance subjects ($r = .36$; $p < .07$). Although the data would be more convincing if actual product purchases were examined, considerable research shows that behavioral intentions are very highly correlated with actual behavior (see Ajzen & Fishbein, 1980).

In another study using an advertising message, Shavitt and Brock (1986) either instructed subjects to relate a detergent ad to their own experiences (high self-

[15]Research on direct experience might also be relevant to the elaboration-consistency hypothesis. Considerable research shows that attitudes newly changed as a result of direct experience are more predictive of behavior than attitudes that are changed as a result of exposure to third-party information (see Fazio & Zanna, 1981). This could be because direct experience increases personal involvement with an issue over indirect experience thereby increasing elaboration of the issue-relevant material presented.

relevance), to try to remember as much of the ad as possible, or they were given no processing instructions. When the subjects returned a week later and were asked to choose a free detergent sample, the attitudes of individuals in the self-relevance condition were more predictive of their product choices than were the attitudes of other subjects. That is, when attitudes toward the products were formed under high elaboration conditions, these attitudes were more predictive of behavior than attitudes formed under the low elaboration conditions.

Leippe and Elkin (1987) also studied the effects of self-relevance on attitude-behavior consistency. In their study, subjects listened to messages on the issue of either senior comprehensive exams or a campus parking fee. To vary the extent of thinking about the message they received, subjects were led to believe that the issue was either highly relevant or irrelevant to their personal lives (Petty & Cacioppo, 1979). As a measure of behavior, Leippe and Elkin had subjects privately write essays on whichever side of the issue they wanted. The attitudes of subjects in the high relevance conditions were more predictive of the content of the essays they wrote than were the attitudes of subjects in the low relevance conditions. That is, the essays subjects wrote more closely mirrored their post-message attitudes when their attitudes toward the topic were formed as a result of high amounts of thinking about the persuasive communication.[16]

Summary

The few studies relevant to the elaboration-consistency hypothesis have provided support for it. That is, when existing attitudes were likely to have been formed as a result of high rather than low amounts of issue-relevant thinking, the attitudes have been better predictors of behavior. This result has occurred when thinking was likely because the individuals under study liked to think (Cacioppo et al., 1986), or the attitudes were on important topics (Krosnick, 1988), or people directly reported having thought about the issues (Brown, 1974). In studies where the ability of newly changed attitudes to predict behavior were examined, the results were the same. The more the newly changed attitudes were likely to be based on issue-relevant thinking, the more they predicted behavior. That is, when subjects were made more inclined to elaborate messages, either because they were instructed to make self-relevant connections (Shavitt & Brock, 1986), or because situational factors such as increased personal relevance (Leippe & Elkin, 1987; Petty et al., 1983; Sivacek & Crano, 1982) compelled them to think about the messages, the resulting attitudes were more highly associated with subsequent behavior toward the attitude object. As was the case with the studies on resistance, these effects were often observable immediately after message exposure. This

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[16]Leippe and Elkin also manipulated whether subjects expected to discuss the message later ("response involvement"). High response involvement did not enhance message elaboration as assessed by subjects' receptivity to message quality. Thus, not surprisingly, this manipulation did not enhance attitude-behavior consistency.

reinforces the view that variations in thinking during message exposure are sufficient to induce variations in attitude strength.

WHY DOES ELABORATION INCREASE ATTITUDE STRENGTH?

We have argued that when a new attitude is created as a result of considerable issue-relevant thinking, this attitude is stronger than when a new attitude is created by processes requiring little issue-relevant thought. But why is this the case? In explicating the ELM, Petty and Cacioppo (1986a) argued that:

> the process of elaborating issue-relevant arguments involves accessing the schema for the attitude object in order to evaluate each new argument.... Under the peripheral route, however, the schema may be accessed only once to incorporate the affect or inference elicited by a salient cue.... Under the central route then, the issue-relevant attitude schema may be accessed, rehearsed, and manipulated more times, strengthening the interconnections among the components and rendering the schema more internally consistent, accessible, enduring, and resistant than under the peripheral route.... The greater the organization and accessibility of attitudes and attitude-relevant information for persuasion occurring via the central than the peripheral route render people more able to report the same attitude over time, to defend their beliefs, and to act on them.... Changes induced under the central route may be accompanied by the subjective perception that considerable thought accompanied opinion formation. This perception may induce more confidence in the attitude, and attitudes held with more confidence may be more likely to be reported over time, to be slower to be abandoned in the face of counter-propaganda, and to be more likely to be acted upon. (p. 22)

These ideas are depicted in Fig. 5.3. That is, according to the ELM, various *antecedent variables* such as need for cognition, personal relevance, issue importance, distraction, and others, influence the extent to which a person is motivated and able to engage in thinking about the issue and the persuasive communication (i.e., *elaboration*). The more attitude change is the result of careful thinking about the merits of the advocacy, the more persistent, resistant, and predictive of behavior the resulting attitude will be. Thus the ELM provides an integrative framework for understanding the *strength consequences* of a wide variety of variables examined in work on attitudes and persuasion. In this chapter we have reviewed various studies that have provided evidence for one or another of the links in the *antecedent variable → elaboration → strength consequence* causal chain.

However, hardly any research has addressed what it is about elaboration that conveys strength properties to newly changed attitudes, or how elaboration conveys strength. For example, is strength produced by elaboration because the

greater the issue-relevant thinking, the greater the likelihood that the attitude, beliefs, and knowledge relevant to the attitude become accessible, and the more accessible the attitude, the more it persists, resists and predicts behavior? Or, does elaboration facilitate construction of an attitude schema that is coherent, organized, consistent, and linked to other relevant attitudes, beliefs, and values? Or, does elaboration enhance a person's sense of confidence in the attitude, or its importance, and these constructs are responsible for strength?

Independence of the Strength Consequences

The model in Fig. 5.3 might appear to suggest that the various strength consequences will invariably co-occur since each results from elaboration. However, we have already noted that the strength consequences can be independent. One reason for this is that it is presumably possible to produce the strength consequences and the potential mediating processes such as accessibility in ways other than by varying the extent of thinking. For example, Petty and Cacioppo (1986a) noted that repeatedly pairing peripheral cues with an attitude object could produce an accessible attitude that is relatively persistent. However, individuals with these peripherally based persistent attitudes would still likely be susceptible to counterpersuasion because they would presumably have difficulty mounting a defense of their attitudes if they were attacked with strong arguments.

In a demonstration of the potential independence of attitude persistence and resistance, Haugtvedt, Schumann, Schneier, and Warren (1994) presented one group of participants with an advertising campaign for a consumer product in which the substantive message arguments for the campaign were varied across multiple exposures of the ads. Another group of participants was presented with a campaign in which the ads were varied cosmetically (e.g., different endorsers in each ad), but not in the substantive arguments they presented. That is, the substantive variation strategy involved keeping the peripheral source cues constant across exposures, but presenting different arguments in each ad. The cosmetic variation strategy involved keeping the arguments the same across ad
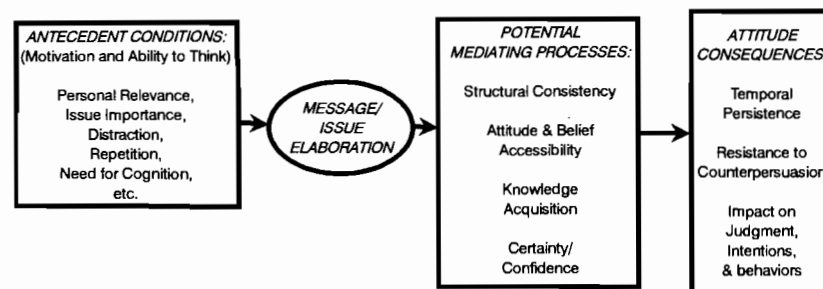

FIG. 5.3. The Elaboration Likelihood Model of attitude strength with potential mediating processes.

exposures, but varying the positive cues contained in the advertisements (see Schumann, Petty, & Clemons, 1990). Substantive variation strategies would be expected to encourage attitude formation via the central route whereas cosmetic variations would encourage attitude formation via the peripheral route.

Previous research comparing central and peripheral routes to persuasion has typically involved a single exposure to a message containing multiple arguments but just one salient cue. Haugtvedt et al. (1994) noted that such research may have provided central route participants with memorial advantages (e.g., multiple retrieval cues) over peripheral route participants. However, if subjects were presented with multiple peripheral cues (cosmetic variation strategy), or if a single cue was repeated multiple times, attitude persistence might be comparable and greater than that obtained in a control condition in which there was just one exposure to an ad. Consistent with this hypothesis, Haugtvedt et al. (1994) found that subjects receiving three exposures of the substantively varied ads, the cosmetically varied ads, or three exposures to a single ad showed greater persistence in attitude change over a 1-week period than subjects who received just one exposure. That is, by the persistence criterion, each of the repetition conditions produced equivalently more favorable attitudes than the single exposure control 1 week after message presentation.

What about resistance? To assess this, after completing the delayed attitude measure, subjects were presented with a message that attacked the product presented in the critical advertisements. On the attitude measure taken after the attacking message, subjects who had received the substantively varied ads showed greater resistance than subjects in any of the other groups. Thus even though the repetition strategies were equally effective in enhancing persistence over one week compared to the single exposure control condition, the different repetition strategies were not equally effective in inducing resistance. Specifically, the attitudes based on exposure to substantively varied ads were more resistant in the face of attack than were the attitudes resulting from the other repetition strategies. That is, repetition and variation of peripheral cues was useful for increasing persistence, but was ineffective in increasing resistance.[17]

Elaboration, Mediation, and Strength

In our review of the elaboration-strength hypothesis, we focused on research showing that when attitudes were changed under conditions that were documented to foster issue-relevant elaboration (e.g., high personal relevance), the attitudes

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[17]It is also important to note that Fig. 5.3 implies that even if elaboration occurs, the strength consequences will not necessarily follow if one or more of the mediating processes are not induced. For example, it is possible that a person thinking extensively about a message could change in the direction of the advocacy, but become more confused and unconfident than a person relying on an expert source. To the extent that this is true, the model holds that the postulated strength consequences would not hold since the postulated mediating processes are not evident. As noted in the text however, it is not yet clear which of these potential mediating processes are crucial for the strength effects.

were more likely to possess one of the strength consequences than when attitudes were changed under conditions that did not encourage elaboration (i.e., peripheral-route change). We devoted little attention to the various processes that might mediate the effects of elaboration on a strength consequence because we were unable to locate a single study that examined all of the steps in the causal chain outlined in Fig. 5.3. Nevertheless, the research we have reviewed above has examined various portions of the causal chain.

One critical link in this chain that we have ignored to this point is whether attitudes changed via elaboration are more likely to be associated with the postulated mediating processes than attitudes changed via peripheral processes. Research on this question is just beginning. For example, in one study Petty, Haugtvedt, and Rennier (1995) examined whether attitudes changed as a result of message elaboration are more accessible than attitudes changed as a result of less effortful peripheral cue processes. To study this, subjects listened to four different messages. Prior to message exposure, the participants were told that their university president had formed two planning committees. One committee was planning for the present and would recommend changes to take effect soon (high relevance), and the other committee was planning for the distant future and was recommending changes that would have no impact on current students (low relevance). The subjects were further told that each committee had solicited ideas from other individuals and groups and that they would hear two suggestions that were made to each of the committees. One of the two suggestions for each committee was presented by a credible source and contained strong arguments in support of the proposal (positive message). The other suggestion for each committee was presented by a low status source and contained weak arguments in support of the proposal (negative message). Based on past research using the personal relevance manipulation, it was expected that high relevance subjects would form their attitudes based on the arguments that were presented, but low relevance subjects would form their attitudes based mostly on the source cues (e.g., Petty, Cacioppo, & Goldman, 1981). Following the message presentation, subjects expressed their attitudes toward each suggestion, and reaction time was assessed. Although high and low relevance subjects formed the same attitudes toward the issues, these new attitudes were expressed more quickly for the high than the low relevance issues. Thus, this study suggests that attitudes formed as a result of issue-relevant cognitive activity are more accessible than attitudes formed in response to peripheral cues.[18]

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[18]Additional and less direct evidence for the view that elaboration is associated with accessible attitudes comes from work showing that high need for cognition individuals express attitudes more quickly than low need for cognition individuals (Ahlering & Parker, 1989), and from work showing that attitudes toward important issues are expressed more quickly than attitudes toward unimportant issues (Krosnick, 1989). This research is less direct because measured need for cognition and measured importance can tap factors (e.g., knowledge) other than the extent of elaboration.

In addition to suggesting that elaboration should influence one or more of the potential mediating processes, Fig. 5.3 also suggests that manipulating the mediating processes directly should produce strong attitudes. For example, Fazio, Zanna, Ross, and Powell (1992, cited in Zanna, Fazio, & Ross, 1994) investigated whether a manipulation of attitude accessibility could produce more persistent attitudes. In their study, following exposure to a persuasive message, subjects in the high attitude accessibility condition were asked to report their attitudes toward the topic on five different attitude scales. Subjects in the low attitude accessibility condition reported their attitude on only one scale. Subjects in the control condition reported their attitude on one scale after listening to an irrelevant message. After 2 or 3 months, all subjects' attitudes were reassessed in a telephone poll. The high accessibility group showed less decay than the low accessibility group. In fact, even though both high and low accessibility groups were equivalently more favorable toward the issue than controls at the initial testing, only the high accessibility group was more favorable than controls at the delayed testing.

In another study, Petty (1977) examined whether belief rather than attitude accessibility could produce more persistent attitudes. In the relevant conditions of this experiment, subjects were exposed to five strong arguments in favor of raising the driving age and were asked to list five thoughts about these arguments. Then, subjects were asked to continually rehearse either the arguments (argument accessibility) or their thoughts (belief accessibility) to themselves until they memorized them. Attitudes were assessed immediately after the accessibility task and again 1 week later. Although both the argument and belief accessibility groups had more favorable attitudes toward raising the driving age than no-message controls, only the group whose own beliefs were made accessible showed persistence of this attitude the following week.

Thus, both attitude and belief accessibility enhance the persistence of attitude change. However, it is unclear whether these studies have produced a strength consequence in the absence of differential elaboration, or whether the manipulations of attitude and belief accessibility might have induced differential issue-relevant thinking. For example, as students completed each new attitude scale in the research by Fazio et al. (1992), they might have engaged in additional issue-relevant thinking as might have subjects as they rehearsed each of their own beliefs in the research by Petty (1977).

Directions for Future Research

The ELM states that the extent of elaboration mediates the impact of various antecedent variables (e.g., personal relevance) on various strength consequences (e.g., attitude persistence). Figure 5.3 further suggests that other variables (e.g., attitude accessibility) might provide a more proximal mediation of the impact of elaboration on the strength consequences. Because research to date has examined only a few of the links in the full causal chain outlined in Fig. 5.3, it is not yet

clear which of the proximal mediating processes (if any) are necessary for the postulated strength consequences of elaboration, which are sufficient, which are neither necessary nor sufficient, and which are both necessary and sufficient.

Thus several interesting issues await additional research. First, will some of the proximal mediating processes be more important than others in accounting for all strength effects for all antecedent variables? For example, might attitude accessibility generally account for more variance in strength than belief organization or any of the other potential mediators? Or, will it turn out that some proximal mediators are more important in accounting for the strength consequences of some antecedent variables than others? For example, will need for cognition effects be mediated by the effects of elaboration on belief accessibility whereas self-relevance effects are mediated by the effects of elaboration on attitude accessibility? Or, more likely, will some proximal mediators be more important in producing some strength consequences than others regardless of the antecedent variables? For example, it seems possible that attitude accessibility alone could produce persistence, but it seems unlikely to induce resistance unless the accessible attitude was also connected to supporting information that would allow counterarguing of an attacking message. Yet, belief accessibility seems capable of providing resistance in the absence of an accessible attitude. Perhaps future research will support the least appealing scenario in which each of the proximal mediators accounts for some strength effects of some antecedent variables in some circumstances. At the moment, it appears that although it may be possible to produce some of the strength consequences without inducing issue-relevant elaboration, inducing issue-relevant elaboration may be the most reliable means of inducing *all* of the consequences associated with strong attitudes.

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Attitude Strength and Vested Interest

William D. Crano
University of Arizona

The study of social attitudes is a defining feature and a fundamental preoccupation of social psychology. For many, what was true in Allport's time is true today—attitudes remain the "most distinctive and indispensable concept in contemporary American social psychology" (Allport, 1935, p. 798). Over the years, some of the central features of this "indispensable concept" have been identified. One of the most important of these is attitude strength, the focus of this volume. Attitude strength usually is described in terms of three qualities: Strong attitudes are *persistent, resistant to change,* and more likely than weak attitudes to be *manifest behaviorally.* Of these three standards, the assumption of attitude-behavior consistency is fundamental, for if attitudes are not associated with behavior, the pertinence of their persistence and resistance is moot. We all recognize the necessity for the functional influence of attitudes on actions. If it did not matter that attitudes have implications for behavior, LaPiere would not be a household name in social psychology.

Considerable evidence indicates that attitudes stand in a functional relationship with attitude-relevant actions (Brewer & Crano, 1994; Zanna, Higgins, & Herman, 1982), but the relationship is neither absolute nor unconditional. Many factors may influence attitude-behavior consistency, and much research has been devoted to their discovery. My purpose is to discuss one such factor: vested interest. In this review, the fundamental conceptualization of vested interest is considered, as are approaches that have approximated the concept. Ego-involvement and attitude importance are reviewed, as is the symbolic politics position, which suggests that vested (or self-) interest does not affect behavior. Finally, some