

PROCESSES OF SOCIAL INFLUENCE THROUGH ATTITUDE CHANGE

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In this review, we focus on social psychological studies of influence—research in which the goal is to bring about change in another person or oneself. Although many constructs can be targeted for change (e.g., beliefs, behaviors), we focus on attitudes (people's general evaluations of people, objects, and issues) because attitudes often serve a key mediational role in behavior change (i.e., attitude change can mediate the impact of some influence treatment on behavioral compliance). In one classic model of influence, some influence treatment affects beliefs, which in turn affect attitudes, which in turn affect behaviors (Fishbein & Ajzen, 1975). Regardless of the causal sequence, however, the same fundamental influence processes can operate independently of the target and type of change sought. For example, compliance typically involves a situation in which a behavioral response is sought in reaction to a simple and explicit request to do something (e.g., donate money to a charity), whereas persuasion typically involves an attempt to bring about a change in beliefs or attitudes as a result of providing information on a topic (e.g., delivering a message on the dangers of smoking). Nevertheless, despite some obvious differences in the persuasion and compliance traditions (e.g., focusing on changes in attitudes vs. behaviors, providing information or not), we argue that some fundamental communalities also exist in the key processes that underlie the effectiveness of these influence methods.

In the typical situation in which influence is possible, a person or a group of people (i.e., the

recipient) receives an intervention (e.g., a communication such as a message or a simple request) from another individual or group (i.e., the source) in a particular setting (i.e., the context). Successful influence is said to occur when the recipients' beliefs, attitudes, or behaviors are modified in the desired direction. As we have noted, although this chapter focuses on influencing attitudes as the key dependent variable, the same procedures can be useful in modifying beliefs and behaviors. Later in this chapter, we discuss when changes in attitudes are more versus less likely to result in behavior change.

In this chapter, we describe research on social influence organized around the key variables that determine the extent of influence. We describe how these different variables (e.g., attractiveness of the source, power of the recipient, modality in which the message is conveyed) affect the extent of influence in different ways depending on the extent of thinking a person is doing. As we describe next, although influencing another person (or oneself) is complex, it can be understood by breaking down the processes responsible for influence into a finite set.

After a long tradition of assessing the impact of influence treatments on attitudes with deliberative self-reports of people's attitudes (Eagly & Chaiken, 1993; Petty & Wegener, 1998), more recent work has assessed change with measures that tap the more automatic evaluations associated with objects, issues, and people. Techniques that assess automatic evaluative associations without directly asking people to report their attitudes are often referred to as *implicit measures*, and assessments that tap more

deliberative and acknowledged evaluations are referred to as *explicit measures*. Assessing a person's automatic evaluative reactions is important because such measures can often bypass social desirability concerns, and automatic evaluations have been shown to have an impact on judgments and behaviors engaged in spontaneously. In contrast, deliberative attitudes are especially important in predicting judgments and behaviors that are also undertaken with some degree of thought (e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; see Fazio & Olson, 2003; Gawronski & Payne, 2010; Petty, Fazio, & Briñol, 2009, for reviews). Although implicit and explicit measures often yield the same outcome (e.g., both reveal that a person likes fast food), sometimes these measures are discrepant. Because implicit and explicit measures of attitudes are useful in predicting behavior separately (e.g., Greenwald, Poehlman, Uhlmann, & Banaji, 2009) and in combination (e.g., Briñol, Petty, & Wheeler, 2006; Petty & Briñol, 2006), it is useful to understand how each is modified by various persuasion techniques. In this chapter, we include a few examples of how the fundamental processes of persuasion are relevant for understanding both short- and long-term changes in both deliberative and automatic attitudes.

PSYCHOLOGICAL PROCESSES RELEVANT TO INFLUENCE

Over the past 50 years, researchers have developed numerous theories to account for the psychological processes underlying attitude change (for a historical review, see Briñol & Petty, 2012). Contemporary comprehensive theories of persuasion, such as the elaboration likelihood model (ELM; Petty & Briñol, 2012; Petty & Cacioppo, 1986), the heuristic-systematic model (Chaiken & Ledgerwood, 2012; Chaiken, Liberman, & Eagly, 1989), and the uni-model (Kruglanski, 2012; Kruglanski & Thompson, 1999), have been generated to articulate the multiple ways in which variables can affect attitudes in different situations.

In this chapter, we use the ELM to organize the processes of influence. Consistent with the ELM, the psychological processes mediating the effects of

variables (regardless of whether related to the source, the recipient, or the context) on attitude change can be placed into a finite set that operates at different points along an elaboration continuum. Specifically, under low thinking conditions, variables can influence attitudes (and other judgments such as a decision to comply) by operating as a simple judgment cue or heuristic (e.g., I'll comply because I like you). When the likelihood of thinking is relatively high, variables can impact the extent of influence by more thoughtful means, such as by affecting the direction (valence) of the thoughts that come to mind, serving as a piece of evidence (i.e., an argument) to be scrutinized, or affecting the confidence people have in the thoughts they generate and thus how much the thoughts are relied on. When elaboration is not constrained to be very low or high, variables can influence attitudes by affecting the amount of thinking that occurs. Thus, as we explain in more detail shortly, the ELM describes several processes by which variables can affect persuasion in different situations.

Understanding these mechanisms is critical for a number of reasons, not the least of which is that it has implications for the immediate and long-term consequences of the influence attempt. In particular, the more thoughtful the mechanism that is involved, the more the influence that a variable creates is expected to be durable and resistant and to have an impact over time (Petty, Haugtvedt, & Smith, 1995). For example, if a person agreed with a store salesman's request to purchase a box of cookies solely because of a claim that only one box was left (scarcity implying value), then the person would be easier to talk into purchasing a different box of cookies on a subsequent visit than if the initial purchase came after the implied scarcity led the consumer to carefully scrutinize the merits of the rare cookies and form a strong favorable attitude toward them. Thus, the ELM holds that the process by which an influence attempt is successful is consequential for the future. That is, even if two different processes result in the same extent of influence at an initial occasion, the consequences of this influence can differ. Furthermore, understanding the process by which variables can produce influence is also important because if any one variable can affect

influence via different processes, then different outcomes for the same variable are possible. For example, when thinking is constrained to be low, a happy state might lead to more attitude change than a sad state because emotion serves as a simple positive cue (e.g., if I feel good, I must like it), but when thinking is unconstrained, a happy state could reduce processing of a cogent message compared with a sad state, thereby reducing persuasion.

As an illustration of the integrative power of the ELM conceptual framework, in the following sections we describe the social psychological research conducted on automatic and deliberative attitude change through the operation of source variables (e.g., credibility), recipient variables (e.g., emotions), and context variables (e.g., scarcity), all organized around the same fundamental processes of persuasion. It is important to note that message variables have also been studied in the influence literature, but not to the same extent as the others. For example, consider how lengthy a message is or how many arguments it contains. Research has shown that when people are not thinking carefully, adding any reason—whether good or bad—to a request can increase compliance. In one classic study (Langer, Blank, & Chanowitz, 1978), it was shown that when requesting to cut in line to make copies, the request was complied with more when a reason was provided than when it was not, but it did not matter if the reason was a good one (i.e., I'm in a rush) or a vacuous one (i.e., I have to make copies). In this situation, the people in line had little time to think about the merits of the request before agreeing to it or not, and all that appeared to matter was the form of the appeal (reason vs. no reason). A similar effect occurs in the domain of rhetorical persuasion. For example, a series of studies (Petty & Cacioppo, 1984) showed that adding three weak reasons to a message containing three strong ones increased attitude change, but only when the message was low in personal relevance and was unlikely to have been processed carefully. When weak reasons were added for a high-relevance message, however, persuasion was reduced because, under high relevance, the reasons were considered carefully. We next turn to some major source, recipient, and context variables and describe how they affect the extent of influence along the thinking continuum.

SOURCE VARIABLES

Source factors refer to aspects of the individual (or group) who delivers the persuasive message. This section describes the basic processes by which source factors can produce attitude change. We describe how source credibility, power, minority or majority status, and even the self can affect attitude change by invoking one or more of the core mechanisms of persuasion. After defining each variable, we present some representative studies and document the outcomes of source variables on both deliberative (explicit) and automatic (implicit) measures of attitudes.

Source Credibility

Highly credible individuals are often more influential and produce more attitude change than sources of low credibility. A person's credibility or authority (see Cialdini, 2001) stems from his or her reputation for having extensive knowledge, expertise, or honesty, and much research has been devoted to these individual source factors in persuasion. The initial tendency among persuasion scholars was to think that credible sources were likely to have just one effect through a single process (e.g., increasing influence by invoking an automatic heuristic, such as "If an expert says it, it must be true"; Chaiken, 1980; Petty, 1997) and, indeed, that is possible when people are not very motivated and able to think. For example, in one early study illustrating a cue role for source credibility, Petty, Cacioppo, and Goldman (1981) presented undergraduate students with a counterattitudinal advocacy (implementing comprehensive exams) containing either strong or weak arguments that emanated from a source of either high expertise (a professor of education) or low expertise (a local high school student). For some participants, the policy was high in personal relevance (they were told that the policy would begin the following year so that they would be affected by it), whereas for others the policy was low in relevance (the changes would take place in 10 years so it would not affect them personally). Attitudes toward the proposal were influenced primarily by the quality of the arguments in the message under high relevance, whereas under low

relevance, attitudes were influenced primarily by the expertise of the source. Thus, under low thinking conditions, rather than diligently considering the issue-relevant arguments, the message recipients accepted the advocacy simply because it was presented by an expert.

More important, source credibility does not always operate by invoking a simple heuristic. Also, enhanced source credibility does not always lead to a more favorable persuasive outcome. As we illustrate next, source credibility can produce various effects depending on the circumstances, meaning that source credibility can sometimes be associated with increased persuasive impact, but at other times it can be associated with decreased influence. For example, when thinking is not constrained to be high or low by other variables, source credibility can influence attitudes by affecting the amount of thinking people do about a persuasive communication. In fact, people are often unsure whether a message warrants or needs scrutiny, and in such cases they can use the credibility of the message source as an indication of whether processing is worthwhile. Research has suggested that when the credibility of the source is based on expertise, people are more likely to think about the message from a knowledgeable source than from one that lacks knowledge (e.g., Petty, Cacioppo, & Heesacker, 1981). This makes sense because a knowledgeable source provides potentially useful information. Interestingly, if high expertise leads people to think more about weak arguments, then high expertise will be associated with reduced persuasion, the opposite of its effect when serving as a simple heuristic. That is, when the arguments are strong, having an expert source increases persuasion, but when the arguments are weak, expert sources can reduce persuasion.¹

When motivation and ability to think are high, such as when the topic is one of high personal relevance (Petty & Cacioppo, 1979) and few distractions are present (Petty, Wells, & Brock, 1976), people will be engaged in careful thought about a

request or a message, but that thinking can be biased by source variables. Most important, source variables can motivate or enable people to either support or derogate the content of the information provided. Some features of the source increase the likelihood of favorable thoughts being elicited, but others increase the likelihood of unfavorable thoughts coming to mind. For example, Chaiken and Maheswaran (1994) demonstrated that an expert (vs. nonexpert) source had a greater impact on attitudes by affecting the favorability (rather than the amount) of the thoughts generated in response to a proposal, but only when the message was ambiguous (vs. clearly compelling or specious) and when the personal importance of the message topic was high (vs. low). Under similar conditions, Tormala, Briñol, and Petty (2006) found that persuasion was mediated by the biased thoughts generated toward the proposal. Other research has also shown that if people believe that their thoughts have been biased by the source, they can adjust their judgments in a direction opposite to the implication of the thoughts (correction processes; Petty, Wegener, & White, 1998; Wegener & Petty, 1995, 1997).

Finally, source credibility can also influence persuasion by affecting the confidence people have in the thoughts they generated in response to a message. This hypothesis relies on the assumption that source credibility can influence the perceived validity of the information in a persuasive proposal (e.g., Kaufman, Stasson, & Hart, 1999). Most research has presented the source before the message, but when one has already thought about information in a message and only then discovers that it came from a high- or low-credibility source, one's thoughts can be validated or invalidated by this source information if thinking is high. In an initial demonstration of this possibility, Briñol, Petty, and Tormala (2004) exposed participants to strong arguments in favor of the benefits of phosphate detergents. After receipt of the message, participants learned that the source of the information was either a government consumer agency (high credibility) or a major phosphate

¹If the expertise of a source is kept high but the trustworthiness of the source is varied, then people tend to process a message more if the veracity of the source is in doubt (Priester & Petty, 1995) or the source violates expectations in some way (Ziegler, Diehl, & Rutherford, 2002). The advocated position of a source that is highly knowledgeable and trustworthy can easily be accepted without much scrutiny.

manufacturer (low credibility). When thoughts have been generated in response to credible information, people can be relatively confident in their thoughts because the information on which the thoughts were based is valid, but when people learn that their thoughts have been generated to a source of low credibility, doubt is instilled. Although participants in both high- and low-credibility conditions generated equally favorable thoughts to the strong arguments, participants exposed to the high- versus low-credibility source had more confidence in their thoughts, relied on them more, and were therefore more persuaded by the proposal (see also Tormala et al., 2006).² More important, source credibility affected persuasion through this metacognitive process only under high thinking conditions, such as when the participants were relatively high rather than low in their enjoyment of thinking as assessed with the Need for Cognition scale (Cacioppo & Petty, 1982). Under low thinking conditions, source credibility operated as a simple cue increasing persuasion regardless of the quality of the message, consistent with prior research (Petty, Cacioppo, & Goldman, 1981). Furthermore, Tormala et al. (2006) demonstrated that source credibility affected thought confidence only when the source information followed, rather than preceded, the persuasive message. When source information preceded the message under high thinking conditions, it biased the generation of thoughts, consistent with past research (Chaiken & Maheswaran, 1994).

Source Power

Credible sources can influence people because they are experts or are trustworthy, and as just explained, these variables can operate in multiple ways to produce influence in different situations. Many other features of sources can render them more or less effective in achieving influence, such as their social power. People are frequently rewarded for behaving in accordance with the opinions, advice, and directives of powerful authority figures. In general, research on social influence has shown that powerful sources produce more agreement than powerless

sources (e.g., Festinger & Thibaut, 1951; French & Raven, 1959). Although this effect is most often attributed to power producing overt compliance rather than internalized attitude change (e.g., see Kelman, 1958), it can also be the result of cognitive mechanisms. For instance, Fiske, Morling, and Stevens (1996) suggested that persuasive messages presented by a source with power over task outcomes might receive greater scrutiny than the same message presented by a powerless source (leading to more persuasion if the arguments are strong), but messages from sources with power over evaluations of the recipient might be more likely to be processed in a positively biased fashion, presumably because people want to convince themselves that the evaluator will be generous.

As was the case for source credibility, the ELM suggests that the psychological processes mediating the effect of power on attitude change can be organized into a finite set that operates at different points along an extent-of-thinking (elaboration) continuum. First, when thinking is likely to be low (e.g., an environment with many distractions), power should act as a simple cue to persuasion by invoking the simple inference that the power holder (e.g., whether oneself or another person) is right. That is, feelings of high power would lead a person to heuristically conclude that his or her own position (or the position of a powerful external source) is valid and should be adopted, whereas feelings of low power would imply that one's position (or that of a low power source) is invalid and should be rejected (Cialdini, 2001).

Second, if thinking is not already set to be high or low by other variables and feelings of power are high before message exposure, its role in the persuasion process is likely to be a reduction of thinking. This notion is consistent with previous research (Fiske, 1993) showing that powerful sources can reduce the extent of processing of incoming information in the recipients and with research showing that people in powerful positions rely more on stereotypes than do those who are powerless (i.e., who rely on simple cues; see Fiske, 1993;

²If the task is to judge the source rather than the message, then learning that a credible source presented strong arguments and a source low in credibility presented weak arguments validates one's thoughts about the source (Clark, Wegener, Sawicki, Petty, & Briñol, 2013).

Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Guinote, Judd, & Brauer, 2002; Keltner & Robinson, 1996). In a relevant study conducted in the domain of attitude change (Briñol, Petty, Valle, Rucker, & Becerra, 2007, Experiment 2), high power induced in message recipients before information exposure was found to influence attitude change by reducing the extent to which they thought about the message (see also Johnson & Lammers, 2012; See, Morrison, Rothman, & Soll, 2011). Powerful people can presumably rely on what they already believe and do not need to process messages from others extensively.

Third, when the likelihood of thinking is relatively high (e.g., few distractions, important topic), the same experience of power before a message can affect persuasion by other processes. For example, power could bias people's thoughts in a manner consistent with their initial attitude, making them less susceptible to change. This idea is consistent with the finding that people in powerful (vs. powerless) roles are more likely to attend to information that confirms rather than disconfirms their expectations (Copeland, 1994; Fischer, Fischer, Englich, Aydin, & Frey, 2011).

Furthermore, when thinking is high, power could be evaluated as evidence if it provides diagnostic information about the merits of an object. For example, power in a speaker could spark the perception that the source possesses some particular abilities or personality (e.g., ambition, social skills) in an impression formation task. For example, when a person is described as powerful, one can view this as a compelling argument for the person's being suited for jobs related to politics. Of course, as was the case with credibility, if people believe that their judgments are somehow being biased or inappropriately influenced by their own or another person's power, and they do not want this to occur, they can adjust their judgments in a direction opposite to the unwanted bias (i.e., a correction effect; Wegener & Petty, 1997).

In addition to these possibilities relevant to primary cognition, power can also affect whether people use their thoughts by influencing what people think about their validity. For example, in one study (Briñol, Petty, Valle, et al., 2007), participants were

first led to generate either positive or negative thoughts about a proposed vaccination policy for students on campus. Then participants were instructed to recall two incidents in their lives in which either they had power over another person (high-power condition) or someone else had power over them (low-power condition). Relative to powerless individuals, those induced to have power after message processing reported greater confidence in their thoughts about the campus policy. As a consequence, the effect of the direction of the thoughts generated by participants on attitudes was greater when power was high than when it was low. Furthermore, thought confidence mediated the observed effects on persuasion. For a variable such as power to affect thought confidence (instead of the number or direction of the thoughts), it is best to induce it after information processing when people are most likely to reflect on the thoughts they have already generated (for an additional example, see Briñol, Petty, & Stavraki, 2012).

Source Majority Versus Minority Status

One of the most examined source variables in the literature on social influence is whether the persuasive proposal is said to be endorsed by a majority or a minority of other people. Both the conformity and the persuasion literatures have accumulated considerable evidence suggesting that endorsement by numerical majorities often exerts greater influence than that by numerical minorities (e.g., Wood, Lundgren, Ouellette, Busceme, & Blackstone, 1994). However, under some circumstances, minorities can be more influential both on direct measures (e.g., Baker & Petty, 1994) and especially when attitude change is assessed with indirect, latent, or private measures (e.g., Crano & Chen, 1998; Moscovici, 1980; Mugny & Pérez, 1991).

As was the case for source credibility and power, several of the mechanisms have been shown to operate for majority versus minority endorsement. The simplest mechanism is when majority endorsement activates a consensus heuristic and leads to a relatively nonthoughtful acceptance of a request or message (e.g., Cialdini, 2001). However, when thinking is taking place, operation of a simple consensus heuristic is not sufficient to account for

the extent of influence (e.g., Baker & Petty, 1994; for a review of multiple mechanisms, see Martin & Hewstone, 2008; Tormala, Petty, & DeSensi, 2010). For example, Martin, Hewstone, and Martin (2007) manipulated the level of elaboration within the same experimental design (low, intermediate, high) to test ELM predictions about the multiple roles for source variables and found that when either motivational (Study 1) or ability (Study 2) factors encouraged low message elaboration, there was heuristic acceptance of the majority position without detailed message processing. However, when elaboration was not constrained to be high or low (i.e., intermediate level of elaboration), source status affected how much thinking people did about the message. Specifically, minority source status increased careful processing, as revealed by greater argument-quality effects shown for minority rather than majority sources. Finally, when elaboration was high in this study, source status did not have a consistent effect on attitude change across studies; rather, persuasion was mainly a function of the quality of arguments in the message. However, other studies have shown that when thinking is high, source status can bias the direction of the thoughts generated, with majority sources being associated with a reduction in counterarguing compared with minority sources (e.g., Erb, Bohner, Schmilzle, & Rank, 1998).

As described for the other source variables, majority versus minority endorsement can affect persuasion not only by serving as cues or affecting the direction and the amount of thinking, but also by influencing the confidence with which people hold their thoughts. In one study, Horcajo, Petty, and Briñol (2010) presented participants with a persuasive message introducing a new company. The message was composed of either strong or weak arguments about the firm. After reading and thinking about this information, participants listed their thoughts in response to the company. Next, source status was manipulated by attributing the message to a source in the numerical minority or majority (e.g., 18% vs. 88% of their fellow students support the company). This study showed that the status of the source (minority vs. majority) influenced the confidence with which participants held their thoughts about the company. Specifically,

participants had higher thought confidence when the message was endorsed by a majority rather than a minority. As a consequence, Horcajo, Petty, and Briñol found that the majority (vs. minority) endorsement increased reliance on thoughts and thus enhanced the argument-quality effect on attitudes. People presumably rely on their thoughts more for a majority-endorsed message than for a minority-endorsed message for the same reasons they rely on their thoughts more for a message from a high- than from a low-credibility source.

The Self as a Source

Although so far we have focused on external sources, sometimes people persuade themselves (i.e., serve as the source of the message) even if they are not intending to do so. In fact, a very long tradition in the study of attitude change involves self-persuasion through role-playing (e.g., Janis & King, 1954). In this work, participants are typically asked to act out roles such as convincing a friend to stop smoking but end up convincing themselves in the process. In general, conditions in which participants are asked to generate messages tend to result in more self-persuasion than conditions in which participants passively receive messages from others. In the classic role-playing paradigm, the focus has been on the self as a source rather than another person as the source, with the conclusion that the self is often superior to others because people are more likely than others to generate arguments that they find most compelling (e.g., Greenwald & Albert, 1968).

As just noted, research on role-playing has focused on situations in which people aim to convince another person but end up persuading themselves. Yet, in everyday life, individuals sometimes have the explicit goal to convince themselves to like or do something. Maio and Thomas (2007) reviewed how people sometimes work hard to talk themselves into a diverse range of conclusions. For example, people can try to convince themselves to face their fears, like their new job more, or eat healthier. As described by Maio and Thomas, people might try to convince themselves for many reasons (e.g., to feel better, to be coherent) and through multiple tactics (e.g., including the generation of biased thoughts, as in the classic role-playing research).

Combining these two traditions in the domain of attitude change, Briñol, McCaslin, and Petty (2012) investigated the impact on self-persuasion of the specific target of one's own persuasive attempt (i.e., others vs. oneself). This research showed that the efficacy of self-persuasion depended on whether people believed that they would have to put more or less effort into convincing the self or another person. Specifically, Briñol et al. found opposite effects for self-persuasion depending on whether the topic of influence was proattitudinal or counterattitudinal. When it was counterattitudinal (i.e., when people were sure they did not like the proposal), individuals were more effective in convincing themselves when the intended target of the message was themselves versus another person. However, the opposite was the case when the topic was proattitudinal (i.e., when people were sure they already liked the proposal).

Among other things, this research revealed that people appear to recognize that they have to try harder to convince themselves when they dislike (vs. like) something and that they are more sure of their own attitudes than those of others. Therefore, people vary their persuasive effort on the basis of the message position and whether the message is aimed at the self or others. In more traditional paradigms of persuasion, this effect translates into variations in the extent of processing of an external message depending on the message position and the recipient's strength of attitude. Specifically, J. K. Clark, Wegener, and Fabrigar (2008) showed that when externally originated messages were counterattitudinal, increased premessage attitude accessibility (indicative of a strong opinion) was associated with greater message elaboration (as revealed by greater argument-quality effects on attitude change) than when the premessage attitude was low in accessibility. This result replicates previous research on attitude accessibility and persuasive information processing

of counterattitudinal messages (e.g., Fabrigar, Priester, Petty, & Wegener, 1998). That is, when the topic of the message is counterattitudinal and people are sure of their opinions (i.e., high accessibility), they put more effort into processing the message than when attitudes were less strong (i.e., low accessibility). Of importance, J. K. Clark et al. (2008) also found that when externally originated messages were proattitudinal, increased premessage accessibility was associated with decreased message scrutiny. Taken together, both paradigms suggest that people dedicate more effort when they are more sure that they do not like (vs. like) something, regardless of whether that effort results in processing external information or in generating arguments to convince themselves.

Impact of Source Variables on Implicit Measures by Multiple Processes

Regardless of the amount of thinking, a common feature of most prior work on source factors is that attitude change was assessed with explicit self-report measures. As noted, however, in the past 2 decades a growing number of new measures of automatic attitudes have been available (e.g., evaluative priming [Fazio, Jackson, Dunton, & Williams, 1995]; Implicit Association Test [Greenwald, McGhee, & Schwartz, 1998]), and researchers are beginning to examine how source factors can influence these automatic attitudes.³ It is now clear that the same source factors described so far can also influence automatic measures of attitudes by multiple processes.

As mentioned, perhaps the most obvious role for source factors is as a simple cue, and research has indicated that such low thought processes can influence automatic attitudes. For example, in one study Forehand and Perkins (2005) exposed participants to an advertisement for a product that featured a liked celebrity's voice. Some participants recognized

³ Fazio and Towles-Schwen's (1999) MODE (Motivation and Opportunity as DEterminants of the attitude-behavior relation) model provides an influential early account of the relationship between deliberative and automatic measures. According to the MODE model, automatic measures of attitudes are more likely to reflect the true attitude than are explicit measures because deliberative measures also tap any downstream cognitive activity in addition to the stored evaluative association (see Olson & Fazio, 2009). One important downstream consideration is the perceived validity of the activated evaluation. This validity assessment is sometimes assumed to be conducted entirely online (e.g., Gawronski & Bodenhausen, 2006). In other approaches, however, such as the metacognitive model of attitudes (Petty, Briñol, & DeMarree, 2007), people are assumed to store validity assessments—at least for some attitude objects—that can be retrieved with additional cognitive effort. These validity assessments are more important in determining the attitudes reported on explicit measures than on implicit measures (see Petty & Briñol, 2009).

the celebrity, and others did not. When the liked celebrity was not explicitly recognized, both deliberative and automatic attitudes were affected positively. However, when the celebrity was explicitly identified, only the implicit measure was influenced positively. In fact, under these conditions a reversal effect emerged on the explicit measure, revealing more negative attitudes toward the liked source. When the celebrity was explicitly recognized, recipients presumably attempted to debias their judgments, not wanting to be influenced by this seemingly irrelevant factor. If people overcorrect their judgments, a reverse effect will be obtained (see Petty et al., 1998). The Forehand and Perkins findings suggest that implicit measures are particularly sensitive to the valence of the source of the persuasive treatment, but less so to correction processes.⁴

In another line of research relevant to understanding the impact of source factors on automatic attitudes, McConnell, Rydell, Strain, and Mackie (2008) presented participants with positive or negative behavioral information about a target (e.g., helped the neighborhood children) who also varied in some observable physical characteristic (i.e., overweight vs. normal; attractive vs. average vs. unattractive; Black vs. White). They found that explicit attitudes toward the target were affected by the explicit behavioral information but not by the physical characteristics. These results are analogous to some of the ELM studies reviewed earlier in which the quality of the substantive arguments had an impact on explicit attitudes, but simple issue-irrelevant valence cues (e.g., source credibility) did not when people were thinking carefully (see Petty & Wegener, 1998, for a review). In contrast, automatic attitudes toward the target generally reflected only the observable physical characteristics of the person rather than the explicitly provided behavioral information (see also Rydell & McConnell, 2006). For example, when the source was unattractive, overweight, or Black, automatic attitudes were equally negative regardless of the favorability of the behavioral information. This is reminiscent of ELM

studies in which simple cues but not argument quality affected explicit attitudes when thinking was low. Interestingly, when physical appearance provided no particularly positive or negative valence cue (e.g., a White, normal-weight target of average attractiveness), then the explicit behavioral information did affect automatic attitudes (see Briñol, Petty, & McCaslin, 2009, for a review).

Although the McConnell et al. (2008) research suggests that features of people (i.e., race, attractiveness) are especially likely to affect automatic attitudes by serving as simple valence cues, this does not mean that explicit measures cannot be affected by source variables under high thinking conditions. Under high thinking conditions, source factors could influence explicit measures, but they would do so by other, more deliberative processes such as affecting the valence of the thoughts generated. Indeed, this may be what happened when McConnell et al. (2008) in some conditions presented their participants with behavioral information that was ambiguous rather than clear cut. Under these conditions, the target's physical characteristics affected explicit evaluations. This finding is therefore similar to research mentioned earlier showing that simple variables such as source credibility are more likely to affect attitudes under high thinking conditions if the substantive information is ambiguous because the cue biases interpretation of the information (see Chaiken & Maheswaran, 1994; Petty, Schumann, Richman, & Strathman, 1993).

RECIPIENT VARIABLES

Just as characteristics of the source can determine the extent of influence by multiple processes, so too can characteristics of the target or recipient of influence. This section describes how the same basic mechanisms used to understand how source factors produce attitude change can be used to understand recipient factors. We focus on the following variables: bodily responses and behaviors, emotions experienced, feelings of ease or fluency, and self-worth. Each variable is defined, and

⁴With enough repetition and practice, however, correction processes can become automatic and be evident on implicit measures (e.g., Maddux, Barden, Brewer, & Petty, 2005).

representative studies are described in which recipient variables influence both explicit and implicit measures of attitudes.

Bodily Responses and Behaviors

One prominent feature of individuals that has received much attention is how people behave or what the targets of influence do with their bodies (see Semin & Smith, 2008, for work on embodied cognition). Research has shown that recipients' body postures, facial expressions, and bodily movements can all influence evaluations in rather subtle ways. For example, one early study showed that simply nodding one's head in a vertical rather than a horizontal manner while listening to a persuasive message increased the persuasive impact of that message (Wells & Petty, 1980).

Because bodily responses belong to people's physical nature, researchers have tended to think that they have to operate in people's minds through very simple, automatic mechanisms. People's actions can indeed influence their opinions when they do not think about the information they receive. For example, Cacioppo, Priester, and Bernston (1993) showed that neutral Chinese ideographs (i.e., irrelevant stimuli for the sample of participants) presented during arm flexion were subsequently evaluated more favorably than ideographs presented during arm extension (for another classic example using facial expressions, see Strack, Martin, & Stepper, 1988). One reason this could occur is by a process of classical conditioning whereby smiling or other positive states become associated directly with the attitude object (Staats & Staats, 1958). Another possibility is that people rely on simple heuristics or inferences about their behavior when forming or changing attitudes. Bem (1972), in his self-perception theory, proposed that people would make the same inferences about their behavior as would an objective external observer. Thus, if an external observer saw you nodding your head or smiling while listening to a message, this observer would reasonably infer that you agree with the message. According to this theory, people actually engaged in the behavior would make the same inference about their own attitudes. Furthermore, individuals can make similar inferences even when their

bodily information cannot be observed by others (e.g., if my heart is beating fast, I must like this object; Valins, 1966). Thus, information from one's behavior or body can serve as a simple cue to one's attitudes, especially when motivation and ability to think are low (Priester, Cacioppo, & Petty, 1996).

As described for source variables, however, bodily responses and behaviors can influence attitudes by other processes under different circumstances (for a review on embodied persuasion, see Briñol & Petty, 2008). For example, behaviors or bodily movements can also have an impact on persuasion when the likelihood of thinking is relatively high by biasing the thoughts that come to mind. Obviously, for the body to influence thoughts, people need to be thinking. For example, in the original research on head movements and persuasion, Wells and Petty (1980) speculated that participants' past experiences had made nodding compatible with approval and favorable thinking, whereas head shaking was more compatible with disapproval and unfavorable thinking. In line with this idea, Neumann, Förster, and Strack (2003) argued that overt behaviors can directly trigger compatible thoughts that facilitate encoding and processing of evaluatively congruent information.

An important line of research in which behavior has been shown to provoke biased thinking comes from cognitive dissonance theory (Festinger, 1957). Literally hundreds of studies have demonstrated that, if a person freely chooses to act as though he or she likes something that is relatively unattractive (e.g., by choosing it, eating it, writing about it), the person will then report more favorable attitudes after the behavior (e.g., for a review, see Cooper, 2007). For example, in a classic study (Festinger & Carlsmith, 1959), undergraduate students were induced to engage in the boring task of turning pegs on a board. After this task, some of the students were told that the experimenter's assistant was absent today and were asked to take his place and try to convince a waiting participant that the peg-turning task was actually quite interesting. Some of these students were informed that they would be paid \$1 for assuming this role, and others were told that the pay was \$20. After agreeing to serve as the accomplice and talking to the waiting student, all

participants reported to a secretary who gave them a standard department survey that asked how interesting they found the experimental task to be. The key result was that participants paid \$1 expressed more liking for the task on the survey than those paid \$20. According to dissonance theory, this is because the behavior of lying was less justified (and thereby induced more discomfort or dissonance) when participants had little external justification for the behavior. To reduce their discomfort from engaging in unjustified behavior, they engaged in biased thinking to rationalize what they did (i.e., the task must have really been interesting if I said it was for only \$1).

Over the years, numerous dissonance paradigms and findings emerged. For example, in another classic paradigm, Brehm (1966) showed that merely choosing one alternative over another could lead to justification of that choice and subsequently valuing it more. Furthermore, over time, numerous alternative explanations for dissonance phenomena were proposed.⁵ Nevertheless, the core of the theory has survived intact. That is, the accumulated research has indicated that when people freely engage in behavior inconsistent with their attitudes, this behavior will elicit feelings of aversive arousal (Elliott & Devine, 1994). If people latch onto a plausible cause for their subjective discomfort (e.g., a pill that they have taken; Zanna & Cooper, 1974), attitude change does not occur. If no plausible explanation is found other than one's discrepant behavior, people attempt to either trivialize the behavior or rationalize it, which can result in attitude change (see Harmon-Jones & Mills, 1999).⁶

People's behavior and bodily postures and movements can influence attitudes not only by serving as simple cues and biasing thinking, but also by influencing the amount of thinking when

elaboration likelihood is not constrained to be very low or high. In one demonstration, Petty, Wells, Heesacker, Brock, and Cacioppo (1983) asked participants to listen to a persuasive message composed of either strong or weak arguments while standing up in a powerful position or lying down in a more vulnerable one. Consistent with the idea that posture can affect the extent of thinking, this research showed that while reclining, participants were differentially persuaded by the strong and weak arguments. Standing participants were not processing the message as carefully, as though their relatively powerful posture made them believe that processing messages from others was not needed (see earlier discussion of power and message processing).

Finally, the confidence that emerges from behaviors or bodily states can magnify (or attenuate) the effect of thoughts in response to persuasive messages or thoughts about anything that is currently available in people's minds (for a review on embodied validation, see Briñol, Petty, & Wagner, 2012). In a series of studies, Briñol and Petty (2003) found that under high thinking conditions head movements affected the confidence people had in their thoughts and thereby had an impact on attitudes. When people generated positive thoughts toward a proposal (i.e., listening to strong arguments), vertical head movements led to more favorable attitudes than horizontal head movements. However, when people listened to weak arguments and generated mostly negative thoughts toward the proposal, head nodding led to less favorable attitudes than head shaking. Subsequent research replicated these findings using body postures associated with confidence (e.g., pushing the chest out) versus doubt (e.g., slouching forward with one's back curved; Briñol, Petty, & Wagner, 2009).

⁵For example, Bem's (1972) self-perception theory explained the Festinger and Carlsmith (1959) result by noting that people simply made the same simple attribution about their behavior as would an outside observer—no dissonance-induced discomfort was necessary. Subsequent research, however, showed that the two theories operate in different domains. In particular, dissonance processes tend to operate more when an action is of high relevance and against one's initial views (e.g., writing an essay opposite to one's opinion), whereas self-perception theory is more likely to operate under low-relevance conditions and for proattitudinal actions (e.g., Cooper & Fazio, 1984).

⁶Still other approaches to understanding dissonance might be of interest to readers (e.g., the self-affirmation model [Steele, 1988]; the self-standards model [Stone & Cooper, 2001]; the action-based model [Harmon-Jones & Harmon-Jones, 2008]; and the model of ambivalence-induced discomfort [van Harreveld, van der Pligt, & de Liver, 2009]).

Emotions

One of the most studied recipient variables concerns the emotions people experience in the context of an influence attempt. As was the case with the other variables we have mentioned, the available research has indicated that people's emotions can determine the extent of influence through multiple processes in accord with the ELM. When elaboration is low, emotions have an impact on attitudes through relatively low-effort peripheral processes. That is, when people are unwilling or unable to scrutinize attitude-relevant information (i.e., low motivation and ability to think), emotion is not likely to influence persuasion by affecting amount or direction of thinking because other constraints on thinking are present (e.g., the message is written in an unknown foreign language). A number of specific low-effort mechanisms have been proposed to explain the effects of emotion under these restricted elaboration conditions, including classical conditioning (Staats & Staats, 1958), use of emotion-based heuristics (e.g., "I feel good, so I must like it"; Chaiken, 1987), and misattribution of one's emotional state to the object of judgment (Zillmann, 1978). In each case, the effect of emotion is direct, such that positive emotional states lead to more persuasion than negative ones (Petty et al., 1993).

Under unconstrained elaboration conditions, emotional states have been shown to affect persuasion by influencing the extent of processing that a persuasive message receives. Under these conditions, a recipient's emotion can be used to decide whether to think about the persuasive proposal. Most studies have compared happiness with sadness. Some theorists have argued that happiness, as compared with sadness, interferes with cognitive capacity, resulting in a decrease in elaborative processing (Mackie & Worth, 1989). Alternatively, according to the feelings-as-information viewpoint (Schwarz, Bless, & Bohner, 1991; Schwarz & Clore, 1983), sadness and other negative states indicate that the current environment is problematic, motivating a high level of effortful processing, whereas positive states indicate that the current environment is safe, indicating that a low level of cognitive effort is satisfactory. In a related argument, Tiedens and Linton (2001) suggested that sadness is typically

associated with an appraisal of doubt, whereas happiness is associated with confidence that would produce more thinking (to resolve doubt) than sadness. According to the hedonic contingency view (Wegener, Petty, & Smith, 1995), individuals in a happy state wish to maintain this situation and are thus highly sensitive to the hedonic implications of messages that they encounter. Because of this, they are motivated to avoid processing information that might threaten their happiness (such as counterattitudinal communications). Thus, several accounts related to both motivation and ability are available to explain why emotions would affect the extent of information processing when it is not already constrained to be high or low.

Under high-elaboration conditions, emotions work by different, more cognitively effortful processes. When a person already has high motivation and ability to think, emotions are not likely to influence how much people elaborate. In these circumstances, people already want and are able to think about the information presented, so elaboration is not going to change as a function of transitory affect. In these circumstances, emotions influence persuasion by affecting other processes. First, one's emotions can be scrutinized as a piece of evidence relevant to the merits of an attitude object (e.g., one can like a movie even if it makes one sad or scared if those are the intended states; Martin, 2000). Second, according to associative network theories of memory, emotions can influence cognitive processes such that retrieval of emotionally congruent information is facilitated and emotionally incongruent information is inhibited (Blaney, 1986; Bower, 1981; M. S. Clark & Isen, 1982). Indeed, under high thinking conditions, emotions have been shown to bias the thoughts that come to mind about a persuasive message (Petty et al., 1993) and have increased the perceived likelihood of emotionally congruent versus emotionally incongruent consequences (DeSteno, Petty, Wegener, & Rucker, 2000; Wegener, Petty, & Klein, 1994). Because of this, in one study messages pointing to sad consequences were more persuasive when people were in a sad than an angry state, but messages pointing to angering consequences were more persuasive when people were angry rather than sad (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004).

Finally, research has also shown that emotions can influence attitude change by affecting thought confidence. This possibility follows directly from the finding just noted that emotional states can relate to confidence, with happy people being more certain and confident than sad people (Tiedens & Linton, 2001). If emotion influences thought confidence, then people in a happy state should be more reliant on their thoughts than people in a sad state. In fact, Briñol, Petty, and Barden (2007) found that when people were placed in a happy state after message processing, attitudes and behavioral intentions were based more on valenced thoughts to the presented arguments than when they were placed in a sad state after the message.

In addition to providing the first evidence that emotional states can affect the extent of persuasion by affecting thought confidence and use of one's thoughts, Briñol, Petty, and Barden (2007) provided further support for the idea that self-validation effects are restricted to high-elaboration conditions (i.e., high need for cognition; Cacioppo & Petty, 1982) and when the emotion follows rather than precedes one's thinking. In contrast, for low-elaboration conditions (i.e., low need for cognition), affect just had a main effect on attitudes, with happy participants liking the proposal more than sad participants. More important, according to the self-validation hypothesis, it is not only positive emotions such as happiness that can increase reliance on thoughts when it follows message processing, but any emotion associated with confidence can do the same. Thus, under some circumstances, anger, a negative emotion, is also capable of inducing confidence and increasing thought reliance compared with surprise (a relatively more positive emotion; see Briñol, Petty, Stavradi, Wagner, & Díaz, 2013).

Subjective Feelings (Ease)

Bodily movements, behaviors, and emotions experienced by people are not the only recipient variables relevant to persuasion. Other, more cognitive feelings can also play an important role. In fact, considerable recent attention has been paid to the subjective sense of the ease with which new information can be perceived or generated (see Alter & Oppenheimer, 2009). In their seminal research,

Schwarz, Bless, Strack, et al. (1991) asked participants to rate their assertiveness after recalling six versus 12 examples of their own assertive behavior. They found that people viewed themselves as more assertive after retrieving six rather than 12 examples. The original explanation for this effect by Schwarz, Bless, Strack, et al. made reference to a simple availability heuristic account such that people would reason that reasons were more available when it was easy rather than difficult to generate them (Tversky & Kahneman, 1974). When it is difficult to generate a list of positive thoughts about a policy, on the one hand, people may infer that there must not be many positive things about it. When it is easy to generate positive thoughts, on the other hand, people may infer that there are many positive things about the policy. However, although this availability heuristic account makes sense when thinking is relatively low, subsequent research has supported the suggestion that ease, as with bodily responses and emotions, can influence judgments by multiple mechanisms in different situations (for a review, see Briñol, Tormala, & Petty, 2013).

Specifically, when thinking is low, ease can act by invoking a simple heuristic as originally proposed (Rotliman & Schwarz, 1998). Indeed, Kühnen (2010) recently provided evidence that ease can influence judgment by working as a simple cue when thinking is low but only when the experience of ease was made salient (i.e., by completing a manipulation check measure). Also consistent with the notion that ease can operate through low thinking processes, ease has been known to provide a simple associative cue that produces judgments consistent with its valence. Specifically, ease has been shown to be associated with, and even actively produce, positive affect (Moons, Mackie, & Garcia-Marques, 2009; Winkielman & Cacioppo, 2001; Winkielman, Schwarz, Fazendeiro, & Reber, 2003). This feeling can become attached to or associated with a persuasive advocacy and thus produce more favorable attitudes after that advocacy, perhaps via a misattribution mechanism or classical conditioning.

In addition to these simple cue roles that operate when thinking is low, when elaboration is not constrained ease can affect one's extent of information processing. Specifically, ease (compared with

difficulty) appears to reduce processing activity (e.g., Alter, Oppenheimer, Epley, & Eyre, 2007). One potential reason is that if people feel confident as a result of ease of processing (Tormala, Petty, & Briñol, 2002), they feel little need to seek out or consider additional information for their judgments. In contrast, when people lack confidence as a result of processing difficulty, they feel greater motivation to seek out and carefully scrutinize information that might provide more insight and a more valid judgment. Indeed, many forms of doubt stemming from sources other than difficulty have been found to increase information processing (see Petty & Briñol, 2009, for a review).

When people are motivated and able to think, ease can play other roles. For example, if ease induces positive affect as suggested by Winkielman et al. (2003), then ease could increase the generation of favorable thoughts in response to persuasive messages and reduce the generation of counterarguments. In addition, when thinking is high, ease could be evaluated as evidence if it provides diagnostic information about the merits of an object. For instance, processing ease could spark the perception that a product or device will be quick to learn, which could be interpreted as evidence supporting the claim that the device is simple and straightforward. Also, if people believe that their judgments are somehow being biased or influenced by the ease or difficulty with which they can process information (e.g., very simple fonts might seem like a blatant attempt to make a product appear easy to use), and they do not want this to occur, people can adjust their judgments in a direction opposite to the expected bias (Wegener & Petty, 1997). In the domain of ease, discounting or correcting would leave people with the content of their thoughts (i.e., the primary cognitions) as a basis for judgment (Strack & Hannover, 1996).

Finally, ease effects under high thinking conditions could also result from self-validation processes. In a series of studies, Tormala et al. (2002) found that when it was easy to generate positive thoughts about a policy (e.g., because two rather than 10 favorable thoughts were requested), participants were more confident in the validity of their thoughts and therefore relied on these thoughts more than

when generation was difficult. Furthermore, thought confidence mediated the effect of ease on attitudes after a persuasive message but, as was the case with other variables influencing metacognitive processes, it only occurred under high-elaboration conditions (i.e., when people had the motivation to reflect on their own thought processes; see also Tormala, Falces, Briñol, & Petty, 2007).

In closing this section, it is important to note that people generally construe ease in retrieving thoughts as good by default. That is, all else being equal, ease seems to have positive psychological value. For example, as noted, research has shown that processing fluency often translates into favorable judgments and feelings, including judgments of familiarity, truth, positive affect, liking, and beauty (e.g., Winkielman & Schwarz, 2001). However, people need not perceive ease in such terms. If people's naive theories regarding the meaning of ease vary (or could be varied), then different judgments would be expected after the experience of ease. In one study investigating this possibility, Briñol, Petty, and Tormala (2006) asked participants to generate either two or 10 arguments in favor of a counterattitudinal proposal. In addition, the perceived meaning of ease versus difficulty was manipulated. Half of the participants were told that intelligent people, because of their more complex thoughts, typically experienced more difficulty generating thoughts than unintelligent people. The remaining participants received the opposite information implying that ease was an indicator of intelligence. Consistent with expectations, results indicated that the traditional ease-of-retrieval effect emerged only among participants who received the ease-is-good induction. Among these participants, those listing two positive arguments (an easy task) reported more favorable attitudes than did participants listing 10 positive arguments (a difficult task). Among participants receiving the ease-is-bad induction, the opposite effect emerged. This group reported more favorable attitudes when listing 10 rather than two positive arguments. The same pattern was observed when processing ease was manipulated in other ways as well. Thus, people's interpretation of the meaning of experienced ease is critical in determining ease's downstream consequences.

Self-Worth

Most people have a need to view themselves positively (e.g., Baumeister, Tice, & Hutton, 1989; Taylor & Brown, 1988; Tesser, 1988). Many self-esteem tactics have been identified in the literature that might have implications for attitude change. For example, people minimize the amount of time they spend processing critical feedback (Baumeister & Cairns, 1992), and when such unflattering feedback is processed, people often discover flaws and derogate whoever the source might be (Kunda, 1990). This research is consistent with the idea that people tend to be resistant to attitude change, especially when it comes to maintaining favorable attitudes toward themselves. Because most people have favorable attitudes toward themselves and those who do not prefer unfavorable information, this evidence can also be viewed as a preference for consistency (see Swann, 2011; Swann & Ely, 1984).

One of the most interesting illustrations of how the need of most people who are high in self-esteem to maintain their perceptions of self-worth is related to attitude change comes from research on self-affirmation processes (Steele, 1988). Cohen, Aronson, and Steele (2000) argued that because affirming oneself can reduce the perception of threat from contrary messages, it would decrease the need to defend one's attitudes, thereby making one more vulnerable to persuasion. Consistent with this view, several experiments have found that resistance to persuasion is undermined when people are affirmed (e.g., by expressing personal values) before receiving a persuasive message (e.g., Sherman & Cohen, 2006).

In a relevant study applying this logic to situations in which a message does not pose a threat to the self (Briñol, Petty, Gallardo, & DeMarree, 2007), participants read an advertisement introducing a new cell phone that contained either strong or weak arguments. After receiving the message, individuals affirmed either an important or an unimportant aspect of their self-concepts. In accord with the self-validation hypothesis described earlier, this research found greater argument-quality effects for self-affirmed than non-self-affirmed participants because self-affirmed participants were more confident in the thoughts they generated and thus relied on them more.

If self-affirmation induces confidence, then it can affect persuasion via a number of different mechanisms (as any other variable), depending on other contextual variables. Specifically, Briñol, Petty, Gallardo, and DeMarree (2007) found that self-affirmation operates by affecting the extent of elaboration when it is induced before the receipt of persuasive information and by means of a self-validation process when it is induced after the presentation of a message. Because of the operation of these different processes, self-affirmation had opposite interactions with argument quality depending on its placement before or after a message.

In addition to influencing the extent of elaboration and the validation of cognitive responses to a message, other possibilities exist. For example, when elaboration is constrained to be low, self-affirmation and the associated confidence might become linked with advocacy and act as a simple cue affecting the evaluation of an attitude object. Also, when self-affirmation precedes a message and elaboration is constrained to be high, it might bias thoughts in a positive manner, assuming people have a naive theory that confidence is positive (Briñol, Petty, & Tormala, 2006).

Impact of Recipient Variables on Implicit Measures by Multiple Processes

As described previously, bodily responses, behaviors, emotions, ease, and feelings of self-worth can affect the extent of persuasion by different processes. Notably, research using implicit measures of attitudes has also shown that the same variables can influence automatic evaluations. One recipient factor that has been studied extensively with respect to automatic attitudes is the emotions the target of influence is experiencing. As was the case with source variables reviewed earlier, recent research has revealed that the emotions experienced by a person can influence not only explicit but also implicit attitude measures. For example, Sassenberg and Wieber (2005) found that asking individuals to think about a situation in which they were happy with their in-group increased the evaluation of that group on an implicit measure relative to thinking about situations in which they were angry with their in-group. Using different emotions, Gamar, Segal,

Sagrati, and Kennedy (2001) studied formerly depressed individuals and found that an implicit measure of self-esteem was affected in a negative way by an induction of sad (vs. control) mood (see also DeHart & Pelham, 2007). In another study conducted in the domain of intergroup attitudes, DeSteno, Dasgupta, Bartlett, and Caidric (2004) found that anger, but not sadness, increased negativity toward out-group members on an automatic measure.

Another factor that has been studied with respect to influencing automatic attitudes is the goals that become activated. In particular, activated goals influence automatic evaluations in a way that facilitates goal pursuit (e.g., Ferguson & Bargh, 2004; Gollwitzer & Moskowitz, 1996). For example, if people are given a goal to evaluate a job candidate for a position as a crime reporter (vs. a waiter), their automatic evaluations are more positive when the candidate is rude than when the candidate is polite, consistent with the job stereotype (Bargh, Green, & Fitzsimons, 2008). Similarly, Fitzsimons and Fishbach (2010) showed that an activated goal (achievement vs. relaxation) changed the automatic evaluation people had of their close friends (either study or party friends), determining who was liked more as a function of the activated goal.

Although the impact of emotional and motivational manipulations on implicit attitude measures is clear in these studies, it is important to note that there are numerous mechanisms by which these effects could have occurred but that were not specified in the research. As described earlier for explicit measures, an induction of emotion or a goal can affect implicit measures by a number of different processes depending on the circumstances (e.g., acting as a simple valence cue, biasing thinking). Because the process involved is potentially consequential for the strength of the attitude, future work should pay more attention to the mechanism involved.

CONTEXT VARIABLES

This section describes how the same mechanisms used to understand source and recipient factors can be used to understand how aspects of the situation

or context in which a message is presented can determine the extent of attitude change. Although there are many contextual variables studied in the literature (e.g., the presence of external distraction; Petty et al., 1976), for illustration we focus on how the personal relevance of the message and its scarcity can determine the extent of attitude change.

Personal Relevance

Just as factors associated with the message source and the target of persuasion are important to study, so too are factors that are part of the context in which the influence attempt occurs. One well-studied variable is whether the situation emphasizes the self-relevance of the topic of influence or not. For example, when motivation and ability to think are relatively low, merely linking an attitude object to the self can increase liking of it, assuming that people hold themselves in high regard (e.g., Kahneman, Knetsch, & Thaler, 1991; see also Gawronski, Bodenhausen, & Becker, 2007; Greenwald et al., 2002). If thinking is not constrained to be high or low, however, then increasing self-relevance before a persuasive message influences the amount of thinking about the message, increasing the impact of argument quality and the direction of one's thoughts on attitude change (Petty & Cacioppo, 1979; see also Petty & Wegener, 1998).

However, as is the case with any variable, the self can also operate to influence attitudes through a variety of processes (for a review, see, e.g., Briñol, DeMarree, & Petty, 2010). Thus, when thinking is already constrained to be high and the self-relevance follows message processing, a link to the self can serve a validation role. In one study exploring this idea, Petty, Briñol, and DeMarree (2013) first asked participants to read either a strong or a weak message in favor of comprehensive exams. This manipulation led participants to generate either positive or negative thoughts toward the proposed policy. Those thoughts were subsequently made more or less self-relevant by asking participants to think about either the self-relevance or the general implications of the policy. Consistent with the self-validation notion, the thoughts generated regarding the proposal had a greater impact on attitudes when they were made self-relevant than when they were

not. More important, this work specifies the conditions under which each process is more likely to operate. That is, self-relevance introduced before the message influences the amount of thinking (Petty & Cacioppo, 1979), whereas self-relevance induced after the message affects thought confidence.

Scarcity

Scarcity has been identified by Cialdini (2001) as one of the key principles of social influence along with some others such as authority (credibility), consensus (majority vs. minority influence), liking, consistency, and reciprocity. In accord with a value from scarcity heuristic, social psychological studies on commodity theory (Brock, 1968) have demonstrated that whether people are evaluating cookies (e.g., Worchel, Lee, & Adewole, 1975) or verbal self-disclosures from others (Petty & Mirels, 1981), greater scarcity is often associated with more favorable responses (see Lynn, 1991, for a review).

In the absence of much thinking, merely suggesting scarcity likely serves as a simple cue to value. However, available research has also supported the idea that scarcity, like the other social influence variables, does not always operate as a simple positive cue. First, different people can impart different meaning to scarcity, such as when women value scarce self-disclosures from same-sex partners more so than do men (Petty & Mirels, 1981). Furthermore, scarcity does not always directly link to perceived value but can first affect a psychological process that then results in an evaluation. For example, some research has shown that making a persuasive message more scarce can increase the extent to which it is processed carefully rather than how favorably it is perceived. Consider a study by Brannon and Brock (2001) in which customers who were ordering at a fast food drive-through location heard either a strong or a weak appeal to try a new dessert paired with high scarcity ("a special offer for today only") or low scarcity ("available all year") information. When the appeal was a strong one, the scarcity information led to an increase in compliance with the request to try the new product, consistent with the scarcity-leads-to-value hypothesis. However, when scarcity information was paired with a weak appeal, the opposite occurred—scarcity led to a

reduction in compliance. This interaction of scarcity and argument quality suggests that scarcity led to enhanced processing of the message content (see Petty & Cacioppo, 1986). As was the case for other variables, it appears that scarcity does not always operate in a simple heuristic manner. Rather, variables such as scarcity affect judgments in different ways depending on how motivated and able people are to think about the appeal or request (see Petty & Briñol, 2012).

MATCHING DIFFERENT VARIABLES

Source, recipient, and context variables are not only studied singly but also in combination. We next turn to research that matches these variables in different ways.

Matching Source and Recipient: Source Similarity and Social Consensus

People gain confidence in their opinions if similar others agree with them, but in the domain of facts, more confidence comes from agreement by dissimilar others (Goethals & Nelson, 1973). Given the importance of similarity when it comes to attitudes (Rosenberg, 1965), persuasive sources often try to match themselves to their audiences, highlighting the similarities between them. Research in persuasion has extensively examined the effects of these attempts at relating the source of the message to the target of influence. As was the case with other variables, matching the source of the message to some aspect of the target (e.g., personality, identity) can influence persuasion through different processes (see Briñol & Petty, 2006; Petty, Wheeler, & Bizer, 2000).

In general, a match of any kind between the message source and the recipient can lead to persuasion through different processes depending on the circumstances. For example, Fleming and Petty (2000) found that when the target matches the source in some way (e.g., both are female), this matching can (a) serve as a peripheral cue allowing for a quick decision about the proposal under low-elaboration conditions, (b) bias the direction of the thoughts that come to mind under high thinking conditions, and (c) increase thinking when thinking is unconstrained by other variables.

In addition to these mechanisms, a matching in any dimension between source and recipient can presumably operate through self-validation processes as well, especially if the situation is one of high thinking and the match becomes salient after message processing. In one study, for example, Petty, Briñol, and Tormala (2002) studied how having similar others agree with a target's thoughts can increase the perceived validity of those thoughts and thereby increase their impact on attitudes. People reported more confidence in their thoughts when their thoughts were said to be similar to those of others than when they were not. When thoughts were favorable toward the proposal, sharing thoughts with similar others increased persuasion, but when thoughts were not favorable, sharing thoughts reduced persuasion.

Matching the Message to the Recipient: Message Tailoring

Another strategy that can increase the effectiveness of a message in changing attitudes consists of altering the arguments contained in the message to match the particular concerns of the message recipient. Extensive research has indicated that matching communications to different aspects of an individual's personal characteristics can increase their persuasive effect. A message can be matched or tailored in numerous ways, including the use of a personalized message (tailored at the individual level, such as including a person's name) and targeted messages (tailored at the group level, such as directing the message to one's race or gender). These tactics have especially been used in efforts to promote various health behaviors (e.g., Devos-Comby & Salovey, 2002; Salovey & Wegener, 2003).

One of the variables that has been studied most with respect to matching a message to recipient characteristics is self-monitoring (Snyder, 1974). High self-monitors are oriented toward social approval, whereas low self-monitors are more motivated to be consistent with their internal beliefs and values. Much research on self-monitoring has shown that messages can be made more effective by matching the message to a person's self-monitoring status. For example, in one early study Snyder and DeBono (1985) exposed high and low self-monitors to

advertisements for a variety of products that contained arguments appealing either to the social adjustment function (i.e., describing the social image that consumers could gain from the use of the product) or to the value-expressive function (i.e., presenting content regarding the intrinsic quality of the product). They found that high self-monitors were more influenced by ads with image content than by ads with quality content. In contrast, the attitudes of low-self monitors were more vulnerable to messages that made appeals to values or quality.

According to the ELM, matching messages to individual differences in self-monitoring can influence attitudes by the same fundamental processes described so far for other variables. For example, when thinking is set at a high level, then matching can bias the direction of thinking. Indeed, some research has suggested that high self-monitors are more motivated to generate favorable thoughts to messages that make an appeal to image rather than those that make an appeal to values (e.g., Lavine & Snyder, 1996). In contrast, when the circumstances constrain the likelihood of elaboration to be very low, a match of message to person is more likely to influence attitudes by serving as a simple cue (e.g., DeBono, 1987). That is, even when the content of the message is not processed carefully, if a source simply asserted that the arguments are consistent with a person's values, a low self-monitor may be more inclined to agree than a high self-monitor by reasoning, "If it links to my values, it must be good."

Furthermore, when thinking is not already constrained by other variables to be high or low, matching a message to a person can increase thinking about the message. Research that has manipulated the quality of the message arguments along with a matching manipulation has shown that matching can increase persuasion when the message is strong but decrease persuasion when it is weak. For example, in one study, Petty and Wegener (1998) matched or mismatched messages that were strong or weak to individuals who differed in their self-monitoring. In this research, high and low self-monitors read image appeals (e.g., how good a product makes you look) or quality appeals (e.g., how efficient a product is) that contained either strong arguments (e.g., beauty or efficacy that lasts)

or weak arguments (e.g., momentary beauty or efficacy). The cogency of the arguments had a larger effect on attitudes when the message was framed to match rather than mismatch the person's self-monitoring status, indicating that matching enhanced processing of message quality (see also DeBono & Harnish, 1988; Fujita, Eyal, Chaiken, Trope, & Liberman, 2008; Howard & Kerin, 2011, for other matching effects).

Matching procedures can be used to fit the message with a wide variety of needs, interests, and concerns of a recipient or a group to which the recipient belongs. For example, tailoring procedures have been used to match general individual differences to the message. In addition to self-monitoring, these individual differences have included need for cognition (Bakker, 1999; See, Petty, & Evans, 2009), introversion versus extraversion (Wheeler, Petty, & Bizer, 2005), sensation seeking (Palmgreen, Stephenson, Everett, Baseheart, & Francies, 2002), optimism–pessimism (Geers, Handley, & McLarney, 2003), uncertainty orientation (Sorrentino & Short, 1986), ideal versus ought self-guides (e.g., L. M. Evans & Petty, 2003), independent versus interdependent self-construals (Lee, Aaker, & Gardner, 2000), dominance versus submission (Moon, 2002), and sensitization versus repression (DeBono & Snyder, 1992; for a review of these and other variables, see Briñol & Petty, 2005).

In summary, the accumulated research has suggested that matching a message to some characteristic of the recipient can influence attitudes by serving as a peripheral cue when elaboration is low, by biasing thoughts when elaboration is high, and by enhancing the amount of information processing when elaboration is moderate. Additionally, it is worth noting that matching message contents or frames with personality types might influence attitude change by other, more specific mechanisms under other circumstances. For example, one possibility is that when a message is matched to the person, people might come to accept the message position simply because the message “feels right” (Cesario, Grant, & Higgins, 2004) or is easier to process (e.g., Lee & Aaker, 2004). In accordance with the ELM, these simple fluency experiences might influence attitudes under relatively low

thinking conditions, or the processing fluency or the feeling-right experience might affect persuasion by influencing thought confidence when thinking is high (Cesario et al., 2004; Tormala et al., 2002). For example, A. T. Evans and Clark (2012) recently showed that thought confidence increased when the characteristics of the source (credibility vs. attractiveness) matched (vs. mismatched) the characteristics of the recipient (low vs. high self-monitoring). In line with the self-validation logic, high (vs. low) self-monitors relied on their thoughts more when the source was attractive (vs. credible), which increased persuasion for positive thoughts but decreased persuasion for negative thoughts. As described for other variables, this meta-cognitive role would be more likely to occur under relatively high-elaboration conditions (see Subjective Feelings [Ease] section for an extended discussion of multiple roles of fluency experiences) and when the match follows message processing.

Matching the Content of the Thoughts and the Recipient: Thought Matching

An interesting case of matching the persuasive appeal and the message recipient has to do with the content of the thoughts generated by the target of persuasion. As described earlier, prior work on self-validation has demonstrated that sources (e.g., credibility) can validate people's thoughts regardless of the content and valence of the target's thoughts. For example, high source credibility and majority endorsement increased confidence in message recipients' thoughts in response to strong messages and also in their counterarguments in response to weak messages (Horcajo, Petty, & Briñol, 2010; Tormala et al., 2006). Similarly, different recipient variables (e.g., head nodding, happiness) were shown to validate thoughts regardless of the content and valence of the target's thoughts (Briñol & Petty, 2003; Briñol, Petty, & Barden, 2007). In all of these studies, the content of the thoughts did not matter for validation purposes because the generated thoughts were not directly related to the validating variable in that the thoughts were about the message rather than the validating variable itself (e.g., the source or the recipient variable).

However, it might be different when the content of the thoughts relates directly to the validating variable. Thus, when a source serves as a validating cue, it might matter whether the thoughts are about the source rather than a proposal the source is advocating. Imagine learning some information about a person that leads you to think that the person might be woman. If you then learn that the source is indeed a woman, your thoughts about the source would be validated, whereas if you learned that the source was a man, your thoughts would be invalidated. In general, people are likely to have more confidence when the content of their thoughts matches or fits the nature of the source rather than when it does not fit or mismatches. Thus, thought confidence might be increased if a person high in prejudice generated negative thoughts about a job candidate and then learned that the candidate came from a stigmatized group with low performance expectations rather than from a nonstigmatized group with positive performance expectations. This suggests that sources with low (vs. high) status can affect judgments by validating (rather than invalidating) thoughts under some circumstances such as when the source is the object of the thoughts and when thoughts are stereotypical or match the nature of the source. Evidence in support of this idea was obtained in a study in which participants learned about a target's performance on an intelligence test (good or bad) in advance of the performer's socioeconomic status (J. K. Clark, Wegener, Briñol, & Petty, 2009). When the socioeconomic status information matched the performance expectations (i.e., poor performance with low socioeconomic status and high performance with high socioeconomic status), participants had more confidence in their thoughts and used them more in forming their judgments of the intelligence of the target and making recommendations for how the target should be treated.

In accord with this finding, in another study (J. K. Clark, Wegener, Sawicki, Petty, & Briñol, 2013), participants were asked to evaluate either the message conclusion (as is implicit in most persuasion studies) or the source of the message before receiving a message and information about the credibility of the message source. In the former case, the judgment task (i.e., evaluating the message

proposal) is irrelevant to the validating variable (source credibility), but in the latter case the judgment task (i.e., evaluating the source) is highly relevant. The message the participants received presented either strong or weak arguments for the proposal. When the focus of evaluation was on the message, confidence in thoughts was always greater when the source was high rather than low in credibility, replicating prior research (Tormala et al., 2006). However, when focused on the source, confidence and thought use were greater when the quality of the arguments matched the credibility information (e.g., weak arguments–low credibility) rather than mismatched it (e.g., weak arguments–high credibility).

Matching Treatments and Measures: Changing Implicit Versus Explicit Attitudes

As reviewed so far, the accumulated work on persuasion as measured with deliberative (explicit) attitude measures has revealed that when thinking is low, variables determine the extent of influence by means of a variety of low-thought, simple cue processes (e.g., use of heuristics, self-perception, classical conditioning). Under high thinking conditions, high deliberation processes (e.g., biased thought generation, self-validation) can also produce change. We have also noted that many of these same high and low thought processes were capable of affecting automatic (implicit) attitude measures. In our final discussion of automatic versus deliberative attitudes, we explain how certain persuasion treatments (deliberative vs. automatic) relate to particular persuasion measures (deliberative vs. automatic).

Early assumptions about the nature of automatic evaluations suggested that such attitudes would be very difficult to change, in part because the underlying object–evaluation associations were thought to be learned over a long period of time (Banaji, 2004; Devine, 1989; Greenwald et al., 1998; Rydell, McConnell, Strain, Claypool, & Hugenberg, 2007; Wilson, Lindsey, & Schooler, 2000). Although some exceptions were noted earlier (e.g., Ferguson & Bargh, 2004; Gollwitzer & Moskowitz, 1996), as a result of the prevailing assumption, measures of automatic evaluation were commonly postulated to

be sensitive to automatic, implicit processes that can require multiple exposures for success (e.g., Rydell & McConnell, 2006). Classical conditioning (Staats & Staats, 1958) and mere exposure (Zajonc, 1968) are two relatively low thought or automatic processes that rely on multiple exposures. Consistent with the idea that automatic attitudes can be changed with these mechanisms, Olson and Fazio (2001) showed that automatic evaluations were sensitive to classical conditioning procedures that used 20 pairings of the target attitude objects and conditioning stimuli. Using a similar paradigm, Dijksterhuis (2004) found that automatic evaluations of the self can be affected by subliminal evaluative conditioning trials (15 pairings) in which the word *I* is repeatedly associated with positive or negative trait terms (see also Petty, Tormala, Briñol, & Jarvis, 2006; Walther, 2002).

Also consistent with this approach, research on automatic prejudice has shown that implicit measures can change through other paradigms that involve repeatedly exposing individuals to either positive or negative information about out-group members. For example, automatic evaluations of Blacks have been shown to be affected by mere exposure to admired Black individuals (Dasgupta & Greenwald, 2001), to a Black professor (Rudman, Ashmore, & Gary, 2001), to a Black experimenter (Lowery, Hardin, & Sinclair, 2001), or to a Black partner who occupied a superior task role (Richeson & Ambady, 2003; for reviews, see Blair, 2002; Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006).

Thus, the accumulated research is generally consistent with the idea that automatic measures of attitudes can be affected by relatively low thought and automatic attitude change processes. In fact, implicit measures of attitudes have sometimes been assumed to change only as a result of low thought processes (cf. Smith & DeCoster, 2000). In other words, just as automatic attitudes have been postulated to predict more automatic behaviors than controlled attitudes (e.g., Dovidio, Kawakami, & Beach, 2001), so too have some theorists assumed that automatic attitudes should be changed more by automatic processes than by deliberative processes (e.g., Rydell & McConnell, 2006; see also Dasgupta & Greenwald, 2001; Gawronski, Strack, & Bodenhausen, 2009;

Rudman et al., 2001, for similar views). In a comprehensive review article, Gawronski and Bodenhausen (2006) have argued that automatic evaluations are sensitive to associative processes that are fast and require little cognitive capacity but not to propositional thinking that often requires a large amount of cognitive capacity. In contrast with low-effort associative processes, propositional reasoning is assumed to require more extensive thinking because it implies an evaluation of declarative knowledge as true or false.

The general notion of the need to match certain attitude-change strategies with attitude measures has received considerable theoretical attention and some empirical support. However, a variety of findings have called into question the general idea that automatic and deliberative measures of attitudes respond only to matched persuasion techniques. For example, as described previously, extensive research has shown that low-effort (relatively nonthoughtful) processes such as classical conditioning can influence both deliberative and automatic measures of attitudes.

Further evidence against strict matching effects for automatic attitude measures has come from research on attitude accessibility. That is, it is well known that mere rehearsal and repetition of an attitude without thinking can increase its accessibility (Fabrigar et al., 1998; Fazio, 1995; Judd & Brauer, 1995). However, it is less well known that attitudes changed as a result of highly thoughtful processes can be more accessible than attitudes changed to the same extent by less thoughtful processes (see Petty et al., 1995). For example, Bizer and Krosnick (2001, Experiment 3) manipulated extent of thinking by varying the personal importance of a topic (i.e., participants were led to believe that the proposed new policy would affect them personally or not; Petty & Cacioppo, 1979) and found a significant effect on attitude accessibility, such that those in the high (vs. low) thinking condition had more accessible attitudes. Because attitude accessibility is a dimension that operates automatically and outside of conscious awareness (Fazio, 1995), it suggests that perhaps measures of attitudes assessing automatic associations can similarly be affected by deliberative processes (see also Bargh, 1999; Whitfield & Jordan, 2009).

To examine this issue more directly, Horcajo, Briñol, and Petty (2010) conducted a series of studies to test whether automatic evaluations can be affected by thoughtful processing of persuasive messages. As expected, this research showed that carefully processing persuasive messages can affect not only explicit but also implicit attitudes. Furthermore, implicit measures have proven to be sensitive to a number of different message variables, such as content, direction, and quality of the message (see Briñol, Petty, & McCaslin, 2009). These findings are consistent with research showing that automatic evaluations can change in response to advertisements, marketing campaigns, and other treatments involving processing of verbal information (e.g., for reviews, see Gawronski & Bodenhausen, 2006; Gawronski & Stritharan, 2010; Maio, Haddock, Watt, & Hewstone, 2009; Petty & Briñol, 2010).

A final point worth mentioning is that research has shown that changes in implicit measures are sometimes related to change in explicit measures, but sometimes they are independent of each other. In general, deliberative measures are more likely to correspond with automatic measures when participants complete the automatic measures after being told to trust their intuition (Jordan, Whitfield, & Ziegler-Hill, 2007) or to go with their gut before responding (Ranganath, Smith, & Nosek, 2008). Such instructions apparently free participants to report evaluative stirrings of which they are aware but may not spontaneously report because of uncertainty regarding their origins or appropriateness (Loersch, McCaslin, & Petty, 2011).

In summary, as with explicit measures, implicit measures can be affected by both automatic and deliberative processes. As another example, consider research by Klauer, Musch, and Eder (2004), who found that just as was the case for research on deliberative attitudes mentioned earlier (e.g., Petty & Cacioppo, 1984), adding more information to a proposal can influence automatic evaluations, and this effect can likely result from a variety of low and high thinking processes. For example, people could have a general positive reaction to the many arguments or could generate more positive thoughts as the amount of information increases. Either process is capable of influencing both automatic and deliberative measures of attitudes.

CONSEQUENCES FOR ATTITUDE STRENGTH

The research we have reviewed so far suggests that deliberative and automatic measures of attitudes can change through the operation of source, message, recipient, and context factors affecting both low and high thought processes. As mentioned earlier, traditional research on explicit measures of change has shown that although both high and low thought influence processes are possible, the consequences of those processes are different. In particular, attitudes formed or changed through low thinking mechanisms are less persistent, resistant to change, and predictive of behavior than attitudes formed or changed via high thinking processes (Petty et al., 1995, for a review).

High levels of issue-relevant cognitive activity are likely to require frequent accessing of the attitude and the corresponding knowledge structure. This activity should therefore tend to increase the number of linkages and strengthen the associations among the cognitive elements, making the attitude structure more internally consistent, accessible, and enduring (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; McGuire, 1981). In comparison, attitude change that results from simple online inference or a heuristic process typically involves accessing the attitude structure only once to incorporate the affect or inference associated with a salient persuasion cue (Petty & Cacioppo, 1986). In general, then, these attitudes should be weaker (for a review on attitude strength, see Petty & Krosnick, 1995). Next, we describe some specific features of attitude strength as they relate to persuasion processes.

Strength Consequences

As just noted, *attitude strength* refers to whether an attitude persists over time, is resistant to change, and guides behavior (Krosnick & Petty, 1995). Given that a goal of persuasion is often to create consequential attitudes, in the sections that follow we briefly review the evidence that the extent of thinking involved in attitude change is related to each of these consequences.

Persistence of attitude change. *Persistence* refers to the extent to which an attitude or behavior change resulting from an influence attempt endures

over time. The available research is compatible with the view that when change is based on extensive issue-relevant thinking, it tends to endure more than when it is not. For example, encouraging self-generation of arguments (e.g., Elms, 1966; Watts, 1967), using interesting or involving communication topics (Ronis, Baumgardner, Leippe, Cacioppo, & Greenwald, 1977), leading recipients to believe that they might have to explain or justify their attitudes to other people (e.g., Boninger, Brock, Cook, Gruder, & Romer, 1990; Chaiken, 1980), and having them evaluate a message during its receipt rather than afterward (Mackie, 1987) are all associated with increased persistence of influence. Also, people who characteristically enjoy thinking (high need for cognition) show greater persistence of change than people who do not (e.g., Haugtvedt & Petty, 1992; Wegener, Clark, & Petty, 2006; see Petty, Briñol, Loersch, & McCaslin, 2009, for a review). It is important to note, however, that simple cues can become associated with persistent attitude and behavioral patterns if the cues remain salient over time. This can be accomplished by repeatedly pairing the cue and the attitude object so that the cue remains relatively accessible (Weber, 1972) or by reintroducing the cue at the time of attitude assessment or behavior (Kelman & Hovland, 1953).

Resistance to change. *Resistance* refers to the extent to which an attitude change or new behavior is capable of surviving an attack from contrary information. Although persistence and resistance tend to co-occur, their potential independence is shown very clearly in McGuire's (1964) work on cultural truisms. Truisms such as "you should brush your teeth after every meal" tend to last forever in a vacuum, but they are surprisingly susceptible to influence when challenged. As McGuire noted, people have very little practice in defending these beliefs because they have never been attacked. These beliefs were likely formed with little issue-relevant thinking at a time during childhood when extensive thinking was relatively unlikely. Instead, the truisms were probably presented repeatedly by powerful, likeable, and credible sources. As noted earlier, the continual pairing of a belief with positive cues can produce

a relatively persistent attitude, but these attitudes might not prove resistant when attacked.

The resistance of attitudes can be improved by bolstering them with relevant information (e.g., Lewan & Stotland, 1961). In his work on inoculation theory, McGuire (1964) demonstrated that two kinds of bolstering can be effective in inducing resistance. One form relies on providing individuals with a supportive defense of their attitudes or having them generate supportive information. For example, participants whose initial attitudes were bolstered by recalling autobiographical instances relevant to the attitude showed greater resistance to an attacking message than people whose attitudes were followed by the generation of autobiographical instances that were irrelevant to the attitude issue (Ross, McFarland, Conway, & Zanna, 1983). A second type of defense relies on a biological analogy. McGuire suggested that just as people can be made more resistant to a disease by giving them a mild form of the germ, they could be made more resistant to discrepant messages by inoculating their initial attitudes. The inoculation treatment consists of exposing people to a few pieces of counter-attitudinal information before the threatening communication and showing them how to refute this information (see Rucker & Petty, 2004; Tormala & Petty, 2002).

Guiding behavior. If the influence attempt involves attitude rather than behavior change, the goal is still presumably for the new attitude to lead to new behavior. Once a person's attitude has changed, behavior change requires that the person's new attitude rather than the old attitude or previous habits guide action. This is more likely when the attitude was changed as a result of a high rather than low thought process. For example, if matching a message to a person produces persuasion by serving as a simple cue under low elaboration conditions, the attitude induced will be less likely to guide behavior than if matching produced the same amount of persuasion but worked by increasing positive thoughts to the message arguments under high-elaboration conditions. Thus, predicting behavioral changes depends on understanding the different processes by which attitude change occurs.

We have argued that if a new attitude is based on high thought, it is likely to be highly accessible and

come to mind automatically in the presence of the attitude object. Therefore, it will be available to guide behavior even if people do not think much before acting (see Fazio, 1990, 1995). However, even if people do engage in some thought before action, attitudes based on high thinking are still more likely to guide behavior because these attitudes are held with more certainty and people are more willing to act on attitudes in which they have confidence. Not surprisingly, then, research has shown that attitudes based on high thought tend to predict behavioral intentions and behavior better than attitudes based on little thought (e.g., Barden & Petty, 2008; Brown, 1974; Cacioppo, Petty, Kao, & Rodriguez, 1986; Leippe & Elkin, 1987; Petty, Cacioppo, & Schumann, 1983).

Of course, behavior is determined by more than individuals' attitudes even if those attitudes are based on high thought. The theory of reasoned action (Fishbein & Ajzen, 1975) highlights social norms (what others think you should do) as an important additional determinant of behavior, and the theory of planned behavior (Ajzen, 1991) points to a person's sense of self-efficacy or competence to perform the behavior (see Ajzen & Fishbein, 2005). These theories make it clear that although attitude change can be an important first step, it might still be insufficient to produce a desired behavioral response even if appropriate new attitudes were formed under high thinking conditions. People might also need to rehearse the new attitude sufficiently so that it overcomes and replaces past attitudes (e.g., Petty et al., 2006), or they may need to acquire new skills and self-perceptions of confidence that allow newly acquired attitudes and intentions to be translated into action.

Metacognitive Properties of Attitudes

People could make many potential metacognitive judgments about their attitudes, such as how quickly they come to mind, how many others share their view, and how persistent and resistant people think they are (Wegener, Downing, Krosnick, &

Petty, 1995). For example, the perceived importance of the attitude has received considerable attention (e.g., Visser, Bizer, & Krosnick, 2006). However, the most studied metacognitive aspect of attitudes and the one of most long-standing interest (e.g., Allport, 1924) is the certainty or confidence with which an attitude is held. *Certainty* generally refers to a sense of validity concerning one's attitudes (Gross, Holtz, & Miller, 1995).⁷

Attitude certainty has been associated with a number of important attitude-relevant outcomes. In particular, attitudes held with greater certainty are more resistant to change (e.g., Kiesler & Kiesler, 1964), persistent in the absence of a persuasive attack (Bassili, 1996), and more predictive of behavior (Fazio & Zanna, 1978) than attitudes about which there is doubt. In fact, attitudes may have to reach a certain level of certainty before action is initiated (Gerard & Orive, 1987). Certain attitudes may be more resistant to change because certainty induces a confirmatory information-seeking style (e.g., Swann & Ely, 1984), and certain people are more likely to assume that others agree with them (Marks & Miller, 1985). Gross et al. (1995) suggested that it is useful to distinguish true confidence in one's attitude from compensatory confidence. The former is based on knowledge or social support, whereas the latter actually reflects an absence of confidence (see Briñol et al., 2010, for an extensive discussion).

Initial conceptualizations of attitude certainty tended to assume that certainty sprang from structural features of attitudes such as having attitudes based on more issue-relevant knowledge, direct experience, or thought (e.g., Fazio & Zanna, 1981). Indeed, structural factors can play an important role in determining attitude certainty. However, recent research has begun to examine how people sometimes infer greater certainty in the absence of any structural differences. Notably, people can even come to infer greater certainty in their attitudes if they are simply led to infer that they have done much thinking about the attitude object even if they have

⁷Although certainty naturally covaries with extremity (i.e., people tend to feel more certain as their attitudes deviate from neutrality; e.g., Raden, 1989), certainty and extremity are conceptually distinct such that a person can have high certainty in the validity of a neutral attitude or express an extreme attitude with low confidence.

not (Barden & Petty, 2008). Of greatest importance is that the certainty that comes from simple inferences rather than structural differences can also lead the attitudes to be more consequential (e.g., resistant to change and predictive of behavior; Rucker, Petty, & Briñol, 2008; Tormala & Petty, 2002).

Consequences of Deliberative and Automatic Processes for Implicit Measures

As just reviewed, research has demonstrated that extensive thinking enhances the strength of explicit attitudes. However, relatively little research has addressed this possibility with respect to automatic attitudes. Nevertheless, just as high thinking can strengthen attitudes at the explicit level by increasing attitude confidence, so too could high thinking lead to strength at the automatic level by making attitudes more accessible. Attitude strength can be demonstrated in other ways as well. For example, attitude change processes that require thinking deeply about the attitude object are likely to result in attitude representations that are well integrated and connected with other relevant material in memory (see, e.g., McGuire, 1981; Tesser, 1978). If attitudes that are based on high thought are more highly linked to other relevant material in memory, then these attitudes should be more likely to spill over and influence that related material (see Crano & Chen, 1998).

In an initial study testing whether changes on automatic attitude measures induced by deliberative processes would show evidence of spreading activation to related constructs (Horcajo, Briñol, & Petty, 2010), students were randomly assigned to receive a persuasive message containing strong arguments in favor of using green as the institutional color for their university. The other half of the participants, who made up the control group, received an irrelevant message (also containing the word *green*, but not advocating it). Participants' need for cognition (Cacioppo & Petty, 1982; Petty et al., 2009) was measured to assess the participants' motivation to process the information provided. Instead of assessing the impact of this persuasive induction directly on automatic evaluations of the color green, the impact of the treatment was assessed on an automatic measure that was

only indirectly related to that concept—Heineken beer (which comes in a green bottle). The results showed that implicitly measured attitudes toward Heineken were significantly affected by the message advocating green for participants high in need for cognition but not for those low in need for cognition. It seems plausible that the generation of thoughts allowed high need-for-cognition participants to rehearse their evaluative links to green repeatedly, leading to changes in evaluation of this color that spread to related constructs such as Heineken (see Gawronski, Walther, & Blank, 2005; Langer, Walther, Gawronski, & Blank, 2009; Perkins & Forehand, 2011; Walther, 2002). In contrast, the automatic evaluations of participants low in need for cognition did not reveal any impact of the manipulation on evaluations of Heineken. This finding suggests that participants in the low-elaboration conditions did not think about the merits of the arguments contained in the message (i.e., did not generate thoughts that allowed them to rehearse their attitudes) and therefore did not show any indirect automatic changes. These findings are interesting in showing that the automatic changes that result from deliberative thinking can be consequential in terms of spreading activation, at least when thinking is high.

SUMMARY AND CONCLUSIONS

We have focused on how source, recipient, and context variables can produce influence by a variety of high- and low-effort processes that operate along an elaboration continuum. Furthermore, our review has emphasized that variables (e.g., scarcity, emotion, source credibility) will be most successful in contributing to enduring changes in attitudes and subsequent behavior if these variables are encountered when people are motivated and able to think about the information presented. Influence and attitude change can also be observed as a result of relatively low thought processes (e.g., relying on simple cues and inferences), but these changes are not as consequential. Finally, many of the same psychological processes and outcomes that have been observed for explicit measures of attitudes have also been observed on implicit measures.

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