

## The Elaboration Likelihood Model of Persuasion: Thoughtful and Non-Thoughtful Social Influence

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Despite the fact that persuasion has been the subject of philosophical and academic inquiry since at least the time of Aristotle, the scientific study of persuasion did not begin until the early post-World War II period. During this time, researchers were guided largely by the notion that persuasion depended upon factors influencing people's ability to learn the information contained in a persuasive communication (Hovland, Janis, & Kelley, 1953). Not surprisingly, researchers spent a great deal of time investigating source, recipient, message, and contextual factors that were believed to contribute to attention, comprehension, and retention of message information. As research findings accumulated, however, it soon became clear that the story was not so simple. Published studies conflicted with one another. One study would show that using an expert source enhanced persuasion, while another would show that source expertise had no impact or, worse, was detrimental. Sometimes good moods would lead to more agreement with the message, while other times bad moods seemed to enhance persuasion. Additionally, some researchers (e.g., Wicker, 1969) noted that attitudes often did not predict behavior, questioning the very utility of the attitude construct for social scientists. In order to resolve these fundamental questions, the Elaboration Likelihood Model of persuasion (ELM) was developed (Petty & Cacioppo, 1986a).

As we shall see, this model has made three main contributions to the literature on attitude change and the attitude-to-behavior relationship. Namely, the ELM (a) suggests that attitude change can result from relatively high- or low-thinking processes; (b) postulates that attitudes that are formed or changed can be more or less consequential (e.g., impact behavior more or less) as a function of the extent of thinking involved; and (c) specifies a small number of ways in which any one variable (e.g., source credibility) can influence attitudes. In this chapter, we will identify the major concepts contained within the ELM, review empirical research supporting the model, identify and address some criticisms of the model, point out important applications of the model, and, finally, explore some

implications of the model that relate to contemporary and likely future themes in social psychological research. But first, let us turn to the model's most central concept: elaboration.

### The Elaboration Continuum

Similar to depth-of-processing models of learning and memory (e.g., Craik & Lockhart, 1972), the ELM assumes that individuals can differ in how carefully and extensively they think about a particular subject – in this case, a persuasive communication or attitude object (Petty & Cacioppo, 1986b). That is, in any given context the amount of elaboration, or *thinking about the relevant message or issue*, can vary continuously from very low to very high, and is determined by a combination of individual differences and situational factors. Put simply, people can think a lot, a moderate amount, or very little about a persuasive communication or attitude object. In turn, the amount of thinking they engage in goes a long way in explaining *how* people will be persuaded – if they are persuaded at all.

Of course, individuals can think a great deal without actually considering the merits of a particular message or attitude object. If a social psychology graduate student is watching a television advertisement for McDonald's restaurants but, instead, is carefully considering the merits of the elaboration likelihood model of persuasion, she would have relatively few cognitive resources remaining to process the McDonald's advertisement. Despite the fact that she is thinking a great deal, her thoughts are not about the advertisement and, as such, do not qualify as *message- or issue-relevant thinking*. Clearly, amount of thinking per se is not synonymous with elaboration likelihood. So, how can we predict the likelihood that a person will think carefully about a message or issue?

### Determinants of Elaboration Likelihood

A number of individual differences and situational factors can impact the likelihood that a person will think carefully about a persuasive message or issue. According to the ELM, understanding which variables affect thinking is important for several reasons. First, as we will explain in more detail later, the amount of thinking a person engages in determines what process is responsible for persuasion. For example, if the amount of thinking is low, then attitudes can be affected by simple cues in the situation, such as the mere number of arguments that are presented (Petty & Cacioppo, 1984a) or how credible the message source is (Petty, Cacioppo, & Goldman, 1981). However, if the amount of thinking is high, then attitudes are determined less by cues and more by an assessment of the merits of the position. Thus, if the message arguments are good ones, then greater thinking leads to more persuasion as people come to realize the merits of the evidence presented. On the other hand, if the message arguments are specious, then persuasion is decreased as people think more about these arguments and generate more unfavorable thoughts. Another reason why it is important to understand how variables impact elaboration is that when attitude change results from high amounts of thinking, it tends to be more consequential (e.g., guides behavior more) than when it results from little thinking (Petty & Krosnick, 1995).

The factors that affect the extent of thinking can broadly be classified as relating to *motivation* or *ability* to process, although some factors relate to both motivation and ability. We first examine the implications of motivational factors and then go on to examine how ability factors influence message processing.

*Motivational factors.* As far as motivation to process is concerned, the factor that has arguably received the most empirical attention is *personal relevance*. When relevance is high, the message's proposal relates directly to the recipient and stands to impact his or her life in some way (Petty & Cacioppo, 1990). For instance, college students have been shown to process a message more carefully when its proposal relates to their own university than when the proposal concerns another institution (Petty & Cacioppo, 1979). Moreover, people process consumer advertisements more carefully when they expect the advertised product to be test-marketed in their home city than when they believe the product will be test-marketed only in faraway locales (Petty, Cacioppo, & Schumann, 1983). In addition to geographic place, time also impacts personal relevance. That is, people process a message more carefully when the message's proposal concerns the near, rather than the distant, future (Petty, Cacioppo, & Goldman, 1981). Also, consumers consider advertisements more carefully when they believe they will soon have to make a decision about the advertised product than when they have no such expectation (Petty et al., 1983). In all of these cases, high personal relevance yields increased amounts of message-relevant thinking. Given that all people are motivated to predict and control their physical and social environments (Heider, 1958), such findings make sense: what could be more adaptive than forming a veridical, well-considered attitude toward a novel issue when (a) the issue is of local import, (b) the issue will affect the message recipient fairly soon, and (c) the recipient may soon need to make a decision about the issue?

Of course, personal relevance need not always involve direct, material consequences for the message recipient, as the above examples may suggest. A message can also be personally relevant if it touches on core aspects of a recipient's personality or identity. For instance, messages matched to individuals' levels of extroversion receive greater elaboration than do mismatched messages (Wheeler, Petty, & Bizer, 2005). Also, messages framed in the second person (i.e., directly referencing the recipient) are remembered better than messages framed in the third person (Burnkrant & Unnava, 1995), indicating that directly addressing a recipient can yield greater elaboration of a message, even holding other aspects of the message constant. These findings comport well with other published research, which demonstrates that an individual will process social information more carefully when that information relates to salient or important aspects of the individual's self-concept (Markus, 1977; Markus, Smith, & Moreland, 1985). These findings also demonstrate that personal relevance can be metaphorical as well as material, deriving from the message's relationship to certain aspects of the recipient's self-concept or identity (Fleming & Petty, 2000). Importantly, however, the consequences are the same in each case – with increased personal relevance comes increased message processing.

Aside from personal relevance, several other sources of processing motivation exist. One such source involves the chronic tendency to engage in and enjoy thinking about any idea or subject, termed the *need for cognition* (Cacioppo & Petty, 1982). People high in the need for cognition simply enjoy thinking. They are the type of people who are likely to spend

hours poring over crossword puzzles or contemplating the implications of an obscure philosophical question. People low in the need for cognition, by contrast, tend not to enjoy thinking for its own sake, and generally engage in deep thought only when they are required to do so. In order to measure individual differences in the need for cognition, Cacioppo and Petty developed the Need for Cognition (NC) scale (Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984), which has proven useful in a variety of research projects since its inception. What is important for the present purposes is that people scoring high on the NC scale process persuasive messages more carefully than do those who score low on the scale (e.g., Cacioppo, Petty, & Morris, 1983). In other words, individuals high in the need for cognition have an especially high elaboration likelihood, whereas individuals low in NC generally do not process persuasive messages very carefully and are more dependent on simple cues in the persuasion context (see Petty, Briñol, Loersch, & McCaslin, 2009, for a review of need for cognition research).

Another source of processing motivation involves psychological consistency. People strive to perceive their thoughts, feelings, and behaviors as consistent with one another, and experience discomfort when considering an inconsistency between – or among – these factors. Indeed, people expend considerable effort in attempting to reduce or eliminate perceived inconsistencies (Festinger, 1957; Heider, 1958). One type of inconsistency, termed *attitudinal ambivalence*, can arise when an individual has several conflicting beliefs about an attitude object. For instance, a person might enjoy the taste of chocolate ice cream but dislike the fact that it is high in saturated fat and contributes to weight gain and elevated cholesterol. According to Maio, Bell, and Esses (1996), individuals possessing such attitudes are motivated to reduce their ambivalence by carefully scrutinizing attitude-relevant information in the hope of developing a veridical, internally consistent attitude. In other words, attitudinal ambivalence can lead to increases in message processing. But although early findings (e.g., Maio et al., 1996) implied that people with ambivalent attitudes carefully process any information relevant to their ambivalence, more recent research suggests that ambivalent individuals are especially likely to attend to and elaborate upon pro-attitudinal information (Clark, Wegener, & Fabrigar, 2008a), given that pro-attitudinal information is more likely than counter-attitudinal information to reduce ambivalence. In addition, people are more likely to think carefully about information when their thoughtful evaluations of objects (i.e., explicit attitudes) conflict with their more automatic or “gut” evaluations (i.e., implicit attitudes; Briñol, Petty, & Wheeler, 2006; Petty, Tormala, Briñol, & Jarvis, 2006). In such situations, people may not define their attitude as ambivalent (since they are unaware of or deny the source of the conflict), but they experience psychological discomfort nonetheless (Rydell, McConnell, & Mackie, 2008).

The incidental *emotions* recipients experience during persuasion have also been shown to impact message elaboration. In general, sadness has been associated with relatively careful, systematic information processing, whereas happiness has been associated with relatively shallow, heuristic processing (e.g., Bless, Bohner, Schwarz, & Strack, 1990; Bless et al., 1996). Assuming that the emotional states are not overly arousing, most researchers have agreed that emotions operate in a motivational manner, providing perceivers with information regarding their progress in achieving personal goals (Carver & Scheier, 1990; Schwarz, 1990). According to this approach, negative emotions can signal insufficient goal progress

and motivate the perceiver to carefully scrutinize all available information, with the goal of enhancing predictability and control over the environment and, thereby, speeding goal progress (see Weary & Edwards, 1996, for a related discussion of negative affect and information processing). Positive emotions, according to this perspective, indicate that everything is "OK" and that no in-depth information-processing strategies are necessary.

Another approach to the relationship between emotion and elaboration considers the link between emotions and cognitive appraisals (e.g., Lazarus, 1991; Smith & Ellsworth, 1985). According to this perspective, because sadness is associated with an uncertainty appraisal, it is expected to enhance information processing aimed at reducing that uncertainty, whereas happiness and anger are expected to reduce information processing because they are associated with certainty appraisals (Tiedens & Linton, 2001). A third approach involves emotion-management concerns and assumes that individuals are generally motivated to achieve and maintain positive emotional states. Because of this, individuals are expected to engage in careful thought primarily when they believe such thought will contribute to restoring or maintaining a positive state. This perspective, termed the hedonic contingency model, has inspired a number of investigations (Wegener & Petty, 1994; Wegener, Petty, & Smith, 1995), and has yielded a fair amount of empirical support. For instance, participants in happy states process optimistic, uplifting messages more carefully than do participants in neutral or sad states because people in positive states must be especially proactive in order to maintain their positive moods. These findings refute the notion that positive emotions inevitably lead to decreases in processing (relative to neutral or negative emotions).

Finally, the ease with which an attitude comes to mind, or *attitude accessibility* (Fazio & Williams, 1986), impacts the degree to which attitude-related information is processed. Specifically, in one study (Fabrigar, Priester, Petty, & Wegener, 1998), individuals with highly accessible attitudes processed attitude-relevant information more carefully than did individuals with less accessible attitudes. As Fabrigar and his colleagues noted, there are two possible explanations for this finding. The first possibility relates to processing motivation. Specifically, people may infer, based on the ease with which an attitude is activated, that the attitude object is especially important or self-relevant. In this case, attitude accessibility would simply act as a precursor to personal relevance, which we have already discussed. The second possibility relates to processing ability. That is, individuals with highly accessible attitudes might have a greater amount of attitude-relevant knowledge than individuals with less accessible attitudes, thereby making them better able to scrutinize carefully persuasive communications relating to that attitude object. In other words, attitude accessibility could be a proxy for knowledge, which we will discuss in a moment. Yet, although each possibility is plausible, the fact that Fabrigar and colleagues manipulated attitude accessibility via a repeated-expression procedure – and nonetheless observed elaboration differences between the high- and low-accessibility groups – suggests that accessibility need not impact elaboration via knowledge alone. Additionally, more recent research (Clark, Wegener, & Fabrigar, 2008b) has shown that individuals with highly accessible attitudes carefully process only counterattitudinal – and not proattitudinal – messages, likely because such messages are especially threatening or novel for these individuals. This finding, paired with the earlier findings, suggests a more motivational role for attitude accessibility as an antecedent to elaboration.

*Ability factors.* In addition to the aforementioned motivational factors (e.g., personal relevance, need for cognition, ambivalence), a number of ability factors also influence the likelihood that a person will carefully elaborate a persuasive message. One fairly obvious example involves message repetition. That is, with increasing amounts of message repetition, people are better able to comprehend, scrutinize, and recall the arguments in a persuasive communication (Cacioppo & Petty, 1980). Also, message recipients must possess adequate attentional resources in order to elaborate a message carefully. For instance, in one study (Petty, Wells, & Brock, 1976), distraction reduced college students' ability to distinguish between strong and weak arguments supporting a tuition increase. Relatedly, time limitations can reduce the likelihood that a perceiver will be able to process a message carefully (Ratneshwar & Chaiken, 1991). Finally, people are better able to comprehend and scrutinize message arguments when they possess a high degree of knowledge and experience regarding the message's topic (Wood & Kallgren, 1988). For instance, individuals generate more cognitive responses to persuasive messages when these messages relate to well-developed knowledge structures than when they do not (Cacioppo, Petty, & Sidera, 1982). Taken together, these findings highlight the importance of processing ability as a precursor to message elaboration.

## Two Routes to Persuasion

Having examined the factors influencing amount of message elaboration, we now move on to the crux of the ELM. Specifically, the ELM holds that, at the endpoints of the elaboration likelihood continuum, people can be persuaded via one of two processing modes, termed the *central* and *peripheral routes to persuasion*. The likelihood that one or the other route will predominate in any given situation is determined by the perceiver's elaboration likelihood, which we have already discussed in detail. Within each general processing mode, a number of more specific mechanisms can lead to attitude change. It is to these mechanisms that we now turn.

*Peripheral route to persuasion.* If a person does not think much about a persuasive communication (i.e., low elaboration), he or she is likely to be persuaded by one of several low-effort mechanisms, which collectively comprise the *peripheral route to persuasion*. To give an example of how the peripheral route to persuasion operates, consider an advertisement in which an attractive supermodel is paired with a particular brand of soft drink. One mechanism producing persuasion in this case could be *classical conditioning* (Staats & Staats, 1958). That is, assuming that the supermodel activates positive affect in most recipients of this advertisement, then with enough viewings of the advertisement pairing the (initially neutral) soft-drink brand with the supermodel, the viewers would come to associate positive feelings with the soft-drink brand, even when the soft drink is presented without the supermodel (see also Jones, Fazio, & Olson, 2009; Olson & Fazio, 2001). This process, whereby attitudes are developed or changed via simple association principles, is referred to as *evaluative conditioning* (see De Houwer, Thomas, & Baeyens, 2001). Relatedly, by encouraging viewers to develop an association between the (positively valued) supermodel and the (initially neutral) soft-drink brand, the advertisement's developers may be capitalizing on

consistency, or *balance*, processes (Festinger, 1957; Heider, 1958). That is, people generally strive to possess consistent and coherent mental representations (e.g., "I like myself, I like the supermodel, the supermodel likes this brand of soda, and so should I"), and the development of such mental representations in many cases occurs without conscious intention or awareness (Greenwald et al., 2002).

Another fairly low-effort mechanism leading to persuasion in this case could involve *misattribution* of the affective reaction to the model as having arisen, at least in part, in response to the soft-drink brand (Dutton & Aron, 1974; Schwarz & Clore, 1983). Again, assuming that the affective reaction to the supermodel was positive, this process would make attitudes toward the soft-drink brand more favorable. Finally, people who are not carefully scrutinizing this advertisement may make use of a simple *heuristic*, processing the supermodel as a *simple cue to persuasion* (e.g., Haugtvedt, Petty, Cacioppo, & Steidley, 1988). For instance, the viewers of the advertisement might reason that they are likely to enjoy products that people they like (e.g., supermodels) also enjoy, thereby developing a more favorable attitude toward the soft-drink brand that the supermodel endorses (Chaiken, 1987). Each of the mechanisms we have outlined – classical conditioning, misattribution, the implicit development of balanced mental representations, and the use of heuristic cues – involves relatively little cognitive effort aimed at assessing the information relevant to the merits of the attitude object, but nonetheless could lead (at least temporarily) to attitude change in the direction favored by the advertisement's developers.

*Central route to persuasion.* If a person is motivated and able to think carefully about a persuasive communication (e.g., high personal relevance of the message, few distractions), he or she is likely to follow the *central route to persuasion*. In the central route, individuals carefully scrutinize the elements of the persuasive message in order to determine whether the message's proposal makes sense and will benefit them in some way. Specifically, the central route to persuasion involves a focus on the strength of *message arguments*, which are pieces of information in the communication intended to provide evidence for the communicator's point of view. If the message contains *strong arguments*, then thoughtful individuals will generate predominantly favorable thoughts in response to the message and will experience attitude change in the direction advocated by the message. In contrast, if the message contains *weak arguments*, then thoughtful perceivers will generate predominantly unfavorable thoughts in response to the message and will experience no attitude change or even change in the direction opposite to that advocated by the message (i.e., *boomerang*).

Given the importance of *argument quality* – that is, whether arguments are strong or weak – in the central route to persuasion, a fairly obvious question arises: What determines the strength of message arguments? In most of the literature inspired by the ELM, argument quality has been determined on an empirical basis. This is because the goal of the research was not to examine what makes arguments strong or weak, but instead to see if some other variable (e.g., personal relevance) increased or decreased the extent of message processing. Thus, arguments were pilot-tested by giving them to members of a particular population, who were asked to think carefully about them. Those arguments eliciting mostly favorable thoughts were considered strong, whereas those eliciting mostly unfavorable thoughts were considered weak (Petty & Cacioppo, 1986a). Although this approach to argument quality does a good job of identifying strong and weak arguments for particular

populations and is very useful for research purposes, it does not elucidate a general theory of argument quality. Although there are many idiosyncratic reactions to particular arguments (Petty, Ostrom, & Brock, 1981), research has suggested a few key factors that render some arguments better than others. Consistent with expectancy-value models of attitudes (Fishbein & Ajzen, 1975), two aspects of arguments are important: the desirability of the consequence implied and how likely it seems that the consequence will occur. Thus, if an argument said, "if you buy Detergent X, your clothes would be cleaner," this argument would be more persuasive the more favorably people perceive having clean clothes, and the more likely this consequence is perceived to be if the detergent is used (see also Johnson, Smith-McLallen, Killeya, & Levin, 2004). In addition, the more unique and important the dimension the argument addresses, the higher in impact it may be (Petty & Wegener, 1991). Finally, strong arguments tend to relate consistently with one another in the context of the overall message: they are cogent, coherent, and compelling. Weak arguments, in contrast, are often illogical and self-contradictory.

Of course, thinking a great deal about a persuasive communication does not mean that the recipient will process the message's arguments in an evenhanded, objective manner. Although objective, normatively rational processing of persuasive arguments is one strategy that individuals can take, interpretation of message arguments can also be biased by various factors. For instance, individuals consider arguments consistent with their preexisting attitudes to be stronger than arguments opposing their preexisting attitudes. In one study examining the topic of capital punishment (Lord, Ross, & Lepper, 1979), individuals polarized in the direction of their initial attitudes when exposed to both pro- and counterattitudinal information on the issue. Also, in addition to its role in motivating processing of persuasive communications – which we have already discussed – emotions can also bias recipients' evaluation of persuasive arguments. Specifically, high-elaboration participants have been shown to evaluate persuasive arguments more favorably when they are in a happy rather than a neutral state (Petty, Schumann, Richman, & Strathman, 1993). Given these findings, it is clear that persuasion via the central route does not necessarily involve the impartial consideration of message arguments but, instead, can involve biased interpretation of the information contained in the persuasive communication.

When people are thinking carefully about a message or issue, they also consider how confident they are in the thoughts that they generate (Petty, Briñol, & Tormala, 2002). If people are confident in the thoughts they have generated, these thoughts will have an impact on their attitudes. If people doubt the validity of their thoughts for any reason, these thoughts are unlikely to impact attitudes toward the issue. Thus, when thoughts about the message or issue are largely favorable, enhancing confidence will increase persuasion and instilling doubt will reduce persuasion. However, when thoughts about the message or issue are largely unfavorable, enhancing confidence will reduce persuasion but instilling doubt will undermine reliance on one's negative thoughts, thereby increasing persuasion (see Briñol & Petty, 2009, for a review of research on thought confidence).

A number of persuasion variables that have been examined in classic persuasion studies have also been shown to impact thought confidence (Briñol & Petty, 2009). For instance, individuals who nod their heads as they listen to a persuasive message containing either strong or weak arguments show a stronger effect of argument quality on attitudes than do



individuals who shake their heads as they consider the same messages (Briñol & Petty, 2003), and follow-up analyses showed that this effect was due to increased thought confidence among participants who were nodding their heads as compared with participants who were shaking their heads. Emotion is another variable that impacts thought confidence. Specifically, participants who are induced to experience a happy state after reading a message and listing their thoughts in response to that message are more likely to use these thoughts in forming an attitude than are participants who are placed in a neutral or sad state after message elaboration and thought listing (Briñol, Petty, & Barden, 2007).

Critically, variables operate through meta-cognitive mechanisms – that is, by influencing one's evaluation of his or her own thoughts – primarily when people are thinking a great deal (for a review, see Petty, Briñol, Tormala, & Wegener, 2007). After all, it takes a considerable amount of cognitive effort not only to generate thoughts in response to a message or issue, but also to critically evaluate these thoughts. Timing is also important when it comes to thought validation. That is, persuasion variables tend to influence thought confidence if introduced *during or after* the message but can influence the amount of message processing if introduced *before* the message. As an example, consider the case of source credibility. If a perceiver learns that a message comes from an expert source before processing the message, this perceiver will likely elaborate the message more carefully than if the message had come from a non-expert source (Heesacker, Petty, & Cacioppo, 1983). If perceivers learn that a message comes from an expert source only *after* elaborating the message, however, the expert information will impact their confidence in the thoughts that they generated. Specifically, thoughts generated in response to a message from an expert source will be held more confidently than thoughts generated in response to a message from a non-expert source (Tormala, Briñol, & Petty, 2007). Importantly, argument quality would have more of an effect on attitudes under high (versus low) source expertise in both of the cases outlined above, but the mechanisms responsible for the two effects would be quite different. It is to this issue – the notion that variables can impact persuasion in multiple ways – that we turn next.

### Putting It All Together: Multiple Roles for Persuasion Variables

As we have seen, people can be persuaded via one of two processing routes, and the likelihood that they will use either route depends heavily on how much they are thinking about the persuasive message. If people are not motivated or able to scrutinize a message, they will be persuaded by one of several low-effort processes that comprise the peripheral route. If they *are* motivated and able to think carefully about the message, persuasion will depend primarily on people's cognitive responses to the message. That is, in the central route, the number and valence of thoughts, as well as the confidence with which these thoughts are held, determine the extent of persuasion. And, as we have also seen, a number of factors influence the likelihood that a message will be carefully elaborated. We have also touched upon the notion that specific factors – such as moods and preexisting attitudes – can bias the interpretation of message information, making the generation of positive or negative thoughts more likely. Finally, we have also noted that certain factors can lead people to have confidence or doubt in the thoughts that they have generated, which affects reliance on

these thoughts in forming or changing attitudes. Thus, without making it explicit, we have already discussed many of the ways that variables can impact persuasion. This idea, namely that variables can serve *multiple roles in the persuasion process*, is central to the ELM. Specifically, the model holds that variables can (a) impact the amount of elaboration a message receives, (b) operate as simple cues to persuasion, (c) serve as message arguments, (d) bias the interpretation of message information, or (e) affect the confidence people have in their thoughts (Petty, Briñol, & Priester, 2009; Petty & Cacioppo, 1986a).

To illustrate how a particular variable can serve in multiple roles in the persuasion process in different situations, let us consider some concrete examples. First, we will summarize how incidental emotions affect persuasion. As we have already noted, emotion can operate as a simple cue to persuasion under low-elaboration conditions, producing change consistent with its valence. Under high-elaboration conditions, emotions can bias interpretation of message arguments (DeSteno, Petty, Wegener, & Rucker, 2000; Petty, Schumann, et al., 1993) when it precedes the message and can affect how much confidence people have in the thoughts they have generated when it follows message processing (Briñol et al., 2007). Further, when elaboration is not constrained by other factors to be particularly low or high, emotions can affect the amount of processing messages receive (Mackie & Worth, 1989; Wegener et al., 1995). Lastly, one's emotion can be scrutinized as a piece of information (i.e., an argument) relevant to a particular conclusion (Schwarz & Clore, 1983).

Another variable that has been shown to impact persuasion via multiple roles is source credibility (i.e., trustworthiness and expertise). Messages presented by sources high in expertise receive more processing than messages presented by sources low in expertise (Heesacker et al., 1983). Additionally, messages presented by sources that are high in expertise but low in honesty are scrutinized more carefully than messages presented by expert sources perceived to be truthful (Priester & Petty, 1995). Under high-thinking conditions, source credibility can bias processing of message information when the source is made salient prior to message processing. In particular, highly credible sources lead perceivers to generate more favorable thoughts about a message than do less credible sources (Chaiken & Maheswaran, 1994). Learning that a message comes from an expert (versus non-expert) source after message processing can lead people to have more confidence in the thoughts they generated in response to that message (Tormala, Briñol, & Petty, 2006). Finally, source credibility can serve as a cue to persuasion under low elaboration conditions and as an argument under high elaboration (Petty & Cacioppo, 1984b). Thus, we can see that source credibility – like emotion – can operate in each of the roles for persuasion variables identified by the ELM. Indeed, there are many variables that have been shown to operate in these multiple roles.

### **Consequences of Elaboration: Attitude Strength**

Aside from impacting the manner in which individuals will be persuaded, elaboration also yields a number of downstream consequences. Specifically, attitudes developed (or changed) via a high amount of message- or issue-relevant thinking are especially stable over time, resistant to counter-persuasion, likely to bias information processing in a pro-attitudinal

direction, and likely to lead to attitude-consistent behavior (Petty, Haugtvedt, & Smith, 1995). Taken collectively, these long-term outcomes are considered to be features of attitude strength (Petty & Krosnick, 1995).

It makes a fair amount of sense, from a practical standpoint, that attitudes based on a great deal of elaboration are stronger than attitudes based on less issue-relevant thinking. For one, people who have thought a great deal about a particular subject will naturally have a more well-developed and internally consistent knowledge structure surrounding the attitude object than will individuals who have not thought much about the subject. As such, any novel information will exert less influence on the overall mental representation in the former case than in the latter. Additionally, thinking a lot about an issue can render one's attitude on that issue more accessible (Smith, Haugtvedt, & Petty, 1994). For instance, if a person thinks a great deal about Diet Coke, his or her attitude toward Diet Coke is likely to be chronically accessible and, in turn, is especially likely to guide information processing and behavior with respect to Diet Coke (Cacioppo, Petty, Kao, & Rodriguez, 1986; Fazio & Williams, 1986). Finally, people are likely to feel especially certain in attitudes that are based on extensive amounts of issue-relevant thinking (Petty et al., 1995). Over time, because people assess their level of thinking to determine certainty, perceived thinking becomes a heuristic that can affect attitude certainty in the absence of any real thinking (Barden & Petty, 2008). And, of course, when people are highly confident in their attitudes, the attitudes become more persistent over time, resistant to attack, and likely to impact behavior (Gross, Holtz, & Miller, 1995). Thus, we can see how elaboration impacts attitude strength: by making attitudinal representations more internally consistent, well developed, and accessible, and by making individuals more confident in their attitudes.

### Criticism of the ELM

Perhaps the most thoroughgoing critique of the ELM is implicit in the relatively recent *unimodel* of persuasion (Kruglanski & Thompson, 1999). Although the unimodel adopts the ELM's elaboration continuum and its postulate that extent of thinking is related to attitude strength, it rejects the idea that different psychological processes operate along the continuum. Instead, the unimodel states that there is only *one* process of persuasion that operates to various degrees along the continuum. According to the unimodel, persuasion always results from the recipient's analysis of the evidence provided, whether the person is thinking a lot or very little. Furthermore, Kruglanski and Thompson object to certain data presented in support of the ELM. For example, they argue that the conclusion that people who are not thinking very much rely on simple cue processes more than individuals who are thinking more carefully has not been supported by the empirical literature. Specifically, these authors argue that peripheral cues have usually been presented in ways that make them particularly easy to process (e.g., attractive source, very short statements at the beginning of messages), making low-motivation and low-ability perceivers especially likely to use these cues as evidence in forming or modifying their attitudes. Relatedly, Kruglanski and Thompson argued that message arguments are generally presented in long form (e.g., dense paragraphs of information, minutes-long verbal presentations), meaning that this information is only

likely to impact attitudes if recipients are motivated and able to process it extensively. That is, there is a confound between the information serving as simple “cues” and the information serving as “arguments.” One type of evidence (i.e., cues) requires less thought than the other (i.e., arguments), providing support for different amounts of thinking being involved in persuasion but not for fundamentally different processes of persuasion.

In responding to the critique offered by Kruglanski and Thompson (1999), Petty, Wheeler and Bizer (1999) raised a number of theoretical and methodological points. Most importantly, they noted that although some studies have used manipulations of cues and arguments that vary in complexity, other studies have not. For example, they point to a study in which three or nine weak counterattitudinal arguments were presented to participants (for the original study, see Petty & Cacioppo, 1984a). Given that the weak arguments elicited predominantly unfavorable thoughts, participants who were thinking carefully (i.e., high elaboration) had more unfavorable attitudes after reading nine rather than three weak arguments. Participants under low elaboration who were exposed to the exact same messages evinced a very different pattern: they were more favorable to the proposal when presented with nine arguments than when they were presented with three. In this study, the three-versus-nine-arguments manipulation served as both the cue manipulation and the argument manipulation so that there could be no differences in length or complexity between the two manipulations. Yet participants under high- and low-elaboration conditions applied different psychological operations to this information. In particular, participants in the low-elaboration conditions appeared to simply count the number of message arguments and to conclude that a greater number of arguments was better (i.e., more persuasive) than a smaller number. However, those in the high-relevance condition did not simply count the arguments but instead evaluated them for merit. These different processes led to different persuasion outcomes. Clearly, amount of thinking differed across the high- and low-elaboration groups in this study. But the *quantitative* difference in elaboration is not the only difference that mattered. Rather, participants used the information presented to them in a *qualitatively different* manner as a function of elaboration. This qualitative distinction between different processing styles, Petty and colleagues (1999) argued, is both theoretically and practically important and should not, as Kruglanski and Thompson (1999) recommended, be left out of social psychological theories of persuasion. (For other criticisms of the ELM and responses to these criticisms, see Petty, Rucker, Bizer, & Cacioppo, 2004.)

### Applications of the ELM

Many pressing social and political problems involve, at base, maladaptive attitudes, beliefs, and behaviors. For instance, consider the problem of sexually transmitted infections (STIs) such as HIV. Although awareness of the risks associated with unprotected sexual activity is undoubtedly widespread, many sexually active adults nonetheless fail to take adequate precautions against becoming infected or spreading infection to others (e.g., using latex condoms; Anderson, Wilson, Doll, Jones, & Barker, 1999). One way to encourage people to engage in safer sex practices is to change their attitudes toward such practices. In an application of the persuasion literature in general – and of the ELM in particular – Petty, Gleicher,

and Jarvis (1993) noted that attitude change based on extensive thought (i.e., central route) is more likely to produce attitude-consistent behavior than is attitude change based on less thought (see also Petty & Krosnick, 1995). Thus, it is important not only to change people's attitudes toward condom use but also to encourage such change to take place in a thoughtful manner.

One way to achieve this goal is to make a message about the risk of contracting HIV seem particularly relevant to the intended audience, thereby increasing motivation to process the message. This can be done in a relatively simple manner by directly mentioning message recipients (e.g., saying "*you* can get HIV" rather than "*people* can get HIV"; Burnkrant & Unnava, 1989). Alternatively, one might develop a two-pronged message, aiming first to change message recipients' perceptions of their personal level of risk and second to encourage condom usage as a method for reducing this risk. If such a tack is taken, however, it is important that message recipients not become overly afraid or anxious about HIV and other STIs, as these extreme emotions may lead individuals to avoid thinking about the message (Janis, 1967; see also Albarracín et al., 2005). A second way to increase processing of messages encouraging safer sex practices is for these messages to be presented by highly credible sources. A recent meta-analysis of the efficacy of HIV-prevention interventions indicated that interventions delivered by expert sources were especially effective in yielding desired behavioral changes (Albarracín, Durantini, & Earl, 2006). This finding may reflect the tendency of message recipients to process messages delivered by highly credible sources more carefully than messages delivered by less credible sources (Heesacker et al., 1983). A third way that careful processing of information related to HIV prevention might be encouraged involves the use of rhetorical questions (Petty, Cacioppo, & Heesacker, 1981). That is, people may be especially likely to elaborate upon persuasive information if it is followed by a brief, rhetorical question (e.g., "Don't you think it's a good idea to use condoms to prevent HIV?") instead of a similar statement (e.g., "It's a good idea to use condoms to prevent HIV").

Finally, people may be especially likely to process information regarding HIV prevention if that information is tailored to specific aspects of their personality or self-concept, such as gender (McCulloch, Albarracín, & Durantini, 2008) or need for cognition (Bakker, 1999). Of course, other variables could also impact motivation (or ability) to process messages relating to HIV prevention, and the examples provided here are simply illustrations. Also important, any strategy aimed at increasing recipients' message processing will only yield attitude change in the desired direction if the arguments contained in the message are strong. Thus, it is not enough simply to encourage message recipients to think carefully about HIV-prevention strategies. The quality of the arguments that are presented is also critical, and should definitely be considered by those who are developing messages in this domain.

The ELM has been applied in a variety of other domains as well, including psychological therapy (Cacioppo, Claiborn, Petty, & Heesacker, 1991), school psychology (Petty, Heesacker, & Hughes, 1997), mass media effects (Petty, Priester, & Briñol, 2002), health-promotion strategies (Petty, Barden, & Wheeler, 2009), drug-abuse prevention (Baker, Petty, & Gleicher, 1991), and consumer behavior and marketing (Rucker & Petty, 2006), among others. Although a thorough treatment of each of these applications is beyond the scope of this chapter, they bear mentioning, as does the general approach they represent. Specifically, each application examines – as did the approach to HIV prevention outlined above – how attitude change can lead to desired behavioral changes, pointing out that attitudes formed

or changed via extensive message- or issue-relevant thinking are especially likely to lead to attitude-consistent behaviors (see also Petty & Krosnick, 1995). Thus, it is important, particularly from a public health perspective, to develop methods that encourage individuals to think carefully about messages aimed at modifying problem behaviors. Otherwise, the attitudinal or behavioral changes realized by specific interventions will likely diminish or dissipate as time progresses.

### New Directions: Automatic and Deliberative Attitude Measures

One interesting research development in the twenty-first century concerns the distinction between automatic and deliberative attitude measures (for reviews, see Fazio & Olson, 2003; Petty, Fazio, & Briñol, 2009). Specifically, response latency measures, such as the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) and the evaluative priming procedure (Fazio, Jackson, Dunton, & Williams, 1995), have been developed in recent years, in part to try to circumvent limitations associated with more traditional survey measures (Schwarz, 1999). These procedures, termed *implicit* or *automatic measures*, attempt to measure the first evaluative reaction that automatically comes to mind when a person is exposed to an attitude object. These measures have been contrasted with more traditional attitude measures, which generally involve Likert-type or semantic differential scales, where people report how much they like something (*explicit* or *deliberative measures*). Although some controversy exists regarding the interpretation of each type of measure (e.g., Gawronski & Bodenhausen, 2006; Wilson, Lindsey, & Schooler, 2000), many researchers agree that automatic measures tap the strength of associations – stored in memory – between attitude objects and evaluations. However, recent research has indicated that the evaluations that are automatically activated upon presentation of an attitude object may not, at least in some cases, be consciously endorsed by the individual holding such evaluations (Petty et al., 2006). For instance, consider a case in which a former smoker is presented with a package of his favorite brand of cigarettes. In all likelihood, such a person will automatically activate a favorable evaluation when presented with the cigarettes, given his history of positive experiences with them. However, this person would probably not endorse this automatically activated attitude as his “true” attitude toward cigarettes, given that he has stopped smoking them and knows that they contribute to a variety of health problems, including lung cancer and heart disease. Thus, while an automatic measure of attitudes toward cigarettes would likely show that this individual is quite favorable toward cigarettes, a more deliberative measure would show that he does not like them very much. Which is the “true” attitude? And how would each type of measure be affected by persuasion attempts?

According to the meta-cognitive model (MCM) of attitude structure (Petty, Briñol, & DeMarree, 2007), people can store many kinds of information in memory about an attitude object. This information can include not only object evaluations but, also, beliefs about attitude objects and validity information regarding the attitude–object association. So, for instance, a former smoker could associate cigarettes with favorability, but this cigarette–favorability association could be “tagged,” in memory, as invalid or false. Given that this *validity tag* is less accessible than the object–evaluation association itself, automatic measurement techniques are relatively unlikely to reflect the invalidation of the cigarette–favorable

link. That is, because automatic measures generally involve quick and non-thoughtful responses to stimulus pairings, information that is directly related to an attitude object is most likely to be activated and applied in responding to such measures (Petty & Briñol, 2006). Deliberate measures, by contrast, generally afford the respondent the opportunity to consider whether he or she consciously endorses the attitude–evaluation associations that are stored in memory and, thus, these measures can be impacted by validity tags.

One of the implications of the MCM for persuasion – particularly with respect to the two routes to persuasion identified by the ELM – involves the potential for peripheral cues to exert differential impact on automatic and deliberate attitude measures. For instance, consider the situation in which a sports celebrity endorses a particular brand of underwear. With repeated pairings, the (positively valued) celebrity will become associated with the underwear brand, likely leading advertisement recipients to develop favorable attitudes toward the underwear brand, particularly if they are not thinking carefully about the advertisement. If they *are* thinking about the advertisement, however, recipients will likely reason that sports celebrities do not possess any special expertise with respect to underwear and, accordingly, will attempt to remove the impact of the celebrity on their evaluations of the underwear brand (e.g., Petty, Wegener, & White, 1998; see Wegener & Petty, 1997, for a review of correction processes). Even among high-thought recipients, however, this discounting (or invalidation) process is likely to be observed only on deliberative measures. Automatic measures, by contrast, are likely to reflect only the relationship between the underwear brand and the (liked) celebrity.

In fact, there are several examples in the empirical literature demonstrating such a pattern of results, albeit with different attitude objects and peripheral cue manipulations (e.g., Rydell & McConnell, 2006; Rydell, McConnell, Mackie, & Strain, 2006). For instance, in one study (Gawronski & LeBel, 2008) an evaluative conditioning procedure was used to create associations between a continent (Europe or Asia) and an evaluation (positive or negative). Then, participants were given an automatic (i.e., IAT) and deliberative (i.e., scale response) measure of attitudes toward Europe and Asia. As expected, the automatic measure reflected the effect of the evaluative conditioning procedure, such that continents associated with positivity were evaluated more favorably than continents associated with negativity. However, deliberative measures showed a different pattern. Specifically, when participants were asked to consider their knowledge about the continents and then to fill out a survey measure of attitudes toward the continents, the classical conditioning procedure had no effect on participants' responses. However, when participants were asked to consider their *feelings* about the continents before filling out the survey measure, the classical conditioning did impact deliberate responses. In other words, when participants were given the opportunity to carefully think about their attitudinal responses, they considered not only their automatic associations but also the validity of these associations (i.e., whether these associations seemed, based on instructions regarding feelings versus thoughts, to be an appropriate basis for their attitudes). By contrast, when participants were asked to respond quickly and non-thoughtfully (i.e., IAT), their automatic associations were the primary determinant of their attitude responses.

In another study, McConnell, Rydell, Strain, and Mackie (2008) provided participants with favorable or unfavorable behavioral information about a target person. Additionally, they provided group membership cues about this person (e.g., he or she was or was not

overweight). Then, participants completed automatic (i.e., IAT) and deliberative (i.e., rating scale) measures of attitudes toward the target. Whereas deliberative measures were impacted only by the behavioral information provided about the target, automatic measures were influenced by the target's group membership (e.g., weight), particularly when the behavioral information was somewhat ambiguous. Thus, we can see that group membership cues impacted automatic evaluations more strongly than they affected deliberative evaluations, consistent with the MCM. As researchers continue to explore the differential impact of peripheral cues on automatic versus deliberative attitudes measures, we anticipate that such patterns of results will continue to be reported.

## Conclusions

As we have seen, the ELM has allowed attitudes researchers to understand and predict the multiple ways in which attitudes can be formed and changed by different variables (e.g., moods, source expertise), depending on the likelihood of thinking (i.e., serving as cues or arguments, affecting the amount or direction of thinking, or influencing confidence in thoughts). Many motivational and ability factors impact elaboration likelihood, which in turn determines whether peripheral or central route processes will be primarily responsible for attitude change. Moreover, amount of elaboration influences the strength of attitudes that are developed or changed in the persuasion context, with greater elaboration being associated with more persistent, resistant, and behaviorally impactful attitudes. The ELM has been applied to the study of a number of important social phenomena, including the encouragement of safer-sex practices among individuals who are at risk for contracting HIV and other STIs. Finally, recent research shows that peripheral cues are more likely to impact automatic attitude measures than deliberative attitude measures, demonstrating the ELM's utility in understanding the distinction between the two types of measures as well as the interpretation of attitude estimates derived via the two classes of procedures.

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