

Dual Process Models of Persuasion

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Summary

Issues of attitudes and attitude change are the foundation of many social processes. Psychologists have long sought to understand people's opinions and evaluations, and many studies have sought to understand how, why and when those attitudes change in the face of persuasive communication. Early persuasion research identified many variables that influence the effectiveness of persuasive messages. These variables include characteristics of the communicator, the recipient, and the message itself. Over the years, however, the evidence for these influences became rather mixed, prompting a new generation of persuasion psychologists to ask whether there was a sensible pattern underlying it.

This question ushered in several new approaches to thinking about persuasion. These "dual process" models proposed key moderators, identifying the conditions under which certain variables would and would not produce attitude change. A particularly influential model has been the *Elaboration Likelihood Model*, which proposed that the audience's motivation and ability to think deeply about a persuasive message determines how much a given characteristic of that message will change the audience's attitude. Other models, such as the *Heuristic-Systematic Model*, have contributed additional insights about the "when" and "why" of attitude change. In sum, these nuanced accounts of attitude change have been demonstrated time and again across cultures and topics of persuasion.

Dual Process Models of Persuasion

In 1957, Vance Packard published his book, *Hidden Persuaders*. In its opening paragraph, he writes:

“This book is an attempt to explore a strange and rather exotic new area of American life. It is about the large-scale efforts being made, often with impressive success, to channel our unthinking habits, our purchasing decisions, and our thought processes by the use of insights gleaned from psychiatry and the social sciences...The result is that many of us are being influenced and manipulated, far more than we realize, in the patterns of our everyday lives” (p. 1).

The book made a splash, topping the U.S. bestseller list for a year and stirring public concern over persuasion techniques (Nelson, 2013). People find persuasion especially intriguing, and the thought that one’s private beliefs and opinions can be manipulated by strangers might strike some as unsettling. Persuasive communication is astoundingly common as an endless stream of articles, commercials, presentations, and conversations offer opportunities to change our opinions. The question, though, is whether these attempts at persuasion are successful.

The modern social psychology of persuasion began in earnest around the 1950s (Briñol & Petty, 2012; McGuire, 1969). During World War II, a group of psychologists worked with U.S. military organizations to study the effects of propaganda on people’s beliefs and opinions about the war. At the center of this pioneering research was Carl Hovland, who identified key aspects of the communicator, the message, and the audience that affect persuasion (Hovland, Janis, & Kelley, 1953). By using a scientific approach to studying persuasion, Hovland set a precedent for an era of social psychological research testing the persuasive influence of various communication features. As the data rolled in, however, the results would sometimes contradict

each other, and the state of persuasion science was unclear. For example, although one would assume that experts on a subject would be more persuasive than non-experts, experiments presented mixed support for the effects of source credibility (e.g., Hovland & Weiss, 1951; Rhine & Severance, 1970). Describing the state of persuasion research in 1977, Muzafer Sherif noted a “reigning confusion” in the area, referring to the “scanty yield in spite of tremendously thriving output” (p. 370).

Dual process models of persuasion emerged to address the confusion and apply structure on a dizzying assortment of findings. This chapter reviews the key features of these models and their impact across various fields. Before continuing, however, it is worth clarifying that “persuasion” in this context most directly refers to attitude change.¹ Attitudes are overall positive or negative evaluations of some target, which can be an object, person, or idea. Therefore, models of persuasion aim to understand a wide variety of psychological experiences because attitudes are fundamental to psychological processes of all sorts. Also, because attitudes are a key predictor of various behaviors (Glasman & Albarracín, 2006), persuasion also indirectly encompasses behavior change.

The Elaboration Likelihood Model

In the 1980s, the *Elaboration Likelihood Model* (ELM) of persuasion was introduced as a comprehensive account of when and how various aspects of persuasive communication ultimately produce attitude change (Petty & Cacioppo, 1986). Its critical insight was that a variable’s impact depends on the degree to which the audience is likely to *elaborate* on the communication. In this context, “elaboration” refers to how much a person thinks about and considers the arguments advanced in a persuasive message. To elaborate on a message is to allocate cognitive resources to it, paying attention to its arguments, connecting it to relevant

knowledge, and scrutinizing its evidence to inform an evaluation of the position it advocates. But deeply elaborating on every communication would be exhausting, which is why people only do it when such thorough thinking is possible and appropriate. Thus, the degree to which a person carefully considers a message lies along the *elaboration continuum*. At one extreme, a person gives no thought whatsoever to the content of a message, and at the other extreme, a person gives complete and thorough consideration to it. More commonly, though, people are somewhere between these extremes. Nevertheless, it has become a useful device to think about the qualitative differences in persuasion processes by highlighting the two extremes of the continuum.

Two Routes

Perhaps the best known aspect of the ELM are the two routes to persuasion that it proposes, and the route that a person is likely to take depends on his or her level of elaboration. First is the *peripheral route*. When recipients are unlikely to think very much about a message, if they are going to be convinced to change their attitudes, it will largely be due to superficial aspects of the message—"peripheral cues." These are aspects of the communication that can affect attitudes even in the absence of coherent arguments. Sometimes these cues influence attitudes by associating the persuasive claim with an irrelevant positive or negative affective response. For example, when people think relatively little about a message, simply being in a positive or negative mood directly affects message agreement (Petty, Schumann, Richman, & Strathman, 1993). Similarly, when elaboration is relatively low, receiving a message from a likable person results in more agreement with the message than when the source is unlikable (Petty, Cacioppo, & Schumman, 1983; Wood & Kallgren, 1988). In these cases, variables that

have nothing to do with a message's veracity nonetheless shape people's attitudes because they arouse positivity or negativity that can transfer to the issue in question.

Peripheral cues can also influence attitudes because of inferences that people quickly draw from the information based on simple decision rules ("heuristics"). For example, if someone presents many arguments in support of a position, people can assume that the position is well-founded without even listening to the arguments themselves (Petty & Cacioppo, 1984). Similarly, even without paying attention to the message itself, people assume that a set of persuasive claims is more credible when the communicator seems like an expert on the topic (Petty, Cacioppo, & Goldman, 1981).

The other persuasion route is the *central route*. To be persuaded via the central route is to be sold on the strength and cogency of the arguments in the message. As Petty and Cacioppo (1986) noted, "in the ELM, arguments are viewed broadly as bits of information contained in a persuasive communication that are relevant to a person's subjective determination of the true merits of the advocated position" (p. 133). The underlying process of central route attitude change harkens back to *cognitive response theory* (Greenwald, 1968), which concerned the stream of thoughts that occur to a person as he or she elaborates on a message. These thoughts ultimately shape attitudes; having a lot of thoughts that agree with the message encourages message-consistent attitudes whereas having a lot of thoughts that oppose the message inhibits persuasion and may even result in rejecting the message's position.

Such thoughtful central route persuasion is often tied to the strength of a message's arguments because when people elaborate on a message, strong arguments usually result in favorable thoughts and weak arguments usually result in unfavorable thoughts. For example, listening carefully to a well-argued speech in favor of school lunch reform might evoke internal

thoughts like “the current system really is flawed” or “the proposed alternative could actually work!” These internal thoughts would lead the listener to support the proposal. By contrast, listening carefully to a poorly-argued speech on the same issue might evoke internal thoughts like “these conclusions are not supported by any evidence” or “the proposed alternative is doomed to fail!” In this case, thoughtful reflection on the message would ultimately produce a more negative attitude toward the proposal. In sum, persuasion via the central route is driven by the merits of a message’s core arguments rather than its more superficial features.²

Determinants of Elaboration

The ELM assumes that “people are motivated to hold correct attitudes” (Petty & Cacioppo, 1986, p. 127), so one might assume that people always strive to deeply consider attitude-relevant information. But think about all of the messages people encounter every day. It would be exhausting to thoroughly scrutinize every one of them! A critical part of the ELM, then, is its predictions for *when* an audience is likely to elaborate on a message, prompting central route persuasion, and when an audience is unlikely to elaborate on a message, prompting peripheral route persuasion. Specifically, a host of situational and individual factors influence elaboration by affecting one’s *motivation* and *ability* to think about the message.

Motivation

It may not come as much of a surprise that people who are motivated to think about a message will be more likely to do so. One of the most commonly studied situational variables that affects such motivation is personal relevance. When a persuasive message concerns a topic that can have direct implications for the recipient, he or she is especially motivated to deeply consider its content (e.g., Petty & Cacioppo, 1979; Johnson & Eagly, 1989). As an example, one early study presented college students with a persuasive message arguing for a new policy that

would require seniors to take a comprehensive exam in their major in order to graduate (Petty et al., 1981). To increase personal relevance, some students were told that the administration was hoping to implement this policy the following year, which would affect the students' own experience. A comparison condition, however, minimized the topic's relevance by stating that the policy change would not begin for another ten years. The study also independently manipulated both the strength of the arguments made in the message and the apparent expertise of the communicator.

The results clearly show how a simple change in personal relevance nudged people toward more central or peripheral route persuasion. As Figure 1a illustrates, there was an interaction between relevance and source expertise. The left side of the graph shows what happened when the topic was not very relevant to the audience. In this case, when the audience was unlikely to give much thought to the issue, a message coming from an expert was more persuasive than a message coming from a non-expert. However, when the issue was very relevant to the audience, depicted on the right side of the graph, the message coming from an expert was no more persuasive than the one coming from a non-expert. There was also a complementary interaction between relevance and argument strength (Figure 1b). When the topic was not very relevant, the strongly argued message was no more persuasive than the weakly argued one. Instead, it was when the topic was especially relevant that the strongly argued message made a difference, resulting in more supportive attitudes than the weakly argued message. Together, these two results show that when people were less motivated to think about a message, source expertise—and not the quality of the arguments—shaped the audience's attitudes (peripheral route). But when people were more motivated to think about a message, argument strength—and not the author's expertise—shaped their attitudes (central route).

Personal relevance is not the only situational variable that motivates elaboration. Other features of the persuasion context can also encourage people to pay more attention to a persuasive message, including being held accountable (Petty, Harkins, & Williams, 1980) and having one's expectations violated (Smith & Petty, 1996). Some people, however, simply enjoy effortful thinking more than others and are thus generally motivated to deeply process persuasive communications. This disposition—the *need for cognition* (Cacioppo & Petty, 1982)—is associated with greater discrimination between strong vs. weak arguments, reflecting central route persuasion (e.g., Cacioppo, Petty, & Morris, 1983; for meta-analyses, see Cacioppo, Petty, Feinstein, & Jarvis, 1996; Carpenter, 2015). Indeed, other individual differences such as the *need for cognitive closure* have been shown to predict the likelihood of peripheral vs. central route persuasion via corresponding motivations (Klein & Webster, 2000).

Ability

Despite the importance of motivation, even if an audience is motivated to process a message, they will not do so if they are incapable of devoting cognitive resources to the task. Thus, one's ability to think is another key determinant of elaboration. An early approach to testing this was to implement a distracting task alongside exposure to a persuasive message to see if it affected which variables changed attitudes. In one such study, students listened to a message composed of either strong or weak arguments and were also asked to keep track of flashing stimuli on a nearby screen (Petty, Wells, & Brock, 1976). This second task was either quite easy because the flashing stimulus rarely appeared or it was quite difficult and distracting because the stimulus appeared frequently. As Figure 2 illustrates, the strength of the arguments in the message only affected people's attitudes when the secondary task was minimally distracting, consistent with the central route to persuasion given greater ability to elaborate.

Argument strength did not matter, however, when the secondary task was more distracting, mirroring Figure 1b.

Other features of the situation similarly affect persuasion via the audience's ability to elaborate. Ability to think is reduced when the message is complex (Cooper, Bennett, & Sukel, 1996; Hafer, Reynolds, & Obertunski, 1996) or the message is spoken quickly (Smith & Shaffer, 1995), but it is improved when the message is repeated several times (Cacioppo & Petty, 1981) and even when the recipient experiences an accelerated heart rate (Cacioppo, 1979).

Just as with motivation, there are notable individual differences regarding an audience's ability to process a message. For example, having more knowledge about an issue enhances one's ability to process a relevant message (e.g., Wood, Rhodes, & Biek, 1995). Similarly, although early research struggled to document a clear relationship between general intelligence and susceptibility to persuasion (Rhodes & Wood, 1992), intelligence may play a more specific role in persuasion as a predictor of processing ability (cf. Eagly & Warren, 1976).

Elaboration is Multiply Determined

Psychological processes typically depend on an enormously varied set of inputs. How much a person is likely to think about a persuasive message depends on her interest in the topic, her ability to read carefully, her need for cognition, and the message's complexity, among other factors. Oftentimes, experiments in persuasion isolate one of these factors at a time to test its effects on attitude change. More recently, however, persuasion research has begun testing how these separate factors *combine* to increase or decrease elaboration. For example, people tend to pay more attention to a message when the communicator is an expert and expresses doubt than when he is an expert and expresses certainty (Karmarkar & Tormala, 2010). In this case, simply knowing whether the source is an expert or how much confidence he expressed is not enough to

predict elaboration; the combination of those variables is especially important. A growing body of research has examined how unique combinations of variables are most likely to prompt thinking, including combinations of distinct features of a recipient's initial attitude (Clarkson, Tormala, & Rucker, 2008), distinct features of the source (Ziegler, Diehl, & Ruther, 2002), characteristics of the recipient and characteristics of the message (Petty, Wheeler, & Bizer, 2000), and features of a recipient, the communicator, and the message's pro/counter-attitudinal position (Clark & Wegener, 2013).

Understanding that elaboration is multiply determined is critical for knowing when a variable affects thinking. For example, as already reviewed, individual differences in need for cognition have often been associated with elaboration. Recently, however, a large scale attempt to replicate findings in psychology failed to find evidence for this need for cognition effect (Ebersole et al., 2016). A closer look at the materials, however, suggests a potential explanation. The persuasive messages were made highly relevant, which induces a motivation to elaborate across participants, and they were made quite brief, which induces an ability to elaborate across participants—perhaps especially for those low in need for cognition who may be especially open to processing a message if it seems simple. These situational factors can overwhelm the effects of predispositions in persuasive contexts (cf. Calanchini, Moons, & Mackie, 2016; Smith & Petty, 1996). Thus, a follow-up study created an “optimal” set of materials that addressed these situational features, and the critical need for cognition \times argument strength interaction emerged as predicted (Luttrell, Petty, & Xu, 2017). The study also included a “non-optimal” condition, which essentially copied Ebersole et al.'s materials, and the critical interaction did not emerge once again. This study highlighted the importance of considering the many aspects of persuasion

that can guide a person's elaboration likelihood in ways that could render dispositional tendencies less predictive.

Multiple Roles of Persuasive Variables

Overall, the ELM highlights relatively low thinking persuasion processes (peripheral route), relatively high thinking persuasion processes (central route), and processes that determine the degree of message-relevant thinking (motivation and ability). Although I have discussed different variables for each of these processes, the ELM makes the more nuanced point that any persuasion-relevant variable could affect attitudes through *any* of these processes by playing a number of different roles. In other words, the difference between a "cue" and an "argument" does not have to be a difference in content (cf. Kruglanski & Thompson, 1999; Stiff, 1986); instead, it is a difference in the role that a variable plays in communicating an evaluation. Whether that variable plays one role or another depends on specific features of the persuasion context.

To illustrate, consider the role that the communicator him or herself plays in persuading an audience. Source characteristics are often presented as peripheral cues, but it is possible for source characteristics to play a number of roles depending on the audience's place on the elaboration continuum.³

First, when people are unlikely to think very deeply about a message, a variable can produce attitude change by acting as a simple cue to persuasion. When a variable plays this role, its influence on persuasion is unmediated by cognitive responses (e.g., Petty et al., 1993). This is the prototypical peripheral route to persuasion, and the evidence already presented in this review has shown how source features like credibility and likability can affect attitudes when people do not think much about the message itself (e.g., Petty et al., 1981, 1983; Wood & Kallgren, 1988).

Second, when elaboration is unconstrained, a variable can affect persuasion by prompting more or less thinking about the message. Typically, when a persuasive variable plays this role in persuasion, it is evidenced by moderating the impact of argument strength on post-message attitudes. Although variables like personal relevance and distraction play this role, plenty of persuasion variables can as well. With respect to source characteristics, features of the communicator can encourage or discourage further elaboration. For example, when elaboration is unconstrained, people's attitudes are affected more by argument strength when the arguments were delivered by an expert (vs. non-expert; Moore, Hausknecht, & Thamodaran, 1986), by a relatively attractive (vs. unattractive) source (Puckett, Petty, Cacioppo, & Fisher, 1983), or by an in-group (vs. out-group) source (Mackie, Worth, & Asuncion, 1990). People also scrutinize the message more when features of the source seem inconsistent like when an unlikeable person is an expert (Ziegler et al., 2002) or when a non-expert says he is totally convinced about an issue (Karmarkar & Tormala, 2010).

There are three roles that variables can play at high levels of elaboration. The first is by acting as a core argument, which is consistent with the central route to persuasion as it has already been outlined. Importantly, though, any aspect of a persuasive communication—even one that commonly acts as a peripheral cue—can be scrutinized for its merits as evidence in favor of the advocated position if it seems relevant to the issue. Consider a communicator's attractiveness, which could serve as compelling evidence if it seems relevant to the topic. In one study, when social image concerns were salient, people had more positive attitudes toward a restaurant when it was endorsed by attractive (vs. unattractive) others, even when they were highly motivated to elaborate. This is because endorser attractiveness acted as a central reason to favor the restaurant. By contrast, when sensory concerns were salient, endorser attractiveness

only affected attitudes under low elaboration conditions, consistent with its role as a peripheral cue when it is irrelevant to the target judgment (Shavitt, Swan, Lowrey, & Wänke, 1994).

At high elaboration, variables can also affect attitudes by biasing people's thoughts. Until this point, elaborating on a message may have seemed to operate fairly objectively: people are persuaded by compelling arguments but not by specious ones. Scads of research, however, has documented cases of information processing biased by goals and expectations (Kunda, 1990). When the content of a persuasive message is not clearly weak or strong (e.g., Chaiken & Maheswaran, 1994) and a piece of information appears before message processing (Erb, Bohner, Schmälzle, & Rank, 1998), that information can bias the recipient to generate primarily favorable or unfavorable thoughts about the topic. That is, an audience can sometimes be motivated to accept a message and thus focus more on its compelling arguments and interpret ambiguous claims favorably. However, an audience could also be motivated to reject a message and thus focus on its faults and interpret ambiguous claims unfavorably. Once again, characteristics of the communicator can serve this role as well by biasing the way an audience processes a message. For example, when an ambiguous message was delivered by a credible source and people were motivated to process it, their thoughts about the message were more favorable than when the same message was delivered by a non-credible source, which ultimately informed their attitudes toward the advocacy (Chaiken & Maheswaran, 1994).

The final high-elaboration process is a relatively recent addition to the ELM and emerged from research on the *self-validation hypothesis* (Briñol & Petty, 2009). Although high elaboration attitude change is mediated by message-related thoughts, this assumes that people trust their own thoughts enough to let them inform overall judgments. Some persuasion variables, however, can prompt people to metacognitively evaluate the validity of their thoughts,

which can heighten or diminish the influence of those thoughts on resulting attitudes. Persuasion variables play this metacognitive validation role when they are salient *after* people have already generated thoughts in response to a message (e.g., Tormala, Briñol, & Petty, 2007). If this happens, and the audience gains confidence in their thoughts, then they arrive at attitudes informed by those thoughts. If, however, the audience comes to doubt their thoughts, then those thoughts become less informative of their final attitudes. Source characteristics can play this validation role when people process and reflect on a persuasive message and *then* learn about the author. This new information can either support their initial thinking if the source turns out to be credible or can call their initial thoughts into question if the source was not credible all along (e.g., Tormala, Briñol, & Petty, 2006).

In sum, this section highlights that the ELM is, in fact, a *multi*-process theory of persuasion and one in which persuasion variables can play any of five distinct roles in influencing attitudes. The power of the model, however, is not in codifying a series of possibilities but instead is its clear predictions for when and how such variables can elicit (or inhibit) attitude change.

Consequences of Elaboration

Because attitudes can change through a variety of mechanisms, two people who both report having the same attitude may have reached that attitude in two very different ways. The first person may have been persuaded by carefully processing cogent arguments, and the other person may have been persuaded simply because a celebrity advocated for that position on the issue. According to the ELM, although these two people may report having the same attitude, the first person's attitude is likely *stronger* than the other person's. Strong attitudes are those that resist influence, remain stable over time, and guide relevant behavior, and greater elaboration

often leads to stronger attitudes (Petty, Haugtvedt, & Smith, 1995). Some evidence, for example, has shown that opinion change via the central route persists more over several days, compared to opinion change via the peripheral route (Haugtvedt & Petty, 1989; Haugtvedt & Strathman, 1990).

Two types of processes help explain why elaboration results in stronger attitudes. First, elaboration strengthens attitudes by affecting the structure of the attitude itself. By building knowledge and strengthening the attitude's ties in memory, the attitude becomes stronger (Petty & Cacioppo, 1986). Second, metacognitive processes can also play a role. When people believe that they have put a lot of thought into an issue, they infer greater commitment to their position, which is associated with attitude strength outcomes such as behaving more consistently with one's opinion or resisting attacking messages (Barden & Petty, 2008; Smith, Fabrigar, MacDougall, & Wiesenthal, 2008).

Alternative Perspectives

The Heuristic-Systematic Model

Although it has generated much research, the ELM is not the only persuasion model, nor is it the only one commonly considered a "dual process" model. The *Heuristic-Systematic Model* (HSM) was also being developed around the same time as the ELM (Chaiken, 1980). From a distance, the ELM and HSM appear quite similar: both provide two general routes through which variables can change a person's attitudes, and both account for people's motivations and ability to process information and the potential for biases to creep into persuasion. Under many conditions, these two models would make nearly identical predictions. Nevertheless, the HSM differs somewhat in how it conceptualizes when people engage in more effortful information

processing and how much the two routes to persuasion can co-occur (for a full review, see Chaiken & Ledgerwood, 2012).

The HSM proposes two distinct modes of processing. The first, which is similar to the ELM's central route, is *systematic processing*, which "involves attempts to thoroughly understand any and all information through careful attention, deep thinking, and intensive reasoning" (Chaiken & Ledgerwood, 2012, p. 247). It is this type of processing that is most likely to result in attitude change based on the cogency of a message's arguments. The other mode, however, which is similar to the ELM's peripheral route, is *heuristic processing*. This type of processing is less cognitively taxing than systematic processing and occurs relatively automatically. Specifically, it operates on simple decision rules ("heuristics") that guide judgment, so surface-level variables like social consensus are more likely to affect attitudes via heuristic processing because of simple rules like "if most people believe it, it must be right" (Darke, Chaiken, Bohner, Einwiller, Erb, & Hazlewood, 1998).

Whereas the ELM hypothesizes a continuum of elaboration that determines how persuasion unfolds, the HSM instead proposes that persuasion processes ultimately depend on a continuum of judgmental confidence. For any given attitude, a person has a degree of confidence in his or her existing judgment ("actual confidence") and a degree of confidence he or she would like to have ("desired confidence"). Each of these points rests along a continuum, and the gap *between* them determines how a person will process information. Essentially, people are motivated to close that gap and reach their desired confidence, and doing so requires heuristic and/or systematic processing. Like other theories in social psychology (e.g., McGuire, 1969), the HSM assumes that people typically aim to form judgments as efficiently as possible (the *least effort principle*). As a result, the model assumes that people will tend to prefer heuristic (vs.

systematic) processing to form judgments, which can often be enough to quickly reach desired confidence. However, when the gulf between actual and desired confidence is quite large, heuristic processing is not enough to close the gap, and systematic processing is required to reach a sufficiently confident judgment. Thus, the *sufficiency principle* is that people strive to strike an optimal balance between holding correct attitudes and expending as little effort as possible. This dynamic is similar to the ELM's proposal that motivation is a key determinant of elaboration. In the HSM, however, variables like personal relevance affect persuasion by influencing actual and/or desired confidence, which drives one's motivation to engage in systematic processing. The HSM also acknowledges that one's ability to think is another pre-requisite to systematic processing.

Although the HSM was initially built on the assumption that people are motivated to form accurate attitudes, the model has grown to encompass biases in the persuasion process, placing special emphasis on three distinct motivations that can guide message processing (Chaiken, Giner-Sorolla, & Chen, 1996). The *accuracy motive* is simply the "desire to hold attitudes and beliefs that are objectively valid" (Chaiken et al., 1996, p. 556).⁴ The *defense motive*, however, is the desire to protect one's core attitudes and beliefs. For example, when people have a vested interest in one side of an issue, they can form attitudes in line with their interest through biased processing (Giner-Sorolla & Chaiken, 1997). Finally, the *impression motive* is the desire to express particular attitudes and beliefs depending on one's social environment. For example, when primed with impression motivations, people who expect to interact with another person engage in biased processing of a relevant message to develop attitudes in line with their partners' attitudes (Chen, Schechter, & Chaiken, 1996).

Whereas the ELM treats biased processing as a relatively high elaboration mechanism⁵, the HSM explicitly proposes that heuristic processes can also be biased. That is, “heuristics may be selectively judged in a way that favors the desired conclusion; or, when more than one heuristic is present, those that favor the desired conclusion may be used in preference to those that do not” (Giner-Sorolla & Chaiken, 1997, p. 85). The evidence for biased heuristic processing tends to focus on people’s (biased) judgments of heuristic information. For example, one study examined how the use of a social consensus heuristic could be biased by a defense motive (Giner-Sorolla & Chaiken, 1997). They presented participants with the result of an opinion poll, which was either consistent or inconsistent with participants’ vested interest. When allowed to evaluate the poll’s reliability, participants evaluated the poll more harshly when it opposed their vested interest, suggesting bias in heuristic processing. It is worth noting, however, that this evidence is based on what seems to be systematic processing of consensus information. That is, participants are asked to provide an evaluation of the opinion poll, which presumably takes some amount of thought. As the ELM proposes, any persuasion variable could operate as a peripheral cue or as a central argument, suggesting that these data could instead demonstrate biased systematic processing of consensus information.

Finally, the feature that most distinguishes the HSM from the ELM is its proposal that two distinct modes of processing—heuristic and systematic—can co-occur.⁶ As a result, the model outlines three possible outcomes of such dual processing. First, if the conclusions suggested by the two modes of processing differ, systematic processing will tend to attenuate the influence of heuristic processing (the *attenuation hypothesis*). For instance, if the source is likeable, heuristic processing would result in message agreement, but if the arguments are incoherent, systematic processing would result in message disagreement. In this case, when

people are motivated to process, argument strength reigns supreme and ultimately informs attitudes (e.g., Chaiken, 1980; Petty et al., 1983). If, however, the conclusions suggested by the two modes are the same, the HSM predicts that heuristic processing would have a direct effect on judgment in addition to the effect of systematic processing (the *additivity hypothesis*). For instance, when the majority of people like something, heuristic processing would result in positive attitudes, and if a message offers compelling reasons to like something, systematic processing would also result in positive attitudes. Under such conditions, when people are sufficiently motivated, both consensus and message-relevant thinking independently contribute to attitudes (Maheswaran & Chaiken, 1991). Finally, the two processing modes can interact so that heuristic processing biases systematic processing. For instance, if the source of a message is highly credible and the message's strength is ambiguous, heuristic processing of the source (i.e., "the expert is probably correct") can guide the systematic processing of the message, biasing the recipient toward accepting the arguments (Chaiken & Maheswaran, 1994).

In sum, the HSM shares a lot in common with the ELM, but their differences lie in the processes presumed to underlie persuasion and the flexibility with which variables are incorporated in the model. For instance, the HSM seems to suggest that some information is "heuristic information" and assumes that this information exerts effects specifically via heuristic processing. That is, at high degrees of motivation and ability, source expertise can shape attitudes because heuristic processing adds to or biases systematic processing. By contrast, the ELM suggests that the same piece of information can play different roles in the persuasion process, so when elaboration is relatively high, information about the source can be elaborated on as a central feature of the communication, bias the direction of one's thoughts, or validate one's thoughts.

The Unimodel

Despite the large literatures informed by the ELM and HSM, some have advocated abandoning the multi-process approach to persuasion altogether. In an effort to achieve greater theoretical parsimony, Kruglanski and Thompson (1999) presented the “unimodel,” which proposed that a single process underlies persuasion. According to this approach, both “cues” and “arguments” are simply types of “evidence,” and as long as the evidence seems relevant, it will change attitudes. The unimodel still assumes that people vary in how much they think about a message but that this is only a quantitative difference that is not accompanied by any qualitatively distinct psychological processes. Kruglanski and Thompson (1999) argued that typical persuasion studies confound the “cue” vs. “argument” distinction with the length of the information. That is, variables that have been treated as “cues” have just been brief, easy-to-process evidence, and “arguments” have just been longer, difficult-to-process evidence. Thus, studies provided as evidence for the unimodel used expanded one-page summaries of the source’s credentials as the manipulation of source expertise alongside equally lengthy message arguments (Kruglanski & Thompson, 1999, Studies 1 – 3). In doing so, they found that extensive source information affected attitudes only under high elaboration conditions, which they suggested was evidence that source information does not act in a qualitatively different way than message arguments do.

It is worth reiterating that the ELM does not suggest that specific types of content are necessarily defined by peripheral or central processes. That is, “source expertise” is not inherently a cue; rather, it can play many different roles in persuasion. In their response to the unimodel, Petty, Wheeler, and Bizer (1999) noted that the ELM accounts for the purely quantitative variance on which the unimodel focuses and that the two approaches to persuasion

are not vastly different. The key disagreement is over whether there are any qualitative differences between low and high elaboration processes. Petty et al. argued that there are and turned to an experiment documented by Petty and Cacioppo (1984) as an illustration. That experiment independently manipulated the number of arguments and the strength of the arguments in a message. Attitudes were affected by the mere number of arguments when elaboration was low, and by the strength of the arguments when elaboration was high. Petty et al. argued that counting arguments and scrutinizing them are qualitatively different processes and not just endpoints on a quantitative continuum. These two different processes result in distinct outcomes even when the evidence itself is identical. That is, nine weak arguments produce more agreement than three weak arguments under low elaboration (counting heuristic), but nine weak arguments produce more *disagreement* than three weak arguments under high elaboration (argument scrutiny). Therefore, despite the elegant promise of a single process model of persuasion, it seems that it is not sufficient to accurately account for attitude change dynamics.

Breadth of Impact

Generalizing Across Cultures

Although the ELM and the HSM were formalized in the 1980s, their influence has persisted for decades and has proven useful across a broad range of persuasion topics. Not only have meta-analyses documented the evidence for key aspects of these models (Cacioppo et al., 1996; Carpenter, 2015; Johnson & Eagly, 1989), but cross-cultural research has obtained results consistent with them in non-Western samples as well (e.g., Aaker & Maheswaran, 2000).

The cross-cultural work, however, has documented some cultural differences in persuasion outcomes, which highlight important factors to consider when applying multi-process persuasion models to new audiences. Although the framework of these models still hold, the

meaning of certain kinds of information can depend on culture, which affects whether a given variable will be persuasive in that context. For example, Aaker and Maheswaran (1997) found that the number of attributes presented in an ad acted as a peripheral cue in Hong Kong, just as it has in the U.S. (Petty & Cacioppo, 1984) because the heuristic that “more arguments implies reliability” is likely to occur in both cultures. By contrast, the influence of social consensus cues may differ by culture because some cultures highly value collectivism and interdependence (e.g., China; Triandis, 1989) and thus treat social consensus information as more diagnostic for informing attitudes. As evidence, whereas prior research on Western samples has shown that social consensus information affects attitudes under low elaboration, but not high elaboration (Maheswaran & Chaiken, 1991), research with Chinese participants showed that consensus information affected attitudes under both low and high elaboration conditions (Aaker & Maheswaran, 1997). Other studies have similarly shown cultural differences in response to specific persuasion variables, including source expertise and statistical vs. anecdotal evidence (Aaker & Sengupta, 2000; Hornikx & Hoeken, 2007; Pornpitakpan & Francis, 2001). Thus, although the multi-process framework generalizes across cultures, specific variables can vary in impact.

Finally, some work has considered how culturally relevant variables guide an audience’s degree of message processing. For example, Tasaki, Kim, and Miller (1999) considered the persuasive effects of a source’s societal status as a function of cultural orientations regarding independent and interdependent self-construal among Japanese and Hawaiian participants. They found more favorable cognitive responses when both the recipient was especially concerned with interdependence and the source was high in status, compared to low status sources and/or concern with independence. This study illustrates how culturally relevant factors correspond with

message processing and with treating source characteristics as the subject of central route attitude change. Relatedly, messages that appeal to a culture's dominant values are often more persuasive than mismatched appeals (Hornikx & O'Keefe, 2009), but initial data suggest that rather than making messages more persuasive per se, appealing to cultural values instead prompts more elaboration on the communication, consistent with other cases of audience-matched appeals (Yang, Luttrell, & Petty, 2013).

Generalizing Across Disciplines

The ELM has also proven valuable across many topics of influence. Each of these applications illustrates how unique aspects of a discipline map onto the various roles that persuasive variables play. The field which has perhaps most applied the ELM has been consumer psychology (see Teeny, Briñol, & Petty, 2017). In these contexts, the multi-process approach provides a framework for how advertisements and other consumer communications influence attitudes toward products and brands, guiding purchasing behavior. As just one early example, Petty, Cacioppo, and Schumann (1983) designed magazine ads for a fictitious razor, featuring an endorser and a set of product attributes. When the ad was made relevant for some participants by telling them that they would be choosing razors to try in the next part of the study and emphasizing that the razor would soon be test marketed in their city, participants' attitudes toward the brand of razors depended on the strength of the attributes but not the endorser's fame. The endorser's celebrity status, however, only affected attitudes toward the brand when the ad was not especially relevant.

Multi-process models of persuasion have also been applied to politics and public opinion (see Hinsenkamp & Petty, 2017). For instance, Kam (2005) found that political awareness corresponded to elaboration likelihood in that lower levels of awareness (i.e., lower motivation to

elaborate) were associated with greater reliance on political party cues. That is, less politically aware individuals based their attitudes more on simple information about which party endorsed a particular position, compared to more politically aware individuals who formed their attitudes on the basis of concerns relevant to the specific issue under consideration.

Although not always considered alongside traditional attitude change models, prejudice is an especially impactful social attitude. Multi-process models of attitude change can thus provide insight into the mechanisms underlying prejudice and its consequences. For example, ambivalence toward minority groups (i.e., having both positive and negative reactions to them) has been associated with greater elaboration on group-related information, leading to a greater influence of argument strength on people's attitudes, consistent with central route persuasion (Maio, Bell, & Esses, 1996; Johnson, Petty, Briñol, & See, 2017). Other relevant work has also shown how self-validation processes (Clark, Wegener, Briñol, & Petty, 2009) and consequences of high elaboration attitude change (Cárdaba, Briñol, & Horcajo, 2014; Wegener, Clark, & Petty, 2006) apply to intergroup attitudes.

There appears to be no shortage of domains to which a multi-process persuasion model would apply. In addition to marketing, politics, and prejudice, connections have been drawn both conceptually and empirically between multi-process persuasion models and sports psychology (Horcajo & Luttrell, 2016), health communication (Bakker, 1999; Jepson & Chaiken, 1990), law (Cooper et al., 1996; Leippe, Eisenstadt, Rauch, & Seib, 2004), substance abuse prevention (Scott, 1996), therapy (Neimeyer, Guy, & Metzler, 1989), and even changes to one's self-esteem (Briñol, Petty, & Wagner, 2009), among other areas. This wide applicability highlights how fundamental attitude change processes are. What can seem like a wide gulf separating marketing and prejudice, for example, is bridged by the common importance of attitudes.

Conclusion

The psychology of persuasion still generates considerable interest even after all these decades since Hovland's first experiments. Following a frenzy of early research that painted an unclear picture of persuasion's many variables, multi-process models like the ELM and HSM have provided a clear framework for understanding when and why people change their opinions. By identifying the psychological processes that mediate the effects of communication on attitudes, these models highlight how the persuasive impact of a variable depends on an audience's motivation and ability to carefully consider the issue. Looking to the future, researchers continue to draw inspiration from these models and add to them by forming intriguing new hypotheses regarding attitude change and the roles that attitudes play in daily life. Recent work, for instance, has revealed intriguing new variables that influence persuasion through various roles, such as social power (Briñol, Petty, Durso, & Rucker, 2017) and embodiment (Briñol, Petty, & Belding, 2017), and innovations in social neuroscience have allowed for a deeper understanding of persuasion's basis in the brain (Cacioppo, Cacioppo, & Petty, 2018; Cunningham & Luttrell, 2015; Falk & Scholz, 2018). This work reflects new advances in persuasion science that highlight the continued interest in this field.

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Notes

¹ These models have typically focused on so-called “explicit” attitudes, which are the attitudes that people consciously endorse. Social psychologists, however, have also examined attitudes using implicit measures that capture people’s automatic evaluations, of which they may not even be aware (Petty, Fazio, & Briñol, 2009). These automatic evaluations can change as well although some have proposed that they do so through unique mechanisms. Approaches to implicit attitude change include the meta-cognitive model of attitudes (Petty, Briñol, & DeMarree, 2007) and the associative-propositional evaluation model (Gawronski & Bodenhausen, 2011).

² Note that the ELM does not specifically identify types of arguments that are inherently “strong” or “weak” but instead contends that a message that evokes predominantly favorable thoughts is “strong” and one that evokes predominantly unfavorable thoughts is “weak” (Petty & Cacioppo, 1986). Thus, the strength of an argument will vary somewhat across individuals and contexts.

³ For a thorough review of persuasion variables and the roles they can play at varying degrees of elaboration, see Petty and Wegener (1998).

⁴ Thinking can still be biased when people are motivated by accuracy. As discussed with the ELM, “biased processing” is anything that nudges a person to think in a particular way when the information itself could just as easily be evaluated in the opposite way. If an ambiguous argument is made by a trusted friend, the recipient may be more likely to interpret the argument positively. Even though this interpretation was biased by the source’s relationship to the recipient, the recipient could have nevertheless been motivated to form an accurate attitude.

⁵ However, Petty and Wegener (1998) do note that bias can occur “via either the central or the peripheral route” (p. 341).

⁶ Although writings on the HSM often consider this a key point of divergence from the ELM (e.g., Chaiken & Ledgerwood, 2012), Petty and Wegener (1998) write of the ELM: “at most points along the [elaboration] continuum, central and peripheral processes would co-occur and jointly influence judgments” and “movement in either direction along the continuum would tend to enhance the *relative* impact of one or the other *process* (e.g., effortful scrutiny for merit versus reliance on a heuristic) on judgments” (p. 328).

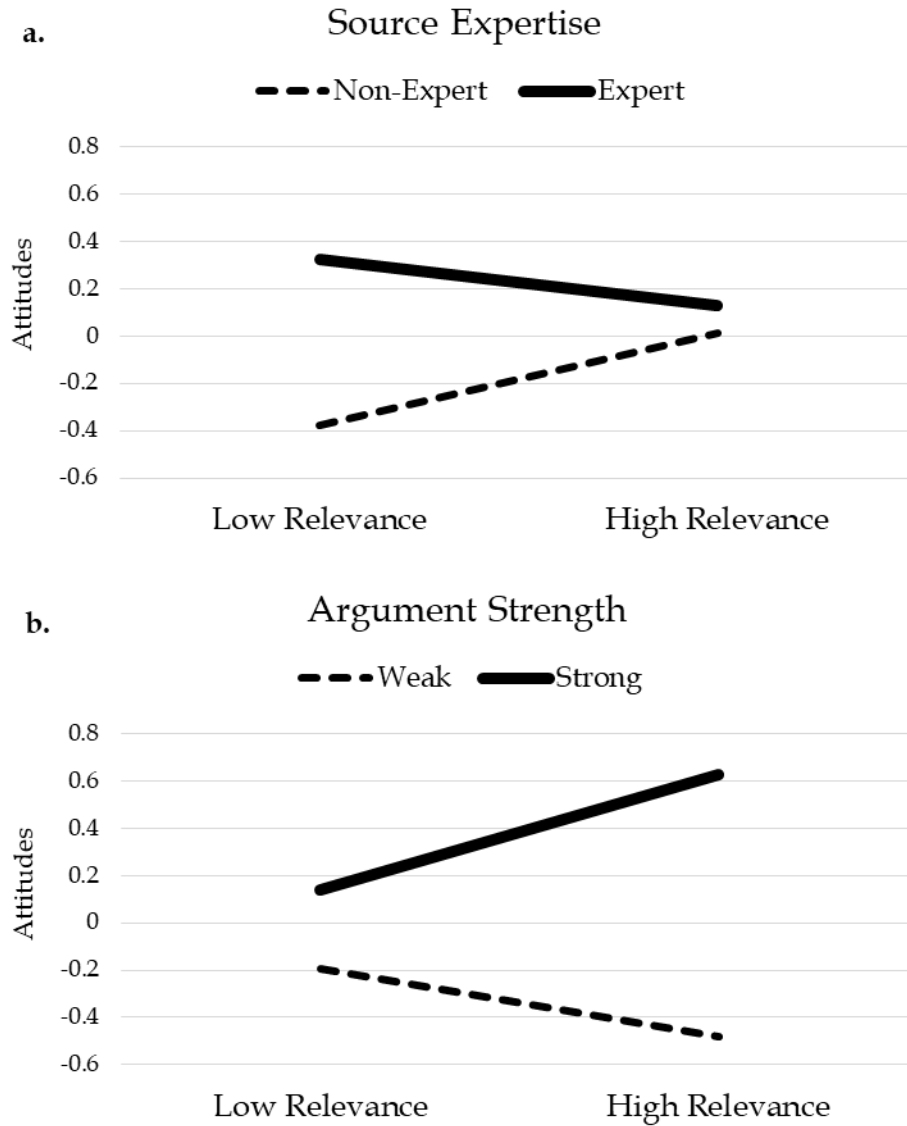


Figure 1. (a) Source expertise guided persuasion more when an audience was less motivated to elaborate on a message because it was made less personally relevant, but (b) argument strength guided persuasion more when an audience was more motivated to elaborate because the topic was made more personally relevant. This figure depicts peripheral route persuasion when relevance is low and central route persuasion when relevance is high. More positive values of attitudes indicates greater agreement with the message. Data for these plots can be found in Petty et al. (1981).

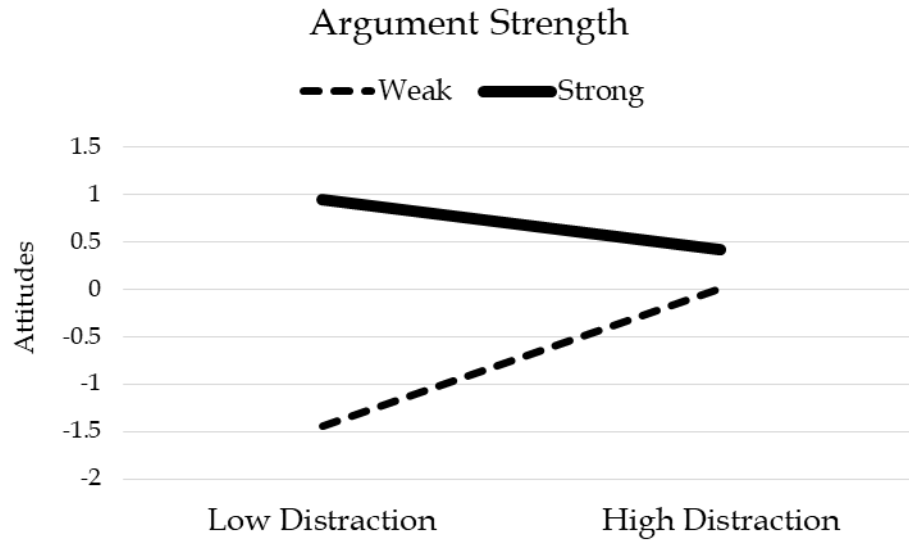


Figure 2. When people were more able to think because a secondary task was relatively less distracting, argument strength guided persuasion more than when the secondary task was more distracting. More positive attitudes reflect greater agreement with the message. Data for this plot can be found in Petty et al. (1976).