
REVIEW

Elaboration and Validation Processes: Implications for Media Attitude Change

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This review describes two core processes involved in understanding how attitudes are structured and changed. Elaboration refers to the extent to which people think carefully or in a more cursory manner about messages and validation refers to the extent to which people see their thoughts and attitudes resulting from messages as correct or not. Elaboration is important for understanding both initial attitude changes that occur as a result of media exposure as well as whether those changes are consequential (e.g., resist change and relate to behavior). Validation processes are important for understanding whether thoughts are relied upon in forming attitudes and whether attitudes are relied upon in determining behavior. Elaboration and validation are related in a number of ways such as when more extensive elaboration of an issue leads to an attitude that is perceived to be valid.

Every year, governments, agencies, and companies spend billions of dollars in attempts to change peoples' attitudes about social policies, political candidates, consumer products, health and safety practices, and charitable causes. The technological advances of the last century have made it possible

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not only for institutional, but also for individual communicators to have constant access to unprecedented numbers of potential message recipients. In most of these instances, the ultimate goal is to influence peoples' behavior so that they will vote for certain politicians or proposals, purchase products, engage in safer activities, or donate money to various causes. The success of media campaigns depends in part on the extent to which transmitted communications are effective in changing the attitudes of the recipients in the desired direction, and also on whether these modified attitudes in turn influence peoples' behaviors over time. Our goal in this review article is to present a brief overview of two critical psychological processes that can be used to understand mass media attitude change.

Specifically, in this review, we describe two core processes that have proven to be highly useful in understanding how attitudes are structured and how they change or resist change over time. We begin with an analysis of the role of *elaboration* processes and then describe the role of *validation* processes. After briefly describing each of these processes, we discuss their interrelationship, including applications of these approaches to understanding attitudes toward a variety of objects ranging from consumer products to people and groups. Understanding attitude formation and change is key to understanding which behaviors people enact and, as we will see, the processes of elaboration and validation are central to understanding the relationship between attitudes and behavior (Petty & Briñol, 2014).

After explicating elaboration and validation processes, we first demonstrate the utility of these concepts by exploring a common persuasion technique—matching the source or the message to the target of influence. To provide an illustration particularly relevant to the study of media psychology, we address how aggressive people playing violent videogames can create a match and thereby influence attitudes and persuasion through these two processes, leading to a variety of paradoxical effects. After this, we outline the importance of considering the concepts of elaboration and validation in order to understand a number of other phenomena related to attitude structure and behavior change.

ELABORATION

Elaboration is a core construct in the Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1986), one of the earliest dual process theories that distinguished thoughtful from non-thoughtful determinants of judgment (see Chaiken & Trope, 1999). Since the introduction of this model there has been an explosion of dual process and dual system theories of potential relevance for understanding attitudes (see Sherman, Gawronski, & Trope, 2014), although much persuasion research remains guided by the ELM. The ELM proposes that attitudes, as well as other judgments, can be

modified by processes that involve relatively high or low amounts of issue or object-relevant thinking or elaboration, but the processes and consequences of persuasion are different depending on the amount of thought involved.¹ Furthermore, the ELM holds that there are numerous specific processes of attitude and belief change that operate along the elaboration continuum. For example, classical conditioning (Staats & Staats, 1958) requires relatively little thought and operates at the low end of the continuum, but expectancy-value models of attitudes (e.g., Fishbein & Ajzen, 1975) require high degrees of thought and operate along the upper end of the continuum. The mental processes that occur along the low end of the continuum are collectively referred to as following the *peripheral route* to persuasion whereas the operation of processes along the high end of the continuum are collectively referred to as following the *central route* to persuasion.

Whether attitude change occurs as the result of relatively high or low amounts of thinking matters not only for determining what attitude is formed, but it also determines how consequential or strong that attitude is (see Petty & Krosnick, 1995, for a review of attitude strength research). The impact of elaboration on attitude change and attitude strength has proven useful not only in the laboratory (Petty & Briñol, 2012), but also in a variety of applied communication contexts, such as advertising (Haugtvedt & Kasmer, 2008; Rucker, Petty, & Priester, 2007), health communication (Briñol, & Petty, 2006; Petty, Barden, & Wheeler, 2009), mass media communication (Petty, Briñol, & Priester, 2009), and social marketing (Rucker, Petty, & Briñol, 2015).

First, consider how elaboration relates to what particular attitude is formed as a result of exposure to a persuasive message. A common finding in research guided by the ELM is that when people think carefully about a communication, their attitudes are influenced by their assessment of the substantive argument provided, but when they are relatively unmotivated or unable to think, attitudes are influenced by simple cues in the persuasion setting that allow for a quick (even automatic) judgment. This is a first testable prediction for media researchers. In one prototypical early study (Petty, Cacioppo, & Goldman, 1981), students were exposed to a communication advocating a new campus policy. The new policy was said to go into effect either next year so that it would affect all of the students or in 10 years when it would affect none of them. The message the students received either contained strong or weak arguments. The source of the message was either portrayed as an expert on the topic or a person of low credibility. The key result was that when the exam proposal was set to take place next year, motivating high thinking, the students were more persuaded by the strong than the weak arguments, but the credibility of the source made no difference. On the other hand, when the exam proposal was not set to take effect for 10 years, reducing motivation to think, all that affected attitudes was the credibility of the source. The merits of the arguments had no effect. This

research suggested that the high and low thinking individuals followed different routes to persuasion. Which attitude was formed (relatively favorable or unfavorable toward the proposal) was affected by which route to persuasion was followed. For example, if a message contained weak arguments but had a highly credible source, individuals who were not thinking much were relatively favorable toward the proposal but individuals who were thinking carefully were relatively unfavorable.

In addition to affecting the extent of attitude change, elaboration is also important in affecting attitude strength. Specifically, the more a judgment is based on thinking, the more it tends to persist over time, resist attempts at change, and perhaps most importantly, have consequences for other judgments and behavior (Petty, Haugtvedt, & Smith, 1995). This is a second testable prediction for media researchers. Prior research clearly indicates that attitudes based on high thought predict behavioral intentions and behavior better than attitudes based on little thought (e.g., Barden & Petty, 2008; Brown, 1974; Cacioppo, Petty, Kao, & Rodriguez, 1986; Leippe & Elkin, 1987; Petty, Cacioppo, & Schumann, 1983). Put simply, the more an attitude change is based on extensive thought, the stronger that attitude is. Thus, even if high and low thinking processes resulted in the same degree of attitude change, the consequences of this influence in terms of stability and further impact on behavior can be different. For example, if people received a message with strong arguments from a credible source, they might be relatively favorable toward it regardless of whether they were engaged in high or low amounts of thinking. But, the change induced via high amounts of thinking about the strong arguments would be more persistent, resistant to change, and predictive of behavior than the same change induced by low thinking (e.g., when the credible source served as a simple positive cue (e.g., see Haugtvedt & Petty, 1992).

As another illustration of the elaboration–strength link, consider how the extent of elaboration can be applied to understanding the long term consequences of changes in prejudiced attitudes. Governments and policy-makers invest millions of dollars in developing effective social marketing campaigns to reduce prejudiced attitudes and discrimination against members of minority groups (e.g., see Maio, Haddock, Watt, & Hewstone, 2009). Importantly, the accumulated work on prejudice formation and reduction has suggested that attitudes toward minority groups can be influenced by a variety of both low and high deliberation processes. On the low thinking end of the continuum are techniques based on *mere exposure* to members of stigmatized groups (Pettigrew & Tropp, 2006) and *classical conditioning* in which stigmatized group members are associated with other positive things (Dovidio, Gaertner, & Kawakami, 2003). Indeed, many contemporary theories of prejudice presumably focused on these subtle and low thought processes of change because modern prejudice itself was thought to be subtle and covert (e.g., Dovidio, 2001). However, low effort processes are

not the only means of modifying prejudiced attitudes. For example, based on the assumption that ignorance promotes prejudice (Stephan & Stephan, 1984), Pettigrew (1998) proposed that learning about others is a critical step in how intergroup contact improves intergroup relations (Allport, 1954). In accord with this view, there are numerous examples of how prejudice can be reduced by attendance at diversity group seminars, and learning new substantive information about other social groups (Rudman, Ashmore, & Gary, 2001).

Taken together, these findings suggest that strategies such as intergroup contact might improve intergroup attitudes compared to no group contact through both low deliberation (e.g., mere exposure) as well as high deliberation (e.g., thinking about and learning new information) processes. As already noted, the ELM predicts that the process by which prejudice is created or transformed is consequential for the strength of the attitude (Petty, Haugtvedt, & Smith 1995).

A recent set of studies demonstrated the importance of considering the concept of elaboration in designing media campaigns to reduce prejudiced attitudes. Specifically, Cárđaba, Briñol, Horcajo, and Petty (2013) presented participants with a persuasive message composed of compelling arguments in favor of a minority group or with a control message, and varied the targets' ability and motivation to think about the message presented. The results showed that even when the obtained attitude change was equivalent under low and high thinking conditions, there were important benefits of high elaboration prejudice reduction; that is, although both high and low thinking processes were associated with a reduction in the extremity of prejudiced attitudes, the reductions in prejudice produced by high thinking processes were more persistent and resistant to subsequent attacks than equivalent changes produced by less thoughtful mechanisms (see also Cárđaba, Briñol, Horcajo, & Petty, 2014). As this research demonstrates, understanding the nature of the processes by which attitudes change is essential because it informs us about the long-term consequences of attitude change.

In sum, the ideas of the ELM outlined in this section (i.e., that attitudes can vary in their extent of thought; that attitudes can be affected with high or low thought; and that the extent of thought relates to how consequential the attitudes are) have applicability not only in media campaigns but also in any situation in which persuasion is desired (e.g., the courtroom). Across the different domains of applicability, attitudes that were modified through relatively thoughtful processes were shown to be more stable, resistant to further change, and predictive of behavior compared to changes induced through less thoughtful means. As noted, this is a concrete, testable prediction that can be examined easily by other media researchers in different contexts.

Given the importance of elaboration in persuasion, a large number of variables have been identified that can influence attitudes by affecting people's general motivation or ability to think about a mass media commu-

nication (see Petty, Briñol, et al., 2009, for a review). For example, distraction in the situation reduces one's ability to process a message so that distraction reduces persuasion if the arguments in a persuasive message are strong (since favorable thoughts are disrupted), but increases persuasion if the arguments are weak (since unfavorable thoughts are disrupted (Petty, Wells, & Brock, 1976). In contrast, repeating a message increases the ability to process it by providing greater opportunities to do so making messages with strong arguments more persuasive but messages with weak arguments less persuasive (Cacioppo & Petty, 1979). With respect to motivation, perhaps the most studied variable is the personal relevance of the communication. By increasing the personal relevance of a message, people can become more motivated to scrutinize the evidence carefully such that if the evidence is found to be strong, more persuasion results, but if the evidence is found to be weak, less persuasion occurs (Petty & Cacioppo, 1979). In fact, linking the message to almost any aspect of the self—such as one's values, one's outcomes, one's self-conception, one's identity, and so forth—can enhance self-relevance and thereby increase the extent of information processing (Fleming and Petty, 2000; Petty & Cacioppo, 1990).

Furthermore, it is worth noting that the very same variable can increase elaboration for some people but decrease elaboration for others. For example, introducing rhetorical questions in a communication can increase elaboration for people with low motivation to process by encouraging them to think about the questions raised, but the addition of questions in a message for people already thinking intently disrupts that elaboration (Petty, Cacioppo, & Heesacker, 1981; Roskos-Ewoldsen, 2003). Similarly, including cartoons, and jokes in a communication can increase elaboration in low thinking conditions but disrupt elaboration in high thinking conditions (Cline & Kellaris, 1999).

In more recent research illustrating this possibility, Cancela, Briñol, and Petty (2014) examined the impact of processing goals in affecting elaboration. In one study, participants were first asked to read the materials either with the goal of having a clear, informative, and accurate view of the issue or with the goal of enjoying and have fun with the experience of reading. This induction was designed to manipulate the particular motivation to process—being informed or having fun. Participants were also assigned to an extent of thinking condition by telling them that they were going to receive a high or low reward for their analysis of the message, respectively. Finally, all participants received either strong or weak arguments in favor of the same proposal and reported their attitudes toward it. As expected, the goal of being entertained (vs. being informed) increased elaboration for low thinking conditions (i.e., larger argument quality effect on attitudes when the entertainment goal vs. information goal was activated), but it reduced elaboration under high thinking conditions (i.e., smaller argument quality effect on attitudes when the entertainment goal vs. information goal was activated).

VALIDATION

As we have seen, people can vary in the extent to which they elaborate on a message—generating relatively many or few thoughts about it. The other critical concept for persuasion that we highlight in this article is validation—determining if one’s thoughts or the attitudes formed are appropriate to rely upon (Petty, Briñol, & Tormala, 2002; Petty & Briñol, 2012). People can validate any accessible mental contents. Unlike elaboration which focuses on primary or first-order cognition (i.e., how many and what thoughts are generated), validation emphasizes secondary or metacognition (Briñol & DeMarree, 2012; Kruglanski, 1989; Petty, Briñol, Tormala, & Wegener, 2007). Most relevant to the domain of persuasion is the notion of *self-validation* (Petty, Briñol, & Tormala, 2002)—the idea that people can have confidence or doubt in the validity of their thoughts and attitudes and these metacognitive reactions determine the extent to which people rely on their thoughts in forming attitudes and their attitudes in guiding behavior. The self-validation approach holds that generating thoughts is not sufficient for them to have an impact on attitudes, but people must also believe their thoughts are correct (cognitive validation) or feel good about them (affective validation). Similarly, having attitudes is not sufficient for behavioral influence. People must believe their attitudes are correct or feel good about them. Thoughts and attitudes that are not perceived as accurate or that are disliked are mentally discarded. Thus, the ELM postulates that a host of familiar variables (such as happiness, source credibility, or stereotypes) can influence judgments and behavior not only by affecting the amount and direction of processing (elaboration; primary cognition) but also by affecting the use of thoughts and attitudes (validation; secondary cognition; see, Briñol & Petty, 2009, for a review of the impact of confidence on thoughts; see Rucker, Tormala, Petty, & Briñol, 2014, for a review of the impact of confidence on attitudes).

In the domain of thought validation, if people are generating favorable thoughts about a new proposal (e.g., because the message arguments are strong), they will be more persuaded if they are nodding their heads (Briñol & Petty, 2003) or sitting up straight (Briñol, Petty, & Wagner, 2009) or feeling happy (Briñol, Petty, & Barden, 2007), powerful (Briñol, Petty, Valle, Rucker, & Becerra, 2007), or self-affirmed (Briñol, Petty, Gallardo, & DeMarree, 2007) than if they are shaking their heads, sitting in a slumped posture, feeling sad, or powerless or unaffirmed because the former variables will make people think that their positive thoughts are correct or make them feel good about their positive thoughts. However, if people are generating unfavorable thoughts (e.g., because message arguments are weak), then these same variables (e.g., nodding one’s head or feeling powerful) will lead to less persuasion because people will have more confidence in or feel better about their negative thoughts and use these in forming their judgments. Thus, self-validation variables interact with the direction of one’s thoughts to influence

judgments. The existence of this interaction between direction of thoughts and the many variables mentioned that can affect self-validation of thoughts (either affectively or cognitively) constitutes another testable hypothesis for media researchers.

In the realm of media campaigns, an important variable that can affect the perceived validity of one's thoughts is the credibility of the communication source. In an initial demonstration of the possibility of validating thoughts through source credibility, Briñol, Petty, and Tormala (2004) exposed participants to strong arguments in favor of the benefits of phosphate detergents. Following receipt of the message, participants learned that the source of the information was either a government consumer agency (high credibility source) or a major phosphate manufacturer (low credibility source). As predicted, participants exposed to the high (vs. low) credibility source had more confidence in their thoughts, relied on them more, and were therefore more persuaded by the proposal. In brief, if people think the information on which their thoughts are based is credible, the thoughts themselves should be credible and used as well.

In a follow-up study, Tormala, Briñol, and Petty (2006) predicted and found that because of the self-validation role for sources, a high credibility source can lead to either more or less persuasion than a low credibility source depending on the nature of people's thoughts in response to the persuasive message. In these experiments, participants were exposed to either a strong or a weak persuasive message promoting *Confrin*, a new pain relief product, and then information about the source was revealed (i.e., the information was said to come either from a federal agency that conducts research on medical products or from a high school class report written by a 14-year-old student). When the message contained strong arguments, high source credibility led to more favorable attitudes than low source credibility because of greater reliance on the positive thoughts generated. However, when the message contained weak arguments and participants generated mostly unfavorable thoughts, the effect of credibility was reversed. That is, high source credibility produced less favorable attitudes than did low source credibility because participants exposed to the more credible source had more confidence in their unfavorable thoughts to the weak message. Next, we discuss some moderators of when source credibility and other variables will serve to validate thoughts.

MODERATORS OF SELF-VALIDATION EFFECTS

In addition to specifying the impact that validation processes have on judgment, the self-validation approach also points to unique moderators useful in specifying the circumstances in which thought confidence is likely to influence judgments. The initial research on self-validation processes doc-

umented two important boundary conditions. First, self-validation is more likely to operate when people are engaged in a relatively high amount of thinking (e.g., when the issue is important or personally relevant there are few distractions; individuals are high in need for cognition; Cacioppo & Petty, 1982). There are at least two reasons for this. First, for validation processes to matter, people need to have some thoughts to validate. Second, people need substantial motivation and ability not only to think at the primary level of cognition (i.e., to generate thoughts) but also to think and care about their own thoughts (Tormala, Falces, Briñol, & Petty, 2007).

Second, the accumulated research suggests that the timing of persuasion variables is one of the critical moderators of primary versus secondary cognitive processes. Consistent with these two moderators; Tormala, Briñol, and Petty (2007) demonstrated that source credibility affected thought confidence only when the source information followed, rather than preceded the persuasive message and only when thinking was high rather than low. When source information preceded the message or thinking was low, source credibility affected attitudes by other processes specified by the ELM. This research illustrates that studies in traditional persuasion settings can benefit from considering the timing of the key manipulations as placement of the independent variable in the sequence of persuasion stimuli can have an impact on the mechanism by which it operates. The same is true regarding the extent of elaboration.

In a recent series of studies testing the application of the self-validation approach to attitudes related to food and using other validation inductions, Briñol, Gascó, Petty, and Horcajo (2013) asked people to write down either positive or negative thoughts about the Mediterranean diet. After doing so, they were asked to take the page on which they wrote their thoughts and place it in a trash can, effectively throwing away their thoughts or they were asked to fold the paper up, and keep it in a safe place such as their pocket, wallet, or purse. After performing one of these actions, all participants were then asked to rate their attitudes regarding the diet. As expected, results indicated that for people who kept their written thoughts close to them, the thoughts had a more pronounced effect on attitudes compared to the impact of thoughts for those who threw them in the trash. A control condition in which thoughts were left on a table showed impact in between the two experimental groups. This research showed that detaching (in this case, literally) from one's negative thoughts can produce more positive evaluations if thoughts are primarily negative presumably by reducing the perceived validity of those thoughts, but the very same treatment can also produce the opposite effect when thoughts are positive.

As a final example of validation processes, consider work on prejudiced attitudes. In most of the social psychological research on the impact of stereotypes, group membership is learned before acquisition of individuating information. When stereotypes precede information processing, research has

shown that stereotypes can influence attitudes in the various ways mentioned earlier including such low elaboration processes as classical conditioning or serving as a heuristic (Bodenhausen, Macrae, & Sherman, 1999) and such high elaboration processes as biasing one's thoughts about a person (Wegener, Clark, & Petty, 2006).

Importantly, learning of someone's group membership after the fact might allow stereotypes to influence perceptions in a different way—by affecting confidence in one's stereotype-consistent thoughts. In two experiments testing this possibility, Clark, Wegener, Briñol, and Petty (2009) gave participants information about a target person followed by a description designed to activate stereotypes. When elaboration was high, greater thought confidence was found when the initial information produced thoughts that were consistent rather than inconsistent with the stereotypes that were later activated, and higher confidence in thoughts was associated with stronger perception-consistent recommendations related to the target. When elaboration was low, however, stereotypes served their familiar heuristic role in judgment, and thought confidence played no role in judgment-related recommendations.

In sum, two of the conditions necessary for validation processes to operate have been specified. As noted, identifying these moderating conditions is important because variables can influence attitudes through multiple processes relevant to primary and secondary cognition. In the next section, we describe some new research relevant to media psychology, and also introduce a third, recently discovered moderating condition of validation.

ELABORATION AND VALIDATION IN TAILORING COMMUNICATIONS

A well-known strategy that can increase the effectiveness of a communication in changing attitudes consists of altering the arguments contained in the message to match a person or group (e.g., using female pronouns in arguments aimed at a particular woman or women in general) or altering the frame of the message to match the particular concerns or identity of the message recipient (e.g., claiming the message is for women if that is the target audience with no change in actual content). Matching at the individual level is often called *personalizing* whereas matching at the group level is often called *targeting*. Although there are some distinctions that can be drawn between the two kinds of matching, we believe that these two strategies share important underlying conceptual similarities. As we describe shortly, the similarities refer to the persuasive effects they produce and the processes (elaboration and validation) through which they operate. Therefore, in this review, we will use the more general term *matching* to refer to any tailoring, personalizing, targeting or customizing of communications

to different aspects of an individual's or group's characteristics, and also to refer to any other type of fit between a person and the persuasive situation. Extensive research has indicated that matching can determine attitude change by invoking one of the standard mechanisms of persuasion (e.g., enhancing elaboration, invoking simple heuristics, self-validation, etc.; for reviews, see, Petty, Wheeler, & Bizer, 2000; Salovey & Wegener, 2003).

One variables that has been studied most with respect to matching a message to recipient characteristics is self-monitoring (Snyder, 1974). High self-monitors are oriented toward social approval whereas low self-monitors are more motivated to be consistent with their internal beliefs and values. Much research on self-monitoring has shown that messages can be made more effective by matching the message to a person's self-monitoring status. For example, in one early study, Snyder and DeBono (1985) exposed high and low self-monitors to advertisements for a variety of products that contained arguments appealing either to the social adjustment function (i.e., describing the social image that consumers could gain from the use of the product) or to the value-expressive function (i.e., presenting content regarding the intrinsic quality of the product). They found that high self-monitors were more influenced by ads with image content than ads with quality content. In contrast, the attitudes of low-self monitors were more vulnerable to messages that made appeals to values or quality.

According to the ELM, matching messages to individual differences in self-monitoring can influence attitudes by processes relevant to elaboration and validation. For example, when people are motivated and able to think, then matching can bias the direction of elaboration (e.g., high self-monitors are more motivated to generate favorable thoughts to messages that make an appeal to image rather than an appeal to values; Lavine & Snyder, 1996). In contrast, when the circumstances constrain the likelihood of elaboration to be very low, a match of message to person is more likely to influence attitudes by serving as a simple cue (e.g., DeBono, 1987) that is, even when the content of the message is not processed carefully, if a source simply asserted that the arguments are consistent with a person's values, a low self-monitor may be more inclined to agree than a high self-monitor by reasoning, "if it links to me or my values, it must be good."

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

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

Matching messages with personality types can influence attitudes not only by affecting elaboration processes of primary cognition but also by influencing metacognitive mechanisms under other circumstances. Thus, not only elaboration but also validation processes are relevant for understanding matching. For example, Evans and Clark (2012) recently showed that thought-confidence increased when the characteristics of the source (credibility vs. attractiveness) matched (vs. mismatched) the characteristic of the recipient (low vs. high self-monitoring). In line with the self-validation logic, high (vs. low) self-monitors relied on their thoughts more when the source was attractive (vs. credible), which increased persuasion for positive thoughts but decreased persuasion for negative thoughts. As noted, this metacognitive role is more likely to occur under relatively high elaboration conditions and when the match is revealed following message processing.

As another example of how a match between the person and the situation can validate thoughts, consider research on violent videogames. First, there is much evidence suggesting that playing violent videogames increases aggressive thoughts and violent behaviors, while reducing positive thoughts and pro social behaviors (e.g., Anderson & Bushman, 2001; Anderson et al., 2010). Second, research on individual differences in aggression has shown that people who score high in trait aggressiveness are more likely to have violent feelings, thoughts, and behaviors compared to those low in trait aggressiveness (Bushman, 1995, 1996; Bushman & Wells, 1998). Furthermore, recent research has demonstrated that individuals who are high in trait aggressiveness are more resistant than their low aggressiveness counterparts when exposed to campaigns designed to reduce consumption of violence in the media (Cárdaba, Briñol, Brändle, & Ruiz-Sanromán, 2014). Given this, how can one influence individuals who are high in trait aggressiveness to consume less violent media?

A self-validation approach begins with the notion that people are likely to have more confidence in their thoughts when they do something that matches or fits their own nature rather than when the actions they engage in do not fit. Thus, thought confidence might be increased if a person high (vs. low) in aggressiveness generated thoughts and then played a violent videogame than a more neutral videogame. In accord with the self-validation logic, it is possible that individual differences in trait aggressiveness and playing violent videogames could interact in predicting reliance on thoughts. Ironically, even though each of these two variables (violent videogames

and trait aggressiveness) has been associated with negative consequences, they could also lead to more positive outcomes when operating through validation.

In one study designed to examine this possibility, Santos, Briñol, Cár-daba, and Petty (2014) first asked participants to read a strong or weak message about a new (fictional) company. This manipulation was designed to influence the favorability of participants' thoughts. After generating positive or negative thoughts toward the company, participants were randomly assigned to play either a violent video game (*Grand Theft Auto: Vice City*) or a control video game (i.e., *Burnout Paradise*; Engelhardt, Bartholow, Kerr, & Bushman, 2011). In order to classify participants in trait aggressiveness, they were asked to complete the Buss-Perry Aggression Questionnaire (Buss & Perry, 1992). Finally, participants reported their attitudes toward the company they read about at the beginning. As predicted, the results showed that when there was a match between the aggressiveness of the person and the aggressiveness of the videogame, participants relied on their thoughts more than when there was a mismatch. That is, in conditions that matched the level of violence (i.e., high trait aggressiveness and violent videogame; low aggressiveness and control, neutral videogame) there was a significant increase in the use of thoughts relative to more discrepant conditions (i.e., high aggressive people playing neutral videogames, and low aggressive people playing violent videogames). Thus, matching the aggressiveness of the person and the situation increased the effect of one's thoughts relative to mismatching those variables. As a consequence of the impact of matching on thought validation, persuasion increased with matching for positive thoughts but decreased for negative thoughts.

There are a number of psychological reasons why people trust and like their thoughts more when there is a match rather than a mismatch. For example, one possibility is that when the situation is matched to the person, people might come to accept their thoughts because their thoughts "feel right" (Cesario, Grant, & Higgins, 2004) or are easier to process (e.g., Lee & Aaker, 2004; Tormala, Petty, & Briñol, 2002). In addition to these two reasons, matching can lead to more thought validation through other processes. For example, highly aggressive people playing violent videogames can feel particularly powerful, and power leads to greater confidence and use of thoughts (Briñol, Petty, Valle, Rucker, & Becerra, 2007).

Among other reasons, these results are important because they reveal that, at least under some circumstances, aggressive people can have very positive attitudes when they play violent videogames. That is, if an anti-violence message was constructed to elicit primarily positive thoughts in highly aggressive people, the research just described predicts that this message would be more effective if followed by playing a violent than a nonviolent video game. As noted, the influence of matching through this metacognitive validation process is particularly likely to occur if the situation is one of high

thinking and the match becomes salient after message processing (Briñol & Petty, 2009). Of course, the very same match between aggressiveness and violence can lead to attitude change through different processes under other circumstances (see Briñol & Petty, 2006; Briñol, Tormala, & Petty, 2014, for reviews of the processes underlying matching effects in persuasion).

In closing this section, it is important to note that recent research has also begun to examine some new moderating variables relevant to the validating effects of matching. For example, in one study (Clark, Wegener, Sawicki, Petty, & Briñol, 2013), participants were either asked to evaluate the message conclusion (as is implicit in most persuasion studies) or the source of the message prior to receiving a message and information about the credibility of the message source. In the former case, the judgment task (i.e., evaluating the message proposal) is irrelevant to the validating variable (source credibility), but in the latter case the judgment task (i.e., evaluating the source) is highly relevant. The message participants received either contained strong or weak arguments for the proposal. When the focus of evaluation was on the message, confidence in thoughts was always greater when the source was high rather than low in credibility replicating prior research (Tormala et al., 2006). However, when focused on the source, confidence and thought use were greater when the quality of the arguments matched (e.g., weak arguments–low credibility) rather than mismatched (e.g., weak arguments–high credibility) the credibility information.

This recent research reveals that the focus of one's processing efforts is a key moderator for understanding when content-dependent versus content-independent effects occur in self-validation. Indeed, these results suggest that a single factor can increase self-validation in one situation, but decrease it in another. As described earlier in this review, sources high in credibility have been found to evoke greater self-validation relative to those who lack credibility (Briñol, Petty, et al., 2004; Tormala et al., 2006, 2007). In the new studies by Clark et al. (2013), the opposite pattern was also observed when the context was different. When participants scrutinized weak arguments in an effort to evaluate a source, greater confidence and attitudes that were more reflective of thoughts emerged when a communicator was low rather than high in credibility. By demonstrating the moderating power of evaluative focus, future research could identify other content-dependent cases of self-validation that may guide the influence of nonsource factors, such as positive mood, feelings of power, and many others.

ELABORATION AND VALIDATION IN IMPLICIT ATTITUDE CHANGE

The two key concepts used to organize this review (elaboration and validation) also serve as a link between the ELM and another model that is

useful for understanding attitudes which focuses on their underlying structure. According to the Meta-Cognitive Model (MCM; Petty & Briñol, 2006; Petty, Briñol, & DeMarree, 2007), attitudes consist of evaluative associations (positive and negative) along with validity tags that can be represented in various ways, such as confidence/doubt. Increased elaboration enhances attitude strength by increasing the strength (accessibility) of object-evaluation associations (Bizer & Krosnick, 2001; Fazio, 1995), and also by increasing the perceived validity of those evaluations (Barden & Petty, 2008; Petty, Haugtvedt, & Smith, 1995). The more valid an evaluation is perceived to be, the more it is likely to persist over time, resist change, and guide behavior. In this way, degree of elaboration links directly to strength of an attitude.

In addition, the MCM explains how different attitude structures and attitude change techniques can lead to different results on implicit (automatic) and explicit (deliberative self-report) measures of attitudes. Briefly described, the MCM holds that automatic evaluative associations only determine explicit attitude measures to the extent that people endorse these associations (i.e., have confidence in or validate these links). However, evaluative associations—whether validated or not—can affect implicit attitude measures (see also, Gawronski & Bodenhausen, 2006); that is, the perceived validity tags tend not to influence implicit/automatic measures of attitudes such as the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) or the evaluative priming measure (Fazio, Sanbonmatsu, Powell, & Kardes, 1986), at least until these tags become so well learned that they are automatically activated.

These two conceptual models (ELM and MCM) have served to shed light on a variety of phenomenon not only relevant to attitude change but also to numerous other judgments, ranging from the study of prejudice to the study of the self, and beyond (Petty & Briñol, 2014). In closing this review, we briefly mention two of those phenomena that have relevance to media communication, implicit ambivalence and indirect automatic change.

First, the MCM argues that although people might not rely on evaluative links that are associated with doubt (i.e., are invalidated) when deliberately responding to explicit attitude measures, those automatic associations can still influence more automatic measures such as the IAT (Greenwald et al., 1998). Thus, in some cases people may have deliberative attitudes that differ from their more automatic reactions, producing what we have called *implicit ambivalence*—a form of evaluative conflict that can be indexed by the degree of discrepancy between explicit and implicit evaluations (see Petty & Briñol, 2009, for a review). In fact, an important contribution of the MCM is the distinction between explicit and implicit forms of ambivalence. Sometimes a person recognizes that both positive and negative evaluations of some object or issue are valid and this person's attitude is best described as being *explicitly ambivalent* because both positive and negative associations come to mind and are endorsed (e.g., de Liver, van der Pligt, &

Wigboldus, 2007; Priester & Petty, 1996). At other times, however, people might have two opposite accessible evaluations come to mind but one is seen as valid whereas the other is rejected. A denied evaluation can be a past attitude (e.g., “I used to like smoking, but now it is disgusting”; Petty, Tormala, Briñol, & Jarvis, 2006) or an association that was never endorsed but nonetheless automatically comes to mind due to one’s culture (e.g., from continuous depictions in the media; Olson & Fazio, 2009). It is in these situations, where implicit and explicit evaluations are different, that implicit ambivalence exists. Even though people do not endorse opposite evaluations of the same attitude object (i.e., they are not explicitly ambivalent) they can nevertheless feel uncomfortable about such attitude objects without knowing the specific source of the conflict (see Petty, Briñol, & Johnson, 2012; Rydell, McConnell, & Mackie, 2008). This discomfort is consequential in that it leads people to more carefully process information associated with the object of their ambivalence (Petty et al., 2006; Briñol, Petty, & Wheeler, 2006). Thus, researchers interested in media persuasion should become cognizant of not only the explicit attitudes held by their targets of influence, but also their implicit reactions (Petty & Briñol, 2010).

Second, just as elaboration can strengthen attitudes at the explicit level by increasing attitude confidence, so too does high thinking lead to strength at the automatic level by making attitudes more accessible, and also by increasing the perceived validity of those evaluations. Furthermore, if attitudes that are based on high elaboration are more highly linked to other relevant material in memory (see, e.g., McGuire, 1981; Tesser, 1978), then these attitudes should be more likely to spill over and influence that related material (see Crano & Chen, 1998). In an initial study testing whether targeted change in one attitude could spill over to related attitudes assessed with an automatic attitude measure, Horcajo, Briñol, and Petty (2014) manipulated the likelihood of thoughtful persuasion by having a strong or weak message endorsed either by a numerical majority or minority of other people. Because people exposed to minority sources often engage in greater message processing than those exposed to majority sources (see Crano & Chen, 1998; Horcajo, Petty, & Briñol, 2010; Moscovici, Mucchi-Faina, & Maass, 1994; Mugni & Pérez, 1991), then change on indirectly linked topics becomes more likely as the implications of the information on the direct topic percolate through the cognitive system (e.g., see McGuire, 1981). In the Horcajo et al. (2013) study, students were first exposed to a message arguing that the official color of their university should be changed to green. Following exposure to the message, instead of assessing attitudes toward the color green (the direct attitude object), automatic attitudes were assessed toward the brand, Heineken—a brand associated with the color green. The results showed that only in the minority source condition were attitudes toward Heineken more favorable as a result of the strong versus the weak message about the color, green. Given that minority sources often foster more thinking than majority sources, these

findings provide preliminary evidence suggesting that even with respect to automatic attitude measures, high thinking processes can be more consequential than low thinking processes (Horcajo, Briñol, & Petty, 2010).

SUMMARY, CONCLUSIONS, AND FUTURE RESEARCH

In this review, we have highlighted two of the key notions of the ELM: elaboration, and its implications for persuasion and attitude strength, along with the concept of validation, and its implications for attitude change and strength. The concept of elaboration distinguishes between processes that require high and low effortful thinking, and highlights the importance of considering the amount and direction of the thoughts in determining attitudes. The concept of validation emphasizes the distinction between primary and secondary cognition, and highlights the importance of considering what people think and feel about their own thoughts and attitudes. Throughout this review, we have provided a number of concrete, testable predictions for media researchers to examine the potential of these two processes for understanding the influence of all kinds of persuasive variables. We argued that researchers in media psychology could benefit from including measures beyond attitude change, such as assessments of objective and subjective elaboration, measures of thought-confidence, indicators of attitude strength (e.g., certainty), and automatic (implicit) as well as deliberative (explicit) measures of attitudes.

Furthermore, we have described a number of moderators relevant to specifying the conditions under which elaboration and validation processes are more likely to operate (e.g., timing of the variable). We have also identified moderating variables that are critical for understanding variations within each of these processes. For example, some variables (e.g., accuracy vs. entertainment goals) are capable of increasing or decreasing elaboration (producing opposite effects on persuasion) as a function of other variables (e.g., personal relevance). Similarly, the same variable (e.g., source credibility) can validate or invalidate thoughts (producing opposite effects in persuasion) as a function of third variables (e.g., content dependence vs. independence). Future research should examine additional potential moderators capable of increasing or decreasing either elaboration or validation as a function of individual, situational, and cultural differences.

The present review also highlighted how variables related to recipients of communications (e.g., individual differences in self-monitoring, trait aggressiveness) and the situation or environment (e.g., playing violent videogames) not only operate separately but also influence attitudes in combination. We described research showing that matching people to situations can affect attitude change by increasing either elaboration or validation depending of the circumstances. Future research should explore when matching

can also decrease elaboration and validation under other conditions. For example, instead of increasing personal relevance, matching could sometimes give people the feeling that they already know enough about a topic and, therefore, reduce (rather than increase) subsequent information processing. Alternatively, the feeling of difficulty and dis-fluency often associated with mismatching might be interpreted under some conditions as a sign of effort and interest and personal relevance increasing the use of thoughts through validation (Briñol, Petty, & Tormala, 2006). Therefore, future research should include measures of the subjective, perceived meaning of the key variables used in media psychology studies.

In the final section of this review, we described a new model of attitude structure (MCM) which postulates that the more confidence people have in the validity of an automatic evaluation, the more they are likely to report it on a deliberative attitude measure. In contrast, when an automatic association is rejected, increasing the doubt in that evaluative link, people are less likely to use it when responding to a deliberative measure. In this way, the MCM has contributed to a new, more comprehensive, understanding of a variety of phenomenon such as ambivalence and indirect attitude change. Future research in the domain of media psychology can benefit from measuring not only explicit but also implicit ambivalence, and by measuring not only direct attitude change but also other potential indirect changes.

It is important to close by noting that sometimes variables can influence elaboration and validation processes without any awareness. At other times, however, people can become aware of some potentially contaminating influence on their thoughts and judgments. To the extent that people become aware of a possible bias and want to correct for it, they can take steps to debias their judgments. According to the Flexible Correction Model (FCM) of debiasing; (Wegener & Petty, 1997), to the extent that people become aware of a potential contaminating factor and are motivated and able to correct for it, they consult their intuitive theory of the direction and magnitude of the bias, and adjust their judgment accordingly. Therefore, it might be also useful to assess perceptions of potential biases in future studies of attitude change in the domain of media psychology.

NOTE

1. Strictly speaking, elaboration refers to thinking in which the person adds something of their own to the information provided (Petty & Cacioppo, 1986). Since in practice, nearly all thinking involves some elaboration, we use the terms interchangeably.

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