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A Process Approach to Influencing Attitudes and Changing Behavior

Revisiting Classic Findings in Persuasion and Popular Interventions

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Introduction

Many psychological interventions designed to improve people's lives rely on attempts to form or change peoples' beliefs and attitudes in a desired direction (e.g., I am a good fit for this school, I like eating a healthy diet) so that these beliefs and attitudes will be capable of influencing relevant behaviors (e.g., staying in school, eating more vegetables). In this review, we rely on the *elaboration likelihood model of persuasion* (ELM) (Petty & Cacioppo, 1986; Petty & Briñol, 2012) as a conceptual framework for understanding how to produce beliefs and attitudes that will have important consequences. Although the ELM identifies five core psychological processes by which variables can influence judgments, in this review we focus on two of those processes that have proven particularly useful in producing judgments that are consequential.

One important insight from the ELM is that people's judgments can be changed by relatively low or high thought processes, and that high thought processes are more likely to produce impactful judgments. Thus, it is important to understand what variables are effective in producing high amounts of elaboration regarding an influence attempt. Second, when thinking is already high, research shows that it not only matters what people's thoughts are (i.e., whether they are favorable or unfavorable toward the advocacy), but what people think about their thoughts (Briñol & Petty, 2009). Thus, in addition to discussing elaboration processes, we focus on thought validation processes.

Throughout our review, we include suggestions useful for designing practical interventions that take into consideration these psychological processes. Although many studies are guided by the ELM, the ones we have chosen illustrate how to produce consequential judgments (i.e., persistent over time,

resistant to change, and impactful on behavior; Krosnick & Petty, 1995). We do not focus on changes based on low thought processes, such as those that stem from reliance on simple heuristics. Such changes, though sometimes equal in magnitude to high thought changes in the short term, are not as consequential (see Petty, Haugtvedt, & Smith, 1995).

Elaboration

As noted, the ELM distinguishes relatively thoughtful from non-thoughtful processes of belief and attitude change and holds that variables (e.g., source credibility, a person's mood) can influence judgments by affecting one of five core processes. These core processes are (1) serving as a simple cue, (2) serving as a persuasive argument, (3) biasing thinking, (4) validating thinking, and (5) determining the extent of thinking.

A focus on thinking (elaboration) highlights the importance of considering the amount and direction of people's thoughts in response to persuasive attempts. One of the most studied variables affecting the degree of message elaboration is the personal relevance of the communication (Petty & Cacioppo, 1979). The importance of personal relevance has also been highlighted among researchers and practitioners who have recommended increasing personal involvement to make applied programs more successful (e.g., Bryan, Walton, Rogers, & Dweck, 2011; Cohen & Andrade, 2018; Walton & Wilson, 2018; Harackiewicz, Rozek, Hulleman, & Hyde, 2012). However, by focusing on the process by which involvement helps persuasion to succeed (i.e., elaboration) we demonstrate that involvement can either be good or bad for persuasion (i.e., produce change in the desired direction or not). According to the ELM, when the personal relevance of a message is high, people scrutinize the evidence more carefully than when it is low. This results in higher personal relevance being associated with more favorable thoughts and attitudes when the message arguments are strong and compelling, but with more unfavorable thoughts and attitudes when the arguments are weak and specious (Petty & Cacioppo, 1990).

In one prototypical early study illustrating this point, Petty, Cacioppo, and Schumann (1983) varied participants' interest in an advertisement for the "Edge razor" by informing them that they would receive a razor (high relevance) or a tube of toothpaste (low relevance) for participating in the experiment. Subsequently, participants were exposed to a razor advertisement containing either strong arguments (e.g., "In direct comparison tests, the Edge blade gave twice as many close shaves as its nearest competitor") or weak ones (e.g., "In direct comparison tests, the Edge blade gave no more nicks or cuts than its competition"). In addition to argument quality, this study varied whether the two endorsers featured in the ad were famous athletes or ordinary people. The results revealed a larger argument quality effect on attitudes (i.e., more persuasion for the strong than weak arguments) when the razor advertisement was

high as opposed to low in personal relevance. However, the simple cue of endorser attractiveness had a larger impact on attitudes when the ad was of low rather than high personal relevance (see also Haugtvedt, Petty, & Cacioppo, 1992).

Processing arguments mattered more when relevance was high, but the simple source cue mattered more when relevance was low. Does it matter which kind of persuasion was produced? In addition to measuring attitudes toward the razor, participants were also asked about their likelihood of purchasing the razor the next time they needed one. Under high relevance conditions, not only did argument quality affect attitudes, but it also affected purchase intentions. In stark contrast, under low relevance, although positive endorsers produced more favorable product attitudes than neutral endorsers, these positive endorsers failed to produce more favorable purchase intentions. Positive attitudes failed to translate into behavior in the low relevance condition. This result is also demonstrated in the finding that people's product attitudes predicted their intentions less strongly in the low than in the high relevance conditions. In short, the greater thinking involved in changing attitudes under high than low relevance also led those attitudes to be more consequential.

Why were the attitudes formed under high thinking more consequential than those formed under low thinking? Subsequent research has pointed to at least two benefits of high thinking. First, when thinking is high, people tend to access their attitudes as they update them with each new argument processed. This updating leads high-thought attitudes to be more readily accessible when the attitude object is encountered (Tormala & Petty, 2001). The more likely attitudes are to come to mind quickly and spontaneously, the more people can use them to guide their behavior (Fazio, 1990). Second, attitudes based on high thought are held with more confidence than those based on little thought (Barden & Petty, 2008). When people are deciding what to do, they are more likely to act on an attitude if they are sure it is correct than if they are not (e.g., Rucker & Petty, 2004).

Elaboration and Intentions to Use Doping Substances

As explained, 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 also how consequential or strong that attitude is over time (Petty & Krosnick, 1995). The more a judgment is based on thinking, the more it tends to persist over time, resist attempts at change, and have consequences for other judgments and behavior (Petty et al., 1995).

In a recent illustration of the elaboration-strength link in an applied context, Horcajo and Luttrell (2016) showed that influencing athletes' attitudes about doping through a high (vs. low) elaboration process made the newly-formed attitudes more predictive of behavioral intentions and more resistant to

subsequent attacking messages. The participants in this study were all Spanish soccer players from registered teams. Elaboration was manipulated by varying personal involvement. In the high elaboration condition, the athletes were told that the legalization of doping proposal was being analyzed by the Fédération Internationale de Football Association (FIFA) and that legalization could be implemented in soccer rules the next season. Participants in the low elaboration condition were told that it was being analyzed by a relatively less powerful organization, the (fictional) World Anti-Doping Agency (WADA), and that legalization could be implemented only in other sports (cycling and athletics) in ten years.

Following this manipulation, participants received a persuasive message that presented strong arguments either against, or in favour of, the legalization of doping. These strong messages also included some peripheral cues (e.g., credible sources, a large number of arguments), which can lead to persuasion, even when people do not think carefully about the arguments. After participants read the first message, they reported their attitudes and behavioral intentions regarding the legalization proposal.

Next, all participants received a second message that argued for the opposite conclusion as the first message. Thus, someone who first received a strong message arguing in favor of legalization would receive a message arguing against that proposal, and vice versa. Attitudes toward the legalization proposal were then assessed again. In accord with the ELM predictions, participants showed greater attitude-consistent intentions when they formed their initial attitudes through thoughtful (vs. non-thoughtful) consideration of the first message (i.e., in the high vs. low relevance conditions). Moreover, there was also more resistance to the subsequent attacking message when participants formed their initial attitudes through a thoughtful vs. non-thoughtful process.

Elaboration and Prejudiced Attitudes

As another illustration of the elaboration–attitude strength link, consider the modification of prejudiced attitudes. In two studies, Cárdaba, Briñol, Horcajo, and Petty (2014) presented participants with a persuasive message composed of compelling arguments in favor of a minority group or a control message in favor of vegetables. In one study, the degree of elaboration was measured by asking people how much they had thought about the message and in a second study, motivation and ability to think about the message were manipulated by framing the message as personally relevant or not and by presenting a distraction task along with the message or not which would impair participants' ability to process the message. The relevance and distraction inductions were combined in a compatible way to create the high- and the low-thinking conditions.

Following the message, one study assessed the perceived strength of participants' attitudes (i.e., how much they believed their attitudes would change in

the future) and the other study measured actual resistance to a subsequent attacking message. The results showed that even though the obtained attitude change to the first message (vs. control) was equivalent under low- and high-thinking conditions, the attitudes were stronger when thinking was high; participants not only rated their attitudes toward the minority group as less likely to change, but they were also more resistant to an actual attacking message. As this research demonstrates, understanding the nature of the processes by which attitudes change is essential because it is informative about the consequences of persuasion (see also Cárdaba, et al., 2014; Wegener, Clark, & Petty, 2006).

Elaboration and Personal Involvement Revisited

As described, prior research suggests that making a persuasive message more self-relevant by linking the advocacy to one's values, outcomes, or identity, can enhance information processing (Petty & Cacioppo, 1990; Fleming and Petty, 2000). When relevance is high versus low, people become more persuaded if the evidence is found to be strong, but if the evidence is found to be weak, less persuasion occurs with high relevance. It is important to highlight this fact because intervention programs typically recommend increasing personal relevance to enhance effectiveness (e.g., Bryan et al., 2011; Cohen & Andrade, 2018; Galton & Wilson, 2018; Harackiewicz, et al., 2012; Hulleman, Kosovich, Baron, & Daniel, 2017). However, as described, personal involvement increases elaboration leading to more persuasion for strong arguments, but to *reduced* persuasion if the arguments presented are specious.

Since these initial demonstrations of an interaction between personal involvement and argument quality on attitudes, this outcome has been replicated many times by independent labs using a variety of materials and inductions (see Carpenter, 2015). Notably, in all of this prior work, to form an accurate opinion, message recipients were plausibly motivated by their desire to learn about the issue advocated. Indeed, one of the major motivations that governs human thought and action is the *need to know*. Gaining accurate knowledge is the typical or default goal orientation assumed by contemporary persuasion theories such as the ELM (see also Chaiken, Liberman, & Eagly, 1989).

Importantly, in some recent research on personal involvement, researchers compared the motivation to gain knowledge to an alternative one in which people aim to process information to be entertained – a *hedonic* rather than an *epistemic* goal. The goal of seeking entertainment is an important motivation within communications (e.g., see Slater, 2002; Zillman & Bryant, 2002; Bridges & Florsheim, 2008). In fact, some authors have considered the hedonic mindset as one of the most predominant precursors of communication processing strategies (Bartsch & Schneider, 2014; Green, Brock, & Kaufman, 2004). When people have hedonic goals, they look to become transported into fictional characters, moving focus away from themselves (Green, 2006) and identifying with

other people in a story, real or imagined (Cohen, 2001). Within social psychology, hedonic goals have also received recent attention (Wilson, Westgate, Buttrick, & Gilbert, in press). Thinking for pleasure with the deliberate intention of having fun has been found to be difficult, requiring more concentration than other kinds of thinking (e.g., for epistemic goals) and more concentration than engaging in certain external activities (e.g., playing a video game; Wilson, et al., 2014).

So, what would the impact of personal relevance be on information processing if people had a hedonic rather than an epistemic goal prior to receipt of a persuasive message? We hypothesized that people having an explicit knowledge goal would elaborate more under high vs. low involvement conditions; the typical effect observed in the prior literature. In contrast, people having a hedonic goal would elaborate less under high vs. low involvement conditions. Furthermore, consistent with the *elaboration-strength* notion of the ELM, conditions fostering greater elaboration were predicted to produce attitudes that were stronger and more predictive of behavioral intentions.

In a study examining this idea (Cancela, Briñol, & Petty, 2019), participants were informed that they would take part in a mass media study and were then given one of two goals. In the *epistemic goal* condition, participants read: "The goal of this editorial is for people to learn and have an informative and knowledgeable experience." This goal likely comports with the default goal in most persuasion studies. In the *hedonic goal* condition, participants read: "The goal of this editorial is for people to enjoy the experience and have a pleasurable and fun experience." This induction was pretested to produce the intended goal. Next, personal involvement was manipulated by framing the communication as high or low in personal relevance. In the high involvement condition, participants were told the message had to do with their self-concept. In the low involvement condition, they were simply told the topic of the message (Briñol, Petty, & Wheeler, 2006). Then, participants received a persuasive message composed of either strong or weak arguments about consuming more vegetables. Finally, participants completed the dependent measures – attitudes and behavioral intentions toward vegetables.

The study's results revealed that information processing goals and personal involvement interacted as predicted to affect elaboration and persuasion (see Figure 5.1). Increasing personal involvement increased information processing (and argument quality effects on attitudes) over low involvement when people had epistemic goals (see top panel, Figure 5.1). The reverse was true when people had hedonic goals (see bottom panel, Figure 5.1). Furthermore, conditions with greater elaboration produced attitudes that were more predictive of behavioral intentions than conditions with lower elaboration (see Figure 5.2).

This research has important implications for practical interventions. The research indicates that people can be motivated to think in different ways when they are in different contexts. For example, in educational contexts, teachers

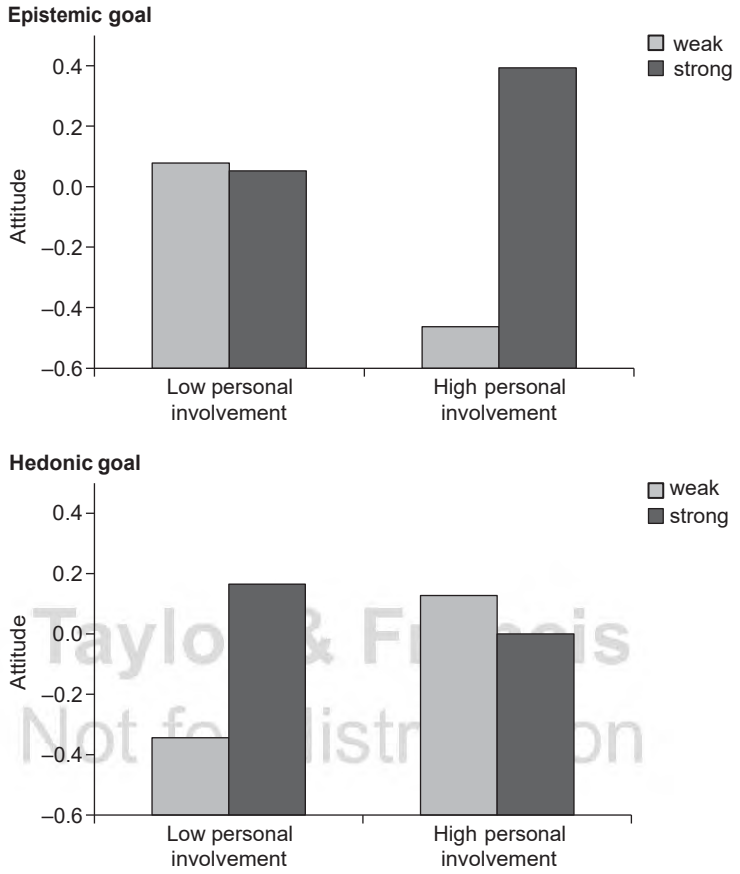

figure 5.1 Interaction between personal involvement and argument quality as a function of epistemic goals (top panel) and hedonic goals (bottom panel) (adapted from Cancela, Briñol, & Petty, 2019).

could increase students' motivation by making the communication more personally relevant for them. Similarly, because patients usually come to a doctor's office in a high personal involvement circumstance, the doctor is better off using strong arguments in an epistemic rather than an entertainment appeal. Also, in these examples, making the communication more personally relevant would translate into stronger attitudes in guiding behavior as the arguments would receive greater elaboration and thus, would be translated into better adherence, healthier behaviors, better grades, and so forth (see also Higgins, Cesario, Hagiwara, Spiegel, & Pittman, 2010).

Although this advice fits with conventional wisdom, the research we reviewed also points to clear limits of invariably making communications more personally relevant. The research by Cancela and colleagues (2019) is noteworthy in its

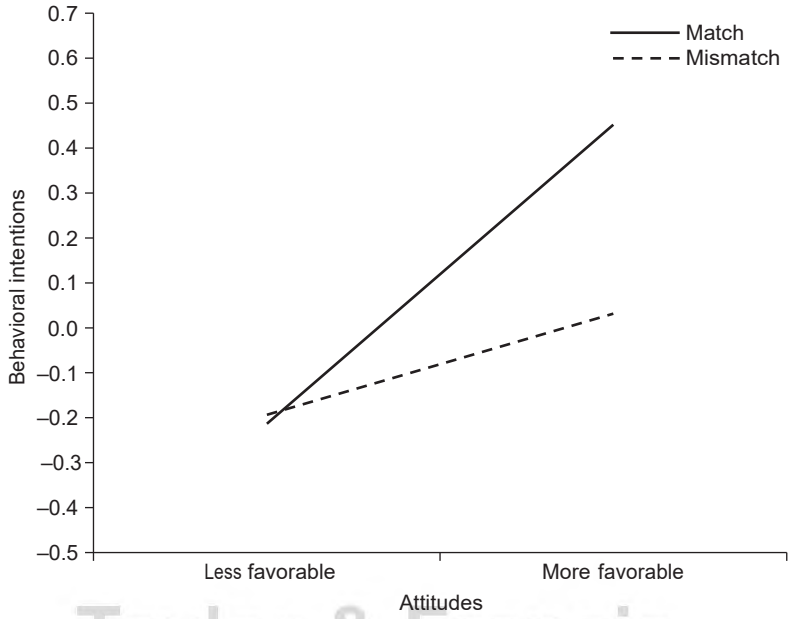

figure 5.2 A match between goal orientation and involvement (i.e., epistemic orientation and high personal involvement and hedonic orientation and low personal involvement) led attitudes to be more predictive of behavioral intentions than a mismatch between goal orientation and involvement (i.e., epistemic orientation and low personal involvement and hedonic orientation and high personal involvement) (adapted from Cancela, Briñol, & Petty, 2019).

implications for people processing communications in the context of entertainment programs. Whereas past research might have led practitioners to think that communications always should be high in self-relevance to maximize thinking, the research we reviewed suggests that this is more likely to be an effective strategy for messages embedded in a news program than an entertainment program (see also Wilson et al., in press). Indeed, in the latter case, increasing personal involvement might even be counterproductive if people maintain their hedonic orientation during the message.

Summary

In sum, the core elaboration idea from the ELM appears applicable to topics as diverse as attitudes toward doping, prejudice toward minority groups, and views about healthy eating (e.g., vegetables, see also Papies, this volume). Across these and other domains, attitudes that came about through relatively thoughtful processes were more resistant to change, as well as particularly impactful on

behavioral intentions. However, as demonstrated, simply having attitudes is not sufficient for behavioral influence. Those attitudes must come to mind and when they do, people must have confidence in them (Rucker, Tormala, Petty, & Briñol, 2014), two outcomes of high elaboration. The persuasion research we describe in the next section demonstrates that for thoughts to affect attitudes and behaviors, they should also be perceived as valid.

Validation

The process of validation highlights the distinction between primary and secondary cognition, and emphasizes the importance of considering what people think and feel about their thoughts. As in our discussion of elaboration, we explain that variables that are sometimes seen as invariably good for persuasion (e.g., making people feel confident via empowerment; see Burgmer & Englich, 2012; Hertwig & Grüne-Yanoff, 2017; Lammers, Dubois, Rucker, & Galinsky, 2013; Pratto, 2016), are not always good for producing change. Also, greater confidence in thoughts does not imply that thoughts are any more accurate or unbiased (see Fiedler, this volume; Kovera, this volume; Mikulincer & Shaver, this volume).

We have seen that one way in which interventions can change behavior is by creating strong attitudes through high elaboration. Another way is to produce confident thoughts via validation. The ELM holds that variables not only affect the extent of elaboration but can also influence what people think and feel about the thoughts they have generated. These meta-cognitions can then determine the extent to which people use their thoughts in forming judgments to ultimately guide their behavior. This general notion of people's reactions to their own thoughts determining their use is referred to as the *self-validation hypothesis* (Petty, Briñol, & Tormala, 2002), whose key tenet is that merely having favorable thoughts stemming from high elaboration is not sufficient to predict subsequent judgments and behavior. Rather, people must also perceive their thoughts as valid. Thus, any variables that increase perceptions of thought validity will increase use of thoughts in forming evaluations and guiding actions. In contrast, perceiving thoughts as invalid attenuates their use.

Unlike elaboration, which focuses on first-order cognition (e.g., vegetables are nutritious), validation emphasizes secondary or meta-cognition (e.g., I am sure that vegetables are nutritious). Given its meta-cognitive nature, validation requires relatively high thinking. Petty and colleagues (2002) demonstrated that self-validation is more likely to operate when people have the motivation and ability to think about their thoughts (e.g., if participants are high in need for cognition; Cacioppo & Petty, 1982; when there is high personal relevance of the persuasion topic; Petty & Cacioppo, 1979). Thus, for validation processes to matter, people need to have some thoughts to validate, and also to be motivated and able to consider thought validity. Another boundary condition on the

operation of validation processes is that confidence from the validating variable should be salient during or following thought generation rather than prior to it.

In an early study examining self-validation, Briñol and Petty (2003) had participants nod or shake their heads while listening to a message containing strong or weak arguments advocating that students be required to carry personal identification cards on their campus. Head movements were varied because nodding one's head is associated with more confidence in what one is thinking than is shaking. Thus, when people listened through headphones to strong advocacy arguments, vertical head movements led to more favorable attitudes than horizontal movements. This is the effect expected if vertical movements increased confidence in and use of one's favorable thoughts. However, when people listened to weak arguments, vertical movements led to less favorable attitudes than horizontal movements – the result that would be expected if vertical movements increased confidence in and use of one's negative thoughts. These results were obtained in conditions that fostered high motivation and ability to think, and when head movements were performed during the generation of thoughts. Furthermore, the attitude changes resulting from head nodding were mediated by perceptions of thought confidence.

Although prior research had shown that head movements during a message could affect attitudes (Wells & Petty, 1980), the study just described was the first to show that the mechanism responsible for attitude change was self-validation. This is because unlike the prior research, which had used only strong arguments and showed a positive effect of head nodding versus shaking on attitudes, the more recent study showed that head nodding could also reduce persuasion if thoughts to the message were negative (see also Briñol, DeMarree, & Petty, 2015; Wichman et al., 2010).

Embodied Validation Influences Sport Performance

To illustrate the potential applications of self-validation processes, in a recent experiment on sport performance (Horcajo, Paredes, Higuero, Briñol, & Petty, 2019), cross fit athletes were recruited for an experiment while practicing at the gym. The athletes were randomly assigned to generate and then record on a smartphone either positive or negative statements about themselves. We relied on this thought-direction induction because extensive research has found that what athletes say to themselves through self-talk can influence their performance (e.g., Tod, Hardy, & Oliver, 2011; Van Raalte, Vincent, & Brewer, 2016). Meta-analyses of this literature have documented the robustness of this positive effect of self-talk (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011; Tod, Edwards, McGuigan, & Lovell, 2015).

We predicted a self-validation framework could specify when and why self-statements can influence physical performance. Athletes were randomly assigned to a validating induction (nodding or shaking their heads) while listening over

headphones to the self-statements they had recorded. Finally, after listening to the self-statements, physical performance was assessed in various tasks (e.g., vertical jump). Consistent with the self-validation hypothesis, athletes' self-statements were significantly more impactful on their physical performance in the head nodding than in the head shaking condition. As illustrated in Figure 5.3, listening to positive self-statements while nodding increased physical performance relative to shaking. However, listening to negative self-statements while nodding reduced performance relative to shaking. Thus, this study showed that bodily movements can either magnify or attenuate the impact of what people say to themselves. As noted, this self-validation effect is most likely when conditions foster thinking and the validation variable comes during or after thought generation. If the head movements had occurred prior to generating self-statements, other processes would be more likely to occur (e.g., head movements could have affected the amount and direction of the thoughts that came to mind; see Briñol, Petty, & Hinsenkamp, 2018).

Also relevant, given that the cover story used in this study (i.e., testing the use of headphones at the gym) aimed to hide the connection between head movements and subsequent physical performance, an important matter to consider for applied interventions in this and other domains is whether head movements could also be used to *intentionally* produce changes in performance. Indeed, people not only use their self-talk to intentionally improve their own performance, but they also use their non-verbal behavior to deliberately influence their own performance or the performance of others (e.g., when an audience smiles or cheers for their team). However, it remains to be seen if people

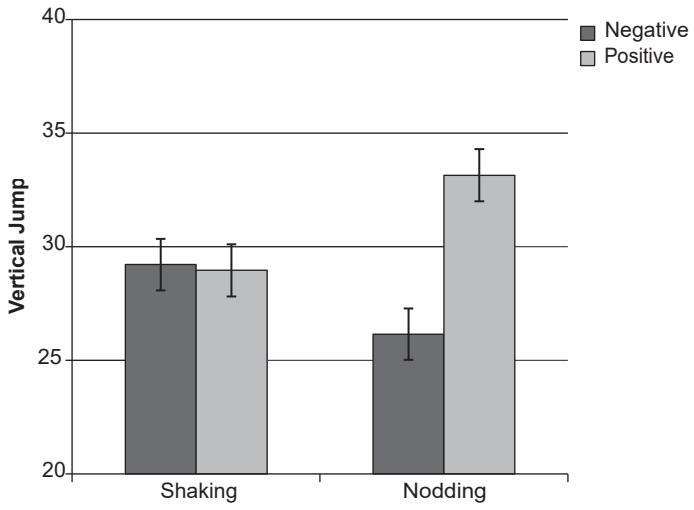

figure 5.3 Vertical jump (in centimeters) as a function of self-talk and head movements (adapted from Horcajo et al., 2019).

can use their own nodding and shaking head movements to deliberately improve their performance by intentionally validating their thoughts. Thus, future research should examine to what extent the findings of Horcajo and colleagues (2019) can be generalized to interventions including intentional overt behaviors performed with the explicit goal of improving performance (see also Koole, this volume).

Validation Increases Goal-Behavior Correspondence

We have reviewed how variables associated with validity (head nodding) can validate mental constructs (thoughts from self-talk) affecting behavior (sport performance). We now focus on how other variables associated with validity (felt power, ease of recall) can influence behavior (e.g., academic performance, donations). Across three experiments, we manipulated participants' sense of power, the ease with which goal-relevant behavior was recalled, and an episodic recall of participants' own past experiences of confidence versus doubt to examine whether these variables affected subsequent behavior via thought validation.

In one study, DeMarree et al. (2012) examined whether felt power could validate people's goals of competition versus cooperation. Participants were first primed with words related to competition (e.g., compete, win) or cooperation (e.g., help, share), using a word completion task (i.e., filling in the missing letters of words). Following this, participants wrote about times when they had power over someone else or when someone else had power over them. Finally, they engaged in simulated economic games where they had an opportunity to share money with another participant. Consistent with the idea that power produces confidence (and powerlessness produces doubt; see Briñol, Petty, Valle et al., 2007), the primed goal affected participants' behavior in the economic games to a greater extent when they subsequently wrote about high power. Specifically, in the high versus low power conditions, cooperation-primed participants gave more money to their partner in the economic games than did competition-primed participants.

A second study by DeMarree et al. (2012) used a new prime to vary initial cognitions, a different variable to induce validity, and also a new behavioral-dependent measure. In this study, an achievement goal was first primed in all participants by having them recall past instances of achievement striving. The number of examples recalled served as a manipulation of participants' subjective ease of retrieval (Schwarz et al., 1991). Participants were randomly assigned to recall few (easy) or many (difficult) achievement memories. Research on self-validation had demonstrated that ease of thought retrieval affects confidence in the recalled content (Tormala, Petty, & Briñol, 2002; Tormala, Falces, Briñol, & Petty, 2007). Therefore, ease was the validating variable in this study. After completing the ease induction, all participants completed a series of difficult

anagram items and were given a chance to raise their score on the task by completing additional, easy, items. The amount of time spent on the second anagram task served as the behavioral measure of achievement striving. In line with self-validation predictions, the achievement goal initially primed had a larger effect on task persistence when people associated the primes with the experience of ease (confidence) vs. difficulty (doubt).

In a third experiment, DeMarree et al. (2012) primed participants with a self-improvement or a money saving goal immediately prior to having them reflect on times when they experienced confidence or doubt. After the priming and confidence inductions, participants' intentions to donate to charity were recorded and served as the main dependent measure. Consistent with self-validation logic, participants who articulated past instances of confidence relied on the primed goal more than those who reflected upon instances of doubt. Specifically, confident participants in the self-improvement condition were willing to donate more than twice as much money ($13.00) as people in the confident saving money condition ($5.28). In the doubt conditions, no significant priming effects emerged. Taken together, this research on goal validation reveals that the extent to which prime-related mental contents are viewed as valid can determine whether a primed concept influences motivated behavior.

Power Validates Ambivalence Leading to Inaction

As described, power can influence behavior through validation processes. In a recent review, we have shown that a wide variety of power inductions can magnify the impact of any current thoughts via the self-validation process (Briñol, Petty, Durso, & Rucker, 2017). But, as noted, for power to influence judgment via a self-validation mechanism, elaboration must be sufficiently high for individuals to generate thoughts and to consider their validity. Second, power inductions are more likely to influence judgments by self-validation when the induction accompanies or follows the generation of thoughts rather than precedes it. According to the ELM, power serves in other roles when elaboration is not high or the feeling of power precedes the message (Briñol et al., 2017).

Given that the validation effect that emerges from power can be applied to any cognition, an interesting issue is whether power can also validate ambivalence. This is interesting because past research suggests that more power generally leads people to be more likely to take action (Galinski, Gruenfeld, & Magee, 2003; Keltner, Gruenfeld, & Anderson, 2003), whereas ambivalence (the feeling of being mixed or conflicted; Priester & Petty, 1996), leads to *less* action than univalence (van Harreveld, van der Pligt, & de Liver, 2009). These observations allow for the simple conclusion that two main effects could emerge in a situation where people vary both in power and ambivalence: people might be most inclined to act when they are powerful and have consistent thoughts and be least inclined to act when they are powerless and have ambivalent

thoughts. However, if power can validate any mental content including individuals' ambivalent thoughts, then power should magnify the extent to which this ambivalence was trusted and thus reduce participants' propensity to act, a novel hypothesis from the self-validation approach.

A recent experimental test of this unique prediction regarding power and ambivalence (Durso, Briñol, & Petty, 2016) had participants read information about an employee whose behavior was either consistent (entirely good or bad) or ambivalent (both good and bad). Subsequently, participants were induced to feel more or less powerful. Next, they indicated the extent to which they preferred action versus inaction in making a decision about an employee. Finally, participants were required to make a decision as to whether the employee should be promoted or fired. The time invested in making that decision was recorded.

Consistent with previous work demonstrating that power leads to action, among participants who received univalent information, those induced to feel powerful were more likely to express a preference for taking action and make quicker decisions than low power participants. In contrast, among participants who received ambivalent information, those who were made to feel powerful were more likely to prefer inaction and make their decisions more slowly than low-power participants (see Figure 5.4). These results are informative as to the conditions under which feeling powerful leads to more versus less action (see also, DeMarree, Briñol, & Petty, 2014; Hirsh, Galinsky, & Zhong, 2011). This is important because empowering people to take action has been shown to play a critical role in many interventions (Burgmer & Englich, 2012; Hertwig & Grüne-Yanoff, 2017; Lammers, et al., 2013; Pratto, 2016).

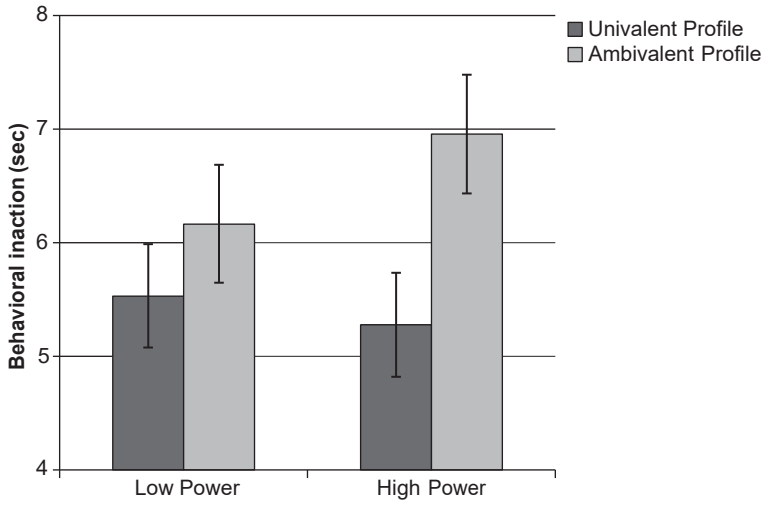

figure 5.4 Behavioral inaction (decision time) as a function of ambivalence and power (adapted from Durso, Briñol, & Petty, 2016).

Elaboration and Validation: Practical Tips for Separating Processes

As noted throughout this review, maximizing the chances of designing effective interventions depends in part on understanding the psychological processes by which variables produce change. This review focused on two fundamental mechanisms of influence from the ELM – elaboration and validation – which are critical for predicting whether change occurs in the desired direction and are also relevant for specifying how consequential changed mental constructs (e.g., attitudes, goals) are in guiding behavior over time.

Given that many variables (power, ease, body movements) can affect judgments and behaviors through these two processes, a natural concern is how researchers and practitioners can explain and test the effects of interventions on influence in any given context of interest. Fortunately, systematic methods exist to help identify the fundamental process by which any given variable operates to produce influence. As noted, the effects of variables such as power can be predicted a priori based on contextual factors, such as the general background levels of elaboration as well as the order in which events occur. To examine the methods for systematically separating the processes by which variables can influence judgments and behaviors, researchers and practitioners can use moderation and mediation approaches. Indeed, a number of methods have been identified for both separating out and predicting when different processes occur.

One means to test for particular processes involves manipulating elaboration and the quality of the arguments contained in the critical intervention. Because different processes operate at distinct levels of elaboration, manipulating elaboration is an excellent tool to isolate and understand the nature of an underlying effect. Manipulating argument quality helps determine if a variable is affecting amount of thinking (elaboration) or reliance on the thoughts generated (validation). As alluded to earlier, the time at which variables are made salient can systematically alter the process by which argument quality affects persuasion. Variables are more likely to influence judgments by a process of thought validation when introduced after, rather than before individuals generate their thoughts, but are more likely to influence extent of thinking (elaboration) when induced before, rather than after. For instance, enhancing feelings of power after a message allows people to feel more confident in and use their generated thoughts about the message, whereas inducing power before a message decreases their likelihood of processing the message because people already feel confident in what they believe (Briñol, Petty, Valle, Rucker, & Becerra, 2007).

In addition to identifying moderators such as timing and elaboration, research has also developed mediators of attitude change that can be used to understand how variables affect influence. Measuring both the type (valence) of thoughts participants generate as well as their perceptions of thought validity can help determine the underlying processes involved in social influence. Affecting

persuasion by increasing individuals' amount of thinking should result in a shift in the proportion of message-relevant thoughts that are consistent with the message (i.e., the valence of thoughts – favorable or unfavorable – becomes more congruent with the strong or weak quality of the message as thinking increases). Alternatively, if a variable affects persuasion by validating thoughts, then differences should be observed in participants' perceived thought validity, and this should mediate persuasion. In contrast, if a variable has no effect at all on message-relevant thoughts or thought validity, this can signal that the variable is serving as a peripheral cue, a process most likely to occur when thinking is low (see Petty, Schumann, Richman, & Strathman, 1993). In sum, thought favorability and validity can be measured to help examine the underlying process by which variables affect persuasion in a given context.

Revisiting Popular Interventions by Taking Process into Consideration

As should be clear so far, changing people is complex. However, taking a process-orientation to intervention can be helpful in understanding such complexity. The research we reviewed suggests some important caveats to popular interventions that propose relatively simple "tricks" for changing people's lives (Nair, Sagar, Sollers, Consedine, & Broadbent, 2014; Wiseman, 2012, 2013; see Walton & Wilson, 2018, for a review). For example, our work has qualified a recent trend of emphasizing feeling powerful as a means of becoming more successful across different domains of life (Lammers, Dubois, Rucker, & Galinsky 2013; Wiseman, 2013). Rather than being inherently beneficial, we explained how the confidence that comes from body postures or feelings of power can magnify whatever mental content is accessible, at least when power operates through a self-validation mechanism. Self-validation research has shown that feelings of power or confidence can increase self-esteem (Briñol, Petty, & Wagner, 2009) and physical performance (Horcajo et al., 2019) when people are thinking about their strengths, but decrease self-esteem and performance when they are thinking about their weaknesses.

Beyond power, other popular interventions often rely on additional positive inductions, such as getting people to express positive affect (smiling; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011; Lyubomirsky & Layous, 2013) and expressing one's values (self-affirmation; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009). Our process-oriented approach suggests inductions of happiness and self-affirmation techniques would increase influence in some cases, but decrease it in others. For example, like the effects of feeling powerful, feeling happy or affirmed can influence attitudes by affecting one or more of the five ELM processes of attitude change. For example, if thinking is low, simple valenced cues such as feeling powerful, happy, or affirmed can serve as simple cues to evaluation in accord with their valence (e.g., if I am happy, I must like

it). If thinking is high, however, these same variables work in other ways, such as biasing thinking (e.g., happiness can make positive thoughts more accessible), serving as arguments (e.g., happiness can be seen as evidence that a joke is good), or validating thoughts (e.g., happiness can make people view their thoughts as more valid). If thinking is not constrained to be high or low, these same inductions can affect how much thinking occurs (e.g., see Petty & Briñol, 2015, for an extensive review of multiple processes of emotion; Briñol, Petty, Gallardo, & DeMarree, 2007, for multiple roles of self-affirmation; and Briñol et al., 2017, for multiple roles for power).

Although in the examples just described, feelings of happiness (or affirmation or power) may often produce positive attitudes, the underlying process by which this occurs can vary, and therefore, we argue that the attitudinal consequences are also likely to differ (e.g., with high-thinking processes leading to more attitude-behavior-correspondence). Positive variables like happiness (or affirmation or power) can also lead to negative attitudes when these variables reduce elaboration of strong arguments or validate negative thoughts (e.g., Briñol, Petty, & Barden, 2007a; Paredes, Stavraki, Briñol, & Petty, 2013).

Other popular interventions have succeeded in getting people to self-distance when feelings were analyzed. For example, cueing people to analyze past negative experiences from a self-distanced (vs. from a self-immersed) perspective makes a significant difference in health-related outcomes (Finkel, Slotter, Luchies, Walton, & Gross, 2013; Kross, Gard, Deldin, Clifton, & Ayduk, 2012; Kross et al., 2014). According to our self-validation analysis, however, creating distance from thoughts (either through perspective, mindfulness, or other means; Lee & Schwarz, 2011) will decrease the use, not only of negative thoughts (making people feel better), but also of positive thoughts (making people feel worse). In fact, recent research has demonstrated that physical distance from one's thoughts can either increase or decrease positive outcomes (Briñol, Gascó, Petty, & Horcajo, 2013). In short, our approach reinforces the notion that taking the psychological processes underlying change into account can provide a fruitful framework for understanding many different intervention paradigms in psychology.

Conclusion

In this review, we have argued that practical initiatives and applied interventions can be designed by considering elaboration and validation processes. Doing so can increase the likelihood that the induced mental contents (e.g., thoughts, attitudes, goals) will have an impact and also guide behavior. The research we reviewed indicates that judgments based on high-thinking processes predict behavioral intentions and behavior better than judgments based on little thought. As noted, elaboration processes are relevant for understanding short and long-term change, and illustrate how the same treatment can produce the same initial

response (e.g., positive attitudes) but lead to very different behavioral outcomes depending on how much thought goes into the judgment. Validation processes are also important for understanding judgment and behavioral change and illustrate how the same treatment can produce the same initial response (e.g., positive thoughts), but lead to very different judgmental and behavioral outcomes depending on how people perceive the validity of those thoughts.

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