

Self-Validation Theory:
An Integrative Framework for Understanding When Thoughts Become Consequential

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Abstract

Self-validation theory (SVT) is introduced and presented as a series of six postulates. The core notion of SVT is that thoughts become more consequential for judgment and action as the perceived validity of the thoughts is increased. Instead of focusing on the objective accuracy of thoughts, self-validation research focuses on a subjective sense that one's thoughts are valid or appropriate to use. People come to rely on any thought more when they perceive that thought is likely to be true (cognitive validation) or because they feel good about the thought (affective validation). Perceptions of thought validity are influenced by thought-relevant as well as incidental factors (e.g., one's moods, sense of ease), and the impact of these factors can vary with their meaning. Individual and situational factors moderate when people rely on their assessments of validity and what thoughts are salient to validate. In short, SVT is a comprehensive and integrative framework from which to examine the use of thoughts across many seemingly diverse variables, outcomes, and domains in psychology. The theory is also relevant to understanding judgments in numerous applied contexts. By identifying moderators and mediators of thought validation processes and outcomes, SVT is capable of specifying when and why many different variables have an impact on judgments and actions.

Keywords: metacognition, validation, theory, change, belief, confidence

Throughout the day, various beliefs, ideas, goals, and other mental content pop into peoples' heads (e.g., this ice-cream tastes amazing; I want to exercise; I am a good worker), that can drive overall attitudes, decisions, judgments, and behavioral intentions (e.g., ice-cream is awesome; I will buy a gym membership; I should ask my boss for a raise), and ultimately lead to action (e.g., purchasing ice-cream or a gym membership; making an appointment with the boss to discuss a raise). But not all beliefs and goals turn into judgments or intentions and not all judgments and intentions are acted upon. The key notion of *self-validation theory* (SVT), introduced here, is that various kinds of thoughts will become more consequential (i.e., will be relied upon more for making judgments and engaging in behavior) as the perceived validity of those thoughts increases.¹ Although this notion might seem sensible, what could be surprising is that this perceived validity often emerges from factors that are completely incidental to the thought, such as one's current mood or chronic level of self-confidence. Thus, two people might have the very *same* thought become salient (i.e., the same mental content), but one person might believe that this thought is more valid or appropriate to use than the other person does for some reason (e.g., the person is feeling good at the time) and would thus be more likely to form a judgment based on that thought and act upon it. As described next, a remarkably wide range of variables that are completely incidental to the mental content itself can lead people to perceive that their thoughts are more or less valid, determining how much those thoughts are relied upon. Figure 1 depicts the core idea of SVT – that many variables can affect the perceived validity of thoughts which can then determine if the thoughts are consequential for judgments and behavior.

¹ For ease of exposition, we will use the term “thought” to refer to *any* mental content that can come to mind (e.g., beliefs, goals, judgments, attitudes, etc.) and perceived “validity” to refer to judging one’s thoughts as “acceptable” (valid) to use. The theory is called *self-validation theory* because people validate their own thoughts based on their own perceptions. External information can affect these perceptions, but ultimately what matters is how people assess their own thoughts.

Insert Figure 1 here

Perceived thought validity is a metacognition, and as explained in more detail later, various other theories have highlighted the importance of metacognition (i.e., thoughts about one's thoughts; Jost et al., 1998) in determining thought use (e.g., Bernstein et al., 2015; Goupil & Kouider, 2019). However, these other approaches have focused largely on one single source of metacognitive influence and have postulated one particular process that is responsible for that influence. In contrast, SVT is designed to be a more general and comprehensive approach that can explain the effects of a wide array of variables that have been examined separately under the rubrics of different theories. That is, SVT is a metacognitive approach that goes beyond these one variable and one process theories by explaining the impact of both previously studied and novel variables under one unifying framework.

The core goal of the current article is to provide the first formal description of SVT, organized around six testable propositions that explicate the theory as it can be applied across many variables and domains. Therefore, the current work advances beyond what had been called the "self validation hypothesis" (Petty et al., 2002; i.e., that perceived thought validity can emerge from incidental variables and affect thought use) and its application to just one variable (e.g., emotion) at a time operating in a single domain (e.g., persuasion), to a more comprehensive framework from which to examine commonalities across many seemingly diverse variables and outcomes from different areas of inquiry in psychology. Furthermore, presenting the basic principles of SVT as testable propositions breaks new ground and suggests novel outcomes in several areas that have not been examined previously under this framework, such as

understanding some therapeutic interventions as well as several types of clinically abnormal thinking patterns.

The Impact of Perceived Thought Validity

As will be documented shortly, metacognitive assessments regarding the perceived validity of thoughts are important because such metacognitions can magnify, attenuate, or even reverse the impact of thoughts on judgment and action (Petty et al., 2007). Instead of focusing on accuracy as a determinant of perceived validity as much prior research on metacognition has done (Fleming & Lau, 2014; 2017; Metcalfe, 2009), SVT focuses on a sense that one's thoughts are valid or appropriate *to use* in guiding judgments or action whether or not the perceived validity of one's thoughts is linked to accuracy.² Thus, SVT highlights the fact that perceived thought validity often comes from incidental inductions. In this paradigm, for example, people can misattribute the confidence that emerges from some induction (e.g., recalling past episodes of certainty, feeling happy) to ongoing or recently generated thoughts that are unrelated to the induction.

In an initial set of studies introducing the self-validation effect, Petty and colleagues (2002) asked undergraduates to read a message about a proposed requirement for seniors to pass a comprehensive exam in their major in order to graduate. The message they received either contained strong arguments or weak arguments (see Petty & Cacioppo, 1986).³ Following the message, participants listed their thoughts about the exam proposal and were then asked to think

² Beyond accuracy, self-validation processes based on incidental inductions can also be distinguished from metacognitive approaches focused on skills for signal detection, memory abilities, brain mapping, monitoring and control (e.g., Fleming & Daw, 2017; Pleskac & Busemeyer, 2010).

³ Argument quality (i.e., are the arguments cogent or specious) is manipulated to create either mostly positive thoughts (in response to strong arguments) or negative thoughts (in response to the weak arguments; Petty et al., 1976). Other ways to accomplish the same goal would be to provide messages taking proattitudinal (eliciting positive thoughts) versus counterattitudinal (eliciting negative thoughts) stances, or simply directing people to be positive or negative in their thinking.

about past situations in which they experienced confidence or doubt. Those who articulated past instances of confidence became more certain of the validity of their recently generated thoughts to the message compared to those who reflected upon past instances of doubt. That is, the feeling of confidence stemming from the memory exercise was misattributed to the unrelated thoughts recently generated to the persuasive message (much as people can misattribute the emotions induced from one cause to another; Schwarz & Clore, 1983). This differential thought confidence then affected the use of the thoughts in forming attitudes about the exams among those who reported that they thought carefully about the proposal. As predicted by SVT, increased thought confidence led to more favorable attitudes toward the exams when recipients' thoughts were largely favorable (i.e., to the strong arguments), but more confidence led to less favorable attitudes when recipients' thoughts were largely unfavorable (i.e., to the weak arguments). Across other studies in this original set, SVT was supported whether thought confidence was measured as it spontaneously occurred or was manipulated. The surprising aspect of these results is that people misattributed the induced confidence (in this case, emerging from recalling past episodes of certainty) to their ongoing thoughts, even though the thoughts were completely unrelated to the confidence induction.

These inaugural SVT studies showed that in addition to considering the number and valence of thoughts elicited by a message in forming attitudes, as has been examined traditionally in the persuasion literature, the perceived validity of one's thoughts is also consequential. Therefore, SVT added a new mechanism to those specified by dual-process theories of persuasion such as the Elaboration Likelihood (Petty & Cacioppo, 1986; Petty & Briñol, 2012) and Heuristic-Systematic (Chaiken et al., 1989) models. Whereas these earlier approaches focused on people's initial thoughts about a message (i.e., the amount and valence of

thoughts), SVT focused on thoughts about those initial thoughts (i.e., perceptions of thought validity). Thus, SVT provides an important complement to dual process and system theories that highlight the distinction between relatively low versus high degrees (or levels) of thinking (Petty & Briñol, 2008; see Sherman et al., 2014, for a review).⁴ That is, SVT adds to these approaches by postulating that influencing judgments can be accomplished both through processes that involve *initial cognition* and processes that require *metacognition*.⁵ Having described how the perceived validity of thoughts can emerge from incidental factors, we next describe the main similarities and differences between SVT and related metacognitive approaches.

Perceived Thought Validity Adds to Prior Metacognitive Approaches: The Case of Ease

One of the earliest and most influential demonstrations that people's metacognition can be consequential for judgment comes from research on what is called the *ease of retrieval* effect. In the original study, Schwarz et al. (1991) asked participants to list either six examples of their own assertiveness (which was easy to do) or twelve examples (which was difficult). Surprisingly, people who had to retrieve fewer examples viewed themselves as *more* assertive, despite having fewer examples on which to base this judgment. This is opposite to what would have been predicted based on the impact of initial cognition alone where more assertive thoughts listed should lead to more extreme judgments of assertiveness (e.g., Fishbein & Ajzen, 1975). Following this initial demonstration, ease effects have been shown to stem from a wide variety of inductions and influence a diversity of judgmental outcomes (see Alter & Oppenheimer, 2009; Schwarz et al., 2020).

⁴ Dual process theories of persuasion refer to an extent of thinking *continuum* that goes from low to high (cf., Petty & Cacioppo, 1986). There are several other psychological theories that also suggest that people's degree of thinking about issues and objects can range from minimal to extensive, and these different theories have their own labels for this continuum (e.g., from shallow to deep processing; Craik & Lockhart, 1972; for reviews, see Smith & DeCoster, 2000; Sherman et al., 2014).

⁵ Metacognition is sometimes referred to as secondary cognition to distinguish it from the initial (primary) thoughts people have (see Briñol & DeMarree, 2012, for a review on the use of this terminology).

In their original work, Schwarz and colleagues reasoned that people considered the ease with which the thoughts could be retrieved from memory (a metacognition), and inferred that if retrieval was easy, many more examples were likely to be available. Because of this availability heuristic (Tversky & Kahneman, 1973), generating two reasons in favor of something was postulated to lead to more positive attitudes than generating eight. Furthermore, because the ease effect is presumed to be mediated by use of a heuristic, and heuristics tend to be more impactful when the degree of thinking is low rather than high (e.g., Chaiken et al., 1989; Petty & Cacioppo, 1986), the ease effect was originally argued to be more likely when people were not thinking very much. For example, since personal relevance increases information processing (Petty & Cacioppo, 1990), the ease effect was predicted (and found) to occur more when the message topic was low in personal importance (e.g., Rothman & Schwarz, 1998).

Notably, the SVT approach to ease differs from the original. Instead of assuming that ease invariably works via a heuristic process, SVT contends that easily generated thoughts can have greater impact on judgment because people infer greater validity of thoughts that are generated easily. That is, things that come to mind easily are more likely to be assumed to be valid (Tormala, Falces et al., 2007). For example, when answers to questions came to mind easily simply because those answers had been previously primed, people felt more confident in the validity of those answers (Kelley & Lindsey, 1993). Thus, in an initial study aimed at showing that SVT could account for ease effects in judgment, Tormala et al. (2002) reported that when it was easy to generate positive thoughts about a policy (because only 2 rather than 10 thoughts were requested), participants were more confident in the validity of those specific thoughts. Moreover, thought confidence mediated the effect of the ease manipulation on attitudes toward the policy whereas the perceived number of supportive thoughts did not.

Importantly, the goal of this SVT research on ease was not to show that the initial explanation of ease effects was wrong, but rather to demonstrate that SVT could *also* account for these effects. Indeed, subsequent research suggested that the ease effect was mediated by perceived thought validity rather than the availability heuristic only when the degree of thinking was set to be relatively high (Tormala et al., 2002; Tormala, Falces et al., 2007). Furthermore, there are many inductions of ease other than the number of thoughts generated (Alter & Oppenheimer, 2009), and SVT has been able to account for many of these as well (see Briñol, Tormala & Petty, 2013, for a review). These inductions of ease have included varying the amount of time people have to generate thoughts (Clarkson et al., 2011), varying the color of the font and background in which the thoughts are typed to be relatively easy or difficult to read (Briñol et al., 2006), varying the amount of words allowed for each thought (Gandarillas & Briñol, 2010; Gandarillas et al., 2018), writing thoughts with one's dominant versus non-dominant hand (Briñol & Petty, 2003), and several others.

In sum, SVT points to a different mediator and different moderation than the original ease of retrieval theory. As described shortly, SVT makes unique predictions about many other variables beyond ease. The case of ease of retrieval is a good example of when SVT *adds* to the previous literature. Beyond adding a new mechanism and moderator to previous theories, we will also describe cases in which SVT *reinterprets* prior accounts, and when it *expands* previous views (e.g., generating previously unanticipated outcomes).

Metacognitive Approaches beyond Ease: Similarities and Differences

Although the ease of retrieval effect provided an early conceptualization of the impact of a metacognitive influence on judgment, other theoretical frameworks followed. SVT shares features with some of these metacognitive theories, but there are also notable differences. Most

importantly, these previous approaches have tended to emphasize one single source of metacognitive influence and to develop a unique psychological explanation for that particular source. For example, as just outlined, work by Schwarz and colleagues (1991) focused exclusively on ease of retrieval effects and how the experience of ease presumably operated by invoking the availability heuristic. Other research focused exclusively on how some emotions such as happiness increase reliance on thoughts by promoting the use of the dominant response whereas other emotions such as sadness inhibit accessible or dominant responses (Huntsinger, et al., 2014; Isbell et al, 2013). In yet another program of research, Lee and Schwarz (2020) focused on “cleansing” inductions such as hand washing and how these inductions can reduce the impact of thoughts by invoking a feeling of separation from one’s thoughts. Work by Bernstein and colleagues (2015) focused on inductions of mindfulness and distance inductions and how these manipulations reduce thought use by a process of de-centering and dis-identifying from internal experiences.

In sum, these other theories focus on particular variables and propose rather specific rationales for why and when the particular variables of interest affect judgment. In contrast, SVT is a more general framework that accommodates these variables as well as many others that will be described shortly. Furthermore, SVT offers an integrative metacognitive mechanism (thought validation) that can explain the effects of the diversity of variables that have been examined separately under the rubrics of different theories. In short, SVT brings together a broad coalition of variables capable of affecting thought reliance, including those highlighted by other theories but also many others (see Tables 1 & 2, Column 1).

In explaining the impact of diverse variables on judgment with a common mechanism, SVT postulates an integrative mediator (perceived thought validity) but it also identifies unique

and testable moderators for metacognitive effects that have not been emphasized or examined by these other approaches. A benefit of considering a unifying mediator as well as potentially common moderators is that it allows SVT to make a priori predictions regarding how and when many different variables would be expected to impact judgment. As explained shortly, among the important moderators of thought validity outcomes that SVT identifies are the substantive content of the thoughts generated (e.g., are the thoughts positive or negative, related to competition or cooperation?; see Table 1, Column 4; Table 2, Column 2) along with how the validity induction is appraised (i.e., along a certainty or pleasantness dimension), the amount of thinking that takes place in the judgment context (e.g., are individuals engaging in relatively high or low degrees of thinking?), the timing of the validity induction (e.g., does it precede or come after processing a stimulus), and the idiosyncratic meaning (i.e., high or low validity) of the variable in the judgment setting (see Table 1, Column 5; Table 2, Column 3). In sum, SVT is capable of specifying when and why different variables (e.g., ease, emotion) can produce various judgmental outcomes by defining the relevant moderators and mediators of those outcomes.

Now that the core idea behind SVT has been outlined and how it differs from related theories explained, we turn to presenting the accumulated research on SVT under a series of propositions or postulates. The goal in presenting these postulates is to organize this literature around concrete testable propositions that account for existing research but that can also guide future investigations. These postulates also differentiate SVT from other metacognitive approaches.

Postulate 1: Thoughts become more consequential for judgment and action as their perceived validity emerging from a wide range of variables, including incidental factors, is increased.

Although people can perceive their thoughts to be more valid when they have some objective evidence of that validity, SVT holds that perceived thought validity is also affected by what is perhaps a surprisingly wide array of incidental factors. Before turning to some of those, we first describe research demonstrating that contextual variables that are relevant rather than incidental to the thoughts generated can affect perceived validity.

Perceived Thought Validity from Factors Relevant to the Thought

As noted earlier, much research in cognitive psychology has focused on the accuracy of meta-cognitions (Flavell, 1992; Fleming et al., 2010; Koriat & Goldsmith, 1996). For example, after answering a factual question, a person can be asked, *Are you sure your answer is correct?* and then the research question of interest is whether responses to this item are correlated with objective accuracy (i.e., the likelihood that the answer actually is correct; Dunlosky & Metcalfe, 2009). SVT is less concerned with the actual accuracy of thoughts but rather with their perceived validity and how this perception is associated with thought use.⁶

One early example of concern with perceived rather than actual thought validity is evident in social psychological research on attitude certainty as a moderator of attitude-behavior consistency (see Rucker et al., 2014). Initial conceptualizations of attitude certainty focused on how it often stemmed from variables that were structurally linked to the attitude such as how much issue-relevant knowledge was behind the attitude (Wood et al., 1995) or whether the attitude was based on direct experience or not (e.g., Fazio & Zanna, 1981), factors likely associated with actual accuracy. These and other structural features of attitudes (e.g., accessibility, extent of elaboration, information consistency and relevance) can therefore lead people to perceive that their attitudes are valid (e.g., ice-cream really is good) and thus make

⁶ In SVT people assess whether their thoughts are valid to use for reasons other than actual accuracy and also for reasons that go beyond social desirability concerns, which is the variable emphasized by some other accounts (e.g., Higgins, 1996).

them more willing to act on them (Petty & Krosnick, 1995). More recent research has begun to examine how people sometimes develop greater certainty in the validity of their attitudes in the absence of any structural differences. For example, research has demonstrated that simply leading people to believe that their attitudes are based in morality (Luttrell, Petty, & Briñol, 2016) or considerable thought (Barden & Petty, 2008; Moreno, Requero et al., in press) can enhance attitude certainty and the subsequent impact of the attitude (see also Mello et al., 2021; Rucker et al., 2008). In these cases, perceived validity is also based on information directly relevant to the attitude itself rather than something incidental to the attitude.

Beyond evidence from cognitive psychology and work on attitude certainty, there is also research guided by SVT looking at how variables related to the content of the thoughts a person has generated can affect the perceived validity of those thoughts. For example, in a study by Clark and colleagues (2009), participants received information about an elementary school student who performed either reasonably well or poorly on an intelligence test. The good performance information led recipients to have positive thoughts about the target's intelligence whereas poor performance information led to negative thoughts (see Wegener et al., 2006). Following the performance information, participants listed their thoughts about the target and then learned that the target was either from a low or high SES household. Because of stereotypes, participants would expect low SES targets to perform more poorly than high SES targets. Thus, when the SES information participants received matched the performance expectations (i.e., poor performance with low SES and high performance with high SES), participants' stereotypic expectations were confirmed and they had more confidence in their thoughts about the target, using them more in forming judgments about the recommended academic placement of the target (i.e., to a gifted or a remedial program). Furthermore, the impact of thoughts on placement

recommendations was mediated by measured thought-confidence. In another example, simply making participants' political ideologies salient after they wrote about an ideology-relevant issue (e.g., abortion) validated their thoughts about that issue, leading attitudes to become more extreme (Blankenship et al., 2021). These outcomes have been conceptually replicated with different materials and populations (Clark et al., 2013; 2015; 2017; Clark & Thiem, 2015; 2018).

In general, whenever the nature of the thoughts people have to a stimulus are subsequently confirmed by relevant additional information they receive, the perceived validity of those thoughts is likely to increase and their use enhanced. To take a final example, imagine a person receives very weak arguments in favor of taking a vaccine, leading the recipient to have very negative thoughts about the source of the message, thinking that the source must be very low in expertise. If subsequently the recipient learns that the source is indeed low in expertise, the perceived validity of those negative thoughts would likely be increased and have a larger impact on judgments of the source than if the recipient subsequently learned that the source was a renowned expert.⁷

Perceived Thought Validity from Incidental Factors

In addition to considering how validating variables that are directly related to the content of the thoughts generated can affect their perceived validity, SVT highlights that variables completely incidental to the thoughts can also impact their perceived validity. We describe situational variables, individual differences, as well as interactions of the two that can affect perceived thought validity.

Situational Variables

⁷ However, if people were having negative thoughts about the *vaccine* (rather than the source) as a result of the weak arguments and subsequently learned that the source was low in expertise, the perceived validity of those thoughts would likely be undermined rather than enhanced because people could reason, "if the source I just heard from can't be trusted, I can't trust my thoughts to that source" (see Tormala et al., 2006).

Many incidental variables arising from the situation have been shown to impact validation processes, including one's transitory body movements, a form of embodied cognition (Semin & Smith, 2008). For example, Briñol and colleagues (2009) asked participants to think about and write down their best or worst personal qualities while sitting with their backs erect and chests inflated (i.e., a powerful posture associated with high confidence) or while sitting slouched forward with backs curved (i.e., a low-power posture associated with low confidence). Then, participants completed a number of measures, including self-esteem. It was predicted and found that the self-relevant thoughts generated affected self-evaluation more in the confident, powerful posture. When the thoughts about the self were manipulated to be positive, sitting in the powerful posture increased self-esteem, but when thoughts about the self was induced to be negative, the same posture resulted in reduced self-esteem. Importantly, these changes in self-esteem were mediated by differences in participants' confidence in the thoughts they had listed. Consistent with SVT, additional research has shown that feelings of power that are incidental to the thoughts can increase the confidence with which people hold and express their opinions, leading power-holders to use their own thoughts (Briñol, Petty, Valle et al., 2007; Briñol et al., 2012; 2008; Gandarillas et al., 2014; See et al., 2011), feelings (Jouffre, 2015), and even their own metacognitions more (Weick & Guinote, 2007).

Among other things, these results suggest that negative inductions such as getting people to feel powerless should not invariably lead them to feel bad or react in a negative way. For example, adding doubt due to feeling powerless can ironically produce an overall reduction in negative feelings about the self when the doubt invalidates one's negative thoughts. Although we do not cover them all here, in addition to the inductions already mentioned (e.g., ease of retrieval, a slouching posture, etc.), perceptions of thought validity have been affected by

situational manipulations of feeling prepared or not (Carroll et al., 2020), being happy rather than sad (Briñol, Petty & Barden, 2007; Chou, 2016; Gur et al., 2021; Huntsinger, 2013; 2014; Sidi et al., 2017), being ready to attack (Blankenship et al., 2013; Briñol, Petty & Requero, 2017), nodding one's head vertically rather than horizontally (Briñol & Petty, 2003; Wichman et al., 2010), being self-affirmed or not (Briñol et al., 2006), placing written thoughts in one's pocket rather than the trash (Briñol, Gascó et al., 2013; Bohner et al., 2021), and many others. These studies have shown that inductions following thinking about a stimulus can affect the perceived validity of whatever mental content is available at the time, including thoughts that are completely irrelevant to the nature of the induction.

Individual Differences

As just described, a wide variety of incidental situational factors have been shown to influence perceived thought validity and thereby affect people's use of their thoughts in forming judgments. In addition, there are also dispositional factors that play a similar role.⁸ One such variable is self-esteem (Rosenberg, 1965). In one relevant study, Santos, Briñol, Petty, Gascó et al (2019) asked participants to write down either positive or negative thoughts about fast food. Then, the participants indicated their self-esteem and their attitudes toward fast food. The results revealed that the valence of the thoughts participants generated had a greater impact on their attitudes toward fast food as self-esteem increased. In other words, those higher in self-esteem perceived greater validity in their thoughts which increased positive attitudes toward fast food when thoughts were positive but decreased attitudes when thoughts were negative. Thus, just as higher self-esteem can lead people to place greater value on physical objects associated with themselves (Ye & Gawronski, 2016), so too did it lead people to place greater value on the

⁸ Individual differences can also moderate whether people engage in meta-cognitive processes rather than influencing the overall level of perceived thought validity. This is described in Postulate 4.

thoughts that they generated and thus use them more. This occurred even though self-esteem was unrelated to the topic of the message, fast food.

Although self-esteem is one well-established individual difference that has been associated with perceived thought validity, there are others. For example, across several studies and one large survey including more than 100,000 participants, DeMarree and colleagues (2020) showed that some people tend to be more confident in a wide variety of subjective judgments (e.g., attitudes, future predictions) than are other people, much as individuals have been shown to have correlated confidence in their responses to a wide variety of objective questions (e.g., answers to a general knowledge test; Kleitman & Stankov, 2007). Thus, this research supports the notion that there are dispositional differences in the extent to which people have confidence in their diverse mental contents. To assess dispositional differences in attitude confidence, DeMarree et al. (2020) had participants report their attitudes towards a variety of objects (e.g., playing chess, taxes) and to report their certainty in each evaluation. Confidence in attitudes toward one issue was predictive of confidence in attitudes toward other issues, even on a completely novel topic. Thus, DeMarree and colleagues (2020) identified a dispositional tendency to be confident in one's opinions. One innovation of this research is that it allows making predictions about whose beliefs will be more likely to be used in forming attitudes and whose attitudes will be more likely to be used in guiding behavior. These effects of individual differences in attitude confidence were independent of the effects of other constructs that have been associated with judgmental confidence such as self-esteem (Rosenberg, 1965), need for cognition (Cacioppo & Petty, 1982), narcissism (Raskin & Terry, 1988), self-efficacy (Bandura, 1977), and judgmental self-doubt (Mirels et al., 2002).

Some individual differences have a relatively direct impact on judgmental confidence

(e.g., dispositional attitude confidence) but others are more indirect. For example, need for cognition (NC) is related to judgmental confidence because those high in this trait tend to think more about their judgments than those low in this trait, and higher levels of thought about a judgment result in higher levels of confidence in it (Barden & Petty, 2008). Beyond the variables already mentioned, any other individual difference variable that tends to be associated with confidence such as dispositional optimism (Geers et al., 2003) and locus of control (Holt et al., 2000) would likely be capable of influencing the extent to which people rely on their thoughts. This awaits future research.

Matching Individual and Situational Variables

Although most prior research on thought validation has examined how variables from the person or the situation influence use of thoughts when studied in isolation, some research has explored how person and situation variables can work in combination. For example, Evans and Clark (2012) showed that perceived thought validity increased when the characteristics of a persuasive message source (i.e., credibility vs. attractiveness) matched the characteristics of the recipient (i.e., being low vs. high in self-monitoring; Snyder, 1974). Specifically, high self-monitors who are concerned about their public image relied on their thoughts more when the message source was attractive (vs. credible), which increased persuasion when thoughts about the advocacy were primarily positive but decreased persuasion when thoughts were primarily negative. The opposite was the case for low self-monitors who are more concerned with authenticity and being themselves. In a similar vein, Cesario and colleagues (2004) found that participants used their thoughts to a greater extent in guiding their judgments when there was a match (vs. mismatch) between their chronic goal (promotion vs. prevention focus; Leonardelli et al., 2007) and the situation (a message using a gain vs. a loss frame). In short, this research

shows that thought confidence increases when the characteristics of the source or the message match the characteristics of the person affecting validation, and the nature of this match can be irrelevant to the content of the thoughts validated (for additional examples of validation through matching, see Clark et al., 2009; 2013; Huntsinger, 2013; see Teeny et al., 2021, for a review of matching effects in persuasion more generally).

There are many unexplored person-situation combinations that could be examined as determinants of validation processes. For example, future research might examine whether individuals will show greater reliance on their thoughts when their personal identities (e.g., high in trait power) match their occupations (e.g., politician; Chen et al., 2009; Schmader & Sedikides, 2018), when the time allowed for decision making matches the person's preference for making fast or slow decisions (as assessed by the need for closure scale, Webster & Kruglanski, 1994), and when the amount of effort required by a task matches the person's preference for thinking (as measured by the NC scale, Cacioppo & Petty, 1982). These potential studies would provide convergent evidence around the idea that any time people are in a situation that accords with their nature, thoughts are more likely to be validated than when they are not.

There are several reasons why people would rely on their thoughts more when there is a match between person and situation rather than a mismatch. For example, when there is a match, people might have greater thought acceptance because their thoughts “feel right” (Cesario et al., 2004) or seem easier to generate or more fluent (e.g., Lee & Aaker, 2004) or because people feel empowered (Briñol, Petty, Valle et al., 2007) or authentic (Schmader & Sedikides, 2018). Feeling right from regulatory fit (Cesario et al., 2004), from ease (Tormala et al., 2002; Tormala, Falces et al., 2007), from power (Briñol, Petty, Durso & Rucker, 2017), and from authenticity

and self-relevance (Gascó et al., 2018) have been all associated with feelings of confidence that can be misattributed to salient thoughts.

Summary and Future Directions

Postulate 1 highlights that SVT differs from other theories of metacognition and judgment by postulating that perceived thought validity can stem from a wide array of factors including those that are incidental to the thoughts themselves. The greater the perceived validity of thoughts, whether that validity stems from individual or situational factors, alone or in combination, the greater the impact of those thoughts. Beyond the selected individual and situational illustrations covered, there are many additional potential determinants of perceived thought validity worth examining in future research that come from areas beyond social psychology such as feelings of knowing (Koriat, 1993), secure attachment (Mikulincer & Shaver, 2020), paralinguistic features of voice (Guyer et al., 2021), and still others that can be analyzed from the SVT perspective. In providing evidence for this postulate, our goal was not to provide a full catalog of antecedents of perceived thought validity, but rather to demonstrate the diversity of variables that can be integrated under one conceptual umbrella.

 Insert Tables 1 and 2 around here

Postulate 2: There are two types of validation (affective and cognitive) and thus the same variable can lead to more or less thought use depending on which type of validation occurs.

- a. Cognitive validation is more likely when appraisals of certainty are salient.
- b. Affective validation is more likely when appraisals of pleasantness are salient.

This postulate and its corollaries recognize that people can decide that their thoughts are

valid to use for two general reasons. One, which we call *cognitive validation*, occurs when something in the context leads people to use their thoughts because they believe the thoughts are correct and represent reality (see also, Echterhoff & Higgins, 2017). People make inferences of correctness when they are feeling certain about the accuracy of their thoughts such as when the thoughts are consistent with others' beliefs (social consensus) or they have recently retrieved memories of past instances of being confident (Petty et al., 2002). In a prototypical example of cognitive validation, Tormala and colleagues (2006) had participants receive strong or weak arguments promoting a new brand of pain reliever. This manipulation was designed to influence the overall valence (positive/negative) of participants' thoughts. Following the message and a thought-listing task, participants received source credibility information. In the high credibility condition, participants were told that the information was taken from a pamphlet from a federal agency that conducts research on medical products. In the low credibility condition, participants were led to believe that the information was taken from a class report written by a local high school freshman. The results showed that when the message was strong and produced primarily favorable thoughts, high source credibility was more persuasive than low source credibility because high source credibility enhanced confidence in the correctness of the positive thoughts that were generated. This outcome replicates the traditional effect of credibility in persuasion. When the message was weak and produced primarily unfavorable thoughts, however, high source credibility backfired and resulted in *less* persuasion than low source credibility because high source credibility enhanced confidence in the correctness of the unfavorable thoughts that were generated. Although getting information from a high credibility source does not really provide assurance that one's thoughts are actually valid, people come to believe in the validity of their thoughts more when they are provoked by a source of high credibility. This is likely

because people infer that if the information on which their thoughts are based is credible, the ideas generated in response would also be credible (and the opposite when the source lacks credibility; for additional examples, see Briñol, Petty, & Tormala, 2004; Clark & Evans, 2014; Tormala, Briñol, & Petty, 2007; see also, Chou et al., 2011).

A second type of validation is called *affective validation* and refers to using thoughts because people feel good about them or like them (see Petty & Briñol, 2015; Huntsinger et al., 2014, for reviews). Making judgments based on how one feels (rather than for informational reasons) can also be associated with a sense of making a valid choice (e.g., Maglio & Reich, 2019). The key element of affective validation has to do with feeling good about a thought regardless of whether that thought is assumed to be true or false, factually grounded, or appealing in any rational way. Thus, if someone were to use a thought more simply because the thought was associated with happiness, this would be an example of affective validation.

Although one might assume that emotions always operate via affective validation processes, this is not the case. Indeed, examining the impact of emotions on validation processes provides fertile ground to test *both* cognitive and affective validation. This is because appraisal theories of emotion (e.g., Smith & Ellsworth, 1985; Lerner et al., 2015) have argued that emotions can be assessed along a pleasantness dimension (e.g., the emotion of happiness is more pleasant than sadness allowing for affective validation) but also along a certainty dimension (happiness is associated with certainty whereas sadness is associated with uncertainty, allowing for cognitive validation).

In order to examine whether thought validation effects can occur via both cognitive and affective routes, some recent research has examined emotion inductions that have the potential to affect certainty and pleasantness appraisals in ways that predict opposite validation effects.

Specifically, unlike the emotions of happiness and sadness for which the pleasantness and certainty appraisals are associated with both affective and cognitive validity (for happiness) or invalidity (for sadness; see Briñol, Petty & Barden, 2007), there are other emotions for which this is not the case. For example, anger and disgust are unpleasant emotions that are associated with certainty, whereas surprise and awe are generally pleasant emotions that are associated with appraisals of doubt and uncertainty (e.g., Tiedens & Linton, 2001). Thus, as we explain in more detail next, according to the *differential appraisals hypothesis* these emotions should be capable of inducing either more or less thought use depending on which appraisal (certainty or pleasantness) is dominant.

Differential Appraisals Hypothesis

In an initial study on how emotions can differentially validate or invalidate thoughts depending on which appraisal is salient, Briñol, Petty, Stavradi et al. (2018) examined inductions of anger and disgust (unpleasant emotions associated with certainty) in comparison to surprise and awe (pleasant emotions associated with uncertainty). This research showed that when angry and disgusted individuals were induced to focus on the pleasantness appraisal of those emotions (e.g., by responding to questions about their current feelings of pleasantness), the negative feelings from the emotions led to affective thought invalidation (I feel bad about my thoughts so I won't use them) relative to surprise or awe. When, however, angry and disgusted individuals were focused instead on the certainty appraisal of those same emotions (e.g., by responding to questions about their feelings of certainty), they felt more certain about their thoughts and relied on them more (I feel certain my thoughts are correct so I will use them) relative to surprise or awe (see also, Stavradi et al., 2021).

Conceptually similar results were obtained in research that examined two different

emotions for which the certainty and pleasantness appraisal dimensions are also mismatched: hope (pleasant but uncertain) versus hopelessness (unpleasant but certain; see Requero, Briñol & Petty, 2021). That is, hope was found to increase thought use relative to hopelessness when the pleasantness appraisal was salient because hope is associated with more positive feelings than hopelessness (affective validation). However, when the certainty appraisal was made salient, hope decreased thought use relative to hopelessness because feeling uncertain tends to (cognitively) invalidate thoughts compared to feeling certain.⁹ These studies on thought validation made an important contribution to the literature on emotional appraisals as no prior research had shown that the very same emotion can have different (even opposite) effects on judgment depending on the emotional appraisal invoked. As discussed later, with this contribution, SVT not only adds a new phenomenon to prior theories (as was the case for ease of retrieval effects) but also expands the possible implications of emotional appraisals beyond the frameworks that introduced them.

Summary and Future Directions

Across different paradigms, research guided by SVT showed how the same variable (e.g., anger) could work to affect thought use by a mechanism of either cognitive or affective validation depending on which appraisal (certainty or pleasantness) was salient. These studies bring a more nuanced understanding to making predictions regarding the impact of emotions on judgment, especially for emotions for which the pleasantness and certainty appraisals are dissociated. Postulate 2 has implications for making predictions about still other phenomena such as comparisons of the states of curiosity (pleasant but uncertain) versus boredom (unpleasant but

⁹ In these studies, greater thought use was inferred from a greater impact of a thought valence induction on attitudes, and from greater correspondence between thought favorability and attitudes. Future studies in this domain can benefit from measuring thought confidence (cognitive validation) and thought liking (affective validation) as different mediators in the appropriate conditions.

certain) as well as forgiveness vs. revenge, pride vs. embarrassment, compassion vs. resentment, and wishful thinking vs. realistic pessimism, because in each of these states, the pleasantness and certainty appraisals are also plausibly dissociated.

The distinction between cognitive and affective validation also has implications for personality research. One could argue that the appraisals associated with emotions are likely to vary not only among situations that make different appraisals salient but also among different individuals. For example, one might expect that an orientation toward spontaneous cognitive validation would be more likely for individuals who tend to be focused on the appraisal of certainty rather than pleasantness whereas the opposite would be the case for those more focused on pleasantness than certainty. Individual differences that plausibly relate to these tendencies include liberalism versus conservatism (Feinberg & Willer, 2015), prevention versus promotion-orientation (Leonardelli et al., 2007), and those who are high in their need for cognition (Cacioppo & Petty, 1982) versus need for affect (Maio & Esses, 2001).

Postulate 3: As thoughts are judged as more invalid, they become less impactful, and invalidation can even produce judgment reversals.

- a. Reversals are more likely as doubt becomes more extreme
- b. Reversals are more likely as people engage in categorical thinking

This postulate and its corollaries recognize that thoughts that are perceived as relatively invalid are mentally discarded which can either attenuate or even reverse the impact of one's thoughts. Both doubt in the correctness of thoughts (cognitive invalidation) as well as feeling bad about them (affective invalidation) can lead people to discard their thoughts.

Invalidation Can Attenuate Thought Use

Research on SVT has typically found that experiencing relative uncertainty and/or

unpleasantness regarding one's thoughts can lead the thoughts to have a reduced impact on judgments compared to relative certainty and/or pleasantness. For example, just as horizontal head movements from others undermine people's confidence in what they are saying (Guyer et al., 2019; Van Kleef et al., 2015), people's own horizontal head movements have been shown to reduce confidence in what people are thinking. In one study, Briñol and Petty (2003) found that merely having participants shaking their head horizontally from side to side (as if saying no) was sufficient for people to think that there was something wrong with their thoughts, thus undermining the impact of those thoughts in forming judgments compared to conditions of moving one's head vertically up and down (as if saying yes; cf. Wells & Petty, 1980). The feeling of doubt stemming from head shaking was misattributed to the thoughts generated thereby reducing the impact of those thoughts on judgment. In this research, the induction of the valence of one's thoughts (positive or negative) still had a significant impact on judgment under the low validity conditions, but it was reduced in magnitude compared to the validation conditions. In persuasion paradigms, reducing the use of positive thoughts reduces persuasion but reducing the use of negative thoughts increases persuasion. In other paradigms, mental constructs held with doubt or associated with unpleasantness are simply less predictive of judgments and behaviors than when they are associated with certainty and pleasantness.

In some studies, the attenuation of thought use is such that the induction completely eliminates reliance on thoughts. For example, Gascó and colleagues (2018) manipulated the perceived origin of participants' thoughts following a task in which they generated positive or negative thoughts about their bodies. Following thought generation, participants were led to believe either that their thoughts originated externally (i.e., they arose from societal views) or internally (i.e., they arose from the self). The valence of the thoughts participants generated only

impacted their reported body satisfaction when their origin was perceived to be the self. When the perceived origin was external to the self, and the thoughts therefore seemed less valid, the valence of the thoughts did not matter (see also Otgaar et al., 2014).

Invalidation Can Reverse the Impact of Thoughts

Although in the examples just provided, the invalidation induction was associated with a reduced or eliminated impact of thoughts on judgments relative to the validation induction, there are some potentially more interesting cases in which affective or cognitive invalidation inductions have been shown to *reverse* the effects of one's thoughts (e.g., Briñol, Petty & Barden, 2007). There are at least two aspects associated with invalidation that we hypothesize could lead to reversals in judgment rather than attenuation, though neither has been investigated explicitly. The first is the *extremity* of the perception of invalidity. If people have so much doubt about the correctness of their thoughts or hate what they have in mind so much, they might want to do the opposite of what their thoughts imply (e.g., if my thoughts are favorable toward this new job, but I think those thoughts are very wrong, the new job must be bad). As noted in the first corollary, the prediction is that the more extreme the perception of incorrectness or dislike of one's thoughts, the greater the likelihood of a reversal.

In one study showing reverse effects, Briñol, Gascó and colleagues (2013) asked participants to write down either positive or negative thoughts about the Mediterranean diet on a piece of paper. Then, participants were randomly assigned to either: (a) take the paper on which they had written their ideas and place it in a trash can (invalidation), (b) take the paper and keep it in a safe place such as their pocket or purse (validation), or (c) merely fold the corners of the paper and leave it on the table (control). After performing one of these actions, participants rated their attitudes toward the diet. As expected, attitudes reflected the valence of participants'

thoughts in the control condition. However, participants in the validation condition showed a more pronounced effect of thought valence on attitudes than in the control condition. In contrast, the effect of thought valence on attitudes was reversed for those in the thought invalidation condition. That is, participants asked to generate positive thoughts about the diet showed significantly less favorable attitudes than those asked to generate negative thoughts, the opposite pattern of results obtained in the control, and validation conditions. Placing one's thoughts in the trash is plausibly a relatively extreme form of invalidation, but to date no research has explicitly varied the extremity of an invalidation induction.

In addition to the extremity of the doubt, corollary 2 suggests that a second factor that could produce reversals is whether the thoughts or the judgment are represented or framed as leading to one of two categorical outcomes (e.g., winner vs. loser, smart vs. dumb, young vs. old) rather than when those thoughts are seen as implying a more continuous decision (e.g., relative success, intelligence, or age). In such cases of categorical thinking, we suggest that invalidation might be more likely to produce a reversed impact. For example, if a person driving to a new destination reaches a fork in the road and initially thinks that going left is warranted, because there are only two opposite options, having doubt about turning left would likely lead to turning right.

Summary and Future Research

Although considerable research has shown how some variables can validate and thus magnify the use of thoughts, other research has demonstrated how some variables can attenuate and even reverse the impact of initial cognition on judgment. A critical issue is what determines when attenuation versus reversed effects occur. We have suggested that the extremity of the perception of invalidity could be linked to reversals. That is, people might be especially likely to

make judgments or engage in actions that are opposite to their thoughts when they have extreme doubt in the correctness of those thoughts (e.g., “these thoughts are so wrong that the opposite must be true”) or their thoughts are held with intense dislike (e.g., “these thoughts are so despicable that I want to do the opposite”). We also suggested that reversals could be more likely when the thoughts or the judgment are framed in categorical terms (e.g., if I doubt it is true, then it must be false). These hypotheses remain to be tested.

Before closing discussion of this postulate, one other possible outcome that could occur when perceived invalidity is induced to be high is worth mentioning. That is, instead of attenuating or reversing the use of thoughts, thought use could actually be *enhanced* relative to a control. Some prior research suggests that this outcome would be most likely when the prospect of invalidation is highly threatening to the person in some way. When experiencing a threatening uncertainty (or dislike), individuals can be motivated to behave in ways that restore their sense of confidence (to mitigate the threat) such as by adopting more extreme attitudes (*compensatory conviction*; McGregor et al., 2001) or using one’s thoughts more (see Briñol, Petty & DeMarree, 2015; Horcajo et al., 2008). The idea of compensating for one’s doubt by becoming or acting more confidently suggests that people sometimes try to correct for the doubts they do not want to have by engaging in behaviors associated with confidence. Under these conditions, inductions of doubt can result in an increased (rather decreased) impact of current thoughts (Hart 2014). Taken together with the other research described on invalidation, it appears that inductions of doubt or unpleasantness can lead to an attenuated impact of thoughts on judgment (e.g., when informative of low validity), to reversed effects (e.g., when the induction is extreme or people are engaged in categorical thinking), and even to compensation (magnification) effects (e.g., when the doubt induction is threatening in some way). Given the complexity of these possible outcomes, future

research should aim to instantiate the suggested moderating conditions for each effect to examine the viability of the predictions.

Postulate 4: *The occurrence of self-validation processes is moderated by numerous variables including whether thinking is relatively high or low.*

No psychological process occurs for all people in all situations and thought validation processes are no exception. Thus, some research has addressed moderators of when thought validation processes are most likely to operate. We first discuss the most studied moderator – the extent of thinking in the situation – and then turn to other moderators of thought validation.

Extent of Thinking as a Moderator of Validation Processes

Because thought validation is a metacognitive process, it requires a greater extent of thinking than the generation of an initial thought. That is, for thought validation to occur, not only must people generate some initial thought to validate, they also need some motivation and ability to engage in additional thought about the validity of that mental content. In early research showing that the extent of thinking matters, Petty et al. (2002) found that people were more likely to consider the validity of their thoughts in making a judgment when they dispositionally enjoyed engaging in thought (i.e., people who were higher in their NC; Cacioppo & Petty, 1982) and when the situation was one that motivated thinking for nearly everyone (i.e., the object or issue of thought was relatively high rather than low in personal relevance; Petty & Cacioppo, 1990).

Validation effects of several variables have been shown to be larger when the extent of thinking is increased. In one study (Briñol, Petty & Barden, 2007), individual differences in NC moderated the impact of happy and sad emotional states on validation processes -- those relatively high in NC were more likely to consider the validity of their thoughts in forming

attitudes than those lower in NC. The same effect was found when the validation induction involved power (Briñol, Petty, Valle et al., 2007). It is important to note that the validation induction affected the confidence that both high and low NC participants had in their thoughts. What was different was that those high in NC relied on that confidence in forming their judgments whereas those low in NC did not. In another study (Horcajo et al., 2014), college students received a persuasive message that was high or low in personal relevance and this induction (linked to motivation to think about the proposal) moderated the impact of majority versus minority source status on validation processes. Finally, we note that just as people are more likely to use thought confidence to inform their judgments when thinking is high, so too are they more likely to use their attitude confidence to guide their behavior when thinking is high rather than low (Moreno et al., 2021).

Other Person and Situation Variables That Affect Reliance on Thought Validity

We have already described some individual differences that predict which people tend to have high confidence in their judgments (e.g., self-esteem). However, just because an individual difference variable affects the overall degree of confidence in mental constructs does not mean that this variable also affects whether that confidence will be used in guiding judgments or action. For example, although people higher in self-esteem tend to have more confidence in their judgments than those lower in self-esteem, no research has yet shown that higher self-esteem individuals are more likely to rely on their assessments of confidence than those lower in self-esteem. In contrast, as noted earlier, individuals higher in NC not only are more likely to have higher levels of thought confidence than those lower in NC, they are also more likely to use their thought confidence in determining their judgments (e.g., Petty et al., 2002).

Reliance on metacognitive validity varies not only with individual differences such as

NC, but also with situational factors that are likely to enhance caring about validity. For example, recent research has shown that contexts that induce high social evaluation (e.g., feeling evaluated or observed by others) tend to reduce metacognitive reliance compared to contexts that are low in social evaluation (Noah et al., 2018a; Yahalom & Schul, 2013). Although all participants in these studies engaged in metacognitive evaluation (assessed the validity of their thoughts), situations that induced high social evaluation tended to reduce metacognitive reliance compared to low evaluation situations. This is likely because under high social evaluation conditions, people are less concerned with their personal assessments of their thoughts (e.g., are they accurate, do I like them), and are more concerned with how others will react.

Summary and Future Research

In sum, validation processes are more likely to occur under some circumstances than others, such as when people are thinking carefully. The extent of thinking is sometimes determined by situational variables such as the personal relevance of the stimulus to be processed and sometimes by individual differences such as whether the person is relatively high or low in NC. In addition to the extent of thinking, the operation of validation processes is also determined by whether the situation involves a high or low degree of social evaluation. These variables serve as moderators because each is plausibly related to the motivation or ability to validate thoughts. Future research can benefit from identifying other variables with the potential to affect motivation or ability to take into considerations metacognitive assessments and therefore with the potential to enhance reliance on judgments of thought validity.

For example, with respect to individual differences, future research might examine locus of control (Rotter, 1990). Given that locus of control moderates the extent to which people rely on the feelings of “fit” in accepting tailored persuasive messages (Holt et al., 2000), one could

expect that individuals who have a high internal locus of control might be more likely to care about the validity of their own thoughts in forming judgments than those who have a low internal locus of control. In addition, one might expect individual differences in perceived agency and self-efficacy to be capable of moderating whether people rely on their metacognitions because such individuals care about their own skills (Bandura, 1977).

Postulate 5: *Self-validation outcomes are moderated by numerous variables that determine which thoughts are salient including the timing of the validating variable.*

Whereas some person and situation variables, such as the extent of thinking, can determine how likely validation processes are to occur, other person and situation variables matter because they can influence what mental content is salient to validate. As already described, various studies have used some induction of whether the thoughts salient at the time of validation are largely positive or negative (e.g., by varying the quality of the arguments in a message). Another well-studied variable that can determine which thoughts are salient is the timing of the validation induction. In particular, when a validation induction follows thinking about a stimulus (e.g., a persuasive message), it is more likely to validate thoughts to that stimulus than when it precedes thinking. This is likely because people typically do not consider whether their thoughts to a stimulus are valid until *after* they have generated them. Research has examined paradigms in which thoughts to a stimulus precede and follow validation variables as well as those in which they occur concurrently.

Timing as a Moderator of Validation Outcomes

In one series of studies on timing (Briñol, Petty, Gallardo et al., 2007), individuals received a self-affirmation induction (i.e., thinking about important core values; cf., Cohen & Sherman, 2014) just before or just after they received a persuasive message containing strong or

weak arguments. When the affirmation induction followed the message, it impacted the use of the thoughts that participants had generated to the message. As a result, the impact of argument quality on attitudes was greater in the affirmation (validation) than the non-affirmation conditions. However, when the affirmation induction came prior to the message, it did not serve to validate thoughts to the message as people had not yet generated their thoughts to it. In this case, the self-affirmation induction was presumed to influence the perceived validity of the attitudinal position participants held prior to message processing and thus was expected to affect the extent to which people thought about the message. Specifically, affirmed participants engaged in a reduced degree of thinking about the message than non-affirmed individuals because when feeling affirmed just prior to a message, people feel confident in their existing views and thus had little need to think about new information. As a result, the impact of argument quality on attitudes was reduced in the affirmation compared to the non-affirmation condition. This finding is consistent with prior research on attitude confidence which has shown that greater attitude certainty prior to receiving a message is associated with reduced thinking about that message (e.g., Tiedens & Linton, 2001).

In another example in which the timing of an emotion induction was manipulated, Huntsinger (2013) had participants read a persuasive message containing either strong or weak arguments for a proposal. Just prior to or following the message, participants were exposed to an emotional coherence (matching) manipulation (i.e., positive or negative emotions were paired with positive or negative primes) designed to increase confidence. Huntsinger found that when the emotional coherence manipulation came prior to the message, it affected the extent of message processing such that in the coherence condition participants processed the message less than in the incoherence condition. The incoherence of the emotion and the primed words

presumably led to doubts that were resolved with greater processing. However, when the coherence manipulation followed the message, it impacted the use of participants' thoughts to the message with coherence condition individuals relying on their thoughts more than those in the incoherence condition (see also, Evans & Clark 2012). As a result, emotional coherence decreased argument quality effects when it preceded the message (a result of reduced message processing in the coherence condition), but increased argument quality effects when it followed the message (a result of enhanced use of thoughts to the message in the coherence condition). The same results have been observed when other validating variables were manipulated to be introduced prior to or after a message was received, including power (Briñol, Petty, Valle et al., 2007), source credibility (Tormala, Briñol & Petty, 2007), and numerical status of the source (Horcajo et al., 2010).

Although we focused on validating variables that were introduced prior to or following thinking, in some research the validation induction and the thoughts about a stimulus occur concurrently such as in the research on head nodding (Briñol & Petty, 2003) reviewed earlier. When validating variables and thoughts occur together, it is possible for the induction to influence not only what people think (e.g., generating more positive thoughts when nodding) or how much they think, but also the perceived validity of the thoughts. Thus, when inductions occur concurrently, it is important to examine potential mechanisms by assessing thought number, valence, and validity.

Summary and Future Research

In sum, along with explicit inductions of what particular thoughts are salient (e.g., manipulating argument quality to produce mostly positive or negative thoughts), the timing of the validity induction is an important moderator of what thoughts are salient to be validated (e.g.,

newly generated thoughts to a message vs. prior attitudes). According to the timing principle, it is even possible for the same variable to serve as the initial cognition to be validated or as the metacognitive validating variable depending on its placement (e.g., Wichman et al., 2010). For example, if people were thinking about their negative self-esteem and then felt powerless, the feeling of being powerless would likely invalidate the negative self-esteem thoughts and people would come to have higher self-esteem. Alternatively, if people were thinking about how powerless they were and then reflected on their low self-esteem, the unpleasantness from low self-esteem could invalidate the thoughts about being powerless and people would feel more powerful.

Although the studies we have covered have generally had all of the salient thoughts validated or not, it is possible to render some thoughts in a set more salient than others (DeMarree et al., 2015). For example, Sherman and colleagues (1990) presented participants with a political candidate to evaluate who had positive attributes on one dimension of judgment (e.g., economics) and negative on the other (e.g., foreign policy). They then primed one of these two dimensions and showed that participants' evaluations reflected the greater impact of the information relevant to the primed dimension. In a conceptually similar study, Bui and Fazio (2016) used an evaluative conditioning procedure to enhance the extent to which participants evaluated foods on their health properties rather than their taste. These studies suggest that various procedures have the potential to make specific thoughts (e.g., along particular dimensions of judgment) salient and thus subject to validation processes. In addition to these situational contributors to selective thought salience, different people have been shown to naturally use different dimensions of judgment in their evaluations (e.g., relying on different moral foundations; Feinberg & Willer, 2015). There are many individual differences to explore in this regard.

Finally, we note that in the instances just described, situational or individual difference variables made some thoughts more salient than others affecting their *ability* to be validated. Future research could profitably examine *motivational* factors that might affect which thoughts are validated. In particular, all else equal, people tend to see greater merit in information that supports their existing attitudes rather than information that opposes it (e.g., Lord et al., 1979) and thus people might be especially inclined to selectively validate attitude-consistent thoughts over conflicting ones. This notion also awaits future research.

Postulate 6: *The meaning of potential validation variables is flexible and thought use is only enhanced when the variable is interpreted as an indicator of validity.*

This postulate emphasizes that it is not the particular variable (e.g., happiness, power) per se that provides validation, but how that variable is *interpreted* by the person. That is, this principle recognizes that the meaning of many potentially validating variables is remarkably flexible and the meaning a variable takes on can depend on the individual or the situation. Of course, many if not most experiences that people have (e.g., happiness) and external stimuli they encounter (e.g., expert sources) have a default or common meaning (e.g., happiness is pleasant; experts are assumed to provide correct information). But Postulate 6 stipulates that if the meaning associated with a potentially validating variable changes from the default, the effect of that variable on subsequent judgments or behaviors is also likely to vary. Put simply, the meaning of the variable will moderate the impact of that variable on the outcome of interest. Some examples are provided next.

Different Meanings of Default High Validity Variables

As noted, many variables that have been shown to validate thoughts have a default meaning. But, can something that is typically seen as associated with high validity (e.g., ease,

power, happiness) be changed to a low validity meaning, reversing its effect? The answer is yes. For example, ease of thought generation has been associated with greater thought use than difficulty because people generally perceive ease as something good (e.g., reflecting certainty; Tormala et al., 2002; truth, and beauty; Schwarz et al., 2020). However, if people's naïve theories regarding the meaning of ease were changed, then according to Postulate 6, different judgments should arise. In an early study investigating this possibility, Briñol et al. (2006) asked participants to write their thoughts using an easy-to-read font (black over white) or a difficult one (pink over yellow). In addition, the perceived meaning of ease versus difficulty was manipulated. Half of the participants were provided with a negative meaning for ease. They were told that the experience of ease in generating thoughts generally meant that the thoughts were low in complexity and that intelligent people, who have more complex thoughts, typically experienced more difficulty in generating thoughts than unintelligent people. The remaining participants received the opposite information. Consistent with expectations, results indicated that the traditional ease of retrieval effect (using thoughts more when easy than difficult) emerged only among participants who received the "ease is good" instructions. Among participants receiving the "ease is bad" instructions, the opposite occurred.

The implications of the meaning postulate extend beyond ease effects to other variables associated with default high validity. For example, head nodding is associated with agreement (Wells & Petty, 1980), smiling is a positive emotional sign associated with pleasantness or confidence (Paredes et al., 2013), and feeling powerful is often experienced as a desirable state (Briñol, Petty, Durso & Rucker, 2017). Because the default meaning of these variables is typically positive and associated either with correctness or pleasantness, they often lead to one's salient thoughts being seen as more valid. However, the meaning of these variables can vary

across individuals and situations. For example, head nodding can be associated with disagreement in certain cultures (e.g., in Bulgaria, head nodding is associated with no rather than yes) and in certain contexts (such as when people nod to say “yeah, whatever” or when they roll their eyes while nodding). Similarly, smiling can sometimes be a negative sign indicating unpleasantness and doubt (e.g., when a smile is a smirk indicating laughing at or trivializing an idea). The experience of power can include negative appraisals such as when it is associated with corruption or illegitimacy. If the meaning associated with any of these variables changes, the effect of that variable on subsequent judgments should also change (see Briñol, Petty, Santos & Mello, 2018).

Different Meanings of Default Low Validity Variables

Although ease, smiling, and other variables typically have a default positive meaning, for other variables, the default is negative. For example, the meaning of cleansing actions (e.g., washing one’s hands) is often associated with removing dirt. Consistent with this meaning, the initial research showed that cleaning actions following thinking reduced the impact of negative thoughts, such as the guilt associated with a previous transgression (e.g., Lee & Schwarz, 2011; Zhong & Liljenquist, 2006). As noted earlier, in accord with the SVT view of cleansing as a general invalidating action (associated with disliking something), it was subsequently applied to invalidating positive thoughts as well (e.g., Florack et al., 2014; see Lee & Schwarz, 2020, for a review on cleansing).

More relevant to Postulate 6 would be the prediction that if the meaning of the action of cleansing was reversed from removal of something bad (dirt) to adding something good (purity), the expected results would change. In an illustration of this, Kim, et al. (2019) had participants think about a recent time they did something wrong and then gave them the opportunity to wash

their hands. When the action of washing was framed as *removing* dirt (the default meaning), the results showed that guilt over the wrong action decreased, replicating the original effect of hand washing (Lee & Schwarz, 2011; Zhong & Liljenquist, 2006). In contrast, when the very same action was framed as *adding* spiritual preparation to purify the body (a positive meaning associated with high validity), the results showed that guilt increased, reversing the original effect.

Different Meanings for Neutral Actions

The key point of Postulate 6 is that the meaning of any variable can change depending on the individual and situation, and that those changes also influence the effect of that variable. Therefore, if a neutral action (e.g., merely placing thoughts into a box) can be associated with a high validity meaning (keeping thoughts safe) this action is likely to increase the use of thoughts. In contrast, if the meaning of the very same action is associated with a low validity meaning (trashing the thoughts), it will decrease thought use.

In a recent demonstration of this, Kim et al., (2021) first asked students to write positive or negative thoughts about a particular course they were currently taking. Then, all participants were asked to place what they wrote in a box described as a place to put the thoughts out of sight (low validity) or as a place to extend the thoughts beyond the self (high validity). Results showed that physically moving thoughts to the low validity box led them to be mentally discarded, having an impact on judgment that was less than when the thoughts were physically moved to the high validity box. This was the case even though the location and action was the same in both conditions. Conceptually similar results were obtained when people were told to put their thoughts in their pockets, but in one study this was described as “out of sight” (low validity; e.g., Li et al., 2010; Sparrow et al., 2011) and in another study it was described as “a safe place” (high

validity; e.g., Briñol, Gascó et al., 2013). That is, when the action was given a low validity meaning, it led to reduced thought use but when the same action was given a high validity meaning, it led to increased thought use. These results show that it is the meaning of the action and not the action itself that is critical in producing validation effects.

Summary and Future Research

Changing the meaning of a variable (from high to low validity, or vice versa) can change the effect of that variable on thought usage. According to Postulate 6, it is the ultimate meaning of the induction that matters. It is also important to note that even the meanings of confidence and doubt themselves (and presumably pleasantness and unpleasantness) can vary. That is, in most cases confidence is associated with high validity (e.g., truth) and doubt with low validity (e.g., wrong). However, doubt can sometimes be associated with a high validity meaning if it signals expert thinking or the desirability of working hard or other meanings (e.g., Sawicki & Wegener, 2018). Similarly, feelings of pleasantness can seem inappropriate in certain circumstances (e.g., at a funeral) and unpleasantness can be associated with positive meanings such as when this feeling is perceived as useful or desirable for achieving one's goals (e.g., Tamir, 2016). Future research can benefit from examining the impact of these and other potential variations in the meanings associated with confidence and doubt.

The Generality of Thought Validation Effects

Many studies supporting the predictions contained in the six postulates of SVT have been described throughout. We covered examples of validation processes applying to thoughts that became salient because people were instructed to list them (e.g., write your positive or negative thoughts; Briñol & Petty, 2003) as well as to thoughts that occurred naturally to people as they considered strong versus weak arguments for a proposal (e.g., Tormala et al., 2006), and to the

different thoughts that were made salient as a function of the timing of the validation induction (e.g., pre-message attitudes or thoughts to the message; Briñol, Petty, Gallardo et al., 2007). The research reviewed shows that validation processes are applicable to many different types of thoughts including goals (DeMarree et al., 2012), attitudes (Rucker et al., 2014), emotional thoughts (Avnet et al., 2012), and traits (Paredes et al., 2021). Even feelings of doubt and confidence can be held with different levels of confidence and doubt (Wichman et al., 2010). Also, the thoughts subjected to validation processes have come from a diversity of topics including the self (Briñol et al., 2010), stigmatized others (Requero et al., 2020), health campaigns (Requero et al., 2015; Requero, Santos et al., 2021), consumer products (Briñol et al., 2002), job candidates (Briñol et al., 2012), and organizations (Stavraki et al., 2017), to name just a few. Thus, the research suggests that perceived validity can be applied to whatever the salient mental elements are at the time, regardless of their specific content, valence, and nature.

Also, research is consistent with the notion that any mental content can become the object of validation regardless of whether people are aware of how the thoughts were activated, whether the person is aware that the thoughts are available at that moment, and whether people are aware of what is being assessed (i.e., what kind of judgment or behavior is being examined). For example, in one study (Briñol, DeMarree & Petty, 2015), participants were subliminally primed with words related to the Black (vs. White) stereotype (e.g., Tyrone vs. Erik; cf., Wheeler et al., 2007). Following this task, participants completed a head movement induction (following a ball on the computer screen moving horizontally or vertically with their heads), which was described as a study on motor-eye coordination. Participants primed with African American relevant words (versus European American) expected more future discrimination, but only if they were nodding their heads. Thus, as was the case with head nodding affecting confidence in thoughts to a

persuasive message (Briñol & Petty, 2003), so too did head nodding affect the validity and use of mental contents that were subtly activated via priming.

In most research, validation processes have been applied to thoughts that had a particular direction (e.g., positive thoughts about a diet), but when mixed thoughts (e.g., both positive and negative) are validated, it can increase feelings of conflict because people come to believe that both sides are worthy (DeMarree et al., 2015). This enhanced ambivalence can prompt more careful deliberation about information relevant to the object of ambivalence (Clarkson et al., 2008), and result in reduced attitude stability over time (Luttrell et al., 2016; 2020). For example, in an illustrative study testing the SVT analysis of ambivalent thoughts, Durso and colleagues (2016) had participants read information about an employee whose behavior was either consistent (entirely good or entirely bad) or mixed (both good and bad). Subsequently, participants were induced to feel powerful (high validity induction) or powerless (low validity induction) by having them recall incidents in their lives in which they had power over another person or in which someone else had power over them. Then, participants were required to make a decision to promote or to fire the employee. The time it took to make the decision was recorded. Consistent with prior research (Galinsky et al., 2003), for the univalent employees, feeling powerful was associated with faster decision making. However, in contrast to prior work, for the mixed (ambivalent) employees, feeling powerful led to *slower* decision making. That is, when individuals' thoughts were mixed, power validated the conflicting reactions, which caused greater power to lead to slower action.

Given that any thought can be susceptible to validation processes, future research can examine a large number of unexplored mental contents, including expectations about academic performance, about stigmatized groups, self-fulfilling prophecies, and expectations in other

domains. For example, a recent review used SVT to provide a tutorial for understanding the change produced by placebos, offering concrete steps that practitioners and researchers could take to amplify the placebo component of medical treatments by validating placebo expectations and by invalidating nocebo expectations (Geers et al., 2019).

Applications and New Directions

SVT introduces an overarching and integrative framework that has led to the discovery of new effects as well as reinterpretations of past findings. SVT has established the utility of the thought validation process across many different kinds of thoughts, and has received support from replication studies from our own as well as independent labs (see Table 1, Columns 2-3). Given the documented importance of distinguishing between initial cognition and metacognition, SVT has the potential to make novel predictions within several additional areas of psychology. Throughout this article, the possibility of breaking new ground in several areas was introduced. For example, with respect to new validating variables, we noted that there were many unexplored individual and situational variables along with their “matches” that had the potential to validate or invalidate thoughts. In making a distinction between affective and cognitive validation, we pointed to a variety of complex emotions (e.g., revenge) that have yet to be studied in a validation context and how their impact on judgment could vary in a predictable way depending on which emotional appraisal (pleasantness or certainty) was made and the placement of the emotion induction in the sequence of events. Several possible factors that could determine when invalidation leads to reversed effects of thought valence rather than attenuation were also described, and there are many ways to further explore the people and contexts in which the default meanings of variables could change.

Before closing, we first explain how SVT has been able to reinterpret prior results in a

new way as well as suggest a resolution to some contradictions in the literature. Then, further discussion of how SVT differs from prior conceptual approaches to thought use is provided.

Finally, we explain how SVT can be useful in various domains of application, while mentioning several open questions for research that have not already been highlighted.

Adding to, Reinterpreting, and Expanding Past Findings

SVT research has provided a new way to understand how a plethora of variables affect judgment and action, adding a new mechanism by which several established variables operate. In particular, SVT can account for some already established outcomes (e.g., more favorable attitudes with happy than sad mood and when argument generation is easy rather than difficult), but by a completely different process than was postulated previously. For example, as explained earlier, SVT provided a new mechanism for ease of retrieval effects (affecting thought confidence) and also specified when the new rather than the prior mechanism (availability heuristic) would occur (i.e., under high rather than low thinking conditions; Tormala et al., 2002; Tormala, Falces et al., 2007; see Briñol, Tormala & Petty, 2013, for a review on ease).

As another illustration of when SVT adds to previous theories, consider research on the impact of head movements on judgment. Prior research had assumed that nodding one's head in a vertical (versus horizontal) manner produced more positive attitudes either because vertical head nodding biased thinking in a favorable direction (Wells & Petty, 1980) or because head nodding served as a relatively simple positive affective cue (Tom et al., 1991). Although these mechanisms are possible under certain circumstances, Briñol and Petty (2003) documented that SVT provided a new account when thinking was relatively high (see Briñol, Petty & Belding, 2017, for a review of embodied validation).

Other actions (e.g., smiling) have been proposed to influence judgments exclusively by

processes based on the number and direction of thoughts (Noah et al., 2018b; Strack et al., 1988). However, as explained earlier, SVT adds a metacognitive role for smiling. In accord with the Elaboration Likelihood Model of persuasion (Petty & Cacioppo, 1986), smiling can serve as a simple cue to evaluation based on its valence when thinking is low (e.g., if I am smiling, I must like it), but it can bias thinking (e.g., smiling can make positive thoughts more accessible), and serve as an argument (e.g., smiling can be seen as evidence that a joke is good) when thinking is high. And, when thinking is unconstrained, the happiness that comes from smiling can affect the extent of thinking. SVT adds to these mechanisms by providing a new metacognitive role for smiling (i.e., validating thoughts; Paredes et al., 2013; see Petty & Briñol, 2015, for a review of emotion and judgment).¹⁰

The examples just reviewed are cases where the original explanations of the variable hold alongside the new thought validation mechanism. For other variables, however, SVT provides a reinterpretation of the phenomenon in terms of thought validity. As one example, consider the work mentioned earlier on cleansing. In the initial research, the presumption was that because of the strong link between cleansing and removing dirt, cleansing would be especially likely to wash away *negative* thoughts and states (Lee & Schwarz, 2011). However, because SVT views cleansing as a general invalidating action, it can be applied to positive and negative thoughts alike as subsequent research confirmed (Florack et al., 2014). Like any other embodied action linked to invalidation such as head shaking (Briñol & Petty, 2003), postural slumping (Briñol et al., 2009), frowning (Paredes et al., 2013), or throwing something away (Briñol, Gascó et al.,

¹⁰ Although for illustrative purposes we focused our examples on ease, nodding, and smiling, many other inductions could potentially be analyzed from the SVT perspective, including approach behaviors, touching, laughing, and inductions of mimicry and synchrony. Furthermore, future studies can benefit from examining whether some inductions thought to be universally beneficial (e.g., secure attachment; Mikulincer & Shaver, 2020) can sometimes yield positive outcomes, but at other times yield negative outcomes when examined from SVT (e.g., when feeling attached validates negative thoughts).

2013), cleansing procedures can reduce the effect of virtually any type of thought. Furthermore, the research described under Postulate 6 showed that when cleansing was interpreted as “adding” rather than “removing,” the impact of cleansing on thought use was reversed (Kim et al., 2019).

Finally, for other variables, SVT expands rather than adds to or reinterprets the existing literature. For example, consider the case of emotions where the SVT *differential appraisals hypothesis* expands on prior appraisals frameworks (e.g., Smith & Ellsworth, 1985). In the SVT research, instead of different appraisals leading to different emotional experiences (the focus of much prior work on emotional appraisals), activated appraisals were shown to impact whether the same emotion was associated with a relatively high or low degree of thought use. Therefore, SVT extends the contribution of appraisal theories of emotion that had already highlighted the importance of appraisals when comparing different emotions (Lerner & Keltner, 2000) to implications for the same emotion. In conclusion, with respect to the prior literature, sometimes SVT adds another mechanism for a variable (e.g., ease) that was previously not considered, sometimes it reinterprets the variable (e.g., cleansing), and other times it expands the utility of existing frameworks (e.g., emotional appraisals).

Resolving Contradictions

In addition to providing a new and more integrative explanation for some prior findings, SVT has also been useful in accommodating apparently contradictory sets of results across domains. For example, in accord with SVT, feelings of power have been shown to both increase and decrease anti-social behavior (DeMarree et al., 2012), cooperation and competition (DeMarree et al., 2014), positive and negative self-evaluations (Gandarillas et al., 2018), and action and inaction (Durso et al., 2016), depending on the salient thoughts when feeling powerful (see, Briñol, Petty, Durso & Rucker, 2017, for a review on power). SVT research can also

potentially reconcile other seemingly contradictory results. For example, Briñol, Gascó and colleagues (2013) showed that the valence of thoughts was more influential on evaluations when those thoughts were physically kept safe rather than discarded. In contrast, Sparrow and colleagues (2011) found that saving rather than deleting thoughts led those thoughts to be *less* influential in a memory paradigm. However, the meaning of the saving actions undertaken in each of these studies was plausibly different to the participants. In the studies conducted by Briñol, Gascó et al. (2013) saving thoughts increased thought usage presumably because that action was associated with protecting them in a safe place. However, in Sparrow et al. (2011), the very same action of saving thoughts decreased thought usage likely because the meaning in this study was associated with keeping one's thoughts out of sight because they were not needed at the moment and could be retrieved at some later point in time.

SVT versus Other Theories of Thought Use

As explained earlier, by focusing on particular variables such as ease (Alter & Oppenheimer, 2009), emotion (Huntsinger et al., 2014), or cleansing (Lee & Schwarz, 2020), prior theorists have developed rather specific rationales for why and when their particular variables of interest would matter. In contrast, SVT was designed to be a more general metacognitive approach that can explain the effects of a wide array of variables that have been examined separately under the rubrics of different theories. To provide another illustration, consider approaches that are designed to understand how people come to not use their unwanted thoughts by distancing from them in some way. For example, there are several approaches that use mindfulness inductions to reduce the impact of unpleasant thoughts, thereby increasing wellbeing (e.g., Kang et al., 2013). In one study, participants reported less pain after being instructed to adopt a nonjudgmental attitude while attending to the thoughts and sensations that

arose during a pain induction. According to some authors (Hart et al., 2013), these kinds of instructions increase the awareness that pain and the thoughts or emotions that accompany it are “just thoughts,” and are not reflections of truth or reality. Other authors argue that the mindful, nonjudgmental observation fosters a detachment from identifying with the contents of consciousness (de-identification, de-centering) that separates thoughts from the self (Bernstein et al., 2015; Naragon-Gaineny & DeMarree, 2017). From the SVT perspective, these inductions can suggest that one’s thoughts are not valid to use.

Similarly, other approaches have increased positive outcomes by using inductions involving psychological distance from negative thoughts. For example, following construal level theory (Trope & Liberman, 2010), work has demonstrated that the mere fact of talking about the self with some distance (e.g., talking about the self as if the self were another person) reduces the impact of negative thoughts and experiences and therefore undermines suffering (Kross, et al., 2014). In each of these phenomena, the core induction plausibly provides a means of suggesting that something is wrong or dislikable with respect to one’s thoughts and thus they are tagged as invalid for use. The thought invalidation explanation should be examined explicitly in future research along with the subsequent implications for the use of positive thoughts.

Flexibility and Reliability

SVT is a broad theory that allows for multiple outcomes in any given study. Importantly, SVT proposes that not all of these possible outcomes are equally likely in all circumstances. Rather, SVT specifies via various moderators and mediators of when different effects on judgment are most likely to occur. The effects of any given antecedent variable (e.g., ease, social consensus, smiling, etc.) on judgment can be predicted *a priori* based on contextual factors, such as the general background levels of elaboration, the thoughts that are salient, the order in

which events occur, and the meaning ascribed to the validating variable. As noted in describing Postulate 4, the metacognitive process specified by SVT tends to occur when thinking is relatively high rather than low and thus one means to test this notion is to manipulate some variable that affects the degree of thinking and see if the SVT prediction holds more strongly as thinking in the situation is increased. For example, a variable like source numerical status (i.e., learning that a majority or minority of others supports a proposal) has been found to affect judgments by validating thoughts under high thinking conditions, whereas under low thinking conditions, the same source status was predicted and found to influence judgments by serving as a simple peripheral cue (Horcajo et al., 2014; for additional examples, see Clark et al., 2006; Clark et al., 2011). However, knowing the extent of thinking is not sufficient to predict validation effects. The time at which variables are made salient can also alter judgmental outcomes by affecting what thoughts are likely to be validated.

In addition to specifying how and what different outcomes are likely to occur depending on the circumstances, there are also methods to assess whether or not the proposed mechanism has occurred. For example, measuring the number and type (valence) of thoughts participants generate along with perceptions of the validity of the salient thoughts can help determine whether the postulated mechanism was operating. For example, imagine a feeling of power is induced *after* a person receives a persuasive message and the power induction is postulated to impact the perceived validity of the thoughts generated to the message. If power affects judgments by the proposed mechanism, then it should impact participants' perceived thought validity, but not their pre-message attitude validity or the favorability of their thoughts to the message. Furthermore, the measure of thought validity should mediate the judgmental outcome. In contrast, imagine that the feeling of power is induced *before* a persuasive message and is postulated to affect the

perceived validity of the pre-message attitude, thereby impacting the extent of thinking about the message. This hypothesis would be supported if the measures of pre-message attitude validity and thought favorability mediate judgments rather than the perceived validity of the thoughts to the message. Illustrations of differential mediation can be found for SVT effects of power (Briñol, Petty, Valle et al., 2007), source numerical status (Horcajo et al., 2010), source credibility (Tormala et al., 2006), and emotion (Stavraki et al., 2021). In sum, measuring the postulated and alternative mediating variables can help assess whether the hypothesized processes are plausibly operating in each context.

Practical Applications of SVT

Although our focus has been on SVT primarily at the conceptual level and our empirical illustrations have consisted largely of basic laboratory studies, the theory has also been useful in understanding thought use in various areas of application and in more natural settings. For example, consider a recent study focused on athletic performance (Horcajo et al., 2019). In this research, cross fit athletes were recruited for an experiment while practicing at their gym. The athletes were randomly assigned to generate and then record on a smartphone either positive or negative statements about themselves. This thought-valence induction has been used previously in research showing that what athletes say to themselves through self-talk can influence their physical performance (e.g., Hatzigeorgiadis et al., 2011). Following thought generation, the athletes were randomly assigned to a validation induction using the head nodding technique described earlier (Briñol, & Petty, 2003). That is, the athletes were assigned to either nod or shake their heads while listening over headphones to the self-statements they had recorded. After this task, physical performance was assessed using a vertical jump task, a squat test, and a deadlift task. Consistent with SVT predictions, the athletes' performance was impacted by an interaction between thought valence and thought validation. Specifically, 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 a validation induction (head movements) can either facilitate the impact of what people say to themselves (validation by nodding) or eliminate the impact of thoughts (invalidation by shaking; see also Horcajo et al., 2020).

Beyond sports, recent research examined the role of thought validation in affecting academic performance. Prior research had shown that engaging in positive thinking prior to taking a cognitive test can enhance performance (e.g., Martens et al., 2006). Across a number of studies, Moreno, Briñol and Petty (in press) examined the role of thought validation. In this work, students first engaged in either positive or negative thinking about themselves and the perceived validity of those thoughts was then either measured or was manipulated to be relatively high or low. Academic performance was assessed using a battery of academic tasks including a knowledge test, a visual task consisting of rotating a series of geometrical figures, and a selection of questions from the Graduate Record Examination. The results across studies showed that the validation induction moderated the impact of valenced thoughts on performance. When thoughts about oneself were positive, increased perceived thought validity improved performance. However, when thoughts were negative, the same increased validation reduced performance. Thus, validation inductions can lead to opposite findings on performance depending on whether positive or negative thoughts are validated.

In general, SVT has implications for a variety of popular self-help interventions designed to assist people in increasing their well-being. These interventions typically rely on a plethora of positive inductions such as getting people to express positive affect (smiling; Lyubomirsky & Layous, 2013), or expressing their most important values (self-affirmation; Cohen & Sherman,

2014), or engaging in powerful actions (Lammers et al., 2013). SVT suggests that such positive inductions can increase positive outcomes in some cases (when thoughts are positive) but can actually enhance negative outcomes in others (when a person's thoughts are negative). Indeed, SVT research reveals that positive inductions can validate both positive and negative thoughts polarizing judgments (for additional examples of self-affirmation validating the dominant response, see Briñol, Gallardo et al., 2004; Briñol, Petty, Gallardo et al., 2006; 2007; Wood et al., 2009).

In addition to potentially accounting for various self-help inductions, thought validation processes have also proven relevant for producing consequential changes in prejudiced attitudes, and for promoting egalitarianism and enhancing diversity (Briñol & Petty, 2020). For instance, using SVT in the domain of stigmatized groups has proven to be a useful technique for reducing objectification (e.g., Briñol, Petty & Belding, 2017), and for encouraging people to trust in their thoughts about hiring people from underrepresented groups such as those with mental challenges and physical disabilities (Requero et al., 2020). Furthermore, SVT studies have shown that the perceived validity of prejudice-relevant thoughts can be manipulated by providing participants with convergent (vs. divergent) evidence matching their thoughts (Clark et al., 2009; 2013), by highlighting the entitative nature of their groups (Clark & Thiem, 2015), and merely by priming the concept of justice (Santos & Rivera, 2015). In all of these SVT paradigms, thoughts were more likely to impact prejudiced attitudes under high (vs. low) validation conditions.

In closing this section, it is worth mentioning one more application of SVT and that is in enhancing the utility of individual difference scales for predicting consequential outcomes. For example, Santos, Briñol, Petty, Gandarillas and Mateos (2019) first asked participants to report their level of aggressiveness on the Buss and Perry Aggression Questionnaire (BPAQ; Buss &

Perry, 1992) and then to report the perceived validity (certainty) with which they held their responses to that scale. Then, a behavioral measure was taken in which participants were provided an opportunity to aggress against a target by choosing the amount of hot sauce to give to that person. As hypothesized, measured trait aggressiveness was found to predict aggressive behavior to a greater extent when participants were more confident in the validity of their reported trait aggressiveness. In addition to trait aggressiveness, assessing confidence in scale responses has enhanced the predictive utility of measures of political ideology (Shoots-Reinhard et al., 2015; Vitriol et al., 2019) as well as identity fusion with various groups (e.g., one's country; Paredes et al., 2020), and standardized measures predicting impulsive behavior (Paredes et al., 2021).

Although work on SVT has addressed many issues, there are of course several research questions that remain unanswered in addition to those already mentioned. One particularly important applied question is whether people can use self-validation strategies deliberately to impact their own judgments. That is, can people intentionally use physical actions such as nodding or hand washing, and mental activities such as thinking about one's important values (self-affirmation) or generating confident memories, to validate their own thoughts? The response to this very practical question about deliberative use of validation processes awaits further research.

Potential Application of SVT to Clinical Phenomena

As a final area of application, we suggest that SVT has the potential to provide insight into more extreme levels of perceived validity such as those that appear to play a role in some clinical phenomena. This approach is in accord with current trends in clinical psychology suggesting that mental disorders not only relate to initial cognitions (i.e., having maladaptive

thoughts) but also to metacognition (O'Connor, 2009; Wells, 2012). Consistent with this perspective, Hirstein (2005) defines *pathological confidence* as occurring when people feel highly certain despite contrary input from reality. This form of confidence is often present in cases of paranoid thinking, delusions, and hallucinations, and is reinforced by a strong tendency to engage in confirmatory bias as when actively selecting evidence that confirms a belief (Moritz, et al., 2006). In contrast, *pathological doubt* is defined as occurring when people do not rely on what they should know to be true. This form of dysfunctional uncertainty is frequently seen in cases of obsessive disorders, where the person needs to triple check everything as if objective reality cannot provide a proper feeling of knowing (Hermans et al., 2003).

SVT makes a number of paradoxical predictions about such cases of rigid or extreme confidence and doubt because of the separation between thought-valence and thought-validation. That is, thought validity is postulated to magnify the impact of thought valence on judgment. Thus, just as extreme confidence (validity) should polarize negative thoughts making people feel bad (a maladaptive outcome), the same extreme confidence should validate positive thoughts making people feel good. Thus, applied to the clinical phenomena of extreme confidence and doubt, SVT predicts that abnormal mental states associated with extreme confidence (e.g., paranoid thinking; Moritz et al., 2006) will increase the use of not only negative thoughts but also positive thoughts. Conversely, abnormal mental styles associated with extreme doubt (e.g., obsessive thinking; Hermans et al., 2003) should reduce or potentially even reverse the impact of one's positive and negative thoughts on judgments. This has yet to be explored.

Conclusion

SVT was introduced for the first time as a series of six postulates. The theory provides a broad approach encompassing many variables that have been part of other theories and programs

of research as well as many new ones. SVT makes novel predictions and is integrative, replicable, and applicable to a large number of domains. Understanding when a person's thoughts will be consequential is a fundamental question that SVT helps to address.

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Table 1. Studies with variables that impact perceived thought validity that have been conceptually replicated by ourselves or others. The table focuses exclusively on variables for which SVT was the explicit framework guiding the research. Thus, it does not include examples of other relevant research covered in the text (e.g., on attitude certainty, attitude-behavior correspondence, etc.).

1. Validating Variable <i>Original study on the variable affecting thought usage</i>	2. Replications from Our Own Labs <i>Replications of the validating variable from studies in which we served as authors</i>	3. Replications from Other Labs <i>Replications of the validating variable from studies in which we played no role</i>	4. Thoughts that Were Validated <i>What initial thoughts did the validating variable impact?</i>	5. Mediation Evidence <i>Confidence in thoughts to a stimulus mediating the impact of the validating variable on judgment</i>	6. Moderation By Extent of Thinking* By Timing** By Meaning*** By Appraisal****
SOURCE					
SOURCE CREDIBILITY Briñol, Petty & Tormala (2004)	Tormala et al. (2006) Tormala, Briñol & Petty (2007) DeMarree et al. (2015) Requero et al., (2020)	Chou et al. (2011) Clark & Evans (2014)	Briñol, Petty, & Tormala (2004) – positive or negative thoughts about phosphate detergents (Study 1), new cell phone (Study 2) Tormala et al. (2006) – positive or negative thoughts about phosphate detergents (Study 1), a new aspirin (Study 2) Tormala, Briñol, & Petty (2007) – positive or negative thoughts about phosphate detergents (Study 1, 2) Chou et al. (2011) – positive or negative thoughts about a new digital camera Clark & Evans (2014) – positive or negative thoughts about a new university service program (Study 3)	Tormala et al. (2006) Evans & Clark (2012) Clark & Evans (2014)	Tormala et al. (2006)* Tormala, Briñol & Petty (2007)**

			DeMarree et al. (2015) – positive or negative or mixed thoughts about a new person (Study 1, 2) Requero et al. (2020) – positive or negative thoughts about hiring people with disabilities (Study 1, 2)		
SOURCE MAJORITY NUMERICAL STATUS Horcajo et al. (2010)	Horcajo et al. (2014) Kim et al. (2021)		Horcajo et al. (2010) – positive or negative thoughts about a new company (Studies 1 and 3), new university color (Study 2) Horcajo et al. (2014) – positive or negative thoughts about green as a new university color (Study 1) Kim et al. (2021) – positive or negative thoughts about online products (Study 1), McDonald’s (Studies 2, 3), new course (Study 4)	Horcajo et al. (2010) Kim et al. (2021)	Horcajo et al. (2014)* Horcajo et al. (2010)** Kim et al. (2021)***
RECIPIENT					
EASE Tormala et al. (2002)	Briñol & Petty (2003) Briñol et al. (2006) Tormala, Falces, et al. (2007) Gandarillas & Briñol (2010) DeMarree et al. (2012) Requero et al. (2015)		Tormala et al. (2002) – thoughts about exams (Studies 1, 2, 3) Briñol & Petty (2003) – positive or negative thoughts about self as job candidate (Study 4) Briñol et al. (2006) – thoughts about exams (Studies 1, 2) Tormala, Falces, et al. (2007) – thoughts about exams (Studies 1,2,4), assertiveness (Study 3) Gandarillas & Briñol (2010) – positive or negative thoughts about self as partner (Study 1), self as job candidate (Study 2) DeMarree et al. (2012) – thoughts about achievement goals Requero et al. (2015) – positive or negative thoughts about a healthy diet Gandarillas et al. (2018) – positive or negative thoughts about the self	Tormala et al. (2002) Tormala, Falces, et al. (2007) Gandarillas et al., (2018)	Tormala et al. (2002)* Tormala, Falces, et al. (2007)* Briñol et al. (2006)***

	Gandarillas et al. (2018)		(Study 1,3), university color (Study 2, 4)		
POWER Briñol, Petty, Valle et al. (2007)	Briñol et al. (2008) Briñol et al. (2012) DeMarree et al. (2012) DeMarree et al. (2014) Gandarillas et al., (2014) Durso et al. (2016)	See et al. (2011)	Briñol et al. (2008) – positive or negative thoughts about a variety of commercial ads (Study 1, 2) Briñol, Petty, Valle et al. (2007) – positive or negative thoughts about a new cell phone (Study 2, 3), vaccination policy (Study 4) Briñol et al. (2012) – positive or negative thoughts about a job candidate Briñol et al. (2012) – thoughts about competition or cooperation goals DeMarree et al. (2014) – thoughts about competition or cooperation goals (Study 1), pro-social or anti-social thoughts (Study 2) Gandarillas et al., (2014) – positive or negative thoughts about hiring job candidates with disabilities Durso et al. (2016) – positive or negative or mixed thoughts about a job candidate See et al. (2011) – thoughts about the advice received from others (Study 1, 2, 3, 4)	Briñol, Petty, Valle et al. (2007) See et al. (2011)	Briñol, Petty, Valle et al. (2007)* Briñol, Petty, Valle et al. (2007)**
EMOTION Briñol, Petty & Barden (2007)	Briñol, Petty, Stavraki et al. (2018) Stavraki et al. (2021) Requero, Briñol &	Blakenship et al. (2013) Huntsinger (2014) Chou (2016) Sidi et al. (2017)	Briñol, Petty & Barden (2007) – positive or negative thoughts about a exams (Study 1, 4), identification cards (Study 2), foster care program (Study 3) Blakenship et al. (2013) – thoughts about high or low trait anger (Study 1) Huntsinger (2014) – thoughts about elderly stereotypes or control thoughts (Study 1, 3), positive or negative thoughts about another person (Study 2, 4)	Briñol, Petty & Barden (2007) Briñol, Petty, Stavraki et al. (2018) Huntsinger (2013)	Briñol, Petty & Barden (2007)* Stavraki et al. (2021)** Briñol, Petty, Stavraki et al. (2018)****

	Petty (2021)	Gur et al. (2021)	<p>Chou (2016) – positive or negative thoughts about a new digital camera (Study 1)</p> <p>Sidi et al. (2017) – thoughts about test performance (Study 1)</p> <p>Briñol, Petty, Stavraki et al. (2018) – positive or negative thoughts about the self as job candidate (Study 1), an employee (Study 2), veggies (Study 3), fictional marine animal (Study 4)</p> <p>Stavraki et al. (2021) – positive or negative thoughts about exams (Study 3)</p> <p>Gur et al. (2021) – thoughts about political ideology (Study 1, 2, 3, 4)</p> <p>Requero, Briñol & Petty (2021) – positive or negative thoughts about the healthy and unhealthy diets (Study 1), hiring people with disabilities (Study 2), self as job candidate (Study 3)</p>		<p>Stavraki et al. (2021)****</p> <p>Requero, Briñol & Petty (2021)****</p>
<p>EMBODIMENT / BODILY RESPONSES (head nodding) Briñol & Petty (2003)</p>	<p>Wichman et al. (2010)</p> <p>Briñol, DeMarree, & Petty (2015)</p> <p>Horcajo et al. (2019)</p>		<p>Briñol & Petty (2003) – positive or negative thoughts about identification cards (Study 1, 2, 3), self as job candidate (Study 4)</p> <p>Wichman et al. (2010) – thoughts about confidence and doubt as initial thoughts to be validated</p> <p>Briñol, DeMarree, & Petty (2015) – thoughts about Black vs. White stereotypes</p> <p>Horcajo et al. (2019) – positive or negative self-talk</p>	<p>Briñol & Petty (2003)</p> <p>Briñol et al. (2009)</p>	<p>Briñol & Petty (2003)*</p> <p>Briñol, Petty, Valle et al. (2007)**</p>
<p>NON-EMBODIED PHYSICAL ACTION Gascó et al. 2013</p>	<p>Santos, Briñol, Petty, Gascó et al. (2019)</p>	<p>Bohner et al. (2021)</p>	<p>Gascó et al. (2013) – positive or negative thoughts about the body image (Study 1), healthy diet (Study 2)</p> <p>Santos, Briñol, Petty, Gascó et al. (2019) – positive or negative thoughts about the unhealthy diet</p>	<p>Kim et al. (2021)</p>	<p>Kim et al. (2021)***</p>

	Kim et al. (2021)		Kim et al. (2021) – positive or negative thoughts about online products (Study 1), McDonald’s (Studies 2, 3), new course (Study 4) Bohner et al. (2021) – thoughts about ships or robots		
RECALLING PAST EPISODES OF CONFIDENCE Petty et al. (2002)	Briñol et al., (2002) DeMarree et al. (2012) Santos , Briñol, Petty, Gandarillas & Mateos (2019) Requero et al. (2020) Paredes et al. (2021) Moreno, Briñol & Petty (in press)		Petty et al. (2002) – positive or negative thoughts about exams (Study 3) Briñol et al., (2002) – positive or negative thoughts about a new car (Study 2) DeMarree et al. (2012) – thoughts about saving or donating money (Study 3) Santos , Briñol, Petty, Gandarillas & Mateos (2019) – thoughts about high or low trait aggressiveness (Study 2) Requero et al. (2020) – positive or negative thoughts about hiring people with disabilities (Study 2) Paredes et al. (2021) – thoughts about high or low dispositions toward porn (Study 2) Moreno, Briñol & Petty (in press) – positive or negative thoughts about the self as student (Study 3)	Moreno, Briñol & Petty (in press)	
SELF-AFFIRMATION Briñol, Gallardo et al. (2004)	Briñol, Petty, Gallardo et al. (2006) Briñol,		Briñol, Gallardo et al. (2004)– positive or negative thoughts about identification magnetic cards (Study 1) Briñol, Gallardo et al. /2006)– positive or negative thoughts about identification magnetic cards (Study 2)		

	Petty, Gallardo et al. (2007)		Gallardo et al. (2007) – positive or negative thoughts about a new cell phone (Study 1, 2, 3, 4)		
PREPAREDNESS Briñol, Petty & Requero (2017)	Carroll et al. (2020)		Briñol, Petty, & Requero (2017) – positive or negative thoughts about self as job candidate (Study 1, 2) Carroll et al. (2020) – positive or negative thoughts about tuition increase (Study 1), genetically modified food (Study 2), positive or negative expectations (Study 3)	Carroll et al. (2020)	
THOUGHT-RELEVANT					
EXPECTANCY CONFIRMATION Clark et al. (2009)	Clark et al. (2013)	Huntsinger (2013) Clark et al. (2015) Clark et al. (2017) Clark & Thiem (2018)	Clark et al. (2009) – positive or negative thoughts about a child performance test (Study 1, 2) Clark et al. (2013) – thoughts phosphate detergents (Study 1), nuclear power (Study 2), or the source (Study 1, 2) Huntsinger (2013) – positive or negative thoughts about exams (Study 3) Clark et al. (2015) – thoughts about test performance (Study 1, 2, 3, 4, 5, 6) Clark et al. (2017) – thoughts about test performance (Study 1, 2, 3) Clark & Thiem (2018) – thoughts about test performance (Study (Study 1, 2)	Huntsinger (2013) Clark et al., (2013) Clark et al., (2015) Clark et al., (2017) Clark & Thiem (2018)	
MEASURING CONFIDENCE IN THOUGHTS Petty et al. (2002)	Briñol et al., (2002) Tormala et al. (2002)	Vitriol et al. (2019) Horcajo et al. (2020)	Petty et al. (2002) – positive or negative thoughts about exams (Study 1, 2) Briñol et al., (2002) – positive or negative thoughts about a new vacuum cleaner (Study 1)		Petty et al. (2002)* Tormala et al. (2002)*

	<p>Briñol et al. (2004)</p> <p>Shoots-Reinhard et al. (2015)</p> <p>Santos , Briñol, Petty, Gandarillas & Mateos (2019)</p> <p>Requero et al. (2020)</p> <p>Paredes et al. (2020; 2021)</p> <p>Moreno, Briñol & Petty (in press)</p>		<p>Briñol et al. (2004) – positive or negative thoughts about a new cell phone (Study 1) phosphate detergents (Study 2)</p> <p>Shoots-Reinhard et al. (2015) – thoughts about political ideology</p> <p>Santos , Briñol, Petty, Gandarillas & Mateos (2019) – thoughts about high or low trait aggressiveness</p> <p>Vitriol et al. (2019) – thoughts about political ideology (Study 1, 2)</p> <p>Requero et al. (2020) – positive or negative thoughts about hiring people with disabilities (Study 1)</p> <p>Paredes et al. (2020) – thoughts about high or low group identity with their country (Study 1, 2, 3)</p> <p>Horcajo et al. (2020) – positive or negative thoughts about legalizing doping (Study 1)</p> <p>Paredes et al. (2021) – thoughts about high or low dispositions toward porn (Study 1)</p> <p>Moreno, Briñol & Petty (in press) – positive or negative thoughts about exams (Study 1), thoughts about high or low self-efficacy (pilot study)</p>		<p>Briñol et al. (2004)**</p>
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Table 2. Studies with variables that impact perceived thought validity that have not yet been replicated. The examples in the table focus exclusively on variables for which SVT was the explicit framework guiding the research. Thus, it does not include examples of other relevant research covered in the text (e.g., on attitude certainty, attitude-behavior correspondence, etc.).

1. Validating Variable <i>Original study on the variable affecting thought usage</i>	2. Thoughts that Were Validated <i>What initial thoughts did the validating variable impact?</i>	3. Mediational Evidence <i>Confidence in thoughts to a stimulus mediating the impact of the validating variable on judgment</i>	4. Moderation <i>By Extent of Thinking*</i> <i>By Timing**</i> <i>By Meaning***</i> <i>By Appraisal****</i>
SOURCE			
SOURCE EFFICACY Clark et al. (2011)	Clark et al. (2011) – positive or negative thoughts about phosphate detergents (Study 3)	Clark et al., (2011)	Clark et al., (2011)*
SOURCE ATTRACTIVENESS Evans & Clark (2012)	Evans & Clark (2012) – positive or negative thoughts about phosphate detergents		
SOURCE ENTITATIVITY Clark & Thiem (2015)	Clark & Thiem (2015) – positive or negative thoughts about phosphate detergents (Study 2), foster care program (Study 3)		Clark & Thiem (2015)*
SOURCE FACIAL EXPRESSIONS OF HAPPINESS AND CONFIDENCE Van Kleef et al. (2015)	Van Kleef et al. (2015) – positive or negative thoughts about bobsleighbing (Study 1) and kite surf (Study 3) as new Olympic sports, rebuilding identical replicas of the Twin Towers in NY (Study 2), Greenpeace (Study 4), education issues (Study 5)		Van Kleef et al. (2015)**

RECIPIENT			
EMBODIMENT / HAND-WRITING Briñol & Petty (2003)	Briñol & Petty (2003) – positive or negative thoughts about identification cards (Study 1, 2, 3), self as job candidate (Study 4)		
EMBODIMENT / BODY POSTURE Briñol et al. (2009)	Briñol et al. (2009) – positive or negative thoughts about self as job candidate	Briñol et al. (2009)	
MORTALITY SALIENCE Horcajo et al., (2008)	Horcajo et al., (2008) – positive or negative thoughts about a job candidate (Study 1, 2), about their country (Study 3)		Horcajo et al., (2008)*
MERE THOUGHT Clarkson et al. (2011)	Clarkson et al. (2011) – positive or negative thoughts about capital punishment (Study 1, 2, 3)	Clarkson et al. (2011)	Clarkson et al. (2011)*
EMBODIMENT / SMILING Paredes et al. (2013)	Paredes et al. (2013) – positive or negative thoughts about an employee		
JUSTICE Santos & Rivera (2015)	Santos & Rivera (2015) – pro-social or anti-social thoughts (Study 1, 2)		
SOLVING PROBLEMS Stavraki et al. (2017)	Stavraki et al. (2017) – positive or negative thoughts about an environmentally friendly company (Study 1)		
PERCEIVED ORIGIN OF THOUGHTS Gascó et al. (2018)	Gascó et al. (2018) – positive or negative thoughts about diets (Study 1, 3), bariatric surgery (Study 2)		Gascó et al. (2018)***
POLITICAL IDEOLOGY Blankenship et al., (2021)	Blankenship et al., (2021) – positive or negative thoughts about abortion (Study 1), thoughts about abortion or changing legal drinking age (Study 2)	Blankenship et al., (2021)	
PSYCHOLOGICAL DISTANCE Moreno, Briñol & Petty (in press)	Moreno, Briñol & Petty (in press) – positive or negative thoughts about the self as job candidate (Study 2)	Moreno, Briñol & Petty (in press)	

SOURCE-RECIPIENT MATCHING Evans & Clark (2012)	Evans & Clark (2012) – positive or negative thoughts about phosphate detergents (Study 1)		
RECIPIENT-CONTEXT MATCHING Huntsinger (2013)	Huntsinger (2013) – positive or negative thoughts about exams (Study 2, 3)		Huntsinger (2013)**
THOUGHT-RELEVANT			
SOCIAL CONSENSUS Petty et al. (2002)	Petty et al. (2002) – positive or negative thoughts about exams (Study 4)		

Figure 1: Illustrative selection of incidental variables that affect the perceived validity of thoughts and attitudes.

