Structure and Function of Attitudes ⓐ

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Summary and Keywords

Attitudes refer to general evaluations people have regarding people, places, objects, and issues. Attitudes serve a number of important functions such as guiding choices and actions and giving people a sense of identity and belonging. Attitudes can differ in the extent to which they come from affect, cognition, and behavior. These bases of attitudes can be appraised objectively and subjectively. Attitudes can also differ in their strength, with some attitudes being more impactful and predictive of behavior than others. Some indicators of attitude strength have been viewed as relatively objective in nature (e.g., stability, resistance, accessibility, spreading) whereas other strength indicators are more subjective in nature (e.g., attitude certainty, subjective ambivalence, perceived moral basis of attitudes). Attitudes can be stored in memory in different ways, including an attitude structure in which attitude objects are linked to both positivity and negatively separately, tagging these evaluations with varying degrees of validity. Finally, after a long tradition of assessing attitudes using people's responses to self-report measures (explicit measures of attitudes), more recent work has also assessed attitude change with measures that tap into people's more automatic evaluations (implicit measures of attitudes). Implicit and explicit measures can be useful in predicting behavior separately and also in combination.

Keywords: attitudes, structure, function, strength, implicit, explicit

Attitudes refer to the general evaluations people have of other people and themselves, objects, issues, and places. Attitudes are particularly important in psychology because of their impact on choices and actions (e.g., attitude change mediates the impact of belief change on behavior change). That is, all else equal, people will decide to purchase the brands they favor the most, attend the church they assess the most positively, and vote for the prosecution or defense in a court case depending on which they approve of most strongly.

In this article, social psychology's major research findings regarding attitude structure and function are presented. Specific dimensions along which people's evaluations vary (e.g., ambivalence, stability, basis) are described, and these dimensions are analyzed in terms of their impact on cognition and behavior. The review is divided into three main sections.

First, some important definitions of attitudes and the properties that are particularly relevant for attitude stability and attitude–behavior consistency are provided. In this initial section, the functions of attitudes, including, among others, identity, belonging, and expression, are described. The origins of attitudes, ranging from inferences about one's own behavior to morality are also discussed. As explained, these particular bases of attitudes can be appraised objectively and subjectively and have important implications for attitude change.

In the second section, the strength of attitudes is examined. This section describes the features that make a given attitude more or less consequential in terms of attitude stability, resistance, and prediction of behavior. In this section the extent to which attitudes relate to other attitudes according to balance principles, allowing for spreading activation from one attitude to a related attitude and indirect change is also examined.

After articulating the various mechanisms by which attitudes are formed and changed, in the final section the main models relevant to understanding attitude structure, ranging from traditional dual theories to contemporary meta-cognitive approaches are presented. Importantly, this final second section emphasizes the distinction between automatic and deliberative attitudes and describes how implicit and explicit measures can be useful in predicting behavior separately and also in combination.

Attitude Function

Definition of Attitudes

Attitudes refer to the general and relatively enduring evaluations people have of other people, objects, or ideas. Stated differently, attitudes are people's general, summary evaluations (i.e. their positivity or negativity) (Petty, Briñol, & DeMarree, 2007). Attitudes can vary in a number of important ways. For example, they can vary in *valence*. Some attitudes are positive, some are negative, and others are relatively neutral. Moreover, attitudes can differ in their *extremity*, or the extent to which they deviate from neutrality, with more extreme attitudes often leading to more attitude–behavior correspondence. As described throughout this article, in addition to varying in valence and extremity, attitudes can differ in their underlying bases (e.g., the extent to which attitudes come from affect or cognition) and also differ in their strength (e.g., extent to which attitudes endure over time and guide behavior).

Attitude strength refers specifically to the durability and impact of an attitude (Petty & Krosnick, 1995). Strong attitudes generally persist longer over time and are more resistant in the face of attack compared to weak attitudes. Impact refers to the attitude's influence over thoughts and behavior; in general, strong attitudes exert greater influence on thoughts (e.g., produce more attitude-consistent thinking) and behavior (e.g., produce more attitude-consistent behavior) than do their weaker counterparts. Thus, attitude strength can be a crucial moderator of persuasion effects—making it harder to change at-

titudes in some cases than in others—and also an important target of influence (e.g., reducing attitude strength before attacking an attitude can increase the likelihood of attitude change).

Some indicators of strength have been viewed as relatively objective in nature. For instance, attitude extremity (distance from neutrality; Abelson, 1995) and attitude accessibility (the speed with which an attitude comes to mind; Fazio, 1995) can both be viewed as somewhat objective in that they do not require people to introspect and report their perception of their own strength. Other strength indicators are more subjective in nature in that they revolve around people's perceptions of their own attitudes and whether they are personally important (Boninger, Krosnick, Berent, & Fabrigar, 1995), supported by extensive knowledge (Davidson, Yantis, Norwood, & Montano, 1985), and held with confidence or certainty (Rucker, Tormala, Petty, & Briñol, 2014). Regardless of whether it is viewed as objective or subjective, the dominant perspective is that each dimension or type of strength matters because it shapes the attitude's durability and impact.

Most people have attitudes about many things around them because attitudes help to navigate the world. Although everyone holds many attitudes, there are individual differences in people's tendencies to engage in evaluative thought. People who are high in their need to evaluate (NE; Jarvis & Petty, 1996) tend to assess whether things are good or bad and are more likely to form attitudes toward everything around them. That is, people high in the NE are more likely to form an opinion during message processing, whereas those low in NE must construct an attitude when it is needed (Tormala & Petty, 2001). As a result, people high in their NE tend to have more accessible (stronger) attitudes than those low in this trait (Hermans, De Houwer, & Eelen, 2001). Those high in NE also tend to be more likely to act on their opinions than those low in NE, and they are also less likely to report "no opinion" to items when responding to surveys (Bizer et al., 2004; Federico & Schneider, 2007).

One aspect of attitudes that is highlighted in this review is the role of confidence. Just as attitudes held with certainty are more predictive of various judgments and behaviors (see DeMarree, Petty, & Briñol, 2007), considering confidence is important in order to understand the functioning of individual differences such as NE. In accord with this notion, recent research has demonstrated that personality inventories are especially predictive when people have confidence in their responses to them. For example, NE scores were more predictive of relevant behavior when people reported having confidence in their responses to that scale (Shoots-Reinhard, Petty, DeMarree, & Rucker, 2015). Thus, the predictive utility of the mental constructs (attitudes, individual differences, thoughts) reviewed in this article are often increased by including measures of confidence associated with those evaluations and cognitions.

Attitudes Serving Different Goals

As noted, attitudes are important because people tend to behave in accord with their attitudes—approaching objects they like and avoiding the ones they do not. Attitudes are im-

portant not only because they can guide behavior but also because they serve to define and express who we are (give us identity), thus providing us with a sense of consistency, self-worth, belonging, acceptance, and so forth (see Maio & Olson, 2000; for a review). For example, when an attitude is self-defining, people are more likely to advocate it spontaneously to others (Zunick, Teeny, & Fazio, 2017).

First, attitudes serve the need for knowledge in a variety of ways. For example, the need to know may require that people carefully process whatever information might be relevant in order to form an adaptive attitude and thus gain predictability and control over the environment. Thus, the need to know can influence attitude change and attitude strength by affecting the amount of information processing that occurs (Katz, 1960). In addition, when the need to know is high, people tend to assess the validity of their own thoughts by using information related to the credibility of the source or other indicators of accuracy (Briñol, Petty, & Tormala, 2004; see also Priester, Wegener, Petty, & Fabrigar, 1999). On the other hand, if the need to know is high but people are unable to process for whatever reason (e.g., distraction, noise), they are likely to look for cues related to knowing and accuracy, such as source credibility (e.g., Tormala, Briñol, & Petty, 2006; Kumkale, Albarracín, & Seignourel, 2010). Therefore, source credibility can serve as validity cue to validate thoughts under high thinking conditions or as a peripheral cue under low thinking conditions (Cialdini, 2008). This is important because, when validating thoughts, source credibility increases persuasion only when thoughts are positive but reduces persuasion when thoughts are negative.

In addition to variations in the situation relevant to the knowledge function of attitudes (e.g., distraction, noise), there are also individual differences related to the degree people need to have knowledge. These individual differences have been studied systematically (see Briñol & Petty, 2005, 2019, for reviews). For example, *need for cognition* (NC; Cacioppo & Petty, 1982) refers to stable individual differences in the tendency to engage in and enjoy effortful thought. Research on NC has examined the notion that attitudes, like many other forms of self-schemas, can serve different functions for people who are high versus low in NC. Consonant with the elaboration likelihood model of persuasion (ELM; Petty & Briñol, 2012; Petty & Cacioppo, 1986) matching a message to the function served by one's attitude can influence attitudes in multiple ways at different points along the elaboration continuum. For example, when the extent of thinking is not constrained to be high or low, functional matching can serve to enhance information processing activity. A message that appears to be aimed at people who are not thoughtful could enhance the information processing of people low in NC (because it matches their self-schema) but reduce the information processing activity of individuals high in NC (because it mismatches their self-schema) (Petty, Wheeler, & Bizer, 2000).

Second, attitudes are important not only because they can guide our thinking and behavior but also because they provide us with a sense of consistency. A wide variety of attitudinal frameworks are relevant to understanding the need for consistency. This includes work on self-perception (Bem, 1972), self-persuasion (Briñol, McCaslin, & Petty, 2012; Janis & King, 1954; see also Clarkson, Tormala, & Leone, 2011), and attitude strength (Pet-

ty & Krosnick, 1995). Once people make commitments or engage in behavior, they tend to act in consistent ways over time. There are many strategies related to persuasion that may be used to generate an initial commitment, such as the foot-in-the-door technique, the low-ball, and making salient previous commitments (e.g., Cialdini, 2008). Of course, people do not always behave in a manner consistent with prior commitments or actions, but when discrepancies occur, they are often experienced as unpleasant, as illustrated by paradigms of cognitive dissonance (Festinger, 1957) and attitudinal ambivalence (Kaplan, 1972; Priester & Petty, 1996; Thompson, Zanna, & Griffin, 1995). In addition to ambivalence, in the present review attitudinal balance (Heider, 1958) that is also relevant to the goal of consistency is also discussed.

Third, attitudes can also serve to build and maintain self-esteem in a variety of ways. For example, a person might develop a prejudice toward a minority group because this negative evaluation of the outgroup makes the person feel better about the ingroup and about the self. Research on self-enhancement reveals that individuals' self-evaluations are distorted by self-protective tactics that foster these positive illusions (e.g., Taylor & Brown, 1988; Tesser, 1988). For example, people seem to remember their past performance as better than it actually was; people judge positive personality attributes to be more appropriate in describing themselves than in describing others; people tend to take credit for success yet attribute failure to the situation; and people tend to think that their good traits are unusual, while their faults and flaws are common. Indeed, a wide variety of self-esteem maintenance tactics have been identified in the literature that highlight the importance of protecting a positive self-evaluation and also have implications for attitude and attitude change, ranging from motivated reasoning to source derogation (Kunda, 1990). This research is consistent with the idea that people tend to be resistant to attitude change, especially when it comes to attitudes toward themselves.

An interesting illustration of how the motive of self-worth is related to attitudes comes from research on self-affirmation processes (Steele, 1988). Cohen, Aronson, and Steele (2000) argued that since affirming oneself may reduce the perception of threat, this should decrease the need to defend one's attitudes, thereby making one more vulnerable to persuasion. Consistent with this view, several experiments have found that resistance to persuasion is undermined when people are affirmed (e.g., by expressing personal values) before receiving a persuasive message (Sherman & Cohen, 2006). Importantly, self-affirmation can not only decrease but also increase resistance depending on the circumstances and the process by which the confidence that emerges from affirming the self influences attitudes (see Briñol, Petty, Gallardo, & DeMarree, 2006).

Beyond serving knowledge, consistency, and self-esteem goals, attitudes are important because they mediate our relations with other people. For instance, one's attitude toward refuges may mediate one's relations with others because it is likely to be based on what the issue symbolizes and on what the attitude is perceived to express about the self (Shavitt, 1989).

Structure and Function of Attitudes

The need for social inclusion and approval can be related to a number of attitude and attitude strength phenomenon. For example, the influence of the group on attitudes was demonstrated in the classic research by Sherif (1936) on the autokinetic effect. Sherif found that individuals' evaluations varied in the range of movement that they ascribed to a stationary point of light in a dark room as a function of the group opinions. Newcomb (1943) was also able to show in a natural setting that individual attitudes are strongly determined by the groups to which one belongs or the groups to which one aspires. Groups exert influence on individual attitudes because other people provide an informational standard or comparison for evaluating people's own attitudes (social comparison function) and because they provide social norms with which people comply in order to gain or maintain group acceptance (normative function). According to Deutsch and Gerard (1955), people who are influenced for informational reasons are motivated by validity concerns and accept information obtained from others as evidence of reality, whereas those influenced for normative reasons are motivated to conform with the positive expectations of another.

The classic paradigms of informational and normative influence can be also seen as a reflection of the motivation to achieve shared social understanding. Through examination of what others (especially others like us) think or do, we can validate correct choices and opinions and often obtain satisfactory outcomes. Consensually validated understanding also allows people to be socially accepted and to coordinate and function more effectively in groups (e.g., Festinger, 1957). The power of social consensus has also been used to create a large variety of highly effective compliance strategies, such as the foot-in-the-door technique and the low-ball tactic (Cialdini, 2008). Indeed, the distinction between informational and normative motives has been useful in other literatures relevant to attitudes, including minority group influence (Papastamou, Gardikiotis, & Prodromitis, 2017) and attitude group polarization (Carroll, Arkin, & Wichman, 2015).

Matching Attitude Function

Attitudes might serve different functions for different people. For example, for some people, most attitudes might serve a value-expressive function but, for others, most attitudes might serve a social adjustive function (Snyder & DeBono, 1985). Considering attitude function is important because persuasive messages that appeal to or match the function served by an attitude will be more persuasive than messages that are irrelevant to or mismatch the function served by that attitude (see Petty, et al., 2000; Salovey & Wegener, 2003). As illustrated by the need for cognition in the previous section, matching a message to recipient characteristics relevant to attitude function can affect information processing and thereby persuasion. Other variables beyond need for cognition have also been studied from this point of view (Briñol & Petty, 2005, 2019). For example, one of the most studied variables with respect to matching a message to recipient characteristics is self-monitoring (Snyder, 1974). High self-monitors are oriented toward social approval whereas low self-monitors are more motivated to be consistent with their internal beliefs and values.

Structure and Function of Attitudes

Research on self-monitoring has shown that message effectiveness can be increased by matching the message to a person's self-monitoring status. For example, in one early study, Snyder and DeBono (1985) exposed high and low self-monitors to advertisements for a variety of products that contained arguments appealing either to the social adjustment function of attitudes (i.e., describing the social image that consumers could gain from using the product) or to the value-expressive function of attitudes (i.e., presenting content regarding the intrinsic quality of the product). They found that high self-monitors were more influenced by ads with image content than ads with quality content. In contrast, the attitudes of low-self monitors were more vulnerable to messages that made appeals to values or quality.

As described in detail elsewhere (Briñol & Petty, 2005, 2019), in accord with the ELM, matching messages to individual differences in self-monitoring can influence attitudes by multiple processes, leading to more or less positive attitudes depending on the circumstances. For example, when thinking is set at a high level, then matching a treatment to the function of attitudes can bias the direction of thinking. Indeed, some research suggests that high self-monitors are more motivated to generate favorable thoughts to messages that make an appeal to image rather than an appeal to values (e.g., Lavine & Snyder, 1996). In contrast, when the circumstances constrain the likelihood of elaboration to be very low, a match between the message and attitude function is more likely to influence attitudes by serving as a simple cue (e.g., DeBono, 1987). That is, even when the content of the message is not processed carefully, if a source simply asserted that the arguments are consistent with a person's values, a low self-monitor may be more inclined to agree than a high self-monitor by reasoning, "if it links to my values, it must be good."

Furthermore, when thinking is not already constrained by other variables to be high or low (i.e. moderate elaboration), matching a message to the person (in this case, matching to the function served by the attitudes) increases thinking about the message. Research that has manipulated the quality of the message arguments along with a matching manipulation has shown that matching can increase persuasion when the message is strong but decrease persuasion when it is weak. For example, Petty and Wegener (1998) matched or mismatched messages that were strong or weak to individuals who differed in their self-monitoring status. In this research, high and low self-monitors read image (e.g., how good a product makes you look) or quality (e.g., how efficient a product is) appeals that contained either strong (e.g., beauty or efficacy that last) or weak arguments (e.g., momentary beauty or efficacy). The cogency of the arguments had a larger effect on attitudes when the message was framed to match rather than mismatch the person's self-monitoring status, indicating that matching enhanced processing of message quality. As a consequence, matching increased persuasion for strong arguments and decreased persuasion for weak arguments (see also DeBono & Harnish, 1988).

Finally, matching information with different bases of attitudes might influence attitude change by other mechanisms under other circumstances. For example, one possibility is that when a message is matched to the attitudes of the person, people might come to accept the message position simply because the message "feels right" (Cesario, Grant, &

Higgins, 2004) or is easier to process (e.g., Lee & Aaker, 2004). These simple fluency experiences might influence attitudes under relatively low thinking conditions. Or the processing fluency and/or the experience of "feeling right" might affect persuasion by influencing thought reliance when thinking is high (Cesario et al., 2004; Tormala, Petty, & Briñol, 2002). For example, Evans and Clark (2012) showed that thought confidence increased when the characteristics of the source (credibility vs. attractiveness) matched (vs. mismatched) the characteristic of the recipient (low vs. high self-monitoring). As a consequence, high (vs. low) self-monitors relied on their thoughts more when the source was attractive (vs. credible), which increased persuasion for positive thoughts but decreased persuasion for negative thoughts (see also Clark & Evans, 2014; Clark, Thiem, Barden, Stuart, & Evans, 2015). This meta-cognitive process is called self-validation, and it is more likely to occur under relatively high elaboration conditions and when the match follows message processing (Briñol & Petty, 2009).

Affective Versus Cognitive Basis of Attitudes

A classic distinction is whether attitudes are based more on emotion or cognition (Zanna & Rempel, 1988). A number of studies have shown that it is possible to determine if a given attitude is based on emotion, cognition, or a combination of the two. This can be done, for example, by seeing if a global measure of people's attitudes (e.g., how good/bad people rate an object) correlates more highly with their ratings of a battery of emotion-relevant qualities (e.g., how happy/sad the object makes them feel) or cognition-relevant qualities (e.g., how useful/useless the object seems; see Crites, Fabrigar, & Petty, 1994). Differences in the underlying cognitive versus affective structural basis of attitudes can be assessed, and those differences have been shown to have important consequences. For example, it is generally more effective to change attitudes that are based on emotion with emotional persuasive messages rather than with more cognitive or rational ones, with the reverse tending to hold for attitudes based primarily on cognition (Edwards, 1990; Fabrigar & Petty, 1999). Just as individual attitudes can be based more on affect or cognition, so too do some people tend to base their attitudes primarily on affect or cognition (e.g., Aquino, Haddock, Maio, Wolf, & Alparone, 2016; Briñol et al., 2018; Haddock, Maio, Arnold, & Huskinson, 2008; Huskinson & Haddock, 2004; Rocklage & Fazio, 2018; see Maio & Haddock, 2015, for a review).

Independent of the extent to which attitudes actually are based on affect or cognition, people also differ in their *perceptions* of the basis of their attitudes. This has been assessed by simply asking people about the extent to which they believe that their attitudes are cognitively or affectively based (See, Petty, & Fabrigar, 2008). Importantly, these self-perceptions of attitude bases (called meta-bases) tend to be uncorrelated with structural bases and predict persuasion independent of the structural basis of a person's attitude (for a recent example on advocacy, see Teeny & Petty, 2018). Furthermore, structural and meta-bases predict some different outcomes. For example, in one study (See et al., 2013), more affective structural bases of attitudes predicted faster reading time for affective than cognitive information, whereas more cognitive structural bases predicted faster reading time for cognitive than affective information. This was presumed to reflect the

greater processing efficiency that is possible when information is matched to one's structural basis. This same study observed that more affective meta-bases predicted slower reading time for affective than cognitive information, whereas more cognitive meta-bases predicted slower reading time for cognitive than affective information. This was presumed to reflect the greater interest in processing that occurs when information is matched to one's meta-basis.

In sum, attitudes can vary in their underlying structure or bases, with some attitudes being based (and perceived to based) on emotion rather than cognition, whereas other attitudes are based on behavioral information. There are other variations that are also important with regard to the basis of attitudes. As described subsequently, some people may hold many attitudes that are linked to moral principles (Skitka, 2010) and general values (Blankenship, Wegener, & Murray, 2015; Maio, Pakizeh, Cheung, & Rees, 2009), whereas others do not.

Behavioral Basis of Attitudes

Beyond affect and cognition, people's attitudes can be based on behavioral information. Indeed, attitudes are embodied and closely linked to postures and bodily responses. In fact, people often use the term *position* or *posture* on an issue to refer to their evaluation of that issue. For example, in one early study it was shown that simply nodding one's head in a vertical rather than horizontal manner while listening to a persuasive message increased the persuasive impact of that message (Wells & Petty, 1980). Because bodily responses belong to our physical nature, researchers have tended to think that they have to operate in our minds through very simple, automatic mechanisms. And our actions can indeed influence our opinions when we do not think about the information we receive. For example, Cacioppo and colleagues (1993) showed that neutral Chinese ideographs (i.e., irrelevant stimuli for the sample of participants) presented during arm flexion were subsequently evaluated more favorably than ideographs presented during arm extension. One reason this could occur is by a process of *classical conditioning* whereby smiling or other positive states become associated directly with the attitude object (Staats & Staats, 1958). Another possibility is that people rely on simple heuristics or inferences about their behavior when forming or changing attitudes. Bem (1972), in his *self-perception theory*, proposed that people would make the same inferences about their behavior as would an objective external observer.

Briñol and Petty (2008) organized the psychological processes relevant to understanding how people form evaluations based on the information they obtain from their bodies into a finite set that operate at different points along an elaboration continuum as specified by the ELM (Petty & Briñol, 2012; Petty & Cacioppo, 1986). As just noted, under low thinking conditions, bodily postures can influence attitudes by a variety of low effort processes, such as mere association (e.g., classical conditioning; Priester, Cacioppo, & Petty, 1996) and self-perception inferences (e.g., "if I am inclined toward it, I must like it," Bem, 1972; see Laird & Bresler, 1992, for a review). Body postures can also impact persuasion when the likelihood of thinking is relatively high by affecting the direction of the thoughts

that come to mind (positive or negative; see Neumann, Forster, & Strack, 2003, for a review). For example, behaviors or bodily movements can also impact persuasion when the likelihood of thinking is relatively high by biasing the thoughts that come to mind. Obviously, for the body to influence thoughts, people need to be thinking. For example, in the original research on head movements and persuasion, Wells and Petty (1980) speculated that participants' past experiences had made nodding compatible with "approval" and favorable thinking, whereas head shaking was more compatible with "disapproval" and unfavorable thinking.

People's behavior, bodily postures, and movements can influence attitudes not only by serving as simple cues and biasing thinking but also by influencing the amount of thinking when elaboration likelihood is not constrained to be very low or high. In one demonstration, Petty, Wells, Heesacker, Brock, and Cacioppo (1983) asked participants to listen to a persuasive message composed of either strong or weak arguments while standing up in a powerful position or lying down in a more vulnerable one. Consistent with the idea that posture can affect the extent of thinking, this research showed that, while reclining, participants were differentially persuaded by the strong and weak arguments. Standing participants were not processing the message as carefully as if their relatively powerful posture made them believe that processing messages from others was not needed.

Finally, the confidence that emerges from behaviors or bodily states can magnify (or attenuate) the effect of thoughts in response to persuasive messages or thoughts about anything that is currently available in people's minds (for a review on embodied validation, see Briñol, Petty, & Wagner, 2012). In a series of studies, Briñol and Petty (2003) found that. under high thinking conditions, head movements affected the confidence people had in their thoughts and thereby had an impact on attitudes. When people generated positive thoughts toward a proposal (i.e., listening to strong arguments), vertical head movements led to more favorable attitudes than horizontal head movements. However, when people listened to weak arguments and generated mostly negative thoughts toward the proposal, head nodding led to less favorable attitudes than head shaking.

In line with this research suggesting that behavior can influence attitudes by affecting the use of thoughts, Briñol, Petty, and Wagner (2009) demonstrated that postures associated with confidence (e.g., pushing the chest out) can magnify the effect of anything that is currently available in people's minds relative to postures associated with doubt (e.g., slouching forward with one's back curved). In this experiment, college students had to think about their best or worst qualities. This manipulation was designed to produce positive or negative self-related thoughts. As part of a presumed art school study, participants were asked to write down their qualities while sitting with their chest out (confidence posture) or their back curved (doubt posture). In line with the self-validation hypothesis, it was expected and found that the effect of the thought direction induction on self-related attitudes was larger for postures associated with confidence than for those associated with doubt because with confidence, people were more likely to rely on the self-relevant thoughts they generated.

As these examples illustrate, the ability of bodily movements to influence attitudes is a well-established phenomenon. Furthermore, these examples illustrate that considering the psychological mechanisms by which the body affects attitudes is essential in order to predict *whether*, *when*, and *how* attitudes will be affected. Understanding these processes is important because depending on whether a nonverbal behavior of the recipient works as a simple cue or affects the amount of thinking or influences thought usage, the resulting effect could be a relatively positive or negative attitude. For example, it could be that behaviors such as smiling and nodding work as cues of agreement, making attitudes more positive without much thinking. Or perhaps these positive behaviors discourage thinking about the information presented, which could decrease persuasion (make attitudes relatively more negative) if the arguments presented are strong. In addition, even when a behavior (smiling face, nodding) leads to the same outcome in the short term by a thoughtful versus non-thoughtful mechanism (e.g., creating what looks to be the same attitude), the long-term consequences associated with that attitude (e.g., stability over time) can also vary as a function of the underlying mechanism of change. Thus, in accord with the ELM, understanding the processes by which behavior influences attitudes is important in order to predict whether, when, and how attitudes will be consequential (e.g., affecting subsequent behavior).

Attitude Strength

As described throughout, some attitudes tend to be relatively durable and impactful (e.g., guiding behavior), but others are rather transitory and inconsequential. Also, sometimes it is easy to form an attitude, whereas at other times formation is more complicated because there are conflicting sources of affective, cognitive, and behavioral information. Furthermore, attitudes that are already formed are sometimes changed rapidly whereas at other times, attitudes are maintained even when faced with counter-attitudinal information. Also, attitudes are sometimes changed by relatively low thought mechanisms (e.g., classical conditioning, self-perception), but at other times they are changed with a great deal of thinking (e.g., self-persuasion through role playing). Sometimes that extensive thinking is relatively objective. and sometimes it is biased by various motives that are present (e.g., dissonance, reactance).

To understand these complexities, contemporary multiprocess theories of attitude change were developed. Several current theories of persuasion, such as the ELM (Petty & Cacioppo, 1986), the heuristic-systematic model (Chaiken, Liberman, & Eagly, 1989), and the unimodel (Kruglanski & Thompson, 1999) were generated originally to articulate multiple ways in which attitudes can be formed, changed, and maintained (see Briñol & Petty, 2012, for an historical overview).

Consistent with the ELM, the psychological processes mediating the effects of variables (regardless of whether related to the source, the recipient, or the context) on attitudes can be placed into a finite set that operate at different points along an elaboration continuum (for a review on the application of the ELM on consumers' attitudes see Teeny,

Briñol, & Petty, 2017). Specifically, under low thinking conditions, variables can influence attitudes by operating as a simple judgment cue or heuristic (e.g., I like the proposal because I like you). When the likelihood of thinking is relatively high, variables can impact the extent of influence by more thoughtful means such as by affecting the direction (valence) of the thoughts that come to mind, serving as a piece of evidence (i.e., an argument) to be scrutinized, or affecting the confidence people have in the thoughts they generated and thus how much the thoughts are relied upon. When elaboration is not constrained to be very low or high, variables can influence attitudes by affecting the amount of thinking that occurs (see Carpenter, 2015, for a review of many motivational variables that interact with argument quality to influence attitudes). Understanding these mechanisms is critical for a number of reasons, including the implications for the immediate and long-term consequences of the attitudes.

Antecedents of Attitude Strength

As noted, elaboration is one of the key antecedents of attitude strength. The reason we should care about the amount of thinking involved in the process of attitude formation is because it can indicate whether or not an attitude will be consequential. For example, sometimes a high and a low thought process can result in the same attitude, such as when being in a good mood produces a favorable attitude by serving as a simple associative cue under low thinking but biasing the thoughts generated under high thinking (Petty, Schumann, Richman, & Strathman, 1993). However, according to the ELM, attitudes formed or changed through high thinking processes are more persistent, resistant to change, and predictive of behavior than attitudes changed via low thinking processes (Petty, Haugtvedt, & Smith, 1995). There are both structural and meta-cognitive reasons for this. First, as thinking increases during attitude change, people should acquire more support for their attitudes (knowledge) and their attitudes should become more accessible. That is, high levels of issue-relevant cognitive activity are likely to require frequent accessing of the attitude and the corresponding knowledge structure. This activity should therefore tend to increase the number of linkages and strengthen the associations among the cognitive elements, making the attitude structure more internally consistent, accessible, and enduring (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; McGuire, 1981). In comparison, attitude change that results from simple online inference or heuristic process typically involves accessing the attitude structure only once in order to incorporate the affect or inference associated with a salient persuasion cue (Petty & Cacioppo, 1986). Furthermore, people should become more confident in their views the greater they perceive those attitudes to be rehearsed, connected, and supported by extensive knowledge and thinking (Barden & Petty, 2008; Wan, Rucker, Tormala, & Clarkson, 2010; see also Tormala, Clarkson, & Henderson, 2011). Each of these factors would increase the likelihood that attitudes would be consequential. Next, the major consequences associated with attitude strength are described (for a review on neural processes in attitude strength, see Luttrell, Stillman, Hasinski, & Cunningham, 2016).

Attitude Prediction of Behavior

Once a person's attitude has changed, behavior change requires that the person's new attitudes rather than old attitudes or previous habits guide action. If a new attitude is based on high thought, it is likely to be highly accessible and come to mind automatically in the presence of the attitude object. Therefore, it will be available to guide behavior even if people do not think much before acting (see Fazio, 1990, 1995). However, even if people do engage in some thought, attitudes based on high thinking are still more likely to guide behavior because these attitudes are held with more certainty, and people are more willing to act on attitudes in which they have confidence (e.g., Barden & Petty, 2008).

There are a number of other features that increase attitude–behavior correspondence (Falk et al., 2010; Huskey et al., 2017; Luttrell, Briñol, Petty, Cunningham, & Díaz, 2013; Luttrell, Petty, Briñol, & Wagner, 2016; Vezich et al., 2017). For example, attitude and behavior measures should be assessed at the same level of specificity. That is, specific behaviors such as "recycling cans" are predicted better by specific attitudes (i.e., attitude toward recycling cans) rather than more general attitudes (e.g., attitude toward preserving the environment; see Ajzen & Fishbein, 1977). On the other hand, general attitudes (e.g., toward environmental preservation) are better than specific ones at predicting general behavioral criteria (e.g., an index based on several behavioral opportunities such as circulating environmental petitions, recycling household waste, cleaning up the highways, etc.; see Weigel & Newman, 1976). Another ingredient comes from the *theory of reasoned action* proposed by Fishbein and Ajzen (1975). This theory emphasized social norms (what others think you should do) as an important determinant of behavior in addition to attitudes. In the more recent *theory of planned behavior* (Ajzen, 1991) a third factor, a person's sense of self-efficacy or competence to perform the behavior (see Ajzen & Fishbein, 2005), was added. These theories make it clear that although changing attitudes can be an important first step to behavior change, it might be insufficient unless norms also favor the new behavior and people have the ability to engage in the action (see also Wood, 2017, on the influence of prior behavioral habits on current behavior).

Attitude Persistence

Some attitudes fluctuate over time whereas others remain fairly stable. Unstable attitudes do not predict future behavior as well as those that remain unchanged between initial measurement and the time of the behavior in question (Doll & Ajzen, 1992; Schwart, 2007). For example, attitudes remain more stable over time the more accessible (Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Chen, McDonel, & Sherman, 1982) and important (Krosnick, 1988) they are. When attitude changes are based on extensive issue-relevant thinking, they tend to *persist* (endure). For example, research has shown that encouraging self-generation of arguments (e.g., Elms, 1966; Watts, 1967), using interesting or involving communication topics (Ronis, Baumgardner, Leippe, Cacioppo, & Greenwald, 1977), leading recipients to believe that they might have to explain or justify their attitudes to other people (e.g., Boninger, Brock, Cook, Gruder, & Romer, 1990; Chaiken, 1980), and having them evaluate a message during its receipt rather than afterward

(Mackie, 1987) are all associated with increased persistence of attitude change. Also, people who characteristically enjoy thinking (high need for cognition) show greater persistence of attitude change than people who do not (e.g., Cárdaba, Briñol, Horcajo, & Petty, 2013; Haugtvedt & Petty, 1992; Wegener, Clark, & Petty, 2006). As these examples illustrate, many attitude features proposed to reflect an attitude's overall strength (e.g., accessibility, elaboration) have been shown to predict stability.

In addition to examining single antecedents of attitude stability, recent research conducted by Luttrell, Petty, and Briñol (2016) has examined the extent to which different features of attitude strength can be studied simultaneously in order to predict stability. Across several longitudinal studies using different attitude objects, this research demonstrated that attitude ambivalence and attitude certainty moderate one another's relationship with temporal attitude stability. Specifically, as ambivalence decreased, there was a stronger positive relationship between certainty and attitude stability—the traditional attitude strength effect of certainty. However, as ambivalence increased, however, the certainty effect reversed. That is, the more certainty people expressed in their attitudes, the more those attitudes changed over time. Similarly, as certainty increased, there was a stronger positive relationship between ambivalence and attitude instability—the traditional attitude strength effect of ambivalence. As certainty decreased, however, the tendency was for the ambivalence effect to be eliminated or reversed (see Clarkson, Tormala, & Rucker, 2008, for a similar finding with respect to resistance to persuasion). Although some research such as this has begun considering interactions between a limited set of attitude strength variables (e.g., certainty and importance; Visser, Krosnick, & Simmons, 2003), attitude strength research could benefit from increased attention to the ways in which strength indicators interact to uniquely predict critical outcomes.

In addition to predictors of actual temporal stability, it is noteworthy that people have theories regarding their own attitude stability as well as those of others. For example, individuals who score high on the Implicit Theories of Attitude Stability scale (Petrocelli, Clarkson, Tormala, & Hendrix, 2010) see people's attitudes as unchanging entities. Such beliefs can affect how confident people are in their attitudes, which should have implications for subsequent persuasion. Just as people can have beliefs about the extent to which attitudes fluctuate, there are also more general individual differences in the extent to which people see their personality as stable (entity theorists) or as changeable (incremental theorists; see Dweck, Chiu, & Hong, 1995). These naïve theories about stability and change can be measured and are associated with actual changes in people's attitudes both over time as well as with how people respond to persuasive treatments (John & Park, 2016; Kwon & Nayakankuppam, 2015). In a recent example, Akhtar and Wheeler (2016) showed that people who have an entity theory are more certain of their attitudes than are people with an incremental theory, and people with greater attitude certainty are more willing to try to persuade others (when the naïve entity theory focuses on the self) but less likely to persuade others (when the naïve entity theory focuses on others).

Attitude Resistance

Resistance to persuasion can be understood in multiple ways, as a psychological *process* (e.g., one can resist by counterarguing), as a *motivation* (i.e., having the goal of not being persuaded), and as a *quality* of a person (i.e., being resistant to persuasion). This section deals primarily with resistance as an *outcome* (e.g., showing little or no change in attitudes to a persuasive attempt). That is, when people are committed to an attitude, they are more certain the attitude is correct, they are more confident they will not change it, their position on the issue is more extreme, and their attitude is more stable, enduring, accessible, and capable of predicting future behavior (e.g., Pomeranz, Chaiken, & Tordesillas, 1995).

Although attitude persistence and resistance tend to co-occur, their potential independence is shown in McGuire's (1964) classic work on cultural truisms. Truisms such as "you should brush your teeth after every meal" tend to last forever if left unchallenged but are surprisingly susceptible to influence when attacked because people have no practice in defending them. In his work on *inoculation theory*, McGuire demonstrated that two kinds of bolstering can be effective in facilitating resistance. One relies on providing individuals with a supportive defense of their attitudes (e.g., see Ross, McFarland, Conway, & Zanna, 1983), and a second provides a mild attack and refutation of it (the inoculation). Just as people can be made more resistant to a disease by giving them a mild form of it, people also can be made more resistant to discrepant messages by inoculating their initial attitudes (see Petty, Tormala, & Rucker, 2004; Tormala, Clarkson, & Petty, 2006).

As introduced in the section on attitude resistance, attitude ambivalence and attitude certainty can interact to predict attitude resistance. This possibility comes from the idea that certainty magnifies the typical effect of any attitudinal attributes whereas uncertainty undermines the effect of anything that is currently in mind (Petty, Briñol, Tormala, & Wegener, 2007). As it relates to certainty's potential for magnifying the effects of *ambivalence*, Clarkson et al. (2008) showed that ambivalence promoted openness to persuasion when certainty was high but was associated with resistance to persuasion when certainty was low.

As just noted, attitude confidence and attitudinal ambivalence can interact in predicting outcomes such as attitude stability and resistance. Consistent with the view that confidences magnifies the effect of any mental content, other recent research in this domain suggests that increasing confidence in conflicting evaluative reactions can increase feelings of attitudinal ambivalence (DeMarree, Briñol, & Petty, 2015) and prompt careful deliberation about persuasive messages relevant to the object of attitudinal ambivalence (Clarkson et al., 2008). Indeed, one of the main consequences of attitudinal ambivalence is that it tends to produce deliberation (Briñol, Petty, & Wheeler, 2006; Maio, Olson, Bernard, & Luke, 2006) and *inaction* (van Harreveld et al., 2009). Following this logic, recent research has shown that the confidence that emerge from feeling powerful validates individuals' ambivalent reactions, and as a consequence powerful people behave more in accordance with their ambivalence. This magnification effect from validation (DeMarree

et al., 2015; Luttrell, Stillman, et al., 2016) translates into powerful people acting *less* decisively and more *slowly* than powerless people, the opposite of the typical decisive action associated with being powerful (e.g., Galinsky, Gruenfeld, & Magee, 2003).

Attitude Confidence

There are many potential meta-cognitive judgments people can make about their attitudes such as how quickly they come to mind, how many others share their view, and how persistent and resistant they think they are (Wegener, Downing, Krosnick, & Petty, 1995). For example, the perceived importance, ambivalence, and knowledge associated with an attitude have received a great deal of attention (e.g., Visser, Bizer, & Krosnick, 2006). However, the most studied meta-cognitive aspect of attitudes and the one of most long-standing interest (e.g., Allport, 1924) is the certainty or confidence with which an attitude is held. Certainty generally refers to a sense of validity concerning one's attitudes.

Attitude certainty shares with other strength dimensions that attitudes held with certainty tend to be resistant, persistent, and influential on people's thoughts and behavior (see Rucker, Tormala, Petty, & Briñol, 2014, for a recent review on attitude certainty). Generally speaking, attitudes held with high (versus low) certainty are more resistant to persuasive attacks (e.g., Clarkson et al., 2008). Attitudes held with greater certainty are also more persistent over time. Bassili (1996) demonstrated that as certainty in attitudes toward a political candidate increased, people were more likely to have a similar attitude 10 or more days later. Attitude certainty has also been shown to influence information processing; the typical finding is that increases in certainty are associated with *decreases* in processing activity (e.g., Briñol et al., 2006; Maheswaran & Chaiken, 1991). Finally, attitudes held with high (vs. low) certainty are more likely to influence behavior. In one classic study, Fazio and Zanna (1978) found that undergraduates' attitudes toward participation in psychology experiments were better predictors of actual participation when held with high rather than low certainty.

Initial conceptualizations of attitude certainty tended to assume that certainty sprang from structural features of attitudes such as having attitudes based on more issue-relevant knowledge, direct experience, or thought (e.g., Fazio & Zanna, 1981). Indeed, structural factors can play an important role in determining attitude certainty (Rucker, Tormala, Petty, & Briñol, 2014). However, recent research has begun to examine how people sometimes infer greater certainty in the absence of any structural differences. Notably, people can even come to infer greater certainty in their attitudes if they are simply led to infer that they have done much thinking about the attitude object even if they have not (Barden & Petty, 2008). Of greatest importance is that the certainty that comes from simple inferences rather than structural differences can also lead the attitudes to be more consequential (e.g., resistant to change and predictive of behavior; Rucker, Petty, & Briñol, 2008).

Over the last few decades, an important body of research has turned from the traditional focus on attitudes per se to understanding changes in the certainty people associate with

those attitudes. This meta-cognitive shift has greatly increased understanding of the effects of persuasion variables on attitudinal outcomes. For example, recent work indicates that attitude certainty is greater following persuasive messages from high rather than low credibility sources (Clarkson, Tormala, & Rucker, 2008), even when people resist those messages (Tormala, DeSensi, & Petty, 2007; Tormala & Petty, 2004). Also, inducing people to think of their attitudes in terms of what or who they oppose, rather than support, leads to greater attitude certainty and more resistance to subsequent change (Bizer, Larsen, & Petty, 2011). Relatedly, people also hold their attitudes with greater certainty when they perceive them to be based on consideration of both sides of an issue—the pros and the cons (Rucker, Petty, & Briñol, 2008). In general, the more people believe they have thought about or analyzed an object or issue, the more certain they are of their attitude toward it (Barden & Petty, 2008).

Moral Attitudes as Strength Indicators

When people claim that an attitude is grounded in core moral beliefs, that attitude tends to be relatively strong (Skitka, 2010). Thus, attitudes based on moral beliefs are similar to those that are linked to other strength indicators such as high elaboration (Barden & Petty, 2008), certainty (Rucker et al., 2014), and accessibility (Fazio, 1995). Research on attitudes' moral bases typically assesses people's beliefs regarding the link between their attitude and their morality with questions such as, "To what extent is your attitude about this topic a reflection of your core moral beliefs and convictions?" (Skitka, Bauman, & Sargis, 2005). Research consistently shows that the more people report a moral basis for their attitudes, the more their attitudes predict relevant behavior (e.g., Ben-Nun Bloom, 2013; Morgan, Skitka, & Wisneski, 2010; Wright, Cullum, & Schwab, 2008) and resist influence (Aramovich, Lytle, & Skitka, 2012; Haidt, 2001; Hornsey, Smith, & Begg, 2007). This is consistent with the literature reviewed earlier on attitude functions revealing that attitudes based on values are more predictive of related behavioral intentions (Maio & Olson, 1994).

Why would attitudes that are perceived to be based on morality be stronger than those not so based? One possibility is that morally based attitudes are different in some way from non-morally based attitudes. Some have suggested that morally based attitudes develop from stable, internal influences. Rozin (1999), for instance, discusses the process of moralization, noting that the adoption of new moral principles gives moral value to anything else that seems related to them. Additionally, some data demonstrate that more conservative ideology corresponds to a greater tendency to moralize attitudes (e.g., Jarudi, Kreps, & Bloom, 2008), but a recent meta-analysis suggests that people moralize attitudes that are important to any ideology, be it liberal or conservative (Skitka, Morgan, & Wisneski, 2015; see also Haidt, 2012). Other evidence suggests stable internal origins by postulating a link between the heritability of attitudes and morality (Tesser, 1993).

Recently, Luttrell and colleagues (2016) examined the idea that the mere perception that attitudes have a moral basis is sufficient to render them more consequential even if there is no substantive difference. That is, a perceived moral basis could serve as a strength

heuristic similar to how other strength heuristics operate. As noted in the previous section, Barden and Petty (2008) showed that merely believing that one had thought about one's attitude diligently was sufficient to make it predict behavior better even if that perception was created experimentally without any substantive basis to it. In another example of this new generation of meta-cognitive heuristics, Rucker and colleagues (2008) also showed that merely perceiving that one had thought about the two sides of one's attitude was sufficient to make it predict behavior better, keeping objective information constant. In line with these two examples, the core idea tested by Luttrell and colleagues was that experimentally manipulating the perceived moral basis of an attitude would render the attitude more potent in predicting behavior and more resistant to change in response to a persuasive message without any objective basis for it.

Consistent with this prediction, Luttrell and colleagues (2016) demonstrated that simply viewing one's attitude as based in morality (as induced by false feedback) made the attitude stronger and more consequential, even after controlling for other attitude strength indicators. By manipulating perceived moral bases independent of actual bases (a unique feature of these studies), the research by Luttrell and colleagues demonstrated that a perceived moral basis can serve as an attitude strength heuristic independent of any pre-existing attitude strength-related attributes like certainty, ambivalence, and so on. Furthermore, by manipulating this perception in the absence of any substantive differences, this research showed that perceived morality acts like a strength heuristic, and thus contributes to an emerging body of work highlighting the importance of perceived attitude qualities irrespective of their objectively measured counterparts in producing durable and impactful attitudes (e.g., Barden & Petty, 2008; Smith, Fabrigar, MacDougall, & Wiesenthal, 2008). In addition to the theoretical implications, this research suggests that political candidates and other practitioners who guide voters to view their attitudes as morally based could effectively instill relatively firm, unchanging attitudes in their audiences (see, e.g., Ben-Nun Bloom & Levitan, 2011; Day, Fiske, Downing, & Trail, 2014; Van Bavel, Packer, Haas, & Cunningham, 2012).

Attitude Structure

Explicit Versus Implicit Attitude Measures

After a long tradition of assessing attitudes using people's responses to self-report measures, more recent work has also assessed attitude change with measures that tap into people's more automatic evaluations. Techniques that assess automatic evaluative associations without directly asking people to report their attitudes are often referred to as *implicit measures* and assessments that tap more deliberative and acknowledged evaluations are referred to as *explicit measures* (Gawronski & Payne, 2010; Petty, Fazio, & Briñol, 2009; Wittenbrink & Schwarz, 2007). Because implicit and explicit measures of attitudes are useful in predicting behavior separately (e.g., Greenwald et al., 2002) and in combination (e.g., Briñol, Petty, & Wheeler, 2006), it is useful to provide a brief discussion of traditional and contemporary assumptions regarding attitudes and how implicit and ex-

plicit measures are related. Next, the main perspectives on attitude representation are described.

Single Attitude Model

A first approach to attitude representation asserts that attitudes are best conceptualized as an object-evaluation link in memory (e.g., Fazio, 1995; Fiske & Pavelchak, 1986). The most well-articulated and influential example of this conceptualization is Fazio's MODE model (Fazio & Towles-Schwen, 1999), which has contributed much to our understanding of attitude structure and expression. In brief, the MODE model holds that people have stored evaluative associations of attitude objects. In this framework, automatic measures of attitudes (e.g., evaluative priming; Fazio, Jackson, Dunton, & Williams, 1995; IAT, Greenwald, McGhee, & Schwartz, 1998) tend to assess the stored evaluative association, whereas more deliberative measures (e.g., semantic differential; Osgood, Suci, & Tannen-baum, 1957) tap the retrieved evaluative association along with the outcome of any down-stream cognitive processes. Thus, if a person expresses a different attitude on a deliberative than an automatic measure, it is presumably because he or she has engaged in some thought that modifies the initial automatic evaluative reaction that comes to mind (see also Gawronski & Bodenhausen, 2006, for similar assumptions). This thought can reflect additional mental contents that are brought to mind or activated by the context, or it can stem from impression management or correction motives (see Fazio, 2007).

Dual Attitude Model

A second approach argues that people can hold separate explicit (conscious, deliberative) and implicit (unconscious, automatic) attitudes (e.g., Greenwald & Banaji, 1995; Wilson, Lindsey, & Schooler, 2000), which can take on different values. In this section three assumptions that are fairly common in this approach as articulated by Petty, Briñol, and De-Marree (2007) are described.

Perhaps the most important assumption shared by many dual attitudes proponents is that dual attitudes (implicit and explicit) have separate mental representations (e.g., see Wilson et al., 2000). Implicit and explicit attitudes are sometimes viewed as distinct mental entities that are stored separately in different areas of the brain (e.g., see DeCoster, Banner, Smith, & Semin, 2006). Thus, a person might have a deliberative (explicit) attitude toward an object of one valence but an automatic (implicit) attitude of a different valence.

A second common assumption is that the two attitudes stem from distinct mental processes. Implicit attitudes are said to stem from associative processes such as evaluative conditioning, whereas explicit attitudes stem from propositional processes such as thinking about message arguments (e.g., Rydell, McConnell, Mackie, & Strain, 2006). The different mental processes responsible for explicit and implicit attitudes are often characterized as being governed by separate mental systems (e.g., reflective/impulsive; fast/slow; DeCoster et al., 2006; Rydell & McConnell, 2006).

Third, implicit and explicit attitudes are postulated to be relatively independent and to operate in different situations. Thus, these attitudes are not expected to be in conflict (DeCoster et al., 2006) but instead are postulated to work in different arenas. In particular, implicit attitudes are postulated to guide behavior in spontaneous situations when people are not engaged in much thought, whereas explicit attitudes are said to guide behavior when people are being reflective (see Dovidio et al., 1997). In this sense, then, the manner of measuring implicit and explicit attitudes (i.e., with automatic versus deliberative measures) matches the situations in which they guide behavior (Vargas, 2004).

In summary, according to this view: (a) attitudes assessed with automatic and deliberative measures are quite different; (b) these attitudes have separate representations and are the result of different processes from separate mental systems, and (c) operate in different situations.

Process Models of Attitudes

Another approach to attitudes holds that there are no stored evaluations in memory. Instead, according to this *constructivist* perspective, attitudes are formed, as needed, based on currently salient beliefs, feelings, and behaviors (e.g., Schwarz & Bohner, 2001; Wilson & Hodges, 1992). Thus, different contexts will make different knowledge accessible, resulting in changes in people's reported evaluations. Any consistency in attitudinal reports, according to this perspective, comes from the same set of building blocks being retrieved each time and being used in computing the current evaluation. It could be argued that it is not clear why a mental system would develop such that it would link particular attributes to evaluations (e.g., being lazy is bad) but not link the overall attitude object to an evaluation (e.g., Fred is bad; see Petty, Wheeler, & Tormala, 2003). Indeed, research suggests that people often do not retrieve attribute information when they have a previously formed and relevant attitude to guide decisions (see Lichtenstein & Srull, 1985; Lingle & Ostrom, 1981).

One recent instantiation of a process approach to attitudes is the associative propositional evaluation model (Gawronski & Bodenhausen, 2006). This framework holds that people can respond positively or negatively to some attitude object either based solely on the affect that is associated with the object or based on the propositions that come to mind with respect to the object. Affect associated with an object can be translated into propositional form (e.g., I like this) and then checked for validity by an online process that examines whether the evaluative proposition is consistent with other salient propositions. In this framework, there are no stored evaluations (attitudes) per se, only stored affect and beliefs (propositions) that serve as input to an expressed evaluation.

The Meta-Cognitive Model

According to the meta-cognitive model (MCM, Petty, 2006; Petty & Briñol, 2006; Petty, Briñol, & DeMarree, 2007), attitudes consist of evaluative associations (positive and negative) along with validity tags that can be represented in various ways, such as confidence/

doubt. Briefly described, the MCM holds that automatic evaluative associations only determine explicit attitude measures to the extent that people endorse these associations. However, evaluative associations—whether endorsed or not—can affect implicit attitude measures (see also Gawronski & Bodenhausen, 2006). That is, the perceived validity tags tend not to influence implicit measures, at least until these tags become so well learned that they are automatically activated (Maddux, Barden, Brewer, & Petty, 2005).

On the one hand, the MCM agrees with the commonly held view that for many attitude objects, one evaluation (relatively positive or negative) is dominant and represents the integration of knowledge about the object (Fazio, 1995). In such situations, this evaluation would come to mind upon encountering the attitude object, though the speed at which this occurs can vary (e.g., see Bargh, Chaiken, Raymond, & Hymes, 1996; Fazio et al., 1986).

On the other hand, according to the MCM, people can develop an attitude structure in which attitude objects are linked to both positivity and negatively separately (see also Cacioppo, Gardner, & Berntson, 1997), and tag these evaluations with varying degrees of validity. These validating (or invalidating) meta-cognitions can vary in the strength of their association to the linked evaluation, and the strength of these links will determine the likelihood that the perceived validity of the evaluation will be retrieved along with the evaluation itself. Most notably, perhaps, the MCM goes beyond the idea that attitude validation is solely an online process (e.g., Gawronski & Bodenhausen, 2006) and contends that perceived validities, like the evaluations themselves, can be stored for later retrieval. Furthermore, just as evaluative associations can be context specific, so too can people learn to associate invalidity tags with evaluations more in some contexts than others (e.g., see Maddux et al., 2005).

Importantly, the MCM argues that although people might not rely upon evaluative links that are associated with doubt (i.e., are invalidated) when deliberatively responding to explicit measures, those automatic associations can still influence more automatic measures and thus can produce what has been called *implicit ambivalence*—a form of evaluative conflict that results from explicit–implicit attitude discrepancies (see Petty & Briñol, 2009, for a review). In fact, an important contribution of the MCM is the distinction between explicit and implicit forms of ambivalence. Sometimes a person holds both positive and negative evaluations to be valid, and this person's attitude is best described as being *explicitly ambivalent* because both positive and negative associations come to mind and are endorsed (e.g., de Liver, van der Plight, & Wingboldus, 2007). At other times, however, people might have two opposite accessible evaluations come to mind, but one is seen as valid whereas the other is rejected. A denied evaluation can be a past attitude (e.g., I used to like smoking, but now it is disgusting; Petty, Tormala, Briñol, & Jarvis, 2006) or an association that was never endorsed but nonetheless automatically comes to mind for other reasons (e.g., from continuous stereotypic depictions in the media; Olson & Fazio, 2009). In such cases, the MCM refers to the attitude structure as one of implicit ambivalence. Even though people do not endorse opposite evaluations of the same attitude object (i.e., they are not explicitly ambivalent), they can nevertheless feel uncomfortable

about such attitude objects without knowing the specific source of the conflict (see Petty, Briñol, & Johnson, 2012; Rydell, McConnell, & Mackie, 2008). This discomfort is consequential in that it leads people to more carefully process information associated with the object of their ambivalence (Petty et al., 2006; Briñol, Petty, & Wheeler, 2006).

Explicit Attitudinal Ambivalence

As noted, the MCM holds that attitude objects can be linked in memory to both positive and negative evaluations that spring to mind automatically but that these evaluations can differ in the extent to which they are explicitly endorsed. When both positive and negative evaluations come to mind automatically and are endorsed (i.e., people believe these represent their true assessments), the person's attitude is best described as being *explicitly ambivalent*. On a bipolar measure, an ambivalent person might appear to endorse a moderate or neutral attitude that represents his or her attempt to integrate both positivity and negativity. Because of this, it is sometimes useful to assess the positivity and negativity of underlying attitudes separately and calculate an objective ambivalence score (e.g., Kaplan, 1972). When people are aware of holding opposing positive and negative reactions to an attitude object, they report feeling conflicted, confused, torn, and mixed about the object (e.g., Priester & Petty, 1996; Thompson, et al., 1995). This conflict is especially apparent when people are about to make an attitude-relevant decision (van Harreveld, van der Plight, & de Liver, 2009).

In addition to this intrapersonal discrepancy, interpersonal factors also contribute to feelings of ambivalence. In particular, when people believe that their attitudes are discrepant from those of liked others, there are feelings of conflict (Priester & Petty, 2001). As specified by balance theory (Heider, 1958), one reason for this is that people want to agree with people they like, and when they do not, they feel some tension. In addition, disagreement with liked others can indicate that one's attitude is incorrect (Festinger, 1954), which is also troublesome. Research has extended the causes of subjective ambivalence to include concerns about conflicting information that might exist but to which individuals have not yet been exposed (Priester, Petty, & Park, 2007) and to discrepancies between individuals' actual attitudes and the attitudes they would ideally like to possess (DeMarree, Wheeler, Briñol, & Petty, 2014). The latter is discussed in more detail later in this chapter.

When the cause of a conflict is explicit, people will report being ambivalent, and the uncomfortable feeling that results from this state produces a number of important outcomes. For example, the more ambivalence people experience regarding an object, the slower they are to report their attitudes (Bargh, Chaiken, Govender, & Pratto, 1992) and the less functional the attitudes become in guiding behavior (Armitage & Conner, 2000; Sparks, Harris, & Lockwood, 2004). Given that subjective ambivalence tends to be a negative state, people are motivated to reduce it. The motivation to reduce ambivalence can lead people to pay careful attention to and think about information that might help them

to resolve their conflict (e.g., Clark, Wegener, & Fabrigar, 2008; Maio, Bell, & Esses, 1996; see also Sawicki et al., 2013).

Implicit Attitudinal Ambivalence

As explained earlier, according to the MCM, in addition to the explicit ambivalence people report and feel when they acknowledge the source of the conflict (e.g., there are both positive and negative aspects to some object; I disagree with my parents about this), a more subtle kind of conflict, called *implicit ambivalence*, can occur when people are not fully aware of an explicit conflict. Research on implicit ambivalence has made a number of unique discoveries. First, a number of studies have tested the notion that explicit–implicit discrepancy could lead to enhanced information processing (Briñol et al., 2006, Johnson, Petty, Briñol, & See, 2017). As predicted, the results of these studies revealed that when the message was framed as self-relevant, the extent of explicit–implicit discrepancy interacted with argument quality to affect attitudes. The greater this discrepancy, the more participants differentiated strong from weak arguments, but only when the information was relevant to the object for which the discrepancy occurred. Furthermore, the direction of the discrepancy (i.e., was implicit self-esteem greater or less than explicit) did not further moderate the results. Second, in addition to examining discrepancies that already exist, research on implicit ambivalence has also investigated discrepancies created in the laboratory. Specifically, a series of studies have demonstrated that changing a person's attitude from one valence to another can produce implicit ambivalence (Petty et al., 2006; Rydell, McConnell, & Mackie, 2008).

Third, another area of research consistent with this notion comes from the domain of prejudice in racial attitudes. There are a number of studies suggesting that Whites will sometimes engage in greater processing of a persuasive message when it comes from a Black rather than a White source (e.g., White & Harkins, 1994). Petty, Fleming, and White (1999) suggested that this enhanced scrutiny might be due to the motive of Whites to guard against possible prejudice (from themselves or others) toward Black sources, called watchdog motivation. Thus, it was individuals low in prejudice who were most likely to show the enhanced scrutiny effect because they presumably would be most concerned about showing any bias (see also Fleming, Petty, & White, 2005). In a recent series of studies, a variation of the watchdog hypothesis based on the idea of implicit ambivalence was tested (Johnson et al., 2017). Specifically, the implicit ambivalence notion suggests that among individuals low in explicit (i.e., deliberative) prejudice, it is those who are also high in implicit (i.e., automatic) prejudice who will do the most processing. That is, people who do not want to be prejudiced or who see themselves as unprejudiced (low explicit prejudice) but who harbor automatic negative reactions toward Blacks (high implicit prejudice) would experience conflict and be the most vigilant in guarding against prejudice (Devine, Monteith, Zuwerink, & Elliot, 1991; Monteith, 1993; Monteith, Devine, & Zuwerink, 1993). One way to guard against prejudice is to engage in careful processing of messages from Blacks. Although this prediction is consistent with the initial watchdog notion, the implicit ambivalence framework also makes a novel prediction that individuals who are high in explicit prejudice but low in implicit prejudice would also engage in en-

hanced information processing. Consistent with the idea that people engage in greater information processing when a message is relevant to their implicit–explicit discrepancies, Johnson and colleagues (2017) found that individuals who are implicitly ambivalent—high in implicit but low in explicit prejudice or the reverse—engaged in greater information processing of information related to the discrepancy (Black source) (for a paradigm of sexual orientation ambivalence, see Windsor-Shellard & Haddock, 2014).

Attitude Balance

Attitudes tend to connect with other attitudes and mental constructs in a consistent manner. For example, Heider (1958) proposed that three elements in a cognitive system (self, other, object) could either be in an evaluatively balanced state (i.e., a person agreeing about the value of some object with another person who was liked, or disagreeing about the value of some object with another person who was disliked) or in an imbalanced state (e.g., a person disagreeing about the value of some object with another person who was liked, or agreeing about the value of some objects with another person who was disliked). Like Abelson et al. (1968) and Festinger (1957), Heider held that imbalanced systems were unpleasant and unstable and tended to move toward balance.

More recently, Greenwald et al. (2002) proposed a Unified Theory of Implicit Social Cognition in which the essential ingredients of Heider's theory of psychological balance were applied to automatically activated cognition. The elements in the Unified Theory are self, group, and valence, but the framework would presumably be applicable to all of the elements addressed by Heider's original theory. In this framework, the self can be automatically associated with one or more (non-valenced) group concepts (e.g., I am a woman), and the self and group elements can be automatically associated with a particular valenced node (e.g., positive/negative). Greenwald and colleagues (2002) examined the coherence among these three constructs using implicit measures. For example, in one study conducted with female students on gender identity, the authors measured three types of associations: self-gender (gender identity), self-valence (self-attitude), and gender-valence (gender attitude). In line with the predictions of balance theory, they found that the stronger the automatic associations between the self and female and the self and good, the stronger the automatic linkage between female and good.

Balance effects have implications for attitude change and attitude spreading. For example, Horcajo, Briñol, and Petty (2010) showed that asking participants to think about persuasive messages can lead to associated changes on automatic measures through a process of spreading activation guided by the attainment of psychological balance (see also Mann & Ferguson, 2015, 2017; Wyer, 2010, 2017). In one study in this line of research, participants were asked to generate arguments in favor of or against including more vegetables in their diet, linking vegetables to either good or bad. Then, they completed an implicit measure (IAT) designed to assess the automatic link between vegetables and the self as well as a measure of implicit self-esteem (Greenwald et al., 2002). Consistent with the idea of implicit balance, participants showed more automatic self–vegetable associations after thinking about the benefits (rather than the negative consequences) of con-

suming vegetables and these effects were only apparent for those with high (but not low) implicit self-esteem (i.e., those who have stronger automatic associations between the self and good). For low implicit self-esteem individuals, there was a nonsignificant tendency for stronger associations between self and vegetables after thinking about the negative consequences of consuming vegetables.

In another study within this series, Horcajo and colleagues (2010) had participants receive false feedback about their self-concept to increase or decrease the perceived linkage between the self-concept and vegetables. That is, after completing a relevant IAT, they were told that their self-concept was strongly associated with either vegetables or animals. Then, the impact of this induction was assessed on an implicit measure of attitudes toward vegetables (i.e., the link between vegetables and its valence), as moderated by scores on implicit self-esteem (i.e., the link between the self and its valence). It was predicted and found that the false feedback increasing the self-vegetable linkage led to more favorable implicit attitudes toward vegetables, but only for those with relatively high implicit self-esteem.

Whereas the initial research on implicit balance by Greenwald and colleagues (2002) focused on the examination of implicitly measured constructs (e.g., the self, a group, and valence), the research conducted by Horcajo and colleagues (2010) took a more experimental approach to examine implicit balance in which one link was manipulated and the effects on the other links observed. Overall, the evidence suggests that regardless of whether one takes a relatively static (Greenwald et al., 2002) or a more dynamic (Horcajo et al., 2010) approach, the results are highly consistent with the notion of implicit balance (for additional examples, see Gawronski, Walther, & Blank, 2005; Langer, Walther, Gawronski, & Blank, 2009).

Ideal Attitudes

In addition to actual attitudes, people often have desired attitudes that can vary in their congruence with their actual attitudes. In other words, people might simultaneously have actual attitudes and desired attitudes that can sometimes conflict (Maio & Thomas, 2007). For example, a dieter might want to like cheesecake less, a Democrat might want to be more favorable toward Hillary Clinton, a married man might want to be less attracted to his single neighbor, or a student might want to enjoy studying more. Recent work has demonstrated that people's actual and desired evaluations often differ (DeMarree et al., 2014). Although the frequency of such discrepancies varies across samples and topics (e.g., 29% for the topic of exercising and 66% for the self in DeMarree et al., 2014) and vary in direction (e.g., some people want to like legalized abortion more than they do and others less), they are surprisingly common, suggesting that they are not easily resolved. If they were, people would simply change their actual attitudes to be congruent with their desired attitudes and discrepancies would be relatively rare. However, a dieter who wants to like broccoli more cannot merely "wish" to like it more and then, their attitude

changes. Instead, their actual attitude (a negative evaluation of broccoli) and their desired attitude (to be positive towards broccoli) may coexist.

DeMarree et al. (2014) and DeMarree and Rios (2014) demonstrated that when actual and desired attitudes are discrepant, people experienced *subjective ambivalence*—the psychological experience of conflict in their evaluations (Priester & Petty, 1996). In addition to reporting subjective discomfort, participants in this line of research reported being motivated to reduce the conflict they experienced (DeMarree et al., 2014, Study 6). Furthermore, DeMarree, Clark, Wheeler, Briñol, & Petty (2017) demonstrated that desired attitudes independently predicted behavioral intentions, information seeking, information processing, and overt behavior, beyond any influence of actual attitudes. Finally, consistent with the idea that desired attitudes reflect attitudinal goals, these effects were strongest among people who reported that they were highly committed to the pursuit of their desired attitudes. Much like how the "strength" of people's actual attitudes moderates the relationship between actual attitudes and behavior (Petty & Krosnick, 1995), it appears that the strength of people's desired attitudes—in this research instantiated as commitment—can play a similar role. In sum, this research reveals that people's desired attitudes are impactful and suggests that a complete understanding of attitude-relevant processes requires a consideration of the attitudes people *want* to have along with those they already have.

This research has implications for the relationship between attitudes and goals. On the one hand, people may be more successful at goal pursuit if they like those objects and behaviors that facilitate goal pursuit and dislike those objects and behaviors that interfere with goal pursuit (Ferguson & Bargh, 2004). In line with this idea, recent work even suggests that people's automatic and deliberative attitudes can shift in a manner that reflects their current goal pursuit efforts (e.g., Ferguson, 2008; Ferguson & Bargh, 2004; Fishbach & Trope, 2008; Fitzsimons & Shah, 2008; Trope & Fishbach, 2004). Similarly, recent work provides suggestive evidence for the deployment of *intrapsychic* strategies for pursuing desired attitudes (Maio & Thomas, 2007; Taylor et al., 2014). On the other hand, people may not always be able to change their evaluations in the service of their goals. For example, many dieters have thoughts along the lines of, "I *wish* I didn't like cookies!" In other words, people may often *want* different attitudes—attitudes that would better serve their goals. The research by DeMarree and colleagues (2017) showed that although people may not always be able to shift their attitudes on demand, the attitudes they *want to have* (i.e., their desired attitudes) can still impact judgment and behavior. Thus, these desired attitudes appear to have the potential to aid goal pursuit, even though they may still conflict with people's actual attitudes.

Conclusions

In this article, social psychology's major research findings regarding attitude structure and function have been presented. Specific dimensions along which attitudes vary, and their features in terms of their impact on thought and behavior, were described. The re-

view was divided into three main sections. First, attitudes and the properties that are particularly relevant for attitude stability, resistance, and attitude–behavior consistency were defined. In this initial section, the functions of attitudes, such as serving needs for knowledge, consistency, identity, and belonging were described. Furthermore, the origins of attitudes were discussed. Attitudes can emerge from affective, and cognitive information. These particular bases of attitudes can be appraised objectively and subjectively. Meta-bases tend to be uncorrelated with structural bases and predict different outcomes. Beyond affect and cognition, people's attitudes can be based on behavioral information. Consistent with this idea, recent work on embodiment showing that attitudes are closely linked to postures and bodily responses was reviewed.

In the second section, research showing that confidence can magnify the impact of any mental construct, including the impact of attitudinal ambivalence was covered. In this second section, recent research showing that manipulating the perceived moral basis of an attitude made the attitude more potent in predicting behavior and more resistant to change to a persuasive message without any real difference in attitude structure or objective basis was also analyzed. In addition to being connected (or perceived to be connected) to moral basis, attitudes linked to a broad, diverse network of important beliefs and values are also stronger and more likely to generalize (Fabrigar, Petty, Smith, & Crites, 2006; Maio & Olson, 1995; Stark, Flache, & Veenstra, 2013).

The final section covered the main models relevant to understanding attitude structure, ranging from traditional dual theories to contemporary meta-cognitive approaches. The distinction between automatic and deliberative attitudes was introduced, and the way in which implicit and explicit measures can be useful in predicting behavior separately and also in combination was described. An important portion of this section focused on the distinction between explicit and implicit forms of attitudinal ambivalence. Beyond explicit and implicit discrepancies, actual and ideal attitudes were differentiated. People often have desired attitudes that can vary in their congruence with their actual attitudes. As described in this section, people might simultaneously have actual attitudes and desired attitudes that can sometimes conflict. This recent research is important because attitudes people *want* to have are impactful above and beyond the attitudes they already have.

A common feature of this review is the emphasis of the convergence or discrepancy between different measures relevant to antecedents and consequences of attitudes (e.g., implicit–explicit discrepancies; matching or mismatching messages to attitude functions, etc.). Indeed, examining the interaction between different attitudinal constructs constitutes an important advance of this contribution to the study of attitude function, structure, and strength.

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