# Attitude Strength

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## Keywords

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## Abstract

Attitude strength has been the focus of a huge volume of research in psychology and related sciences for decades. The insights offered by this literature have tremendous value for understanding attitude functioning and structure and for the effective application of the attitude concept in applied settings. This is the first *Annual Review of Psychology* article on the topic, and it offers a review of theory and evidence regarding one of the most researched strength-related attitude features: attitude importance. Personal importance is attached to an attitude when the attitude is perceived to be relevant to self-interest, social identification with reference groups or reference individuals, and values. Attaching personal importance to an attitude causes crystallizing of attitudes (via enhanced resistance to change), effortful gathering and processing of relevant information, accumulation of a large store of well-organized relevant information in long-term memory, enhanced attitude extremity and accessibility, enhanced attitude impact on the regulation of interpersonal attraction, energizing of emotional reactions, and enhanced impact of attitudes on behavioral intentions and action. Thus, important attitudes are real and consequential psychological forces, and their study offers opportunities for addressing behavioral change.

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## INTRODUCTION

The study of attitudes has been central to social psychological theory development since the birth of the field, and psychological insights into attitudes have enjoyed tremendous impact in a wide range of applied settings, including politics, health, marketing, education, and many more. However, the literature on attitudes has had its share of crises. Most importantly, the initial conception of attitudes, developed by scholars in the 1920s and 1930s, viewed them as evaluations, ranging from positive to negative, that efficiently encapsulate prior life experiences and direct thinking and action. Yet, as early as the 1930s, it appeared that attitude might not be as useful a tool for explaining cognition and behavior as had been assumed (LaPiere 1934).

Over the subsequent decades, researchers rescued the concept's apparent utility, pointing out, for instance, the facts that behavior is influenced by many factors other than attitudes (Ajzen & Fishbein 1980), that some people behave more according to their attitudes than do others (Ajzen et al. 1982), and that people act more according to their attitudes in some circumstances than in others (Pryor et al. 1977).

Arguably one of the most valuable advances in the understanding of attitudes was the recognition that attitudes vary in strength. In short, an attitude's strength describes the extent to which an attitude is consequential in shaping thinking and action across situations. Some attitudes are strong and some are weak; strong attitudes have the characteristics that researchers a century ago mistakenly assumed are possessed by all attitudes. In other words, strong attitudes are the attitudes that matter most for an individual's thoughts, intentions, and behavior.

Ignoring the fact that some attitudes are weak risks making assumptions that are counterproductive both for the development of theory and for the successful utilization of the attitude concept in applied settings. Consider, for example, public health professionals, manufacturing companies, political candidates, lobbying groups, and many other individuals and organizations that have spent billions of dollars attempting to change public attitudes to influence behavior. Time and again, such efforts have failed to produce the desired outcomes. One likely explanation for this failure lies with the concept of attitude strength: Attitudes that can be easily changed are weak and unlikely to shape behavior. The attitudes that most powerfully shape behavior are the hardest to change.

Because strong attitudes are resistant to change, efforts to change behavior might ignore such attitudes and focus, instead, on weak attitudes. Fortunately for these efforts, the literature on persuasion points to numerous strategies for changing weak attitudes (Perloff 2013). However, once those attitudes are changed, intervention efforts must not stop. Instead, those new attitudes must be strengthened so that they do not snap back but instead remain behaviorally consequential. A drop of a mixture of glue and catalyst must be put on a new attitude to cement and energize it. In short, the new attitude must be made strong.

But what must be done to make an attitude strong? And what consequences of strength can be expected from such an intervention? Understanding the nature, causes, and consequences of attitude strength may have great value not only for the building of social psychological theory but also for practical applications of that theory.

In this article, we offer a selective review of the accumulating literature on this topic. This is the first *Annual Review of Psychology* article on the topic, and our space limitations preclude a comprehensive review of the huge literature in this area. We have chosen to begin what may become a series of articles on the topic by highlighting the existing theory and research and the remaining questions about one of the most researched strength-related variables: attitude importance. This article offers an opportunity to paint a vivid portrait of what is known about this variable and thereby to set the stage for similar reviews of work on other variables.

Our review focuses on the literature on attitude importance produced since 1995, when the seminal review of research on attitude strength attributes was published (Petty & Krosnick 1995). We begin by offering a brief overview of the concept of attitude strength and discuss its correlates and their structure. We then define attitude importance, explain how it has been measured, outline the proposed theories about its origins and consequences, and review the accumulated empirical evidence in this regard.

## DEFINING ATTITUDE IMPORTANCE

Strong attitudes have four features: They are resistant to change, stable over time, influential on cognition, and influential on action (Krosnick & Petty 1995). Over the past three decades, researchers have found different features of attitudes to be related to strength (for a list of these features, see **Table 1**).

Attitude importance is one of the most researched strength-related attitude features. By definition, attitude importance is an individual's subjective judgment of the significance he or she attaches to his or her attitude (e.g., Boninger et al. 1995a). It is most frequently measured by asking participants to report how important the attitude or object is to them, how concerned they are about it, or how much they care about it (Gopinath & Nyer 2009). Some measures assess the relative importance of attitudes, comparing one attitude object's importance to that of another attitude object (e.g., Klar 2014, Ziegler & Schlett 2016). In short, attitude importance reflects the degree of priority a person attaches to an attitude.[1]

To attach personal importance to an attitude is to commit oneself to think about the attitude object, to gather information about it, to use that information as well as one's attitude in making relevant decisions, and to design one's actions according to that attitude. In this sense, attaching personal importance to an attitude represents a substantial commitment, somewhat analogous to

[1]Attitude importance is distinct from concepts such as centrality, involvement, ego-involvement, ego-preoccupation, salience, and personal relevance, which have almost always been defined in terms of links between the attitude object and the self (for a review, see Eaton & Visser 2008). These features have also been defined in terms of the degree to which an attitude represents one's important values or is central to one's self-image (Holland et al. 2003, Honaken & Verplanken 2004, Pomerantz et al. 1995), thus distinguishing them from attitude importance.

**Table 1 Attitude features related to strength**

| Feature | Definition |
|---|---|
| Importance | The degree to which an individual attaches significance to the attitude |
| Certainty | The individual's level of confidence that his or her evaluation of the attitude object is correct and is clear to him or her |
| Ambivalence | The degree to which a person holds positive and negative evaluations of the attitude object simultaneously |
| Accessibility | The likelihood that the attitude will come to mind automatically in relevant situations |
| Knowledge volume | The amount of information the person has about the attitude object |
| Extremity | The degree to which the person likes or dislikes the attitude object |
| Affective–cognitive consistency | The degree to which a person's feelings about the attitude object are evaluatively consistent with his or her thoughts about it |
| Intensity | The degree to which a person's evaluation of the attitude object activates powerful emotions |
| Moral conviction | The degree to which the attitude is a strong and absolute belief that something is right or wrong or moral or immoral, or that it reflects core moral values and convictions |
| Elaboration | The degree of thought one has given to the attitude object's merits and shortcomings |
| Vested interest | The degree to which the attitude object is perceived to be of personal consequence |



taking a job or making a long-term commitment to an interpersonal relationship. Consequently, people seem unlikely to attach personal importance to an attitude lightly. Just as people are misers with regard to cognitive processing (e.g., Fiske & Taylor 2013), they are probably also miserly with their attachments of psychological significance and value to attitudes: Only clear and compelling reasons seem likely to motivate such a psychological investment. High levels of importance are unlikely to emerge unnoticed over time. Rather, deep and lasting concern is likely to be instigated by significant events of which people are well aware. Moreover, the amount of importance a person attaches to an attitude tends to be highly consistent over time (Krosnick et al. 1994).

## THEORY

A wealth of research produced from the 1960s through the 1990s has suggested the causes and impacts of attaching importance to an attitude. We summarize this research briefly before moving into a discussion of evidence about attitude importance gathered since 1995.

### Causes of Attitude Importance

Attitude importance is thought to be caused by three principal sets of factors: self-interest, social identification, and values (for a review, see Boninger et al. 1995a). First, an attitude may become important to an individual who perceives it to be related to her or his self-interest, that is, to directly affect his or her rights, privileges, or lifestyle in some concrete manner. Second, an attitude may become personally important through social identification with reference groups or reference individuals. Finally, an attitude may become personally important if a person views the attitude object as relevant to her or his basic social and personal values.

### Effects of Attitude Importance

Attitude importance is thought to be consequential precisely because of its status as a belief: Perceiving an attitude to be personally important leads people to use that attitude in processing information, making decisions, and taking action (Boninger et al. 1995a). To determine the moment

that this subjective perception is most likely to have an impact, it is useful to consider Fazio's (1990) distinction between spontaneous and deliberative processing. He suggested that, on the one hand, people sometimes perform behaviors without actively and effortfully considering relevant attitudes (via spontaneous processing); an extreme example might be a spur-of-the-moment purchase of a candy bar at a supermarket checkout counter. On the other hand, some decisions are made only after very careful consideration of all relevant factors, including attitudes (via deliberative processing); an extreme example would be deciding whether to marry a particular person.

Attitude importance should have its most pronounced effects under the latter conditions, when people can consciously make reference to their beliefs about attitude importance. Importance may have automatic effects on spontaneous processing as well. However, these effects are likely to evolve over time as the result of deliberate choices that people make based on the amount of personal importance they attach to particular attitudes. Thus, whereas Fazio (1990) expected attitude accessibility to have greater effects during spontaneous processing, attitude importance is expected to have greater effects during deliberative processing.

Boninger et al. (1995a) proposed step-wise consequences of holding important attitudes, which are listed in **Table 2**. In addition, social psychological theories suggest that social consequences may result from attaching importance to an attitude. For example, according to balance theory, cognitive imbalance occurs when one dislikes a person who holds an attitude similar to one's own or when one likes a person who holds a contrasting attitude (Heider 1958). According to cognitive dissonance theory, the intensity of the discomfort that results from such inconsistency increases as the personal importance of the attitude increases (e.g., Festinger 1957). Therefore, when an important attitude is involved, the noxious state that results from encountering a person who



**Table 2 Proposed consequences of attaching importance to an attitude**

| Proposed Consequence | Theoretical Cause |
|---|---|
| **Stage 1** | |
| Acquiring information about the topic and thinking deeply about that information | Result of inherent interest in the topic derived from psychological significance attached to the attitude |
| Selective exposure and selective elaboration | Result of the desire to protect one's attitude by acquiring knowledge that can be used to defend it |
| **Stage 2** | |
| Acquiring a large body of organized knowledge relevant to the important attitude | Result of selective exposure and selective elaboration |
| High attitude accessibility (attitude comes to mind quickly and automatically when encountering attitude-relevant information) | Result of frequent thought about important attitude |
| Attitude extremity (holding very positive or very negative, rather than neutral, attitudes) | Result of frequent thought about important attitude |
| Evaluative consistency between important attitudes and other attitudes and values | Result of frequent thought about this attitude in conjunction with other attitudes and values |
| **Stage 3** | |
| Resistance to attitude change (resulting in attitude stability) | Result of large stores of relevant information and desire to defend the attitude |
| Behavioral consequences | Result of the high likelihood that important attitudes come to mind automatically and of motivation to express these attitudes and maintain evaluative consistency |

Table created using data presented by Boninger et al. (1995a).

holds an attitude that is inconsistent with one's own important attitude should be quite powerful and should demand swift reparation (see Cacioppo & Petty 1981). Because this inconsistency can be resolved by adjusting one's sentiment toward the other person, people probably come to like others whose attitudes are similar to their own important attitudes and to dislike others whose attitudes conflict with their own important attitudes. Unimportant attitudes are less likely to serve as a basis for interpersonal sentiment.

Understanding the logic of important attitudes helps illuminate attitude functioning in important contexts. For instance, attitude importance can help explain the process by which a voter evaluates political candidates. The more important a voter's attitude is toward a policy (e.g., strong gun control laws), the more likely that attitude is to shape evaluations of candidates, for several reasons. First, because important attitudes are frequently subjects of conscious thought, are typically extreme, and are probably extensively linked to other psychological elements (Judd & Krosnick 1989, Krosnick et al. 1993), these attitudes are likely to be highly accessible. Important attitudes are therefore more likely to come to mind as criteria with which to evaluate political candidates. Second, voters with important policy attitudes might be expected to seek out and attend closely to candidates' public statements of their attitudes toward the policy so as to detect differences and to choose between the candidates on that basis. Third, when a citizen recognizes that he or she disagrees with a liked candidate or agrees with a disliked candidate on a policy issue, he or she is unlikely to change his or her own policy attitude. Important attitudes are likely to be highly resistant to change because these attitudes have extensive linkage to other attitudes, beliefs, values, and other psychological elements and because large memory stores of relevant knowledge equip individuals to counter-argue against attitude-challenging information. For these and other reasons following the logic outlined in **Table 2**, attitudes that people consider to be personally important are expected to have substantial impact in the political domain.

## EVIDENCE

### Causes

Cross-sectional survey data have indicated that, as theorized, self-interest, social identification, and values are all significant predictors of attitude importance (Boninger et al. 1995a; Visser et al. 2016). When participants were asked to explain the amount of importance they attached to an attitude, they most often made reference to self-interest (63% of explanations) and less often referred to social identification (19%) and values (18%) (Boninger et al. 1995a). We present research on these and other causes of attitude importance in the following sections.

**Self-interest.** Several experiments designed to enhance perceptions of self-interest associated with an attitude have shown consequent increases in the importance of the attitude (Bizer & Krosnick 2001, Boninger et al. 1995a, Stephenson et al. 2001). Correlational studies suggest that perceived self-interest regarding political issues (e.g., the perceived extent to which an issue affects one's life) is linked to greater perceived attitude importance (Holbrook et al. 2016). For instance, the feeling that women's rights directly affect one's own life was associated with greater importance attached to attitudes about women's rights (Lavine et al. 2000, study 1). This holds true in nonpolitical domains as well. For example, more perceived personal benefits of travel (e.g., believing that travel helps one to relax, be healthier, and have fun) are linked to greater importance of attitudes about travel (Chen & Petrick 2014).

**Values.** Thomsen et al. (2006) asked participants to indicate whether political attitudes (e.g., affirmative action, defense spending) were related to values (freedom, equity). People associated

more important sociopolitical attitudes with a greater number of values (Thomsen et al. 2006). When people believe that their attitudes are based on values and general beliefs about how life should be lived, they tend to attach more importance to those attitudes (Lavine et al. 2000, study 1). Furthermore, considering a message in terms of important values increases the personal importance attached to the issue (Blankenship & Wegener 2008). More important attitudes are likely to be those most consistent with a person's values (Honaken & Verplanken 2004, Kemmelmeier et al. 1999).

Particular values predict the amount of importance attached to specific issues. For instance, valuing universalism (e.g., concern for the broader community, social justice) over power (e.g., status, material achievements) predicted greater importance placed on the issue of climate change (Schoenefeld & McCauley 2015). In fact, people who valued power and were presented with information about how global warming would impact their local area (rather than being presented with its global impacts) rated global warming as less personally important, suggesting that values may interact with factors such as the type of persuasive appeal in predicting attitude importance.

Many of the attitudes commonly reported as personally important are religious and moral; in one study, religious and moral convictions were cited by more than 80% of participants as their most important values (Zuwerink Jacks & Cameron 2003). In addition, one survey of a nationally representative sample of US adults found that, regardless of political ideology, respondents tended to see economic issues as more important than social issues (Klar 2014). Only respondents who were extremely socially liberal tended to prioritize social issues more highly, and then only slightly. This may shed light on why economic ideology shaped voting behavior more than did social ideology in the 2012 presidential election.

**Social identification.** If people believe that an object is relevant to an important reference group's interests, or know that a reference group has taken a strong stance on an issue, then they are more likely to attach importance to this attitude (Lavine et al. 2000, study 1). People report higher attitude importance for issues that have a greater impact on members of their racial or ethnic groups (Holbrook et al. 2016). Surveys of US adults and college students indicate that ethnic and racial minorities hold attitudes toward race relations with more personal importance than Whites (e.g., Garcia et al. 2015). In another study, normative appeals indicating broad support of pro-environmental norms among a reference group (in this case, residents of the same state as the participant) increased the importance of related attitudes (Bolson 2013).

**Attitude accessibility.** Roese & Olson (1994) proposed that attitude accessibility causes attitude importance: When people are asked to report the amount of personal importance they attach to an attitude, they may do so in part by noting how quickly the attitude comes to mind. People might think that if an attitude comes immediately to mind when they search for it, then it must be important to them. However, if an attitude comes to mind only after they dredge their memory for a while, then people may think that this attitude must not be important to them. This perspective presumes that people sometimes have relatively weak senses of the importance they attach to attitudes and objects (e.g., Bassili 1996) and therefore engage in self-perception-like processes (Bem 1972) to resolve these ambiguities. Roese & Olson (1994) argued that attitude accessibility subsumes attitude importance, such that attitude importance is a judgment completely derivative of attitude accessibility.

To test this claim, Roese & Olson (1994) induced people to express some attitudes repeatedly and others only once. Consistent with previous research, this within-subject manipulation increased the accessibility of the former attitudes. The researchers also found that this manipulation increased the degree of personal importance people reported that they attached to those attitudes.

Furthermore, Roese & Olson (1994) reported that repeated expression significantly increased accessibility when controlling for importance, whereas repeated expression had no significant effect on importance when controlling for accessibility. This evidence would therefore appear to be consistent with the notion that repeated expression increases accessibility, which in turn increases importance. But the test of this hypothesis was accidentally computed incorrectly (see Bizer & Krosnick 2001), and, when Bizer & Krosnick (2001) reconducted the study and computed the tests properly, the results indicated no effect of accessibility on importance. Furthermore, Bizer & Krosnick (2001) analyzed longitudinal survey data to show that attitude accessibility measured at one point in time does not predict subsequent changes in attitude importance.

**Ease of retrieval.** Haddock et al. (1999) explored the related hypothesis that the ease of information retrieval might influence reports of attitude importance. Specifically, these researchers manipulated the experienced ease of producing attitude-congruent or attitude-incongruent arguments. Some respondents were asked to do a difficult task (listing seven arguments in support of or opposition to a particular policy), and other respondents were asked to do an easier version of the same task (listing only three arguments).

Haddock et al. (1999) expected that the experienced difficulty of generating arguments would influence respondents' perceptions of attitude importance. Having found it very difficult to generate seven arguments consistent with their own opinion, people might reason that if their opinion on this issue were important to them, then they ought to have an easy time generating facts to back up their opinion. However, because it was tough for them to generate these facts, people might reason that perhaps the issue isn't very important to them. In contrast, if people find it easy to generate three supportive arguments, there would be no reason for self-doubt in this regard. Likewise, the experience of easily generating three arguments challenging their own viewpoints might lead people to doubt the validity of their own opinions, thereby reducing perceived importance. If people have difficulty generating seven counterattitudinal arguments, they again have no reason for self-doubt.

However, people who generated three attitude-supportive arguments did not report significantly different importance levels than did people who generated seven attitude-supportive arguments, and people who generated seven counterattitudinal arguments did not manifest higher importance scores than did people who generated only three counterattitudinal arguments. This study offers no evidence that the ease of retrieval of information influences attitude importance.

**Public commitment.** Gopinath & Nyer (2009, study 2) told their student participants that their university was considering implementing a new, strict grading policy in courses they would be taking in the future. Thus, all participants were subjected to a manipulation that Bizer & Krosnick (2001) showed induces the perception of self-interest being tied to the issue. All participants expressed their attitudes toward this new policy, and a randomly selected half of the participants were asked to consent to those attitudes being made public on a website. Afterward, these participants attached more importance to their attitudes on the issue than did the participants who had not been asked to make their attitudes public. This is consistent with the notion that public commitment to their opinions caused those participants to think more deeply about an issue that had already been made personally important to them, and importance increased more as a result.

**Group discussion.** Levendusky et al. (2016) asked participants to discuss a political issue (the Keystone XL pipeline) in groups that were either heterogenous or homogenous with respect to political partisanship (i.e., affiliation as either a Democrat or a Republican). Regardless of the partisan composition of the discussion group, talking about the issue increased attitude importance.

In fact, attitude importance increased by nearly a full standard deviation post-discussion. This result offers evidence that participating in discussion about an issue causes deep thought about the topic, which increases attitude importance.

**Individual differences.** Attitude importance is conceived of as a feature of an attitude, not of a person. That is, it does not seem to be true that, for some people, most or all of their attitudes are personally important, whereas other people hold unimportant attitudes toward almost all objects. Instead, importance appears to vary across objects within individuals, such that an individual is likely to hold some important attitudes and some unimportant attitudes (Krosnick 1988, Krosnick et al. 1994). More important attitudes tend to be more highly heritable (Brandt & Wetherell 2012, Olson et al. 2001). Some evidence suggests that personality variables are associated with attitude importance. For instance, people who have a heightened need to evaluate (i.e., a chronic desire to assess the positive and negative qualities of and form opinions about an object; Jarvis & Petty 1996) tend to report higher importance for many attitudes (Britt et al. 2009). This could occur because being in a chronic state of evaluation leads people to be especially aware of the relevance of an attitude object to their self-interest, social identifications, and values.

In the political domain, attitude importance changes predictably with the life cycle. Specifically, the personal importance assigned to attitudes on policy issues is lowest among the youngest adults, rises as people progress toward middle age, and declines as aging continues (Visser & Krosnick 1998).

**Future directions.** Although research has uncovered some antecedents of attitude importance, questions remain for future work. For instance, in one study, three of the causes of attitude importance (self-interest, social identification, and values) accounted for only approximately 50% of the variance in attitude importance (Boninger et al. 1995a), suggesting that there are other causes yet to be identified. Specific causes may also prove to be more influential under certain circumstances. For instance, social identification may serve as a more potent predictor of attitude importance when a public commitment to the attitude is made.

In addition, research could explore what leads individuals to place extreme importance on an attitude (i.e., labeling an attitude as extremely rather than very important). Examining individuals who hold extremely important attitudes could explain when and why people make a more significant commitment to certain attitudes and illuminate how attitude importance might be further enhanced.

## Crystallization

Strong attitudes are defined as being resistant to change and therefore quite stable over time. The research discussed in this section sheds light on how and why important attitudes evidence these defining features of attitude strength.

**Resistance to attitude change.** Several studies have shown that important attitudes are unusually resistant to change. An experimentally induced increase in importance (Gopinath & Nyer 2009, study 2) increased resistance to attitude change, and Visser et al. (2016) and Zuwerink Jacks & Devine (1996) found more resistance to attitude change for more important attitudes. Furthermore, Lecheler et al. (2009) showed that more important attitudes were more resistant to framing effects.

Interestingly, this resistance surfaces even in contexts in which people choose to expose themselves to attitude-challenging information. For example, Sevelius & Stake (2003) studied college students who chose to take a course encouraging them to value equal rights for women. Those

students who attached more importance to their anti-egalitarian attitudes at the start of the course were more likely to successfully resist changing their attitudes toward equal rights as a result of taking the course.

Important attitudes appear remarkably stable even in the face of plentiful counterattitudinal information. Leeper (2014) assessed participants' initial attitudes toward a healthcare policy. Several weeks later, half of the participants read instructions that emphasized the personal relevance of this policy to participants, and half read instructions emphasizing that this policy would have little direct personal relevance (a manipulation of attitude importance). Participants then browsed news articles that cast this healthcare policy in either a positive or a negative light, presented in a manner similar to an online news site. Participants browsed a site that was either (*a*) a pro-policy environment, in which two thirds of articles favored the policy and one third did not; (*b*) an anti-policy environment, in which two thirds of articles opposed the policy and one third favored it; or (*c*) a mixed environment, in which half of the articles favored the policy and half did not. Although there were no differences in the type of articles that people chose to read based on attitude importance, people who believed this policy was more personally relevant (and thus more important) became more polarized in the direction of their initial attitudes in response to the information they encountered in both the mixed environment and pro-policy environment. However, this same pattern was not found for the anti-policy environment. Furthermore, these individuals tended to become more certain in their attitudes after reviewing the information. In contrast, people who believed the policy to be less personally relevant tended to shift to more moderate opinions and become less certain over time. These results demonstrate that prior attitudes that are held with importance influence the reception of attitude-relevant information, remain strong, and are held with more certainty, regardless of the informational environment.

Why are important attitudes more resistant to change? The studies described in the following four sections shed light on this question. Understanding the processes through which important attitudes become more resistant to change is critical for the science of persuasion, and future research to identify the circumstances under which these processes are most effective (i.e., help create the most crystallized attitudes) is warranted.

**Deeper processing.** Blankenship & Wegener (2008) found that inducing an increase in the personal importance of an attitude prompted deeper processing of messages. This higher level of elaboration then resulted in increased resistance to change.

**Defending important attitudes.** People seem highly motivated to defend their important attitudes. Research reveals that people bolster important attitudes even before a persuasive message is encountered (for a review, see Boninger et al. 1995a).

Visser et al. (2016) demonstrated one way in which people defend important attitudes, by asking participants to evaluate a series of pieces of evidence, some of which were proattitudinal and some of which were counterattitudinal. People tended to view the proattitudinal evidence as convincing and of high quality and the counterattitudinal evidence as unconvincing and flawed.

Attitudes that are more important may be more resistant to persuasion because these attitudes are more accessible (Pfau et al. 2003) and thus come to mind more easily when encountering relevant information, automatically inducing cognitive-protective thinking (Zuwerink Jacks & Devine 2000). In contrast, when an attitude is low in importance, people appear to need more time to gather arguments in response to a persuasive attack.

**Affective responses.** The process of resisting persuasion appears to be more affectively driven among people who hold attitudes with high importance. Some research shows that, when

considering a controversial political issue, such as whether people in the military should be allowed to openly disclose their sexual orientation, people holding important attitudes experienced more negative affect (e.g., irritation, anger) and generated more affectively charged negative thoughts in response to their position being attacked, which led them to resist persuasion even by strong arguments (Zuwerink Jacks & Devine 1996, 2000). In addition, people who hold attitudes with importance perceive that they defend these attitudes against persuasive attacks more frequently. When attitudes are more personally important, people recall engaging to a greater extent in a variety of defensive strategies (Zuwerink Jacks & Cameron 2003). To resist persuasion, people who hold attitudes with greater importance may expend more effort counter-arguing or bolstering their own attitudes.

**Dissonance processes.** Prompting people to remember that an attitude is important to them is particularly effective in preventing attitude change. For instance, reminding people of the importance of their attitudes reduces the attitude change they manifest in response to the experience of cognitive dissonance (Starzyk et al. 2009). Such reminders of importance also prevent trivializing or reducing the importance of these attitudes in response to cognitive dissonance. This may be because people with strong attitudes would feel more discomfort in altering their important attitudes to match their behavior, making this option for reducing dissonance less viable.

**Attitude stability.** Consistent with the evidence on resistance to attitude change, other studies, involving both political attitudes and self-views, show that more important attitudes are more stable over time (for a review, see Boninger et al. 1995a). Across repeated interviews, people report very similar levels of personal importance attached to an attitude (Krosnick et al. 1994).

## Effects on Thinking

A hallmark of strong attitudes is that they influence thought. The research discussed in the following sections explores how attitude importance affects cognitive processes, including people's processing and organization of attitude-relevant information.

**Message processing.** People who attach importance to attitudes process information related to these attitudes more deeply. For instance, Falk et al. (2012) asked participants to rate their agreement with statements about political topics while in an fMRI scanner. They then did the same from the perspectives of the candidates running for president in 2008 (Barack Obama and John McCain). Among participants who rated an issue as more important, areas in the brain associated with social cognition activated more strongly. These results suggest that attitude importance can motivate social cognition, in line with the view that attitude importance promotes careful thought.

Ciuk & Yost (2016) asked participants to rate how important two environmental issues were to them personally. When evaluating the issue that was less important to them, people tended to rely on party cues over policy information. The opposite pattern was found for the high importance issue, again suggesting that attitude importance may prompt more thoughtful evaluation of messages.

**Selective exposure and selective elaboration.** People who care deeply about an issue selectively expose themselves to issue-relevant information at the expense of information relevant to unimportant attitudes (M.K. Berent & J.A. Krosnick, unpublished manuscript). Furthermore, people for whom an issue is more important devote more time and effort to thinking about the meaning and implications of new relevant information, which strengthens the representation of this information

stored in memory and facilitates recall of it later (M.K. Berent and J.A. Krosnick, unpublished manuscript). People who attach more importance to specific attitudes devote more thought to their attitudes in general, introspecting more about their opinions (Hofmann et al. 2005).

In a series of naturalistic and lab studies, Holbrook et al. (2005) found that people selectively seek more information about and elaborate more upon important issues. This causes people to remember to a greater extent information that is related to a personally important attitude. For instance, when watching a televised presidential debate, people more accurately remembered statements about attitudes that they held with greater importance. However, when the opportunity for elaboration or selective exposure was eliminated, people were not more likely to remember information about a personally important attitude. Lavine et al. (2000, study 3) found that college students who saw a sociopolitical issue as more personally important were more interested in reading information that was congruent with their current attitude, and this preference for proattitudinal information translated into increases in attitude extremity and decreases in ambivalence. Thus, attitude importance may affect information-gathering processes, ultimately leading to more univalent and extreme attitudes. When left to their own devices, people seem to selectively expose themselves more to information related to more important attitudes. Visser et al. (2016) reported similar evidence.

Recent studies further demonstrate the ways in which important political attitudes may be defended through selective exposure processes. Westerwick et al. (2013) told participants that they would have to defend their viewpoints on a variety of issues (e.g., universal healthcare and gun control) against opposing arguments and that prior to doing so, they would have the chance to gather information related to these issues by browsing online search results. The tendency to read information that was consistent with one's prior existing beliefs was particularly pronounced among those who held important attitudes. People who held attitudes with less importance, however, were more likely to read arguments from highly credible sources, regardless of whether these arguments were consistent with their preexisting attitudes.

This result is particularly noteworthy given concerns about the confirmation or congeniality bias, the tendency for people to seek out information that is consistent with preexisting beliefs and avoid information that conflicts with these beliefs (Hart et al. 2009). This bias appears to be enhanced by attitude importance. A meta-analysis of previous research found that other indicators that may relate to attitude importance, such as reporting high personal commitment to an attitude or seeing an attitude as connected to one's personal values, increase the magnitude of this bias (Hart et al. 2009).

One online field study examined people's reading choices while browsing a selection of articles about four political topics (health care, minimum wage, gun control, and abortion) and found that higher attitude importance enhanced confirmation bias (Knobloch-Westerwick et al. 2015). In this study, participants were given the opportunity to browse news articles, presented in an online session as two sets of web search results, including an article about each topic, for two minutes each. Confirmation bias was particularly pronounced during the first half of the browsing period among participants who attached more importance to the topics, suggesting that participants initially focused more on reading attitude-congruent information and avoided attitude-incongruent information when attitude importance was high. These results echo Westerwick et al.'s (2013) findings and suggest that attitude importance may more strongly influence initial information searches and may have less influence during additional exposure to information. This suggestion is particularly meaningful given recent concerns that the accessibility of proattitudinal information on the web and the ability to easily brush past attitude-incongruent information may enhance confirmation bias. In contrast, Knobloch-Westerwick & Meng (2009) found that people who attached more importance to an issue were more likely to seek out exposure to counterattitudinal information and no more likely to seek exposure to proattitudinal information, and Leeper (2014)

found that a personal relevance manipulation designed to increase attitude importance did not change information search behavior. Future research could explore moderators that determine the conditions under which attitude importance leads to selective exposure.

Visser et al. (2016) demonstrated that attitude importance is an inherently motivational construct that inspires people to gather some information and avoid other information to prevent challenging their attitudes. Specifically, in procedures adapted from Dawson et al. (2002), participants performed the Wason selection task to test a counterattitudinal assertion. Participants who attached importance to the target attitude were especially motivated to refute the assertion, and this motivation caused them to perform better on the task than participants who attached less importance to the attitude.

Importance also shapes the evaluation of persuasive messages. This includes evaluative measures such as ratings of message effectiveness and source credibility (Zuwerink Jacks & Lancaster 2015). Liu et al. (2016) found evidence for the selective evaluation of attitude-relevant persuasive arguments when attitudes are held with importance. In this study, participants read arguments that were either strong or weak and either incongruent or congruent with their own prior attitudes. When attitudes were more important, participants tended to evaluate strong, attitude-incongruent arguments more critically and were more accepting of weak, attitude-congruent arguments.

Other research has illustrated how the tendency to seek out more information about important attitudes leads to a clustering of attitudes within social networks. Specifically, after the start of the war in Iraq, people who felt that the war was a more personally important issue paid more attention to information about the war. This increased attention led to increased discussion with others of topics relevant to the war, which, in turn, led to the formation of social networks that were more homogenous with respect to these beliefs (Cullum et al. 2011, study 2). It seems likely that attitude importance has additional social consequences, perhaps causing people to distance themselves from others who do not share their opinion. There is some evidence that attitude importance can lead people to more negatively judge sources of messages that conflict with their views, for instance by rating these sources as less competent and less likeable (Zuwerink Jacks & Devine 1996), suggesting that important issues may be particularly socially divisive.

Along with potential social consequences, future research could explore the downstream consequences of the selective exposure and elaboration induced by important attitudes. One might imagine the potential for both positive and negative behavioral impacts of these selective processes. For instance, selective exposure and elaboration might promote depth of knowledge about or activism on important issues, but might also encourage naïve realism or the tendency to be polemical.

**Quantity and accuracy of attitude-relevant knowledge.** When people are acutely attuned to information that is relevant to policy attitudes they consider personally important, they are likely to accumulate larger stores of this information in their memory. A number of studies have documented such a correlation (e.g., Holbrook et al. 2005). People who report that they consider an attitude to be more important also report that they have more relevant knowledge stored in memory and are able to report more of such knowledge (Krosnick et al. 1993). Furthermore, attitude importance is associated with enhanced accuracy in perceptions of political candidates. In Krosnick's (1990) study, voters who attached more importance to their attitudes on a political issue were more likely to accurately perceive the positions taken on the issue by presidential candidates.

Another set of studies in this area examined systematic bias in perceptions of the distributions of attitudes toward an object in particular groups of people. Campbell (1986) and Krosnick (1992) found that individuals' perceptions of groups' attitudes were less susceptible to the false consensus effect (Ross et al. 1977) when the attitude involved was more important to the individual, and Fabrigar & Krosnick (1995) found that the magnitude of the false consensus effect was unrelated

to attitude importance. These studies together support the claim that important attitudes do not bias perceptions more than unimportant ones. This is presumably because people possess more accurate information relevant to important attitudes on which to base their perceptions. Interestingly, people with a greater desire for acceptance by others (M.R. Leary, K.M. Kelly, C.A. Cottrell, & L. Schreindorfer, unpublished manuscript) perceive greater similarity between their own opinions and others' opinions, and they do so to a greater extent when an issue is more important to them (Morrison & Matthes 2011). In light of Fabrigar & Krosnick's (1995) evidence, this finding seems likely to be attributable to the tendency to surround oneself with like-minded others when it comes to important attitudes.

Berent & Krosnick (1995) demonstrated that people are very adept at using knowledge associated with important attitudes. Their study assessed the speed and consistency with which subjects made inferences relevant to political attitudes. For example, subjects were asked whether it was likely that people with particular social characteristics (e.g., old or wealthy) would take certain stands on particular political issues (e.g., favor legalized abortion or oppose gun control laws). As expected, inferences relevant to more important attitudes were made more quickly and more consistently across two occasions.

Selective elaboration inspired by attitude importance is likely to influence the organization of knowledge in memory, which we conceptualize in terms of an associative network framework (Anderson 1983, Collins & Loftus 1975). The process of elaboration involves evaluating new information and relating it to the information already stored in a person's memory. The more a person thinks about a new piece of information, the more likely he or she is to recognize what it has in common with previously stored knowledge. As a result, the person may incorporate new information into existing structures either by linking the information to existing nodes or by creating new nodes. If attitude importance does inspire deeper processing of relevant incoming information, it should also yield more elaborate organization of relevant knowledge in memory. Consistent with this logic, Berent & Krosnick (1995) showed that people who attach more importance to an attitude store relevant information in memory in a more complexly organized format.

**Evaluations of people.** A great deal of evidence on interpersonal attraction is consistent with the idea that important attitudes shape evaluations of others to a greater extent than unimportant attitudes. People who attach more importance to an attitude tend to exist in social networks that are more attitudinally homogenous and that converge on their own attitude (Visser & Mirabile 2004).

Several studies have explored this hypothesis in evaluations of political candidates. Boyd & Wengrovitz (2005) calculated the frequency with which a survey respondent mentioned a policy issue as a reason to vote for or against a candidate, a reason to like or dislike a political party, or the most important problem facing the country. The more frequently a person mentioned an issue, the more powerfully his or her position on the issue predicted his or her vote choice. Furthermore, some statistical analyses predicting candidate evaluations using attitudes on government policy issues documented greater predictive power for attitudes that were more personally important (Abramowitz 1995, Anand & Krosnick 2003, Carsey & Layman 2006, Fournier et al. 2003, MacInnis & Krosnick 2016, Visser et al. 2003), although some did not (Ansolabehere et al. 2008, Grynaviski & Corrigan 2006).

One exception to this pattern is Grynaviski & Corrigan's (2006) reanalysis of data originally analyzed by Krosnick (1988, 1990). In contrast to Krosnick, Grynaviski & Corrigan (2006) found that attitude importance had no moderating effect on the impact of attitude similarity on liking political candidates. However, Malhotra & Tahk (2011) demonstrated that the analytic method used by Grynaviski & Corrigan (2006) included a flawed assumption, and when that mistake

was corrected, Malhotra & Tahk (2011) demonstrated the expected moderating role of attitude importance.

Related evidence shows that people base their votes partly on the past performance of the incumbent in handling various policy issues. The more important the issue is to the voter, the more likely their vote is to be based on the incumbent's performance (Fournier et al. 2003).

Some research indicates that attitude importance can ameliorate the third-person effect, the tendency for individuals to believe that media impacts others more than the self. Lo et al. (2015) found that the more personally concerned people were about a political topic, the more they believed that news coverage of this topic influenced themselves as well as other people.

Attitude importance has consequences within social relationships as well. Familiarity with a partner's attitudes has salubrious benefits, perhaps because attitude familiarity enables a person to better anticipate and influence their partner's behavior, to respond appropriately, and to offer support to their partner, or because partners use the knowledge of these attitudes to maintain a harmonious relationship and avoid conflict (Sanbonmatsu et al. 2011). Other research has suggested that the importance that people attached to their spouse (i.e., responses to the question "How important is your spouse to you?") moderated the relationship between knowledge of one's partner's attitudes and physical health outcomes (Uchino et al. 2013). A stronger correlation between one's own attitudes and one's spouse's ratings of these same attitudes was associated with better interpersonal functioning, as well as better cardiovascular outcomes, but only when the relationship with the spouse was seen as highly important. Thus, spousal importance appears to motivate individuals to act on their knowledge of their partner, providing further evidence that attitude importance strengthens the link between attitude knowledge and behavior.

**Attitude accessibility.** Several studies have shown that the attitudes that people claim are more personally important to them are also more accessible (Kokkinaki & Lunt 1997, Krosnick 1989, Krosnick & Petty 1995, Krosnick et al. 1993, Lavine et al. 1996, van Herreveld & van der Pligt 2004). Bizer & Krosnick (2001) showed that higher importance causes increased accessibility. People make quicker judgments about attitudes that are important (van Herreveld et al. 2000). The more personally important an attitude is, the more quickly people link the attitude to relevant values, again suggesting that important attitudes are more accessible (Thomsen et al. 2006, van Herreveld & van der Pligt 2004). This enhanced accessibility may relate to other consequences of attitude importance, such as the ability to resist persuasion by counterattitudinal arguments (e.g., Pfau et al. 2003).

**Extremity.** Tesser (1978) argued that thought about an attitude increases its extremity when the attitude is accompanied by schematically organized knowledge. Therefore, because important attitudes are frequent foci of thought, it is not surprising that more important attitudes tend to be more extreme (for a review, see Tesser et al. 1995).

Some authors have argued that the more important an attitude, the more extremely positive or negative the attitude should be. Liu & Latane (1998a) asserted that when an attitude is unimportant, its positivity or negativity should be determined by the positivity or negativity of the relevant information one has about an object. Slightly positive information should result in slightly more positive attitudes, and vice versa. However, if an issue is highly important, people should be unlikely to adjust their attitudes in response to positive or negative pieces of information unless information against one's position becomes overwhelming and causes a dramatic change in opinion. Thus, moderately extreme opinions that are held with importance should be rare. Evidence consistent with this reasoning has been found using opinions about political issues such as abortion, women's rights, and national health care (Liu & Latane 1998b). Indeed, additional studies found that

extremity and importance were slightly-to-moderately correlated with one another (e.g., Britt et al. 2009, Matthes et al. 2010), suggesting that attitude importance may be linked, although not synonymous, with greater attitude extremity.

**Consistency between implicit and explicit attitudes.** Attitude importance strengthens the consistency between implicit and explicit attitudes (Hofmann et al. 2005, Nosek 2005).[2] In one study, measures of implicit (i.e., the Implicit Association Test) and explicit (e.g., feeling thermometer) attitudes toward the presidential candidates George W. Bush and Al Gore were more highly correlated among people who rated politics and the upcoming presidential election as more important (Karpinski et al. 2005). This was also true for attitudes toward topics outside the political domain, such as one's preference for Coke or Pepsi. This evidence is consistent with the general claim that attaching importance to an attitude enhances the evaluative consistency of that attitude with other cognitive elements.

One study suggests that attitude importance may moderate the relationship between implicit associations and behavior (Hübner et al. 2014). In this study, researchers measured attitude importance regarding organ donation (e.g., agreement with statements such as "organ donation is an important topic to me"). They found that, among people who attached lower importance to organ donation, more positive implicit associations with organ donation predicted a higher likelihood of taking an organ donor card (a measure of behavioral intentions). This relationship was weaker among people who attached more importance to organ donation, and explicit attitudes toward organ donation instead predicted behavior for these individuals. The same pattern was evident for two other attitude strength measures that were assessed (cognitive elaboration and attitude certainty). This evidence is consistent with the theory that attitude importance is linked with deliberate, thoughtful processes in decision-making. Implicit associations may be relied on as a source of information to direct behavior only in the absence of attitude strength. Interestingly, research measuring the implicit importance of exercise (using an implicit association test that asked participants to associate words related to exercise and rest with words related to importance and unimportance) found that implicit exercise importance predicted excessive exercise-related behavior (Forrest et al. 2016).

**Emotions.** Visser et al. (2016) reported that attitude importance inspires powerful emotions. Specifically, participants reported that they were more likely to experience negative emotions if they were to (*a*) learn that the government was enacting a policy contrary to an important attitude they hold or (*b*) listen to a counterattitudinal speech relevant to an important attitude that contained arguments they found difficult to refute. Miller et al. (2016) reported the same finding.

Attitude importance also appears to affect a person's satisfaction with life. For example, Britt et al. (2011) assessed people's overall attitude importance, meaning a person's individual tendency to hold attitudes with personal importance across a number of different attitude objects. The more an individual held attitudes with personal importance, the higher his or her sense of meaning in life, suggesting that attaching importance to issues to a greater extent may be a way in which people find a sense of purpose. Attaching importance across many attitude objects is also associated with a greater sense of coherence and a feeling that one's own purpose in life is clear (Britt et al. 2009).

[2]Nosek's (2005) measure of attitude importance included some items that may reflect attitude certainty (e.g., participants' perceptions of how stable their attitude is); whether this should be considered an attribute of attitude certainty or importance is an open question.

## Attitude Measurement

Many scholars have speculated that people who hold important attitudes on an issue are most likely to report the same attitude regardless of how the attitude question is worded or structured in a survey (for a review, see Krosnick & Schuman 1988). Consistent with this logic is evidence regarding the impact of offering or omitting a middle alternative (e.g., keeping things as they currently are) between two polar opposite viewpoints (e.g., making divorce laws stricter than they currently are and making divorce laws less strict than they currently are). Krosnick & Schuman (1988), Bishop (1990), and Bassili & Krosnick (2000) found that people for whom attitudes were highly important were relatively immune to the offer or omission of the middle alternative in such questions. In contrast, people whose attitudes were low in importance were especially likely to be attracted to the middle alternative when it was offered.

Lavine et al. (1998) presented evidence suggesting that another type of response effect was not regulated by attitude importance. In their study, people were first asked a series of context questions and a target attitude was then measured. The context questions were designed to promote either liberal or conservative responses to the target attitude question. Lavine et al. (1998) found that attitude importance did not moderate the impact of the earlier questions. Likewise, Bassili & Krosnick (2000) found that attitude importance did not moderate question order effects or acquiescence response bias.

However, Bassili & Krosnick (2000) did find that attitude importance moderated the impact of a question wording manipulation in an experiment asking people whether speeches against democracy should be forbidden or allowed. People who assigned the issue low importance were more affected. This response effect has been attributed to a shift in the perceived extremity of the response options (Hippler & Schwarz 1986), and this moderation by importance may be similar to the moderation of middle alternative effects.

## Effects on Action

Among the most important goals of attitude research are the prediction and explanation of behavior. As is to be expected, a number of studies have found greater attitude–behavior consistency among people for whom the attitude was more personally important. Importance increases attitude–behavior correspondence regarding product choice; when products are seen as personally important, attitudes are more predictive of behavior (Kokkinaki & Lunt 1997). In addition, job satisfaction is more strongly predictive of positive work-related behavior (e.g., helping others, fulfilling responsibilities) when employees consider work to be more important (Ziegler & Schlett 2016).

On its own, attitude importance motivates attitude-congruent action. Holding environmental attitudes with more importance predicts environmentally friendly purchasing behavior (Bolsen 2013). In addition, viewing travel as more personally important predicts travel behavior, perhaps because of the positive association between important attitudes toward travel and the frequency of discussing future travel and attending to information about future vacations (Chen & Petrick 2014).

Attitude importance appears to enhance the likelihood of attitude-expressive behavior (e.g., writing letters or making phone calls to newspapers or government representatives; Krosnick & Telhami 1995, Miller et al. 2016, Schuman & Presser 1981). More important attitudes on political issues predict more self-reported political action on these issues (Holbrook et al. 2016). Interestingly, attitude importance and certainty appear to interact to predict expressive behavior (e.g., writing letters or attending meetings about a topic, donating money) such that these behaviors are most common when both certainty and importance are high (Visser et al. 2003). Likewise, Visser et al. (2016) found that attitude importance was most likely to inspire attitude-expressive behavior

among people who were knowledgeable about the issue. Furthermore, importance and certainty appear to interact with the amount of money an individual has available when predicting financial attitude-expressive behaviors, such as contributions to lobbying groups dedicated to advocating policies consistent with an individual's preferences (Visser et al. 2003). Attitude importance is especially likely to inspire attitude-expressive behaviors among people who perceive a threat that the government may take action to implement policies toward which they hold negative attitudes (Miller et al. 2016).

Attitude importance shapes behavior during elections. For instance, attaching high personal importance to a policy issue inspires people to try to convince others to vote for a particular candidate (Visser et al. 2003). People whose attitudes toward candidates are held with more importance are more likely to register to vote and to actually cast a vote, and they show higher correspondence between attitudes toward and votes for a candidate (Farc & Sagarin 2009, Krosnick et al. 1994, Visser et al. 2003).

The importance of one's political identities can also increase behavior that is supportive of that identity. For instance, people for whom their identity as a political independent is important are more likely to be engaged in politics than those who regard this identity as less important (Klar 2013). Identity importance thus seems to function similarly to attitude importance, heightening engagement in relevant behaviors. This has also been shown in domains beyond political engagement (for a summary, see Klar 2013). For instance, the importance of one's identity as a blood donor predicts future blood donations (Charng et al. 1988), and the importance of one's identity as a volunteer predicts participation as a volunteer (Grube & Piliavin 2000).

People are reluctant to voice their opinions on an issue if they believe those opinions are out of step with those of the perceived majority, but this suppression of opinion expression is less pronounced among people who attach more importance to the issue. These individuals are inclined to express their opinions regardless of others' opinions (Glynn & Park 1997).

Surprisingly, Nederhof (1989) and Franc (1999) found no relation between attitude importance and the consistency of attitudes with behavioral intentions. However, a reanalysis of Franc's (1999) data revealed the expected moderation, though it was monotonically nonlinear and went undetected by Franc's analytic approach, which looked only for a linear relation (C.J. Bryan and J.A. Krosnick, unpublished manuscript). Furthermore, the expected moderating relation has been documented in other studies, including studies regarding engagement in behaviors such as recycling and eating a low-fat diet (Costarelli & Colloca 2007), voting intentions (Visser et al. 2003), and complying with speed zones during boating (Jett et al. 2013).

Why does attitude importance strengthen the link between attitudes and behavior? Future research could help explore the pathways by which important attitudes increase attitude-congruent behavior. A desire for consistency may motivate people to act in line with attitudes that they have expressed, or attitude importance may bolster knowledge and increase a sense of efficacy in the performance of these actions.

## DIMENSIONALITY OF ATTITUDE IMPORTANCE

Although generally treated as a unitary construct, attitude importance may be multidimensional, with multiple functional bases. Attitude importance arising from the recognition of a connection between an attitude object and one's core values may be distinct in terms of its phenomenology and consequences from attitude importance arising from the perception of a link between an attitude object and one's material interests. Furthermore, both may be distinct from attitude importance arising from the perception that one's reference groups or individuals view an attitude as important. Each may inspire discrete motivations: to protect the attitude that expresses one's core values, to

hold the correct attitude toward the object that impinges on one's self-interest, and to remain in step with important individuals and groups with regard to the attitudes they deem important.

In an experimental investigation, Boninger et al. (1995a,b) found evidence inconsistent with the multidimensional view of attitude importance. They found that manipulations of one of the causal antecedents of importance reverberated through participants' cognitive structures, impacting other antecedents of importance. Specifically, increasing the degree to which an attitude impinged on participants' material interests also led them to view the attitude as more closely linked to their core values. This suggests that the causal antecedents of attitude importance are related to one another and that changes in one can result in changes in others. This evidence challenges the notion that the causal underpinnings of attitude importance are discrete and lead cleanly to distinct types of importance. Instead, an attitude that is outcome relevant may come to be seen as value relevant as well.

Nevertheless, conclusions on this matter should be drawn with caution given the dearth of empirical evidence. Additional research addressing this issue seems warranted. We contend, also, that the critical issue to be explored is not the factor structure of these various types of attitude importance but rather whether these types of importance arise from distinct causal antecedents and whether they set into motion different cognitive and behavioral consequences. To the extent that they do, differentiating among them is important.



## IMPLICATIONS

As demonstrated in this review, much is known about the origins and consequences of attitude importance, and these insights have many interesting implications. For example, consider public health. Public health officials have increasingly come to recognize that many of the leading causes of death in the United States could be drastically reduced if Americans made a few simple changes in their behavior. In fact, an investigation published in the *Journal of the American Medical Association* concluded that approximately half of deaths in the United States can be attributed to a small number of preventable behaviors such as smoking, inactivity, poor diet, and alcohol consumption (Mokdad et al. 2004). Because of this, public health advocates have increasingly turned to the social and behavioral sciences for insight into behavior modification.

In some cases, people already possess positive attitudes toward healthy behaviors and negative attitudes toward unhealthy behaviors. However, these health-positive attitudes do not always manifest themselves in the relevant health behaviors (see, e.g., Fisher & Fisher 1992). The challenge for public health advocates, then, involves strengthening such existing attitudes. Making an attitude personally important, so that it becomes crystallized and motivates and guides thinking and action, is one way to accomplish this. Simply convincing people to enjoy exercise, for example, is not enough—making that attitude important to people is necessary to produce the desired outcome: changes in behavior and, consequently, health status.

The case of AIDS in the United States provides an excellent illustration. Initially, public health officials assumed that if they could educate people about the disease and how to avoid it, the appropriate behaviors would follow (Helweg-Larsen & Collins 1997). Thus, they launched a massive public education campaign to increase the amount of knowledge people had about the disease (for a review, see Fisher & Fisher 1992). This campaign was tremendously successful—surveys show that virtually all US adults now know what AIDS is, have some sense of how it is transmitted, and know what steps can be taken to avoid exposure (DiClemente et al. 1990, Rogers et al. 1993). Yet such educational campaigns often yielded virtually no reliable effects on behavior (e.g., Mann et al. 1992). Creating attitude strength was necessary, and one means of accomplishing this is to inspire people to attach personal importance to the attitude.

Attitude importance is also valuable in the arena of politics. Political events occur every day, and only a small selection of these events is conveyed to the US public through the news media. Data are provided to the nation in convenient and discrete packages in the morning paper and on the evening news. Between these doses of information, Americans have personal experiences that, in one way or another, touch on the world of politics. From this stream of data, experienced personally and received indirectly through reporters, each citizen must select what to attend to, what to think about, what to store in memory, and what to act on in the future. This is especially true during presidential election campaigns, when the volume of political information to which one has access is even greater than usual. To understand the forces that drive Americans' political behavior, particularly during elections, we must understand the processes by which information is gathered and integrated. According to the evidence reviewed in this article, attitude importance can help illuminate how this process unfolds.

The results of research on attitude importance have a number of interesting implications for an understanding of US politics and presidential elections. For example, it seems likely that, when deciding for whom to vote, citizens base their judgments on a few salient criteria, important policy attitudes among them. Thus, people seem to employ a sensible strategy that minimizes the cognitive costs of deriving candidate evaluations while maximizing subjective expected utility.

Candidates may also attempt to manipulate the importance of voters' policy attitudes by prompting individuals to recognize an issue as related to their material self-interests, significant reference groups or individuals, or cherished values. By increasing the importance of voters' attitudes regarding a policy toward which a candidate's attitude is favored by a majority of the public, normally inconsequential attitudes may be called into action in the voting booth.

## CONCLUSION

Attitude importance and other strength-related attitude features offer much promise. We look forward to more research further clarifying the causes and consequences of these attitude attributes and illuminating the mechanisms by which they exert their effects.

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## LITERATURE CITED


Abramowitz AI. 1995. It's abortion, stupid: policy voting in the 1992 presidential election. *J. Polit.* 57:176–86

Ajzen I, Fishbein M. 1980. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall

Ajzen A, Timko C, White JB. 1982. Self-monitoring and the attitude-behavior relation. *J. Personal. Soc. Psychol.* 42:426–35

Anand S, Krosnick JA. 2003. The impact of attitudes toward foreign policy goals on public preferences among presidential candidates: a study of issue publics and the attentive public in the 2000 US presidential election. *Pres. Stud. Q.* 33:31–71

Anderson CA. 1983. Imagination and expectation: the effect of imagining behavioral scripts on personal intentions. *J. Personal. Soc. Psychol.* 45:293–305

Ansolabehere S, Rodden J, Snyder JM. 2008. The strength of issues: using multiple measures to gauge preference stability, ideological constraint, and issue voting. *Am. Polit. Sci. Rev.* 102(2):215–32

Bassili JN. 1996. Meta-judgmental versus operative indexes of psychological attributes: the case of measures of attitude strength. *J. Personal. Soc. Psychol.* 71(4):637–53
Bassili JN, Krosnick JA. 2000. Do strength-related attitude properties determine susceptibility to response effects? New evidence from response latency, attitude extremity, and aggregate indices. *Polit. Psychol.* 21(1):107–32
Bem DJ. 1972. Self-perception theory. In *Advances in Experimental Social Psychology*, ed. L Berkowitz, pp. 1–62. San Diego, CA: Academic
Berent MK, Krosnick JA. 1995. The relation between political attitude importance and knowledge structure. In *Political Judgment: Structure and Process*, ed. M Lodge, K McGraw, pp. 91–109. Ann Arbor: Univ. Mich. Press
Bishop GF. 1990. Issue involvement and response effects in public opinion surveys. *Public Opin. Q.* 54:209–18
Bizer GY, Krosnick JA. 2001. Exploring the structure of strength-related attitude features: the relation between attitude importance and attitude accessibility. *J. Personal. Soc. Psychol.* 81(4):566–86
Blankenship KL, Wegener DT. 2008. Opening the mind to close it: Considering a message in light of important values increases message processing and later resistance to change. *J. Personal. Soc. Psychol.* 94(2):196–213
Bolsen T. 2013. A light bulb goes on: norms, rhetoric, and actions for the public good. *Polit. Behav.* 35(1):1–20
Boninger DS, Krosnick JA, Berent MK. 1995a. Origins of attitude importance: self-interest, social identification, and value relevance. *J. Personal. Soc. Psychol.* 68(1):61–80
Boninger DS, Krosnick JA, Berent MK, Fabrigar L. 1995b. The causes and consequences of attitude importance. See Petty & Krosnick 1995, pp. 159–90
Boyd RW, Wengrovitz SM. 2005. *The elusive concept of issue publics: issue salience in American elections*. Presented at Annu. Meet. Int. Soc. Political Psychol., 28th, Toronto, Canada
Brandt MJ, Wetherell GA. 2012. What attitudes are moral attitudes? The case of attitude heritability. *Soc. Psychol. Personal. Sci.* 3(2):172–79
Britt TW, Millard MR, Sundareswaran PT, Moore D. 2009. Personality variables predict strength-related attitude dimensions across objects. *J. Personal.* 77(3):859–82
Britt TW, Pusilo CL, McKibben ES, Kelley C, Baker AN, Nielson KA. 2011. Personality and strength-related attitude dimensions: between and within person relationships. *J. Res. Personal.* 45(6):586–96
Cacioppo JT, Petty RE. 1981. Effects of extent of thought on the pleasantness ratings of P-O-X trials: evidence for three judgmental tendencies in evaluating social situations. *J. Personal. Soc. Psychol.* 40(6):1000–9
Campbell JD. 1986. Similarity and uniqueness: the effects of attribute type, relevance, and individual differences in self esteem and depression. *J. Personal. Soc. Psychol.* 50:281–94
Carsey TM, Layman GC. 2006. Changing sides or changing minds? Party identification and policy preferences in the American electorate. *Am. J. Polit. Sci.* 50(2):464–77
Charng HW, Piliavin JA, Callero PL. 1988. Role identity and reasoned action in the prediction of repeated behavior. *Soc. Psychol. Q.* 51(4):303–17
Chen C, Petrick JF. 2014. The roles of perceived travel benefits, importance, and constraints in predicting travel behavior. *J. Travel Res.* 55:509–22
Ciuk DJ, Yost BA. 2016. The effects of issue salience, elite influence, and policy content on public opinion. *Polit. Commun.* 33(2):328–45
Collins AM, Loftus EF. 1975. A spreading activation theory of semantic processing. *Psychol. Rev.* 82:407–28
Costarelli S, Colloca P. 2007. The moderation of ambivalence on attitude-intention relations as mediated by attitude importance. *Eur. J. Soc. Psychol.* 37(5):923–33
Cullum JG, Okdie BM, Harton HC. 2011. When my country is at war: Issue importance and interpersonal influence lead Iraq War attitudes to cluster within social networks. *Soc. Influ.* 6(4):231–48
Dawson E, Gilovich T, Regan DT. 2002. Motivated reasoning and performance on the Wason selection task. *Personal. Soc. Psychol. Bull.* 28:1379–87
DiClemente RJ, Forrest KA, Mickler S. 1990. College students' knowledge and attitudes about AIDS and changes in HIV-preventive behaviors. *AIDS Educ. Prev.* 2(3):201–12
Eaton AA, Visser PS. 2008. Attitude importance: understanding the causes and consequences of passionately held views. *Soc. Personal. Psychol. Compass* 2(4):1719–36
Fabrigar LR, Krosnick JA. 1995. Attitude importance and the false consensus effect. *Personal. Soc. Psychol. Bull.* 21(5):468–79

Falk EB, Spunt RP, Lieberman MD. 2012. Ascribing beliefs to ingroup and outgroup political candidates: neural correlates of perspective-taking, issue importance and days until the election. *Phil. Trans. R. Soc. B* 367:731–43

Farc MM, Sagarin BJ. 2009. Using attitude strength to predict registration and voting behavior in the 2004 U.S. presidential elections. *Basic Appl. Soc. Psychol.* 31(2):160–73

Fazio RH. 1990. Multiple processes by which attitudes guide behavior: the MODE model as an integrative framework. *Adv. Exp. Soc. Psychol.* 23:75–109

Festinger L. 1957. *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford Univ. Press

Fisher JD, Fisher WA. 1992. Changing AIDS risk behavior. *Psychol. Bull.* 111(3):455–74

Fiske ST, Taylor SE. 2013. *Social Cognition: From Brains to Culture*. Thousand Oaks, CA: Sage Publications

Forrest LN, Smith AR, Fussner LM, Dodd DR, Clerkin EM. 2016. Using implicit attitudes of exercise importance to predict explicit exercise dependence symptoms and exercise behaviors. *Psychol. Sport Exerc.* 22:91–97

Fournier P, Blais A, Nadeau R, Gidengil E, Nevitte N. 2003. Issue importance and performance voting. *Polit. Behav.* 25:51–67

Franc R. 1999. Attitude strength and the attitude-behavior domain: magnitude and independence of moderating effects of different strength indices. *J. Soc. Behav. Personal.* 14(2):177–95

Garcia RL, Bergsieker HB, Shelton JN. 2015. Racial attitude (dis)similarity and liking in same-race minority interactions. *Group Process. Intergr. Relat.* 2015:1368430215612224

Glynn CJ, Park E. 1997. Reference groups, opinion intensity, and public opinion expression. *Int. J. Public Opin. Res.* 9(3):213–32

Gopinath M, Nyer PU. 2009. The effect of public commitment on resistance to persuasion: the influence of attitude certainty, issue importance, susceptibility to normative influence, preference for consistency and source proximity. *Intern. J. Res. Market* 26(1):60–68

Grube JA, Piliavin JA. 2000. Role identity, organizational experiences, and volunteer performance. *Personal. Soc. Psychol. Bull.* 26(9):1108–19

Grynaviski JD, Corrigan BE. 2006. Specification issues in proximity models of candidate evaluation (with issue importance). *Polit. Anal.* 14(4):393–420

Haddock G, Rothman AJ, Reber R, Schwarz N. 1999. Forming judgments of attitude certainty, intensity, and importance: the role of subjective experiences. *Personal. Soc. Psychol. Bull.* 25:771–82

Hart W, Albarracín D, Eagly AH, Brechan I, Lindberg MJ, Merrill L. 2009. Feeling validated versus being correct: a meta-analysis of selective exposure to information. *Psychol. Bull.* 135(4):555–88

Heider F. 1958. *The Psychology of Interpersonal Relations*. New York: Wiley

Helweg-Larsen M, Collins BE. 1997. A social psychological perspective on the role of knowledge about AIDS in AIDS prevention. *Curr. Dir. Psychol. Sci.* 6(2):23–26

Hippler HJ, Schwarz N. 1986. Not forbidding isn't allowing: the cognitive basis of the forbid-allow asymmetry. *Public Opin. Q.* 50:87–96

Hofmann W, Gschwendner T, Schmitt M. 2005. On implicit-explicit consistency: the moderating role of individual differences in awareness and adjustment. *Eur. J. Personal.* 19(1):25–49

Holbrook AL, Berent MK, Krosnick JA, Visser PS, Boninger DS. 2005. Attitude importance and the accumulation of attitude-relevant knowledge in memory. *J. Personal. Soc. Psychol.* 88:749–69

Holbrook AL, Sterrett D, Johnson TP, Krysan M. 2016. Racial disparities in political participation across issues: the role of issue-specific motivators. *Polit. Behav.* 38:1–32

Holland RW, Verplanken B, van Knippenberg A. 2003. From repetition to conviction: attitude accessibility as a determinant of attitude certainty. *J. Exp. Soc. Psychol.* 39(6):594–601

Honaken P, Verplanken B. 2004. Understanding attitudes towards genetically modified food: the role of values and attitude strength. *J. Consum. Policy* 4:401–20

Hübner G, Mohs A, Peterson LE. 2014. The role of attitude strength in predicting organ donation behavior by implicit and explicit attitudes. *Open J. Med. Psychol.* 3(5):355–63

Jarvis B, Petty RE. 1996. The need to evaluate. *J. Personal. Soc. Psychol.* 70:172–94

Jett J, Thapa B, Swett R. 2013. Boater speed compliance in manatee zones: examining a proposed predictive model. *Soc. Nat. Resour.* 26:95–104

Judd CM, Krosnick JA. 1989. The structural bases of consistency among political attitudes: the effects of political expertise and attitude importance. In *Attitude Structure and Function*, ed. AR Pratkanis, SJ Breckler, AG Greenwald, pp. 99–128. Hillsdale, NJ: Erlbaum

Karpinski A, Steinman RB, Hilton JL. 2005. Attitude importance as a moderator of the relationship between implicit and explicit attitude measures. *Personal. Soc. Psychol. Bull.* 31(7):949–62

Kemmelmeier M, Burnstein E, Peng K. 1999. Individualism and authoritarianism shape attitudes toward physician-assisted suicide. *J. Appl. Soc. Psychol.* 29(12):2613–31

Klar S. 2013. Identity and engagement among political independents in America. *Polit. Psychol.* 35(4):577–91

Klar S. 2014. A multidimensional study of ideological preferences and priorities among the American public. *Public Opin. Q.* 78(S1):344–59

Knobloch-Westerwick S, Johnson BK, Westerwick A. 2015. Confirmation bias in online searches: impacts of selective exposure before an election on political attitude strength and shifts. *J. Comput. Mediat. Commun.* 20(2):171–87

Knobloch-Westerwick S, Meng J. 2009. Looking the other way: selective exposure to attitude-consistent and counter-attitudinal political information. *Commun. Res.* 36(3):426–48

Kokkinaki F, Lunt P. 1997. The relationship between involvement, attitude accessibility, and attitude-behavior consistency. *Br. J. Soc. Psychol.* 36(4):497–509

Krosnick JA. 1988. Attitude importance and attitude change. *J. Exp. Soc. Psychol.* 24:240–55

Krosnick JA. 1989. Attitude importance and attitude accessibility. *Personal. Soc. Psychol. Bull.* 15(3):297–308

Krosnick JA. 1990. Government policy and citizen passion: a study of issue publics in contemporary America. *Polit. Behav.* 12:59–92

Krosnick JA. 1992. The impact of cognitive sophistication and attitude importance on response order effects and question order effects. In *Order Effects in Social and Psychological Research*, ed. N Schwartz, S Sudman, pp. 203–18. New York: Springer-Verlag

Krosnick JA, Berent MK, Boninger DS. 1994. Pockets of responsibility in the American electorate: findings of a research program on attitude importance. *Polit. Commun.* 11(4):391–411

Krosnick JA, Boninger DS, Chuang YC, Berent MK, Carnot CG. 1993. Attitude strength: one construct or many related constructs? *J. Personal. Soc. Psychol.* 65(6):1132–51

Krosnick JA, Petty RE. 1995. Attitude strength: an overview. See Petty & Krosnick 1995, pp. 1–24

Krosnick JA, Schuman H. 1988. Attitude intensity, importance, and certainty and susceptibility to response effects. *J. Personal. Soc. Psychol.* 54(6):940–52

Krosnick JA, Telhami S. 1995. Public attitudes toward Israel: a study of the attentive and issue publics. *Int. Stud. Q.* 39(4):535–54

LaPiere RT. 1934. Attitudes versus action. *Soc. Forces* 13(2):230–37

Lavine H, Borgida E, Sullivan J. 2000. On the relationship between attitude involvement and attitude accessibility: toward a cognitive-motivational model of political information processing. *Polit. Psychol.* 21(1):81–106

Lavine H, Borgida E, Sullivan J, Thomsen C. 1996. The relationship of national and personal issue salience to attitude accessibility on foreign and domestic policy issues. *Polit. Psychol.* 17(2):293–316

Lavine H, Huff JW, Wagner SH, Sweeney D. 1998. The moderating influence of attitude strength on the susceptibility to context effects. *J. Personal. Soc. Psychol.* 75(2):359–73

Lecheler S, de Vreese CH, Slothuus R. 2009. Issue importance as a moderator of framing effects. *Commun. Res.* 36(3):400–25

Leeper TJ. 2014. The informational basis for mass polarization. *Public Opin. Q.* 78(1):27–46

Levendusky MS, Druckman JN, McLain A. 2016. How group discussions create strong attitudes and strong partisans. *Res. Polit.* 3:1–6

Liu C, Lee H, Huang P, Chen H, Sommers S. 2016. Do incompatible arguments cause extensive processing in the evaluation of arguments? The role of congruence between argument compatibility and argument quality. *Br. J. Soc. Psychol.* 107:179–98

Liu J, Latane B. 1998a. The catastrophic link between the importance and extremity of political attitudes. *Polit. Behav.* 20(2):105–26

Liu J, Latane B. 1998b. Extremization of attitudes: Does thought and discussion-induced polarization cumulate? *Basic Appl. Soc. Psychol.* 20(2):103–10

Lo V, Wei R, Lu H, Hou H. 2015. Perceived issue importance, information processing, and third-person effect of news about the imported U.S. beef controversy. *Int. J. Public Opin. Res.* 27(3):341–60
MacInnis B, Krosnick JA. 2016. The impact of candidates' statements about global warming on electoral success in 2008 to 2015: evidence using five methodologies. In *Explorations in Political Psychology*, ed. JA Krosnick, IC Chiang, T Stark. New York: Psychol. Press. In press
Malhotra N, Tahk AM. 2011. Specification issues in assessing the moderating role of issue importance: a comment on Grynaviski and Corrigan 2006. *Polit. Anal.* 19(3):342–50
Mann J, Tarantola DJM, Netter TW. 1992. The HIV pandemic: status and trends. In *AIDS in the World*, ed. J Mann, D Tarantola, pp. 11–108. Cambridge, MA: Harvard Univ. Press
Matthes J, Rios Morrison K, Schemer C. 2010. A spiral of silence for some: attitude certainty and the expression of political minority opinions. *Commun. Res.* 37(6):774–800
Miller JM, Krosnick JA, Holbrook AL, Tahk A, Dionne A. 2016. The impact of policy change threat on financial contributions to interest groups. In *Explorations in Political Psychology*, ed. JA Krosnick, IC Chiang, T Stark. New York: Psychol. Press. In press
Mokdad AH, Marks JS, Stroup DF, Gerberding JL. 2004. Actual causes of death in the United States, 2000. *J. Am. Med. Assoc.* 291(10):1238–45
Morrison KR, Matthes J. 2011. Socially motivated projection: Need to belong increases perceived opinion consensus on important issues. *Eur. J. Soc. Psychol.* 41(6):707–19
Nederhof AJ. 1989. Self-involvement, intention certainty and attitude-intention consistency. *Br. J. Soc. Psychol.* 28:123–33
Nosek B. 2005. Moderators of the relationship between implicit and explicit evaluation. *J. Exp. Psychol. Gen.* 134(4):565–84
Olson JM, Vernon PA, Harris JA, Jang KL. 2001. The heritability of attitudes: a study of twins. *J. Personal. Soc. Psychol.* 80(6):845–60
Perloff RM. 2013. *The Dynamics of Persuasion: Communication and Attitudes in the 21st Century*. New York: Routledge
Petty RE, Krosnick JA. 1995. *Attitude Strength: Antecedents and Consequences*. Mahwah, NJ: Erlbaum
Pfau M, Roskos-Ewoldsen D, Wood M, Yin S, Cho J, et al. 2003. Attitude accessibility as an alternative for how inculation confers resistance. *Commun. Monogr.* 70(1):39–51
Pomerantz EM, Chaiken S, Tordesillas RS. 1995. Attitude strength and resistance processes. *J. Personal. Soc. Psychol.* 69(3):408–19
Pryor JB, Gibbons FX, Wicklund RA, Fazio RH, Hood R. 1977. Self-focused attention and self-report validity. *J. Personal.* 45:513–27
Roese NJ, Olson T. 1994. Attitude importance as a function of repeated attitude expression. *J. Exp. Soc. Psychol.* 30(1):39–51
Rogers TF, Singer E, Imperio J. 1993. The polls: poll trends. AIDS—an update. *Public Opin. Q.* 57:92–114
Ross L, Greene D, House P. 1977. The "false consensus effect": an egocentric bias in social perception and attribution processes. *J. Exp. Soc. Psychol.* 13:279–301
Sanbonmatsu DM, Uchino BN, Birmingham W. 2011. On the importance of knowing your partner's views: Attitude familiarity is associated with better interpersonal functioning and lower ambulatory blood pressure in daily life. *Ann. Behav. Med.* 41:131–37
Schoenefeld JJ, McCauley MR. 2015. Local is not always better: the impact of climate information on values, behavior, and policy support. *J. Env. Stud. Sci.* 2015. doi: 10.1007/s13412-015-0288-y
Schuman H, Presser S. 1981. *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context*. New York: Academic
Sevelius J, Stake J. 2003. The effect of prior attitudes and attitude importance on attitude change and class impact in women's and gender studies. *J. Appl. Soc. Psychol.* 33(11):2341–53
Starzyk KB, Fabrigar LR, Soryal AS, Fanning JJ. 2009. A painful reminder: the role of level and salience of attitude importance in cognitive dissonance. *Personal. Soc. Psychol. Bull.* 35(1):126–37
Stephenson MT, Benoit WL, Tschida DA. 2001. Testing the mediating role of cognitive responses in the elaboration likelihood model. *Commun. Stud.* 52(4):324–37
Tesser A. 1978. Self-generated attitude change. In *Advances in Experimental Social Psychology*, ed. L Berkowitz, pp. 298–338. New York: Academic

Tesser A, Martin L, Mendolia M. 1995. The impact of thought on attitude extremity and attitude-behavior consistency. See Petty & Krosnick 1995, pp. 73–92

Thomsen C, Lavine H, Kounios J. 2006. Social value and attitude concepts in semantic memory: relational structure, concept strength, and the fan effect. *Soc. Cogn.* 14(3):191–225

Uchino BN, Sanbonmatsu DM, Birmingham W. 2013. Knowing your partner is not enough: Spousal importance moderates the link between attitude familiarity and ambulatory blood pressure. *J. Behav. Med.* 36(6):549–55

van Herreveld F, van der Pligt J. 2004. Attitudes as stable and transparent constructions. *J. Exp. Soc. Psychol.* 40(5):666–74

van Herreveld F, van der Pligt J, de Vries NK, Andreas S. 2000. The structure of attitudes: attribute importance, accessibility and judgment. *Br. J. Soc. Psychol.* 39(3):363–80

Visser PS, Krosnick JA. 1998. Development of attitude strength over the life cycle: surge and decline. *J. Personal. Soc. Psychol.* 75(6):1389–410

Visser PS, Krosnick JA, Norris CJ. 2016. Attitude importance and attitude-relevant knowledge: motivator and enabler. In *Explorations in Political Psychology*, ed. JA Krosnick, IC Chiang, T Stark. New York: Psychol. Press. In press

Visser PS, Krosnick JA, Simmons JP. 2003. Distinguishing the cognitive and behavioral consequences of attitude importance and certainty: a new approach to testing the common-factor hypothesis. *J. Exp. Soc. Psychol.* 39(2):118–41

Visser PS, Mirabile RR. 2004. Attitudes in the social context: the impact of social network composition on individual-level attitude strength. *J. Personal. Soc. Psychol.* 87(6):779–95

Westerwick A, Kleinman SB, Knobloch-Westerwick S. 2013. Turn a blind eye if you care: impacts of attitude consistency, importance, and credibility on seeking of political information and implications for attitudes. *J. Commun.* 63(3):432–53

Ziegler R, Schlett C. 2016. An attitude strength and self-perception framework regarding the bi-directional relationship of job satisfaction with extra-role and in-role behavior: the doubly moderating role of work certainty. *Front. Psychol.* 7:1–17

Zuwerink Jacks J, Cameron KA. 2003. Strategies for resisting persuasion. *Basic Appl. Soc. Psychol.* 25(2):145–61

Zuwerink Jacks J, Devine PG. 1996. Attitude importance and resistance to persuasion: It's not just the thought that counts. *J. Personal. Soc. Psychol.* 70(5):931–44

Zuwerink Jacks J, Devine PG. 2000. Attitude importance, forewarning of message content, and resistance to persuasion. *Basic Appl. Soc. Psychol.* 22(1):19–29

Zuwerink Jacks J, Lancaster LC. 2015. Fit for persuasion: the effects of nonverbal delivery style, message framing, and gender on message effectiveness. *J. Appl. Soc. Psychol.* 45:203–13

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