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Inter-individual differences in attitude content:

Cognition, affect, and attitudes

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**Abstract**

In this article, we describe and integrate advances in the study of inter-individual differences in attitude content. Research within this area has addressed how people differ in the extent to which their attitudes are primarily guided by the favorability of their cognitive and affective responses. We begin by describing work that prompted researchers to address this topic and how these individual differences have been measured. We then highlight the implications of individual differences in cognitive and affective content in relation to attitude formation, attitude change, attitude strength, and how individuals perceive and evaluate people, groups, and other attitude objects. Taken together, these lines of research lend support to the argument that people differ in their use of cognitive and affective information as bases for attitudes. We conclude the article by addressing new questions that we believe will stimulate further interest in the topic.

### **1 - Overview**

A longstanding adage is that communication and persuasion are more likely to succeed when you know your audience. Knowing your audience is so important that internet organizations have made fortunes selling customer data to businesses, and companies like Facebook and Cambridge Analytica have recently been mired in controversy over how they have reportedly used, shared, and sold information. The basic idea behind this phenomenon is that by knowing, for example, the websites that people have visited or the self-relevant information that they have provided online, organizations can easily tailor advertisements or messages that are directly targeted toward the individual. Indeed, it has even been speculated that elections and referendums have been won or lost based on the use of audience information.

From a social psychological perspective, this pursuit of a competitive advantage through message tailoring is consistent with common assumptions about important inter-individual differences in attitudes and their role in persuasion and resistance to persuasion. In this chapter, we take the question further by examining inter-individual differences in *attitude bases*. In particular, we focus on the role of cognitive and affective information in guiding attitudes. Research studying inter-individual differences in attitude content has found that whilst some individuals possess attitudes that are primarily guided by the favorability of their beliefs about objects, other individuals possess attitudes that are primarily guided by the favorability of the affective responses they associate with attitude objects.

This article brings together extant research that has considered inter-individual differences in attitude content in different ways and highlights the primary conclusions that can be drawn from these lines of work. We address the implications of differences in cognitive and affective content in terms of how individuals form and encode their attitudes, how attitudes are changed, how they vary in strength, and how we evaluate people, groups, and other attitude objects. We integrate various lines of work and demonstrate how the research gives further impetus to the argument that people differ systematically in their use of cognitive and affective information as bases for attitudes, as well as addressing new questions that warrant attention.

## **2 - What do we mean by attitude content?**

Before embarking on our discussion of how cognitive and affective information guide attitudes, we want to start by describing our underlying conceptualization of the attitude concept. Through the years, the most prominent definitions of attitude have emphasized the notion that reporting an attitude involves making an overall *evaluative judgment* about a stimulus object - that is, determining the degree to which an issue, object, or person is liked or disliked (see, e.g., Eagly & Chaiken, 1993, 2007; Fazio, 1995; Gawronski, 2007; Petty & Cacioppo, 1981; Zanna & Rempel, 1988). Consistent with these definitions, it is widely agreed that evaluation is the predominant aspect of attitudes (see Albarracín & Johnson, 2018; Albarracín & Shavitt, 2018; Banaji & Heiphetz, 2010; Bohnet & Dickel, 2011; Maio, Haddock, & Verplanken, 2018). The notion that an attitude reflects an *overall* evaluative judgment implies that an attitude summarizes different types of information about an issue,

object, or person. From our perspective, and as expanded upon below, these sources of information reflect the content of an individual's thoughts, feelings, and past experiences regarding an attitude object. Given this framework, we define an attitude as an overall evaluation of an object that is based on cognitive, affective, and behavioral information (see Haddock & Maio, 2012; Maio et al., 2018).

The postulate that cognition, affect, and behavior have important roles in determining human thought goes back to the writings of Aristotle and Plato, and the view that attitudes have cognitive, affective, and behavioral components has dominated contemporary attitude theory and research. The overwhelming majority of attitude models postulate important roles for these components. Within the *Multicomponent Model of Attitudes*, attitudes express people's beliefs, feelings, and past behaviors regarding an attitude object (see Eagly & Chaiken, 1993; Zanna & Rempel, 1988). According to this model, the *cognitive* component of attitudes represents the beliefs, thoughts, and attributes an individual associates with an attitude object. An individual who associates a politician with the attributes of closed-mindedness and a lack of intelligence is likely to have a negative attitude toward the politician. There is ample evidence supporting the view that the favorability of individuals' beliefs guides their attitudes. As one example, in the intergroup domain, it has been found that the valence of individuals' stereotypes about a group, as well as their beliefs about a group's values, predicts prejudice (see, e.g., Esses, Haddock, & Zanna, 1993). Furthermore, Zanna and Rempel (1988) argued that this component of attitudes is well-captured by the influential Theory of Reasoned Action (Fishbein &

Ajzen, 1975) and Ajzen's (1991) subsequent Theory of Planned Behavior, for which there is there abundant evidence of strong correlations between beliefs about an attitude object and overall attitudes.

The *affective* component of attitudes refers to feelings or emotions associated with an attitude object. This type of affect has been labelled as integral affect (see Bodenhausen, 1993). One important way in which affect shapes overall attitudes is through the feelings and emotions that are elicited in response to an attitude object. As one example, an individual who associates feelings of happiness and pride with the Toronto Maple Leafs hockey team is likely to have a positive attitude toward this team. There is a large body of evidence supporting the role of affect in guiding attitudes. For example, a number of studies have demonstrated that the favorability of intergroup attitudes are influenced by the affective responses individuals associate with individual groups (see, e.g., Mackie, Devos, & Smith, 2000). Zanna and Rempel (1988) argued that this component of attitudes is well-captured by Zajonc's (1968) influential theory about the primacy of affect in evaluation, for which there is abundant evidence of strong automatic influences of affect on judgment.

Finally, the *behavioral* component of attitude concerns past behaviors or experiences linked with an attitude object. For instance, having attended a public rally in support of increasing foreign aid is likely associated with having a positive attitude toward this issue. The role of behavioral information in guiding attitudes is exemplified in Bem's (1965, 1972) self-perception theory (Zanna & Rempel, 1988). According to Bem, individuals do not always have access to their attitudes about

different objects, and people can infer their attitudes by considering how they have behaved with respect to the attitude object in the past. As with the cognitive and affective components, there is evidence supporting the role of behavioral information in guiding attitudes (e.g., Chaiken & Baldwin, 1981; Haddock, Zanna, & Esses, 1994; Salancik & Conway, 1975; see Maio et al., 2018, for a summary).

### **2.1 - The synergistic relation among attitudinal components.**

One question resulting from the multicomponent model regards the degree to which the cognitive, affective, and behavioral components reflect unique constructs. Although the multicomponent model treats these components as modularly distinct, they are also treated as interacting systems – as reflected by Eagly and Chaiken’s (1993) argument that the components share a *synergistic relation*. This synergism may occur in part because internal psychological conflict is aversive to us (Festinger, 1957), and we therefore need to maintain some evaluative consistency between beliefs, feelings, and behaviors directed toward the same object. At the same time, however, there is ample evidence demonstrating that the cognitive, affective, and behavioral components are conceptually and evaluatively distinct. Given the focus of this article, it is important to briefly discuss evidence supporting this conclusion.

One early and substantive piece of evidence regarding the independence of the cognitive, affective, and behavioral components comes from research by Breckler (1984). In one experiment, Breckler asked participants to report their cognitive, affective, and behavioral responses about snakes. Whilst in the presence of a real snake, participants indicated whether: (i) snakes are kind and cruel (cognition), (ii)



snakes make them feel anxious and happy (affect), and (iii) they like to handle snakes (behavior). Breckler (1984) used the content of participants' responses to compute a score for each of the components. He found that these cognitive, affective, and behavioral scores were only moderately correlated with each other.

Additional evidence for the independence of cognitive, affective, and behavioral information comes from research on intercomponent ambivalence. Such ambivalence is present when the favorability of an individual's beliefs, feelings, and behaviors do not align (Lavine, Thomsen, Zanna, & Borgida, 1998; MacDonald & Zanna, 1998; Maio, Esses, & Bell, 2000; see van Harreveld, Nohlen, & Schneider, 2015, for a recent *Advances* article on ambivalence). Research has demonstrated that the level of evaluative conflict between (and within) components can vary as a function of the attitude object (Bell, Esses, & Maio, 1996), the attitude holder (Thompson & Zanna, 1995), and the situation (Bell & Esses, 2002).

A third strand of work supporting conceptual and empirical distinctions among cognition and affect comes from a long history of research that has examined *inter-object differences in attitude content*. Over many years, different groups of researchers considered how cognitive and affective information predict attitudes in domains such as politics (e.g., Abelson, Kinder, Sears, & Fiske, 1982; Eagly, Mladinic, & Otto, 1994; Lavine et al., 1998); intergroup attitudes (e.g., Esses et al. 1993; Haddock, Zanna, & Esses, 1993; Stangor, Sullivan, & Ford, 1991); and health-related attitudes (see, e.g., Breckler & Wiggins, 1991; Lawton, Conner, & McEachan, 2009; van den Berg, Manstead, van der Plight, & Wigboldus, 2005). Taken together, these studies offer

strong evidence supporting basic tenets of the multicomponent model of attitudes. Using different measures and a wide array of attitude objects, these studies found that cognitive and affective information were correlated with attitudes, and typically made unique contributions to the overall prediction of attitudes. Moreover, consistent with the notion that cognition and affect share a synergistic relation, these studies offered evidence that the evaluative implications of cognitive and affective cognitive information are positively interlinked.

Perhaps most interestingly, some of these studies provided an initial glimpse into the conditions under which cognition and affect might vary in their relative importance. For example, in the realm of political attitudes, Lavine et al. (1998) tested whether ambivalence between cognition and affect (i.e., positive beliefs and negative feelings or negative beliefs and positive feelings) would moderate the relative importance of these sources of information in guiding evaluations. Using data from United States National Election Studies, Lavine et al. found that when cognitive-affective ambivalence was low, both cognitive and affective information made a strong (and comparable) contribution to attitude. However, under conditions of high cognitive-affective ambivalence, Lavine et al. (1998) found that affective information was more important in predicting attitudes. In the realm of intergroup attitudes, Esses et al. (1993) found that the relative importance of cognitive and affective information in predicting prejudice differed as a function of individual differences in right-wing authoritarianism (RWA; Altemeyer, 1988, 2006). Specifically, it was found that affective information was the best predictor of the intergroup attitudes expressed

by low authoritarians, whereas cognitive information, in the form of symbolic beliefs (e.g., beliefs regarding the extent to which a group is perceived as violating or promoting an individual's core values), served to best predict the attitudes of high authoritarians, with these individuals perceiving outgroups as violating core values. This was especially pronounced among groups evaluated the most negatively. Also, in the health domain, Lawton and colleagues found that when there was divergence between the evaluative implications of individuals' cognitive and affective responses regarding health behaviors, affect played a predominant role in predicting attitudes, similar to the findings of Lavine et al. (1998).

### **3 – Conceptualizing the study of inter-individual differences in attitude content**

Thus far, we have offered evidence regarding the importance of cognitive, affective, and behavioral information in understanding attitudes. What remains is for us to describe how the study of inter-individual differences in attitude content has important implications for understanding the attitude concept. In addressing this issue, we focus on the cognitive and affective components of attitude and not the behavioral component. This emphasis reflects the predominant paradigms used in research on attitude content – there has been a focus on the joint impact of the cognitive and affective components, with less emphasis on the behavioral component (see, e.g., Fabrigar, MacDonald, & Wegener, in press, for a review; cf. Holland, Verplanken, & van Knippenberg, 2002). Toward the end of the chapter, we consider

how the behavioral component might be integrated in future research on the importance of attitude content.

We begin this section of the article by asking a basic question - what motivated researchers to study inter-individual differences in attitude content? Second, we describe the primary paradigms through which these individual differences have been measured. After describing these approaches, we discuss relations among them. From there, we discuss the types of outcomes that are influenced by inter-individual differences in attitude content.

### **3.1 - Some background on inter-individual differences in attitude content.**

Interest in studying inter-individual differences in attitude content resulted from a number of factors. At a conceptual level, Zanna and Rempel's (1988) influential paper on the nature of attitudes highlighted the notion that the importance of cognition, affect, and behavior in guiding attitudes might vary across people. In addition, different strands of research contributed to these initial foundations. One important strand was innovative work by Snyder and DeBono (1985; see also DeBono, 1987; Petty & Wegener, 1998) that integrated individual differences in self-monitoring with the literature on attitude functions. These researchers argued that individuals low in self-monitoring were likely to possess attitudes fulfilling a value-expressive function, whereas individuals high in self-monitoring were likely to possess attitudes fulfilling a social adjustive attitude. This work influenced us (and, we assume, others) to think that other individual differences might be relevant to other properties of attitudes.

Also, as noted above, some studies on inter-object differences in attitude content addressed questions that suggested how individuals might differ in attitude content. Further developments were offered by research that sought to *create* attitudes that were based on cognitive or affective information, to examine their implications on attitude-relevant outcomes (see below). As with the literature on self-monitoring and attitude functions, studies that created cognitive or affective attitudes were very influential in prompting us (and, again, we assume, others) to think about whether people might differ in the general degree to which they rely upon cognitive and affective information in guiding their attitudes.

### **3.2 - Measuring inter-individual differences in attitude content.**

Three techniques have been used frequently to assess inter-individual differences in attitude content: the structural approach, the meta-bases approach, and the trait approach. We discuss each approach in turn.

#### **3.2.1 – Measures based on the structural properties of attitudes.**

One common approach for the assessment of inter-individual differences in attitude content has been the use of what we and others have referred to as structural measures (see Aquino, Haddock, Maio, Wolf, & Alparone, 2016; See, Petty, & Fabrigar, 2008, 2013). One early conceptualization of this approach focused on the assessment of *evaluative-cognitive consistency*, where researchers would assess the difference in valence between overall attitudes and cognitive responses for a single attitude object. High evaluative-cognitive consistency (i.e., a low difference in valence) was regarded as being indicative of an attitude being linked with cognition, whereas low evaluative-

cognitive consistency (i.e., a high difference in valence) was regarded as being indicative of an attitude less linked with cognition. Of course, this approach also allows for the derivation of differences in evaluative-affective consistency, as well as cognitive-affective consistency (see Chaiken, Pomeranz, & Giner-Sorolla, 1995).

The consistency measures described above emphasized structural properties for a single attitude object. More contemporary research using the structural framework has examined inter-individual differences in attitude content *across multiple attitude objects* (e.g., Aquino et al., 2016; Huskinson & Haddock, 2004, 2006; See et al., 2008, 2013). Here, individuals are asked to provide their cognitive responses, affective responses, and attitudes toward a variety of attitude objects. These values can then be used to generate within-person correlations between (i) the favorability of an individual's cognitions and attitudes (i.e., individual differences in evaluative-cognitive consistency), (ii) the favorability of an individual's affective responses and attitudes (i.e., individual differences in evaluative-affective consistency), and (iii) the favorability of an individual's cognitive and affective responses (i.e., individual differences in cognitive-affective consistency). Within this approach, individuals have been deemed to have cognition-based attitudes when the correlation between the favorability of their cognitive responses and their attitudes is greater than the correlation between the favorability of their affective responses and their attitudes. Conversely, individuals have been deemed to have affect-based attitudes when the correlation between the favorability of their affective responses and their attitudes is greater than the correlation between the favorability of their

cognitive responses and their attitudes. In some cases, researchers use the individual cognition-attitude and affect-attitude correlations as separate predictors of an outcome, whereas, in other cases, researchers have computed a difference score between these correlations. Independent of the strategy they employ, researchers can then determine how variation in the magnitude of these correlations, across individuals, is associated with attitude-relevant outcomes.

Typically, research using this approach has used semantic differential measures (see, e.g., Crites, Fabrigar, & Petty, 1994) to assess cognition, affect, and attitudes, as a result of their simplicity across multiple attitude objects, particularly when compared to open-ended measures, which elicit verbal descriptions of beliefs and feelings from participants (see Esses & Maio, 2002; Haddock & Zanna, 1998). An important consideration in research using the structural approach is the number and types of attitude objects that are used to derive the within-person correlations. In previous research, the number of objects has ranged from less than 10 to over 20. With respect to the types of attitude objects, most research has used objects that cut across a wide range of phenomena, to help ensure that the correlations are not simply a reflection of an individual's evaluations of a certain category of objects (e.g., different politicians, types of food).

### 3.2.2 – The meta-bases approach.

A second approach that has been used to assess inter-individual differences in attitude content emphasizes how individuals *perceive* the bases of their attitudes (e.g., See et al., 2008, 2013). This development of the meta-bases approach was derived

from findings within the broader psychological literature that objective and subjective assessments of the same construct are often divergent (such as the literature on the antecedents and consequences of objective and subjective attitudinal ambivalence; e.g., Gebauer, Maio, & Pakizeh, 2013; Priester & Petty, 1996). Further, in some contexts, individuals might be unaware of the underlying basis of their attitude, causing more objective measures of attitude content (such as the structural approach) to be independent from more subjective measures of attitude content (such as the meta-bases approach; see See et al., 2008, 2013).

The meta-bases perspective asks respondents to indicate the degree to which they generally perceive their attitudes to be consistent with their beliefs and feelings about attitude objects, using questions such as “To what extent do you think your attitudes toward X are driven by your emotions?” and “To what extent do you think your attitudes toward X are driven by your beliefs?” (see, e.g., Aquino et al., 2016; See et al., 2008, 2013). Typically, these items are asked about multiple objects, and an individual’s responses are averaged across objects, with the derivation of a measure assessing the perceived relative reliance on cognitive versus affective information.

### 3.2.3 – The trait approach.

A third approach to assess inter-individual differences in attitude content is based on using individual differences in dispositional, motivational needs as an index of the extent to which attitudes are guided by cognition and affect. Within this approach, the traits that have received the greatest interest are the need for cognition



(Cacioppo & Petty, 1982; Cacioppo, Petty, Feinstein, & Jarvis, 1996) and the need for affect (Maio & Esses, 2001).

The need for cognition refers to the tendency for an individual to seek out and enjoy effortful cognitive activity (Cacioppo & Petty, 1982). Research has found that individuals high in need for cognition have a need to seek out more information and think more carefully about it before making an evaluation. In one study, Haugtvedt, Petty, and Cacioppo (1992) found that individuals high in need for cognition were more likely to possess attitudes based on an evaluation of a product's attributes, compared to individuals low in need for cognition. These findings suggest that individuals high in need for cognition should have a preference for using beliefs and factual information in their attitudes.

The need for affect refers to the degree to which people approach or avoid situations that are emotion inducing (Maio & Esses, 2001). Individual differences in need for affect are associated with outcomes relevant to the experiences and information people seek. For example, participants high in need for affect exhibit a stronger tendency to prefer emotional films over non-emotional films and are more likely to become involved in emotion-inducing events (Maio & Esses, 2001). With respect to attitudes, research has revealed that individual differences in the need for affect are positively associated with the degree to which individuals' attitudes are guided by affective information (Haddock & Huskinson, 2004).

Although research using individual difference constructs to assess variability in attitude content has relied primarily on need for cognition and need for affect,

researchers have also developed other individual difference measures that are relevant to cognitive and affective components of attitudes. In one interesting line of research, Betsch and colleagues (e.g., Betsch, 2008; Betsch & Kunz, 2008) developed an individual difference measure assessing variation in preferences for intuition and deliberation, which was derived from the Myers-Briggs Type Inventory (Myers & McCaulley, 1985) and Cognitive-Experiential Self-Theory (Epstein, 1990). Further, with respect to affect, Sojka and Giese (1997) and Booth-Butterfield and Booth-Butterfield (1990) developed separate measures designed to assess individual differences in affect-based evaluations, whereas van Giesen, Fischer, van Dijk, and van Trijp (2015) used the Faith in Intuition Scale (Epstein, Pacini, Denes-Raj, & Heier, 1996) as an affective index. Finally, in research assessing the role of cognitive and affective information in persuasion, Mayer and Tormala (2010) used gender as a categorical variable, arguing that men would be more receptive to cognitive information and that women would be more receptive to affective information.

### **3.3 - Relations among the structural, meta-bases, and trait approaches.**

Much early research on the topic of inter-individual differences in attitude content addressed basic questions such as the extent to which individuals differ in the bases of their attitudes on cognition versus affect, as well as assessing the degree of association among the structural, meta-bases, and trait approaches. In one study, Huskinson and Haddock (2004) asked participants to complete semantic differential measures of attitude, cognition, and affect for twelve attitude objects. These responses were used to compute within-person evaluation-cognition, evaluation-

affect, and cognition-affect correlations for each participant. In addition, participants completed the need for cognition (Cacioppo & Petty, 1982), need for affect (Maio & Esses, 2001), and need to evaluate (Jarvis & Petty, 1996) scales. Huskinson and Haddock found that a majority of respondents possessed attitudes that were comparable in evaluative-cognitive and evaluative-affective consistency, but that there was variation across respondents. Turning to the individual differences measures, it was found that evaluative-affective consistency was significantly correlated with individual differences in the need for affect, though the correlation was modest (see Trafimow et al., 2004, for evidence regarding links between need for affect scores and more affect-based behavioral intentions). Further, variability in both evaluative-cognitive and evaluative-affective consistency was associated with individual differences in the need to evaluate, such that greater consistency was linked with a stronger need to evaluate.

Research assessing relations between the structural and meta-bases measures comes from a program of research by See and colleagues (See et al., 2008, 2013). In a series of studies, these researchers found that structural and meta-bases measures were independent, supporting their view that these represent fundamentally unique constructs. In addition, one study reported by See et al. (2008) assessed correlations among the structural, meta-bases, and trait approaches. This study used Crites et al.'s (1994) semantic differential measures to assess attitudes toward five objects. Participants also completed meta-bases for each of the attitude objects, as well as the need for cognition and need for affect scales. The results of the study revealed no

significant associations across the types of measures. Convergent with these findings, recent work from our lab (Aquino et al., 2016) observed largely null associations among structural, meta-bases, and trait measures.

Taken together, these sets of studies suggest that the structural, meta-bases, and trait approaches are conceptually related but empirically distinct. This implies that they might reflect unique psychological processes and be associated with different outcomes. Indeed, researchers have drawn core distinctions across the three approaches. In our work, we (Aquino et al., 2016) have argued that the trait approach largely reflects a *motivational* perspective, given that the need for cognition and need for affect assess the degree to which people are differentially motivated to seek out and use cognitive and affective information. Aquino et al. (2016) also highlighted that the independence of the approaches is consistent with distinctions between attitude functions and attitude content, arguing that the need for cognition and need for affect reflect salient motivations that influence how individuals weigh cognitive and affective information within each attitude component, whereas structural and meta-bases measures assess efficiency and self-perceptions regarding the attention devoted to using these sources.

Similarly, See et al. (2008, 2013) have drawn clear distinctions between the structural and meta-bases perspectives. Drawing on findings from literatures such as distinctions between objective and subjective measures of attitude ambivalence (see Priester & Petty, 1996) and between operative and meta-attitudinal measures of attitude strength (see Bassili, 1996), See et al. proposed that meta-bases of attitudes

reflect individuals' subjective perceptions of attitudinal properties, whereas structural measures of attitude content reflect the underlying cognitive-affective architecture of an attitude. Further, consistent with the notion that these measures reflect different processes, See and colleagues argued that these measures should predict different outcomes, analogous to how explicit and implicit measures of attitude have sometimes been found to differentially predict spontaneous versus deliberative behavior (Fazio & Olson, 2003; cf. Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Subsequent research has tested the implications of inter-individual differences in attitude content. This evidence is reviewed in the next section of the chapter.

#### **4 - Implications of inter-individual differences in attitude content**

We, and other researchers, have devoted considerable attention to understanding the implications of inter-individual differences in attitude content. In summarizing this evidence, we begin by reviewing studies that addressed perhaps the most basic and fundamental question: Do inter-individual differences in attitude content influence attitude formation and change? After reviewing evidence supporting such effects, we summarize evidence regarding the processes that have been found to underlie these effects. Second, we discuss research that has addressed the impact of inter-individual differences on other attitudinally-relevant outcomes, such as narrative appeals and attitude strength. Third, we consider how inter-individual differences in attitude content impact interpersonal processes, reviewing evidence that has documented effects on person perception, intergroup processes, and interpersonal relationships. Finally, we conclude this section of the chapter by

reviewing other documented implications of inter-individual differences in attitude content.

#### **4.1. Inter-individual differences in attitude content and attitude change.**

Some of the early research examining the implications of inter-individual differences in attitude content examined how such differences influence attitude change processes. This research was partly inspired by previous research using experimental procedures to create cognition- or affect-based attitudes toward a novel topic (e.g., Edwards, 1990; Fabrigar & Petty, 1999). These procedures varied the information presented about a novel topic (e.g., Fabrigar & Petty, 1999) or the manner of its presentation (e.g., Edwards, 1990) in order emphasize either beliefs or feelings about it. These procedures enabled the researchers to test whether attitudes that were relatively cognition- or affect-based were more or less likely to change depending upon whether subsequent information presented about the object was cognition- or affect-based. For example, after first creating a positive cognition- or affect-based attitude toward a novel beverage, Edwards (1990) later presented participants with negative cognitive and affective information about the beverage (with the information presented first representing the basis of the persuasive message). Edwards found that an affect-based appeal elicited greater attitude change for an attitude that was affect-based compared to cognition-based, whereas the cognition-based appeal elicited somewhat greater change for an attitude that was cognition-based compared to affect-based (see also Edwards & von Hippel, 1995). Comparable findings were obtained by Fabrigar and Petty (1999), using a somewhat

more refined methodology and using a different attitude object. Taken together, these studies showed how a single attitude, based on cognition or affect, was more likely to change when subsequent information matched the original basis of the attitude.

Building upon these lines of work, Huskinson and Haddock (2004) tested how a structural measure of inter-individual differences in attitude content predicted how individuals responded to cognition- or affect-based information about an unfamiliar consumer product. Huskinson and Haddock (2004; Experiment 2) hypothesized that a cognitive appeal could be more influential among cognition-based individuals, whereas an affective appeal would be more influential among affect-based individuals. Participants in this study were selected on the basis of a pre-test session in which a sample of approximately 200 individuals completed measures of attitude, cognition, and affect for a set of objects. These data were used to compute within-person evaluation-cognition and evaluation-affect correlations for each individual within the pre-test session. Within the main study, cognition-based individuals were those whose evaluation-cognition correlation was above the pre-test median on that measure and whose evaluation-affect correlation was below the pre-test median on that measure. Affect-based individuals were those whose evaluation-affect correlation was above the pre-test median on that measure and whose evaluation-cognition correlation was below the pre-test median on that measure. These individuals were then presented with one of two appeals about a new beverage. In the cognitive appeal, participants were presented with information about the beverage's positive attributes (e.g., that it used 100% spring water and contained real

fruit extracts). In the affective appeal, participants sampled the beverage (which had a positive taste, in order to elicit positive affect). After receiving the appeal, participants reported their attitude toward the drink. The results offered support for the hypothesis - an affective appeal was more effective in changing the consumer product attitudes of affect-based (as opposed to cognition-based) individuals. Furthermore, cognition-based individuals were more persuaded by cognitive information than affective information.

Further evidence regarding the role of inter-individual differences on attitude formation comes from a set of studies that used the trait approach to measure individual differences in attitude bases (Haddock, Maio, Arnold, & Huskinson, 2008). These studies focused on the role of individual differences in need for cognition and need for affect in determining the efficacy of cognitive and affective appeals. In one study, we presented participants with either cognition- or affect-based information about a fictitious animal called the lemphur (see Crites et al., 1994; Fabrigar & Petty, 1999). Participants in the *cognition-based* message condition were presented with a set of positive attributes about the lemphur, with the passage resembling an encyclopedia entry. Conversely, participants in the *affect-based* message condition were presented with a transcript describing an individual's encounter with a lemphur, with the message designed to induce positive emotions in the reader. Upon reading the affective or cognitive message, participants rated their attitude toward the lemphur. The results of this study are displayed in Figure 1. Consistent with the idea that inter-individual differences in attitude content influence message receptivity, it



was found (i) that individual differences in need for cognition were associated with receptivity to the cognition-based message, but not the affect-based message, and (ii) that individual differences in need for affect were associated with receptivity to the affect-based message, but not the cognition-based message.

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INSERT FIGURE 1 ABOUT HERE

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In a study applying this pattern to the field of health behavior, Conner, Rhodes, Morris, McEachan, and Lawton (2011) tested the effects of exposing participants to either a cognition-based or affect-based message in favor of physical exercise during a survey about health. The cognition-based message presented facts about the physical benefits of exercise, whereas the affect-based message described the emotional benefits of exercise. Several weeks later, participants completed measures of need for cognition and need for affect, along with a measure of their exercise behavior in the past three weeks. Analyses of this behavioral measure indicated that that the affect-based message elicited more positive exercise behavior change among individuals high in the need for affect or low in the need for cognition.

Taken together, these studies offer evidence that inter-individual differences in attitude content influence how individuals respond to cogent cognitive versus affective persuasive information. Other research has devoted attention to understanding the processes underlying these individual effects.

One obvious candidate is message elaboration – individuals should be more likely to elaborate on messages that confirm their individual preferences for cognitive versus affective information. This perspective has received support from a number of studies. In research that matched message frames to individual differences in need for cognition, Wheeler, Petty, and Bizer (2005) found that matched messages elicited greater message elaboration compared to unmatched messages. Similarly, in research studying attitude *function-based* matching effects, Petty and Wegener (1998) found that participants devoted greater attention to a persuasive message that matched the function of their attitude (as assessed by individual differences in self-monitoring, see Snyder, 1974). Based on this rationale, we (Haddock et al., 2008) explored whether individual differences in need for cognition and need for affect influenced how respondents processed information that was either cognition-based or affect-based. In this study, after presenting participants with a cognition- or affect-based message about the lemphur, participants were later tested on their recognition of information contained within the message they had read. The results of this study are shown in Figure 2. Overall, and consistent with other work addressing processes underlying matching effects, we found that individual differences in need for cognition predicted the amount of information correctly recognized from a cognition-based message, but not an affect-based message, whereas individual differences in need for affect predicted the amount of information correctly recognized from an affect-based message, but not a cognition-based message. This enhanced recognition of matched

information is consistent with the notion that people process more deeply the persuasive information that matches their individual differences in attitude content.

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INSERT FIGURE 2 ABOUT HERE

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Although this research is useful in helping to delineate the processes underlying inter-individual level matching effects, it falls short on offering a strong explanation of precisely what leads different individuals to exhibit differential use of cognitive versus affective information in the first place. Is it the case that individuals are more likely to seek out and select information that is consistent with the general content of their attitudes, and/or is it the case that people process consistent information with greater efficiency? These questions have been addressed by See and colleagues (2008, 2013). In a first set of studies, See et al. (2008) tested whether structural and meta-bases measures reflect *interest* in cognitive and affective information, finding that individual differences in meta-bases, but not structural bases, predicted the proportion of time participants spent reading a matched appeal. See et al. (2008) also found that meta-bases became especially important when individuals had the opportunity to deliberate about information they encountered, arguing that deliberation allows people the opportunity to consider whether their attitudes are derived from their feelings or beliefs.

Building upon these findings, See et al. (2013) found that meta-bases and structural bases exert opposite effects on the amount of time that people spend

reading cognitive versus affective information. In one of their experiments, these researchers recorded the amount of time that participants spent reading cognitive and affective information about the lemphur. Analyses of these reading times revealed that individuals with higher affective meta-bases spent a lower proportion of time spent on cognitive information than affective information, whereas individuals with higher affective structural bases spent a higher proportion of time spent on cognitive information than affective information. These findings fit the researchers' hypothesis that meta-bases reflect greater motivation to process matched information (e.g., affective content for affect-based individuals), whereas structural bases reflect greater ability to process matched information.

Taken together, research to date on the role of inter-individual differences in attitude content on attitude change has revealed that matching cogent persuasive content to individual differences in attitude bases can yield persuasive benefits, with implications for behavior change (see Connor et al., 2011). Furthermore, it is important to distinguish differences in motivation to process cognitive versus affective information from differences in ability to process cognitive versus affective information.

#### **4.2 – Inter-individual differences in attitude content and narrative appeals.**

Relevant to the research discussed above is work that has examined whether inter-individual differences in attitude content are linked with the utility of narrative-based persuasive appeals, such as stories and films. Research on narrative persuasion has considered the effects of narrative formats on attitude change. A recent meta-

analysis on the impact of narrative appeals found that they have a meaningful influence on attitudes, intentions, and behaviors (Braddock & Dillard, 2016).

In an important paper on this topic, Green and Brock (2000) argued that narratives can elicit attitude change by causing recipients to temporarily suspend access to real-world knowledge that might be used to critically evaluate the narrative's theme. Green and Brock (2000) further proposed that the effect of a narrative appeal on attitude change is determined by the degree to which the message recipient is *transported* into a narrative (see Gerrig, 1993) – the notion that readers become transfixed into the narrative and are less able to counterargue information contained within the narrative (see also Dal Cin, Zanna, & Fong, 2004). Indeed, evidence has found that the process of transportation reduces responses that contradict a story's central message (e.g., Escalas, 2007; Marsh & Fazio, 2006).

This process is related to our discussion of inter-individual differences in attitude content, because Dal Cin et al. (2004) argued that individuals differ in the degree to which they are generally transported into narratives, a construct they referred to *transportability*. This general difference may be linked to individual differences in need for cognition and need for affect, creating an indirect link between these traits and receptivity to narrative-based appeals. This linkage has been demonstrated in several studies. In one line of work, Appel and Richter (2010) focused on the role of need for affect in the context of narrative persuasion. These researchers found that individual differences in need for affect moderated receptivity to narrative information that was high in emotional content, but not information that

was low in emotional content. Further, Appel and Richter (2010) found that the effect of need for affect was mediated by differences in transportation (which itself was a moderator).

Building upon these results, research in our lab (Thompson & Haddock, 2012) tested links between need for cognition, need for affect, and transportation.

Regarding the need for cognition, we hypothesized that individuals who are high in need for cognition might be especially likely to become transported into a narrative, relative to individuals who are low in cognition. This is because high need for cognition individuals should have an enhanced motivation to process a story more deeply, in an attempt to fully understand its narrative structure. Regarding the need for affect, we hypothesized that the motivation to seek out emotion should lead individuals who are high in need for affect to also become transported into a narrative, as stories tend to evoke emotional responses within the recipient. These hypotheses were supported across a series of studies. For example, Table 1 presents correlations from one such study. Individual differences in need for cognition and need for affect were both positively correlated with general levels of transportation and the degree to which participants felt transported into a given narrative.

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INSERT TABLE 1 ABOUT HERE

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Building upon these findings, Thompson and Haddock (2012) conducted further studies where participants read either a narrative-based or rhetorical-based

appeal designed to alter attitudes and intentions toward important health outcomes (e.g., cancer screening, organ donation). In one study, female university students read one of two appeals about screening for cervical cancer. In the narrative appeal, participants learned about a woman who contracted cervical cancer, with the narrative following her progress through her treatment and palliative care. The narrative also contained information about screening for cervical cancer and treatment of cervical cancer. The rhetorical appeal took the medical information from the narrative and put it into a format that was similar to health advocacy leaflets available from a doctor. It contained a short paragraph that introduced the information and bullet points and short simple sentences about screening for cervical cancer. After reading the appeal, all participants responded to a series of questions that assessed their attitude toward the importance of regular cervical screening and whether they intended to have regular screening in the future. The results of this study are presented in Figure 3. Overall, we found that individual differences in need for cognition and need for affect were both linked to receptivity of narrative-based appeals, with individuals high in these constructs reporting more appeal-congruent attitudes in response to a narrative appeal, with no such effect found for a rhetorical-based appeal.

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INSERT FIGURE 3 ABOUT HERE

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### **4.3 – Inter-individual differences in attitude content and attitude strength.**

A small number of studies have addressed the degree to which inter-individual differences in attitude content impact attitude strength. Early work in this area focused on the effects of inter-individual differences at the level of a single attitude object. An initial study on this topic demonstrated that an attitude high in evaluative-cognitive consistency was more temporally stable and more resistant to change (see Norman, 1975). In one particularly interesting study, Chaiken and Baldwin (1981) tested whether individual differences in evaluative-cognitive consistency moderated the effects of self-perceived behavior on attitude. This study built upon Salancik and Conway's (1975) provocative findings regarding how attitudes can be changed by altering the salience of individuals' perceptions of how frequently they perform either positive or negative past behaviors relevant to the attitude issue, an effect that was described in terms of self-perception theory (Bem, 1965, 1972). As applied to the context of inter-individual differences in attitude content, and based on Bem's (1972) argument that self-perception effects are most likely to occur when an individual's attitude is weak or ambiguous, Chaiken and Baldwin (1981) tested and found that making salient pro-environmental behavior (by subtly manipulating the wording of items) influenced individuals' subsequent attitudes about the environment, but only among individuals low in evaluative-cognitive consistency. Individuals high in evaluative-cognitive consistency were not impacted by the behavioral salience manipulation, presumably because these individuals held stronger attitudes. In a similar finding, Chaiken and Yates (1985) found that evaluative-cognitive consistency



moderated the degree to which participants' attitudes became polarized after reporting their thoughts and feelings about the attitude topic.

Building upon some of these lines of work, Chaiken et al. (1995) assessed the joint impact of evaluative-cognitive *and* evaluative-affective consistency on attitude strength related outcomes. In one study, Chaiken and colleagues had participants complete measures assessing their cognitive responses, affective responses, and attitude toward capital punishment. In a subsequent session, the researchers assessed the accessibility of participants' attitude toward this topic. The findings revealed that individuals low in both evaluative-cognitive and evaluative-affective consistency reported their attitude more slowly compared to all other participants. Similarly, Chaiken et al. (1995) found that attitudes low in both evaluative-cognitive and evaluative-affective consistency were less temporally stable over six weeks, compared to individuals high in one or both forms of structural consistency.

Of course, one obvious extrapolation of these findings is to test for comparable effects when inter-individual differences are assessed via multiple attitude objects. Since Chaiken et al.'s work, there has been some additional research assessing the impact of structure-based inter-individual differences in attitude content when derived across a range of attitude objects. In one line of work addressing this issue, our lab (Huskinson & Haddock, 2006) conducted a set of studies in which we tested whether individuals whose attitudes were high in both evaluative-cognitive and evaluative-affective consistency (individuals we referred to as dual-consistents) provided faster cognitive and affective judgments compared to individuals whose

attitudes were low in both evaluative-cognitive and evaluative-affective consistency (individuals we referred to dual-inconsistent). In one such study, participants were presented with items on a computer screen corresponding to cognitive (e.g., harmful/beneficial, imperfect/perfect) and affective (e.g., joy/sorrow, happy/annoyed) dimensions, and were asked to indicate as quickly as possible which of the two words from each pair best described their view about the object (data were collected for a set of attitude objects). The results of one of these studies is presented in Figure 4, which illustrates faster attitude-relevant judgments among dual-consistent than among dual-inconsistent. Of note, additional data showed that these effects did not generalize to non-evaluative judgments.

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INSERT FIGURE 4 ABOUT HERE

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Other research has examined how individual differences in the need for affect impact attitude strength. Britt, Millard, Sundareswaran, and Moore (2009) had participants complete measures of attitude strength for 11 objects, and tested how strength ratings were associated with a number of individual difference constructs, including need for affect (but not need for cognition). Across objects, these researchers found that individuals high in the need for affect reported attitudes that were more certain and extreme. A subsequent study by Britt et al. (2011) tested whether a series of individual difference constructs (including the need for cognition, but not the need for affect) moderated the correlation between attitude ambivalence

and attitude extremity. In general, attitude ambivalence is less likely when attitudes are extreme (e.g., Maio et al., 2000; Thompson, Zanna, & Griffin, 1995); however, Britt et al. (2011) found a stronger negative correlation between attitude extremity and attitude ambivalence among individuals high in need for cognition compared to individuals low on this construct. Britt et al. (2011) suggested that this moderating effect might be attributable to individuals high in need for cognition having thought more deeply about their attitudes.

Finally, other research has demonstrated how eliciting a cognition- versus affect-focus impacts the degree of association between explicit and implicit measures of attitude. For example, evidence from Smith and Nosek (2011) suggests that the relation between implicit and explicit measures of attitude is enhanced after individuals have been induced into an affect focus compared to a cognitive focus. This pattern supports a view that implicit measures are more likely to tap spontaneous, affective associations with attitude objects (Spence & Townsend, 2008). Thus, an affective focus putatively causes explicit reports to rely more heavily on these implicit affective associations.

Taken together, these relations between attitude components and attitude strength fit the multicomponent model's assumptions that the components provide structural support for attitudes. When this support is plentiful (e.g., strong affect) and in line with attitudes (e.g., high evaluative-affective consistency), then the information on which the attitudes are based enables them to be more stable, resistant to change, and predictive of behavior.

#### **4.4 – Inter-individual differences in attitude content and perceptions of individuals and groups.**

One recently emerging line of research has examined how inter-individual differences in attitude content impact person perception and evaluation. Within this domain, research has considered whether the structural, meta-bases, and trait approaches affect liking of individual persons and categories of individuals (i.e., social groups) who differ on dimensions relevant to cognitive and affective properties. This research has also examined how understanding the cognitive-affective meta-bases of *others'* attitudes impacts our evaluations of them.

Beginning with evaluations of individuals, we, along with colleagues from Italy (see Aquino et al., 2016), tested whether individual differences in need for cognition and need for affect influence social perception processes. Prominent models of social perception have shown that information about others can be conceptualized in terms of two global dimensions, labeled as *warmth* and *competence* or *communion* and *agency* (for reviews, see Abele & Wojciszke, 2007; Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007). Further, a number of studies have demonstrated that the relative importance of the warmth and competence dimensions can differ across contexts (e.g., Cuddy, Glick, & Beninger, 2011; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005; Kervyn, Yzerbyt, & Judd, 2010; Wojciszke & Abele, 2008). Building upon these studies, our research tested whether the relative importance of warmth and competence in evaluations differ as a function of individual differences in need for cognition and need for affect. Specifically, in line with evidence on inter-individual

differences and matching effects, we hypothesized that individuals high in need for cognition would be more influenced by perceptions of a target person on the competence dimension, which reflects the target's cognitive capabilities. Similarly, we hypothesized that individuals high in the need for affect would be more influenced by perceptions of a target person on the warmth dimension, which reflects the target's ability to elicit feelings. Following this line of reasoning, people who are high in the need for cognition should distinguish the valence of competent and incompetent traits more than people who are low in the need for cognition, and people who are high in the need for affect should distinguish the valence of warm and cold traits more strongly than people who are low in the need for affect. These polarized perceptions would enable people who are higher in need for cognition to be influenced by the greater differences between the positive and negative poles of the competence dimension, and people who are higher in need for affect to be influenced by the greater differences between the positive and negative poles of the warmth dimension. Thus, this pattern may facilitate greater use of the competence dimension among people higher in need for cognition and greater use of the warmth dimension among people higher in need for affect.

In our first study testing these ideas, we assessed whether individual differences in need for cognition and need for affect predicted the level of differentiation in evaluations of traits on the competent/incompetent and warm/cold dimensions. Participants were tasked with rating the valence of traits relevant to competence, incompetence, warmth, and coldness. The results of this study are

presented in Table 2. Consistent with our predictions, we found that individual differences in need for cognition were correlated with greater evaluative differentiation between competent and incompetent attributes, whereas individual differences in need for affect were correlated with greater evaluative differentiation between warm and cold attributes.

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Building upon these findings, we next tested whether individual differences in need for cognition and need for affect predicted evaluations of targets who were described as competent, incompetent, warm, or cold. If inter-individual differences in attitude content influence person perception, need for cognition should predict liking of competent versus incompetent targets, whereas need for affect should predict liking of warm versus cold targets. In this study, participants read information about four targets (see Table 3). After reading about each target, participants indicated their attitude toward the individual. The results of the study are presented in Table 4. Our predictions were supported – only individual differences in need for cognition predicted liking of the competent and incompetent targets, whereas only need for affect predicted liking of the warm and cold targets. Further, this study found that the effects of the individual difference measures on liking were independent of structural and meta-bases measures. In a final study, we found that differences in liking toward targets differing in warmth and competence were mediated by differences in

evaluations of warmth- and competence-relevant traits. Taken together, Aquino et al. (2016) offer provocative initial data on the effects of inter-individual differences in attitude content on person perception.

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INSERT TABLES 3 AND 4 ABOUT HERE

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Given the findings of Aquino et al. (2016), one obvious extension concerns whether their observed effects extrapolate to judgments of social groups. This question was addressed in our lab by Wolf, von Hecker, and Maio (2017). Using the Stereotype Content Model as a foundation (see Cuddy et al., 2008; Fiske, Cuddy, Glick, & Xu, 2002), this line of work tested whether individual differences in need for cognition would predict preferences for competent groups over incompetent groups, and whether individual differences in need for affect would predict preferences for warm groups over cold groups. Of course, social groups tend to be evaluated on both warmth and competence, and of particular interest were social groups that might elicit ambivalent perceptions – that is, groups that are evaluated positively on one dimension and negatively on the other (e.g., high warmth and low competence or low warmth and high competence). These types of ambivalent groups were identified in previous research using the Stereotype Content Model, and Wolf et al. used those findings to select groups generally perceived as high warmth/low competence (e.g., housewives, the elderly, and South Americans) and groups generally perceived as low warmth/high competence (e.g., rich people, Asian people, and German people). In one

study, participants evaluated each of these groups on warmth, coldness, competence, and incompetence, as well as indicating their overall attitude toward each group. The results of this study are summarized in Figure 5. Overall, it was found that participants high in need for cognition tended to report more positive evaluations about low warmth/high competence groups, whereas participants high in need for affect reported more positive evaluations about high warmth/low competence groups. This series of studies also considered potential mechanisms underlying the observed pattern of results. Similar to our findings regarding evaluations of individuals (Aquino et al., 2016), this line of work found evidence that different evaluations of warmth and competence attributes mediated the effects of the individual difference measures on evaluations of ambivalent groups.

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INSERT FIGURE 5 ABOUT HERE

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Although the above results focused on the role of inter-individual differences in a person's own attitude content in predicting evaluations of other individuals and groups, a different line of research has examined the implications of knowing the underlying cognitive-affective basis of *another's* attitudes. In a particularly interesting study, Tan, See, and Agnew (2015) tested whether knowledge of one's partner's attitudinal meta-bases influences the quality of romantic relationships. Because knowledge of a romantic partner's views positively influences relationship quality (see Collins & Read, 1990; Fletcher & Kerr, 2010), Tan et al. hypothesized that



increased knowledge of a partner's meta-bases would be linked with greater relationship satisfaction. Couples in Tan et al.'s study completed measures of relationship quality, relationship closeness, as well as a measure of their own meta-bases and those of their partner (for various attitude objects). The latter measures allowed for the derivation of indices of *meta-bases understanding* (how accurately an individual perceived their partner's meta-bases) and *meta-bases similarity* (the degree to which partners within a couple perceived similarity in their meta-bases and how accurately they perceived each other's meta-bases). Using multi-level modelling, Tan et al. (2015) found that participants reported greater relationship quality when their partner had a more accurate understanding of their meta-bases, an effect that was independent of relationship length, actual within-couple similarity, and perceived within-couple similarity. Interestingly, neither actual nor perceived within-couple similarity was associated with relationship quality. These results offer an intriguing initial insight into the implications of inter-individual differences in attitude content.

Taken together, these results show three sets of interpersonal consequences of between-person differences in attitude bases. Individual differences in motivations related to attitude bases (i.e., need for cognition and need for affect) predict attitudes to other individuals and social groups, such that we like individuals and groups who are positive on dimensions we see as important. In close relationships, similarity in attitude bases appears to be unimportant; what matters is whether our partners are accurate in knowing our own perceptions about our attitude bases. This pattern fits

extant theory indicating that the need to feel validated and understood is uniquely important in close relationships (e.g., Reis & Patrick, 1996).

#### **4.5 - Inter-individual differences in attitude content and political/legal judgments.**

Research has also begun to address the role of inter-individual differences in attitude content within the context of political and legal judgments. In the political realm, some research at the inter-object level has considered how attitudes toward individual politicians or political parties are influenced by cognition and affect (e.g., Abelson et al., 1982; Lavine et al., 1998), but there has been less work assessing how people might respond differently to politically-relevant information as a function of inter-individual differences in attitude content. In one particularly interesting study, Arceneaux and Vander Wielen (2013) tested whether individual differences in need for cognition and need for affect influenced how participants responded to negative information about political parties. In their study, the researchers presented American participants (who identified as either Democrats or Republicans) with two pieces of negative information about either the party they supported or the party they did not support. After reading this information, participants reported their attitude toward each of the parties. Based on the notion that individuals high in the need for cognition would be more likely to process information in an unbiased manner, Arceneaux and Vander Wielen predicted that for high need for cognition individuals, evaluations of both their own party and the opposition party (depending on which party the negative information targeted) would become more negative upon learning

negative information. Regarding individual differences in need for affect, Arceneaux and Vander Wielen predicted that individuals high in the need for affect would be more likely to show a partisan effect, such that learning negative information about one's party was not expected to elicit more negative evaluations, whereas learning negative information about the opposing party would lead high need for affect individuals to report more negative evaluations of the opposing party and more positive evaluations of their own party. The results were reasonably supportive of Arceneaux and Vander Wielen's predictions: individuals high in need for cognition tended to show unbiased processing of partisan information, whereas individuals high in the need for affect processed partisan information in a more biased manner, an effect the authors argued arises from the stronger emotional ties based on political partisanship.

Within the legal domain, research has started to examine the impact of inter-individual differences in attitude content on juror evaluations. Building upon research showing that need for cognition and need for affect influence outcomes such as leniency decisions (Corwin, Cramer, Griffin, & Brodsky, 2012) and the level of scrutiny jurors devote to evidence (Leippe, Eisenstadt, Rauch, & Seib, 2004), Wevodau, Cramer, Clark, and Kehn (2014) examined whether victim impact statements influenced juror evaluations of sentence length and perpetrator blame as a function of individual differences in need for cognition and need for affect. The results revealed that, overall, sentence length was increased and victim blame was decreased in the presence of a victim impact sentence (relative to a no statement control

condition). With respect to trait-level differences, Wevodau and colleagues found that higher levels of need for cognition were associated with more blame assigned to be perpetrator. Further, it was found that individual differences in need for affect moderated the effect of the victim impact statement on sentencing behavior. In the absence of a victim impact statement, individuals low in the need for affect recommended longer sentences than individuals high in the need for affect. However, this pattern was reversed when participants read a victim impact statement, such that individuals high in the need for affect recommended longer sentences than individuals low in the need for affect. This might be attributable to the affect generated by the victim impact statement eliciting stronger victim empathy and, hence, punitive judgments, among individuals high in the need for affect.

#### **4.6 – A quick summary of findings of extant research on inter-individual differences in attitude content.**

Taken together, a number of conclusions can be drawn from extant research that has addressed inter-individual differences in attitude content. First, researchers have operationalized these differences using different types of measures. These measures are conceptually related but empirically distinct, and may reflect different underlying processes. Second, research has demonstrated a number of important implications associated with inter-individual differences in attitude content, including attitude change, information processing, attitude strength, person- and group-based evaluations, and political/legal judgments. The evidence en masse consistently finds

that individual differences in attitude content help to predict how people will respond to information encountered in our social world.

### **5 - New horizons**

The field has seen a number of important advances regarding the assessment, associations, and implications of inter-individual differences in attitude content. These studies have laid the foundation for other questions that are worthy of future investigation. In the remainder of the chapter, we discuss some of the issues we see as particularly important.

#### **5.1 - The measurement of inter-individual differences in attitude content.**

One important avenue for future research is to address in greater detail the measurement of inter-individual differences in attitude content. As noted earlier in the article, researchers have used three basic paradigms to assess these differences: structural, meta-bases, and traits, finding that these frameworks are largely independent of each other. We believe that future research needs to better understand the antecedents and consequences of these three frameworks. Although we (e.g., Aquino et al. 2016) and others (e.g., See et al., 2013) have speculated that these approaches are likely to represent different levels of analysis, these arguments require additional empirical testing.

Another avenue for future research is to consider how the structural, meta-bases, and trait perspectives relate to novel methods of assessing the favorability and content of individuals' attitudes. One such example is the Evaluative Lexicon. Developed by Rocklage and Fazio (2015), the Evaluative Lexicon is based on the

content of written responses provided by participants when thinking about an attitude object. The Evaluative Lexicon uses normative data to assess the valence and emotionality of the written responses that individuals provide. In determining the role of cognition versus affect with respect to an attitude object, one can assess the emotionality of the words that individuals use when freely describing an attitude object. For example, if an object is typically described as “stylish” and “minimalistic” (more cognitively-based responses), one would infer that the evaluation of the object is likely to be based on cognition. In contrast, if the object is typically described as “awesome” and “exciting” (more affectively-based responses), one would infer that the evaluation of the object is likely to be based on affect.

The Evaluative Lexicon has clear links to the study of inter-individual differences in attitude content. Indeed, recent research has used the Evaluative Lexicon to study questions relevant to the cognitive-affective nature of individuals’ attitudes. For example, Rocklage and Fazio (2016) found that when attitudes exhibit both positive and negative components (i.e., ambivalence), the valence that is based more on affect is also likely to reflect the overall attitude. In addition, Rocklage and Fazio (2018) reported that attitudes based more strongly on affect were also easier to retrieve from memory.

To the best of our knowledge, no research has tested the relations between individuals’ written responses toward attitude objects, coded for emotionality using the Evaluative Lexicon, and the primary measures that have been used to assess inter-individual differences in attitude content. One could argue that responses on the

Evaluative Lexicon should be associated with structural measures of attitude content, as they share a methodological perspective that emphasizes how respondents' salient cognitions and affect impact their overall evaluation. That said, scores on the Evaluative Lexicon might also be linked to the meta-bases and trait perspectives. Regarding meta-bases, to the extent that people are aware of the emotionality of the terminology they use to describe attitude objects, this might be reflected in their subjective perceptions of the extent to which they perceive their attitudes are generally based on cognitive or affective information. Regarding the trait approach, one might expect that individuals who seek out emotional experiences would be most likely to use affective terminology when articulating their evaluations of attitude objects, whereas individuals high in the need for cognition would be most likely to use cognitive terminology. These are questions we expect to be addressed in future research.

Relevant to this issue of how individuals use language to communicate their attitude, future research might also consider how inter-individual differences in attitude content are reflected in other components of language use. For example, research has examined how framing persuasive messages using *feel* versus *think* taglines influences judgments (see Mayer & Tormala, 2010). To the extent that inter-individual differences in attitude content affect how people construct and verbalize their thoughts, it is interesting to consider whether affect-based individuals would be more likely to articulate their views by using the stem "I feel that ...", whereas cognition-based individuals would be more likely to articulate their views by using the

stem “I think that ...”. In a related vein, Holtgraves (2015) found that individuals’ open-ended self-evaluations were more positive in response to a prompt that asked them to “write what you think about yourself” compared to a prompt that asked them to “write what you feel about yourself”. One might expect these effects to be moderated by inter-individual differences in attitude content.

### **5.2 - Spontaneous versus deliberative person-based judgments.**

To date, research examining the impact of individual differences in attitude content on person-based judgments has examined outcomes that are deliberative (e.g., evaluating warm-cold and competent-incompetent attributes; evaluating individuals described as warm, cold, competent, or incompetent). Future research is necessary that examines potential effects on more spontaneous evaluative judgments.

Toward that end, we, along with our colleagues Roos Dohmen, Ilse Pit, Rob Holland, Antonio Aquino, and Francesca Alparone (2018), recently embarked on a program of research examining whether individual differences in the need for cognition and the need for affect might impact spontaneous evaluations relevant to person perception. In an initial pilot study, we addressed this issue using the reverse correlation paradigm (Dotsch & Todorov, 2012). In this task, participants are presented with two images of the same face that differ only in the pattern of superimposed noise masks. Participants are asked to select one of the two images based on a variable of interest (e.g., Which one is more extraverted? Which one do you like best?). This process is repeated over hundreds of trials, with the final result being a classification image that is postulated to represent the construct of interest. In a



short period of time, this paradigm has revealed a number of fascinating results (see Brinkman, Todorov, & Dotsch, 2017).

In our initial study using the paradigm, we and our colleagues (Holland et al., 2018) tested whether inter-individual differences in attitude content influence spontaneous evaluations of other people. In the study, a first group of participants (generators) created a classification of a *liked* face. Specifically, over the course of 500 trials, participants were presented with two images and asked which one they most liked. A second group of participants (raters) evaluated the classification images on warmth and competence, and also completed the need for cognition and need for affect scales. In a subsequent session, the generators rated their classification image on warmth and competence, as well as completing the need for cognition and need for affect scales. Interestingly, the results revealed that need for cognition and need for affect had limited impact on generators' or raters' perceptions of the warmth or competence of the classification images. This might imply that the effects of need for cognition and need for affect are more pronounced for more deliberative forms of person-based judgments, though this needs to be addressed more thoroughly through an exploration of other forms of spontaneous judgment and using other operationalizations of inter-individual differences in attitude content.

### **5.3 - Are inter-individual differences in attitude content linked with different patterns of neural activity during evaluative judgments?**

Another line of interest involves a consideration of the neural substrates associated with the processing of cognitive and affective attitudinal information.

Although much fascinating research has addressed neural activity associated with evaluative judgments (see Maio et al., 2018, for a brief summary), we believe that there is a need for research that addresses more specialized questions. With our colleagues Antonio Aquino, Francesca Alparone, Stefano Pagliaro, Gianni Perrucci, and Sjoerd Ebisch, we have recently embarked on a program of research to address whether individual differences in attitude content elicit differential neural activity in response to cognitive and affective persuasive appeals (Aquino et al., 2018). Thus far, the data are generating interesting effects. For example, in an initial study, participants (who had already completed measures assessing the need for cognition and the need for affect) were placed in an fMRI scanner and presented with separate cognitive and affective persuasive messages about various products. After the presentation of each individual message, participants reported their attitude and purchase intentions toward the product. This task was repeated across a series of objects. It was hypothesized that individual differences in attitude content would impact how people responded to cognitive and affective information, in terms of the neural activity associated with processing information and using it in formulating an evaluation.

It was found that cognitive messages elicited greater activation in the left hemisphere, whereas affective messages elicited greater activation in the right hemisphere. Further, there was evidence that activity in the Ventro-Medial Prefrontal Cortex (vmPFC) differed as a function of participants' need for cognition and need for affect, such that a high need for affect (relative to need for cognition) elicited greater

activation in this brain region for affective than cognitive messages. Interestingly, this effect occurred consistently throughout the evaluation process (examining the persuasive information and making a judgment). This involvement of the vMPFC is consistent with and further develops previous studies examining neural processing of persuasive information (Chua, Liberzon, Welsh, & Strecher, 2009; Falk et al., 2009; see Cacioppo, Cacioppo, & Petty, 2018, for a review). The results of Aquino et al. (2018) offer a promising first step in understanding how individual differences in attitude content are linked with neural activity in response to different types of persuasive information. Emerging research seeks to replicate and expand upon these promising initial findings.

#### **5.4 - Inter-individual differences in attitude content, links between cognition and affect, and information processing.**

Contemporary developments in the attitudes literature have resulted in new theoretical advances and perspectives regarding the links between cognitive and affective processes in attitudes. For example, the Causal Attitude Network (CAN) model (Dalege et al., 2016) formally considers interactions and causal relations among the cognitive, affective, and behavioral components of attitude. The model conceptualizes attitudes as interactive networks of evaluative responses that include cognitions, affective responses, and behavioral responses about an attitude object. The model studies how links among thoughts, feelings, and behaviors develop, and how one set of responses toward an attitude object can cause new reactions toward the object. When the cognitive and affective components have congruent evaluative

implications, it is proposed that these responses determine outcomes such as the temporal stability of an attitude. In relation to inter-individual differences in attitude content, Dalege et al. (2016) argue that individual network models can offer a new tool to help better understand the underlying framework and implications of inter-individual differences in attitude content. Further, the content of individuals' attitude networks should differ as a function of inter-individual differences in attitude content. Overall, there is much to be said for this model, and we anticipate it furthering our knowledge of the study of inter-individual differences in attitude content.

Independent of the CAN model, researchers interested in health behavior change have presented novel frameworks for understanding the links between cognition and affect in guiding health-related behavior. For example, Kiviniemi et al. (2018) argue that much of the research assessing the impact of cognitive and affective information in guiding health behavior has usually taken what they refer to as a main effect perspective – treating cognition and affect in isolation and ignoring connections between them. These researchers developed a framework that considers (i) mediation models - in which affect mediates links between cognition and behavior (and vice versa), (ii) moderation models – in which affect moderates links between cognition and behavior (and vice versa), and (iii) context models – in which the impact of cognition and affect on health behavior differ as a function of contextual factors, such as the nature of behavior and culture. As applied to the focus of this article, Kiviniemi et al. (2018) note that individual differences are likely to impact the strength and role of cognitive and affective behavior in eliciting health behavior.

A third area we wish to highlight concerns how inter-individual differences in attitude content might impact emotion appraisal processes. Research on emotion appraisal has demonstrated that emotions can be differentiated on dimensions such as being pleasant versus unpleasant and the degree to which they instill confidence versus doubt (see Parkinson & Manstead, 2015). In a fascinating series of studies, Briñol et al. (2018) tested whether the elicitation of specific emotions (e.g., anger, disgust, surprise) can have different effects on subsequent evaluative judgments, depending upon how the emotion is appraised. In one study, participants read about a target who had been promoted or fired at work. Next, some participants were asked to report their feelings about the story (designed to make salient the pleasantness dimension), whereas others were asked to report their thoughts about the story (designed to make salient the confidence dimension). Next, in the context of a separate study, participants reported an instance in which they felt surprised (an emotion associated with pleasantness) or angry (an emotion associated with confidence), before reporting their attitude toward the target. The results revealed that people's attitudes toward the target were most likely to be based on the valence of their initial reported thoughts or feelings when the recalled emotion (e.g., anger) matched the emotion appraisal. In contrast, the mismatch of the induced emotion and the appraisal (e.g., the experience of anger and a pleasantness appraisal) resulted in attitudes that were less reliant on the valence of participants' initial responses toward the target. In discussing their findings, Briñol and colleagues note that individual differences in attitude content (as assessed by need for cognition and need for affect)

are likely to impact how emotions are appraised in everyday situations, and we agree that this possibility merits study.

Finally, while some extant research has addressed how inter-individual differences in attitude content influence processing of cognitive and affective information (e.g., See et al., 2008, 2013), other questions require future research. For example, the field would benefit from more research examining how attention, encoding, and memory for cognitive and affective information are linked with individual differences in attitude content. As just one example, when briefly presented with an array of cognitive and affective terms, do individual differences in attitude content predict what is noticed, in the same way that attitude accessibility predicts the objects people notice when briefly presented with a series of attitude objects (Roskos-Ewoldsen & Fazio, 1992)?

### **5.5 - What other constructs are related to inter-individual differences in attitude content?**

Future research should also consider other constructs that might be related to inter-individual differences in attitude content. We briefly wish to highlight one such construct that has become the source of considerable interest in psychology – the construct of mindfulness. Recent research by Haddock, Foad, Windsor-Shellard, Dummel, and Adarves-Yorno (2017) found that individual differences in mindfulness were positively correlated with need for cognition scores and negatively correlated with need for affect scores. As applied to the focus of this paper, future research can investigate whether highly or less mindful individuals are, for example, differentially

persuaded by cognitive versus affective information and report their views with greater certainty (see Britt et al., 2009). Of relevance to the latter point, research has demonstrated that mindfulness is linked with greater self-concept clarity and confidence (Dummel, 2018; Foad & Haddock, 2018).

There is also a need for additional research examining potential links between inter-individual differences in attitude content and attitude functions. As noted earlier in the article, previous research has linked low versus high self-monitoring with value-expressive versus social adjustive attitude functions (Petty & Wegener, 1998; Snyder & DeBono, 1985). It is possible that individual differences in attitude content might also be linked with particular attitude functions. Although research on attitude functions has been limited by difficulties in measuring various attitude functions, a recent paper by Zunick, Teeny, and Fazio (2017) offers a new perspective that we believe merits attention. Zunick and colleagues focus on the how some attitudes serve a self-defining function. These researchers developed a measure assessing this function, and found that attitudes participants rated as most self-defining were also more positive, extreme, and strong. Given links between inter-individual differences in attitude content and attitude strength (e.g., Britt et al., 2009, 2011; Huskinson & Haddock, 2006), one might anticipate that individuals with attitudes highly consistent with both cognition and affect might be especially likely to report their attitudes as more self-defining.

#### **5.6 - Inter-individual differences in attitude content and tailored messaging.**

At the start of the article, we noted how persuasion is most likely to be effective

when you know your audience. Consistent with this proposal, we have seen that attitude change is enhanced when matching the cognitive or affective content of a message to inter-individual differences in attitude content. Recent research has extended this line of work by examining the effectiveness of online message tailoring, via an approach that has been referred to as *persuasion profiling* (Kaptein, Markopolous, de Ruyter, & Aarts, 2015). Although much of this work has taken place outside the realm of social psychology, it is based on principles derived from the social psychological literature on attitude change.

The use of online tailoring has been successful in many health domains, influencing outcomes such as increasing the likelihood that individuals will use prescribed medications and decreasing smoking behavior (Smit, Linn, & van Weert, 2015; see Lustria et al., 2013, for a meta-analysis). As one example, Kaptein and colleagues (2012) assessed the impact of matched versus mismatched text messages about reducing snack consumption between meals. Volunteers from the Netherlands provided information about their susceptibility to different types of influence (e.g., a focus on reciprocity, scarcity, commitment) and were subsequently sent different types of text message reminders to their mobile phone about reducing their snacking behavior. These text messages were either matched or mismatched to participants' perceptions of their susceptibility to different types of influence. Kaptein et al. (2012) found that matched text messages were successful in reducing snacking behavior compared to mismatched messages (though the matched condition did not differ from a random message control condition).



In Kaptein et al.'s (2012) study, it is important to note that participants provided data about their susceptibility to influence in a voluntary manner, with these data subsequently used to create personalized (i.e., matched) or non-personalized (i.e., mismatched) messages. From our perspective, this type of research needs to be distinguished from a more controversial approach where online data are collected and/or used in a less voluntary manner - such as using an individual's digital footprint. Recent work by Matz and colleagues (e.g., Matz, Kosinski, Nave, & Stillwell, 2017; Matz & Netzer, 2017) discusses how information such as customer purchase data, browsing histories, blog posts, Twitter messages, Facebook likes, Instagram posts, and even GPS data can be used to make inferences about individuals' traits, in order to enhance behavior change through tailored messages. In one study, Matz et al. (2017) used Facebook likes to infer users' levels of extraversion, who then had advertisements placed on their Facebook page that matched or mismatched their status on this personality attribute. Matz et al. (2017) found that participants were over 50% more likely to purchase the advertised product online when the message was matched to the participant's putative level of extraversion.

These lines of work have substantial implications, at many different levels, including ethical and moral arguments regarding the use of information such as Facebook likes and Twitter posts to tailor advertisements to individual users. These issues are relevant to possible future lines of research related to inter-individual differences in attitude content. It is worth noting that the Behavior Change Internet Intervention Model (Ritterbrand, Thorndike, Cox, Kovatchev, & Gonder-Frederick,

2009) highlights the need to understand individual differences to maximize health-related behavior change. Further, Smit et al. (2015) note that tailoring health-related online message content to need for cognition and need for affect would likely be beneficial in augmenting behavior change. We believe there is potential positive use to tailored online messages in such contexts, under specific circumstances where individuals have freely volunteered and consented to participate in programs that can send them personalized information. However, although we see benefits in research along the lines of that conducted by Kaptein et al. (2012), we have strong reservations about using data such as Facebook likes and Twitter posts to influence attitudes and behavior.

### **5.7 - What about the role of behavior?**

As noted at the outset of the article, our research on inter-individual differences in attitude content has concentrated on the role of cognitive and affective information. This is also true of other researchers (e.g., See et al., 2008, 2013). Future research would benefit from more direct consideration of the behavioral component of attitude. Although there is important research on the role of habits as a determinant of behavior (see Wood, 2017, for an overview), researchers have found it difficult to develop measures of behavior that are comparable to those typically used to assess the cognitive and affective components. That said, there are important questions regarding the behavioral component that warrant additional discussion. One important question is whether individuals whose attitudes are less based on cognition and affect are more likely to base their attitudes on their behavioral

information. Individual strands of research point in this direction. For example, at the level of a single attitude object, Chaiken and Baldwin (1981) demonstrated that individuals low in evaluative-cognitive consistency were particularly susceptible to self-perception effects. Building upon these findings, in their research on evaluative-cognitive and evaluative-affective consistency toward capital punishment, Chaiken et al. (1995) found that attitudes low in both evaluative-cognitive and evaluative-affective consistency were less stable over time.

Extrapolating to the level of individual differences in structural bases, Huskinson and Haddock (2006) found that individuals low in evaluative-cognitive and evaluative-affective consistency reported attitudes that were less accessible than individuals high in both forms of consistency. These findings converge in that attitudes less linked with cognition and affect showed evidence of a weak attitude. It is possible that the attitudes of such individuals are instead based on behavioral information. Should that be the case, these individuals might be especially likely to show self-perception effects (see Holland et al., 2002).

Of course, behavior is not only an antecedent of attitude, behavior also follows from an attitude. Future research should consider whether inter-individual differences in attitude content predict different types of behavior. In the same way that attitudes can be based on cognitive versus affective content, researchers have theorized that different types of behavior may have more of a cognitive or affective emphasis. Most notably, Millar and Millar (1996) distinguished between instrumental and consummatory behavior, with the former referring to behaviors intended to

accomplish a goal and the latter referring to behaviors carried out for their own enjoyment. Further, links have been drawn between cognition-based attitudes and instrumental behavior, and affect-based attitudes and consummatory behavior. For example, a study reported by Dovidio, Esses, Beach, and Gaertner (2002) found that an affect-based attitude toward an outgroup predicted a consummatory behavior (the intention to engage in contact with the outgroup), whereas a cognition-based attitude predicted a more instrumental behavior (the endorsement of social policies relevant to the outgroup). This finding is consistent with the aforementioned discussion of theoretical connections between attitude structure and function.

Building upon these findings, Zhou, Dovidio, and Wang (2013) tested the role of cognitive-affective consistency in further understanding these effects. Similar to previous research, Zhou et al. (2013) found that affect-based attitudes toward a target group were better predictors of consummatory behavior toward the group than cognition-based attitudes, an effect that was independent of cognitive-affective consistency. However, cognition-based attitudes toward a target group were better predictors of instrumental behavior toward the group only when cognitive-affective consistency was high. This result resonates with evidence about the role of cognitive-affective ambivalence in determining the relative contributions of cognition and affect to attitudes (Lavine et al., 1998). In general, it may be important to consider the fit between cognitive and affective information in addition to the contribution of each type of information.

## **6 - Conclusion**

Our aim in this article has been to summarize advances made by ourselves and other attitude researchers interested in inter-individual differences in attitude content and their social psychological implications. We have discussed developments in the measurement of these individual differences, summarized advances in predicting implications of inter-individual differences in attitude content, and highlighted new horizons, in terms of emerging lines of research and areas that we believe are worthy of future research. This field of inquiry has grown significantly in the last 25 years. With growing interest in the tailoring of persuasive information to individuals, we expect this topic to remain at the forefront of attitudes research. As this research unfolds, it will enable psychologists and practitioners to better model the intricacies of cognitive, affective, and behavioral contributions to attitudes, how these vary across people, and their implications for everyday social behavior.

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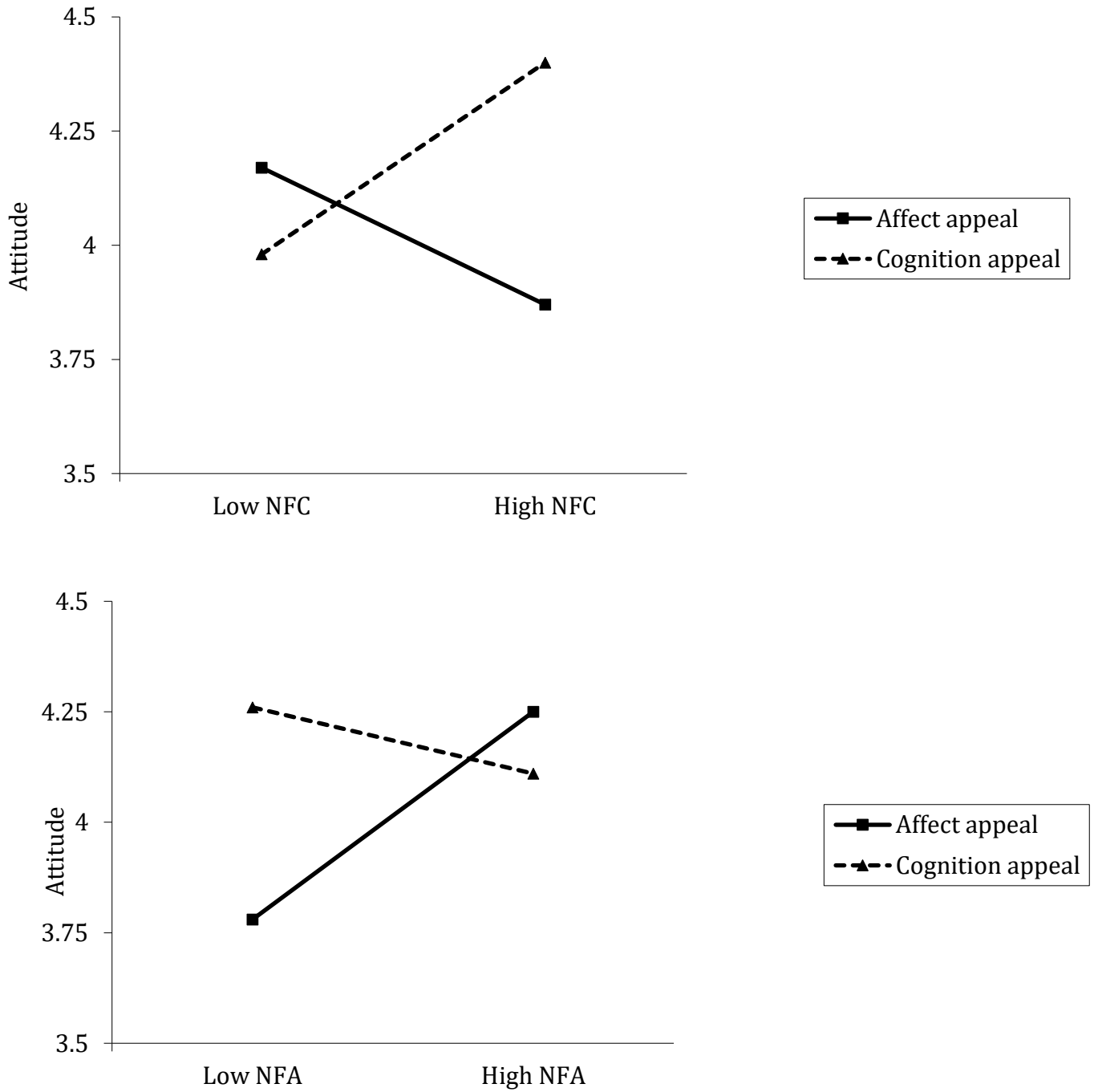
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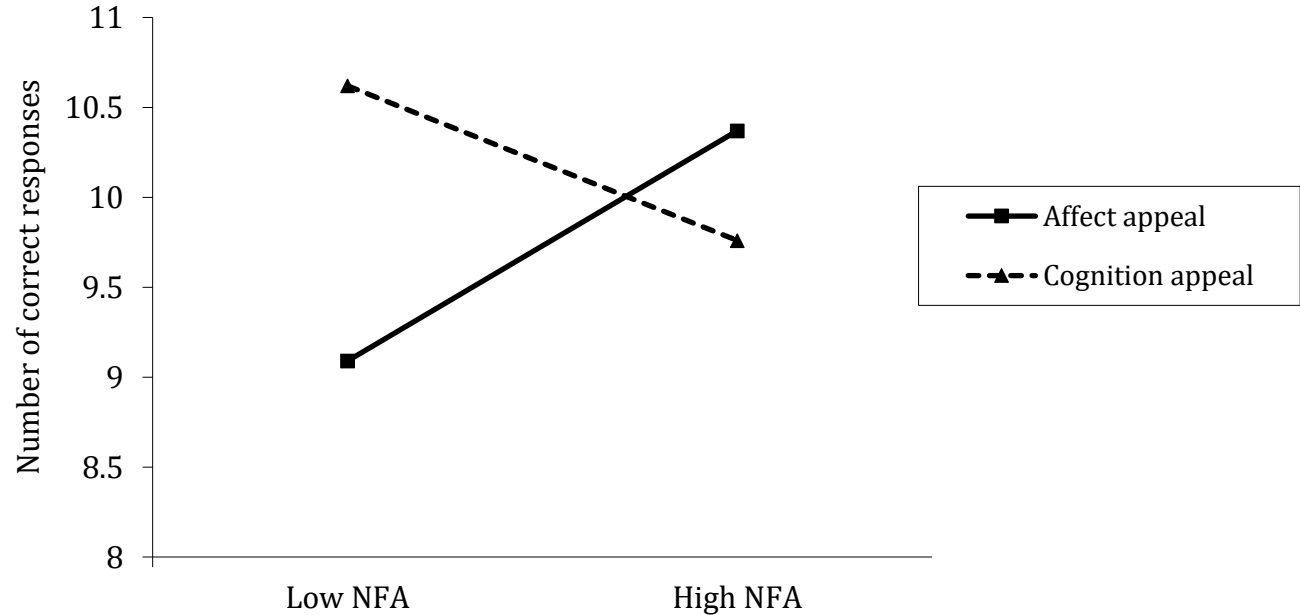
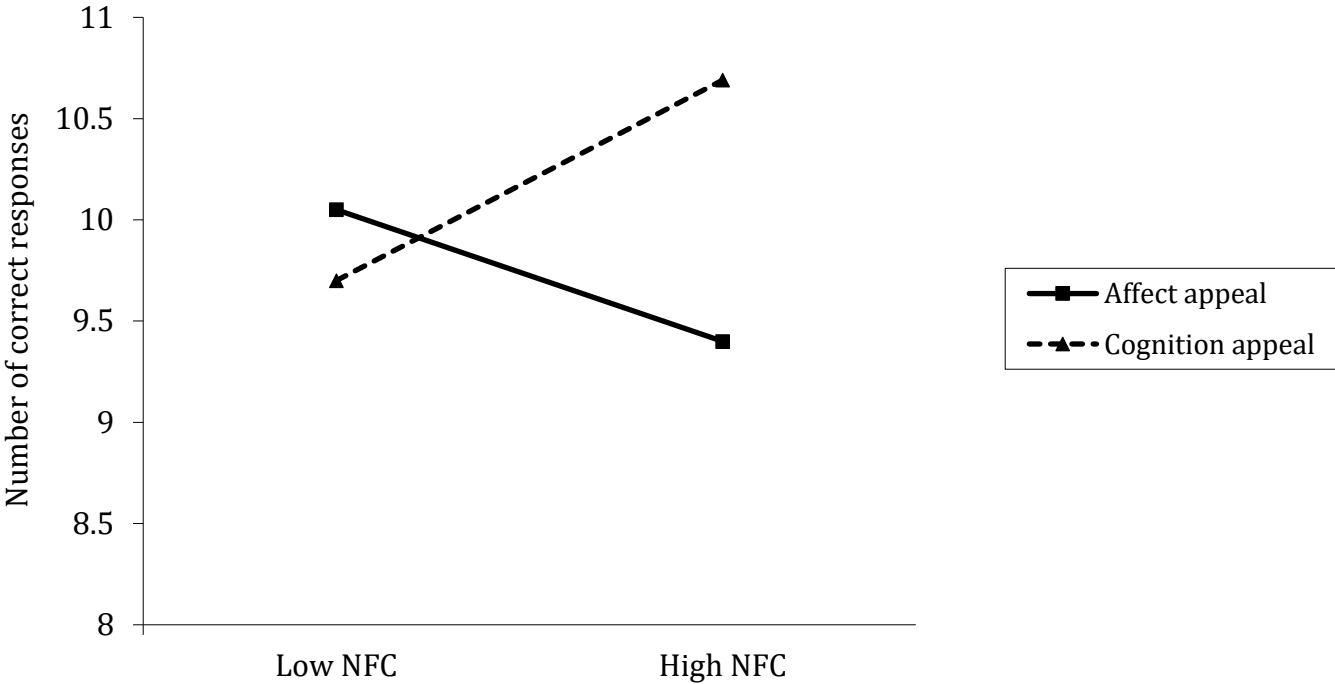
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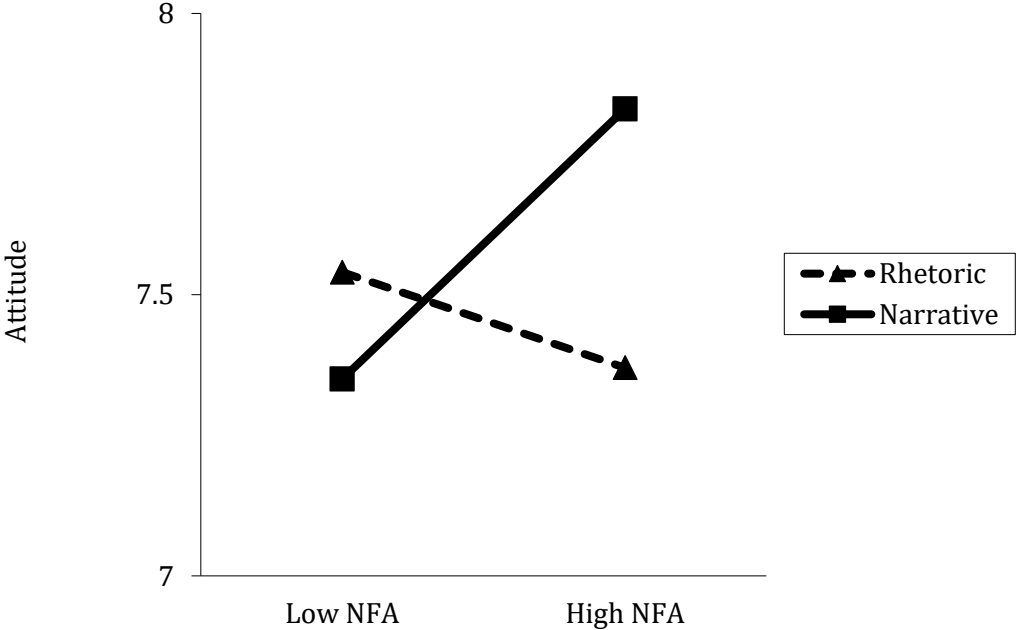
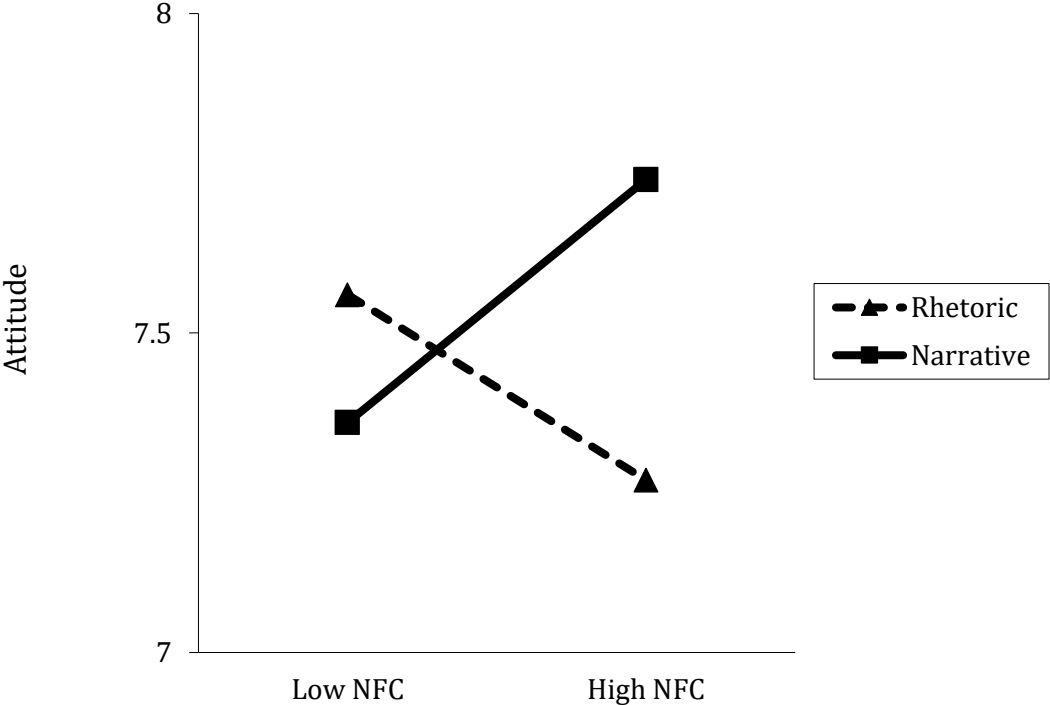
**Figure 1:** Attitudes toward the lemphur as a function of message type and need for cognition (top) and need for affect (bottom). Data from Haddock et al. (2008; Study 2).



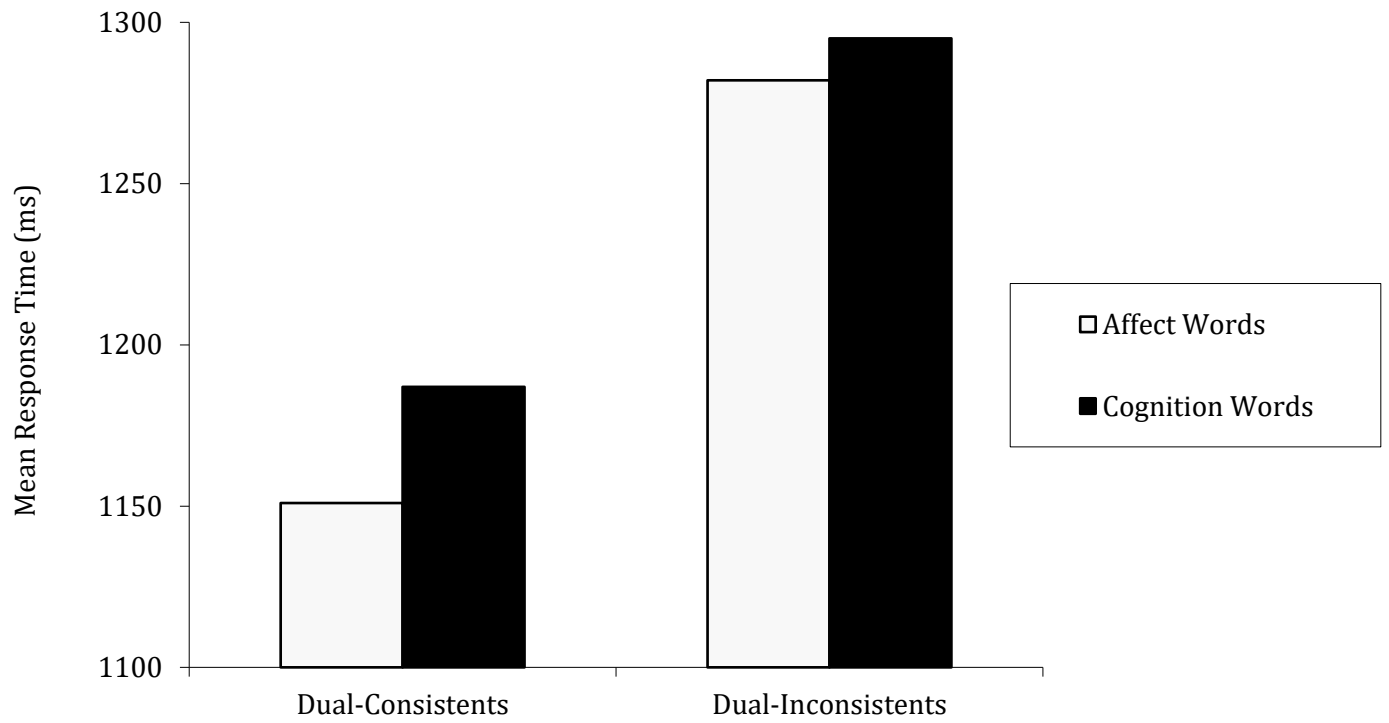
**Figure 2:** The amount of information recalled about the lemphur as a function of message type and need for cognition (top) and need for affect (bottom). Data from Haddock et al. (2008; Study 3).



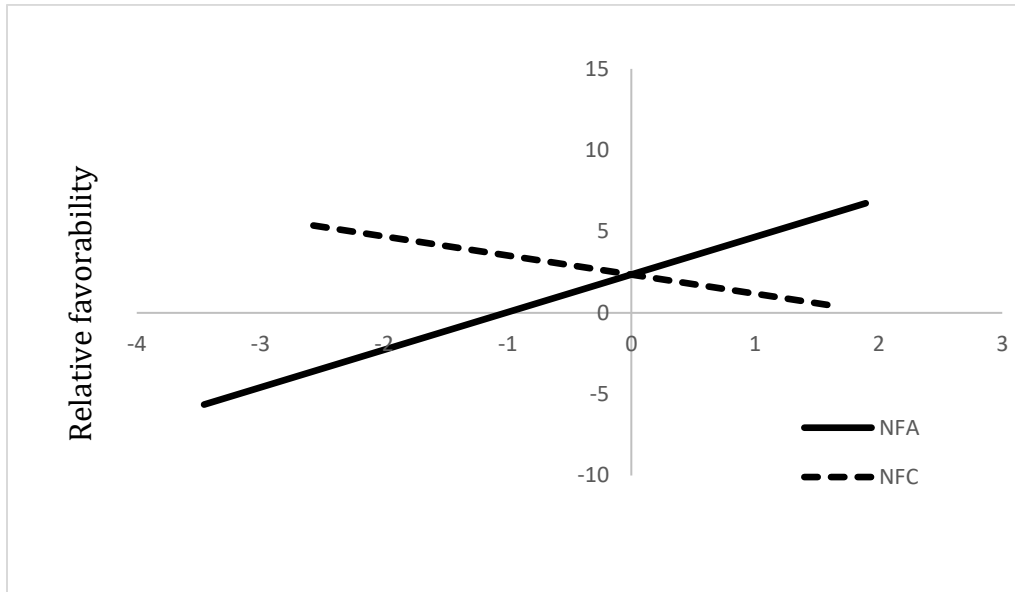
**Figure 3:** Attitudes toward cervical cancer screening as a function of message type and need for cognition (top) and need for affect (bottom). Data from Thompson and Haddock (2012; Study 2).



**Figure 4:** Response latencies to cognitive and affective words as a function of individual differences in attitude content. Data from Huskinson and Haddock (2006; Study 1B)



**Figure 5:** Relative favorability between High Warmth/Low Competence (HW/LC) and Low Warmth/High Competence (LW/HC) groups as a function of need for cognition and need for affect. Higher scores reflect more positivity toward HW/LC groups than LW/HC groups. Data from Wolf et al. (2017; Study 2).



**Table 1:** Correlations among need for cognition (NFC), need for affect (NFA), transportation, and transportability. Data from Thompson and Haddock (2012; Study 1).

<i>Variables</i>	NFC	NFA	Transportation	Transportability
Need for Cognition	-	.26*	.31**	.36**
Need for Affect		-	.37**	.47**
Transportation			-	.64**
Transportability				-

NOTE: \*  $p < .05$ , one-tailed; \*\*  $p < .01$ , one-tailed.

**Table 2:** Correlations among need for cognition, need for affect, and evaluations of competent, incompetent, warm, and cold traits. Data from Aquino et al. (2016; Study 1).

<i>Variables</i>	Competent traits	Incompetent traits	Warm traits	Cold traits
Need for cognition	.64**	-.46**	.11	.10
Need for affect	-.20	-.30*	.42**	-.30*

NOTE: \*  $p < .05$ , \*\*  $p < .001$

**Table 3:** Description of competent, incompetent, warm, and cold targets. Taken from Aquino et al. (2016; Study 2).

Amber is often regarded as an organized and industrious person. She tends to be self-disciplined. According to her friends, her best characteristic is her intelligence. Moreover, she is reflective and inquisitive all the time.

Samantha is often regarded as a disorganized and inefficient person. She tends to be undisciplined. According to her friends, her best characteristic is her impulsiveness. She doesn't like to find out new solutions, but prefers conventional answers.

Carol is often regarded as a kind and sympathetic person. She tends to be warm with others. According to her friends, her best characteristic is honesty. Moreover, she likes friendship and she usually goes out with her peers.

Lisa is often regarded as a sullen and unsympathetic person. She sometimes tends to be cold with others. According to her friends, her most important characteristic is to focus on her own interests. She would rather stay home alone than go out with her peers.



**Table 4:** Correlations among need for cognition, need for affect, and liking of competent, incompetent, warm, and cold targets. Data from Aquino et al. (2016; Study 2).

<i>Variables</i>	Competent target	Incompetent target	Warm target	Cold target
Need for cognition	.19*	-.20*	-.07	-.01
Need for affect	.00	-.06	.28**	-.23*

NOTE: \*  $p < .05$ ; \*\*  $p < .01$