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attitudes (structure and change) Attitudes refer to people's global evaluations of any object such as oneself, other people, issues, and so forth (see EVALUATIVE PROCESSING). Persuasion is said to occur when a person's attitude toward some object changes. Since Aristotle's (384–322 BC) *Rhetoric*, emotions have been assumed to play an important role in the structure of people's attitudes and in the processes by which they are modified. We consider each topic in turn.

Attitude structure

Emotion has traditionally been assumed to be a part of the underlying structure of attitudes. That is, attitudes are often conceptualized as consisting of three components: affective (emotional), cognitive, and behavioural (Katz and Stotland 1959). The overall attitude is assumed to be stored separately from the affective, cognitive, and behavioural information on which it is based. Although the three bases of attitudes are positively correlated with each other, they are separable constructs, and the attitude toward any given object can be based on affective, cognitive, or behavioural information (Cacioppo *et al*. 1989). There are also individual differences in the extent to which people's attitudes are based on affect versus cognition (Huskinson and Haddock 2004).

Importantly, there are meaningful consequences of the bases of an attitude. For example, Millar and Tesser (1986) showed that instrumental behaviours (those performed to accomplish a *goal independent of the behaviour itself) are driven primarily by cognitively based attitudes, whereas consummatory behaviours (those performed because the behaviour is intrinsically rewarding) are driven more by *affect. Chaiken *et al*. (1995) showed that when attitudes toward an object were inconsistent with the underlying affect or cognition associated with that object, the attitude was unstable. Furthermore, as discussed next, a growing body of research indicates that attitudes based largely on affect versus cognition are changed differently.

Attitude change

Messages using emotion: just as attitudes can be sorted into those that are based primarily on emotion versus cognition (Crites *et al*. 1994), so too can persuasive appeals. The dominant finding in the literature is for a matching effect. That is, attitudes based primarily on affect are more easily changed with messages relying on emotion, and attitudes based primarily on cognition are more easily changed with informational appeals (Fabrigar and Petty 1999). This matching effect also holds for people who tend to base their attitudes on affect versus cognition (Huskinson and Haddock 2004).

The type of emotional message that has been the most studied is the fear appeal, perhaps because of its great potential relevance to health communications (see HEALTH AND EMOTION). The dominant theoretical perspective on fear appeals is *protection motivation theory* (Rogers 1983). Consistent with expectancy-value theories, this model holds that fear appeals will be effective to the extent that the message convinces the recipient that the consequences of not following the recommendation are very undesirable and very likely to occur. This theory also holds that effective fear messages should convey that the negative consequences are highly likely to be avoided if the recommended action is followed and that the recipient has the requisite skills to take the recommended action. These conditions reduce the likelihood that defence motives will lead people to dismiss or ignore the message.

Incidental emotions: in addition to studying emotion that is part of a persuasive message, researchers have examined how emotion that is incidental to the communication influences attitudes. For example, if emotions were produced by a television programme that preceded a political advertisement and not by the advertisement itself, what effect would this have on attitudes? Contemporary theories of persuasion such as the elaboration likelihood model (ELM; Petty and Cacioppo 1986) and heuristic-systematic model (HSM; Chaiken *et al*. 1989) provide a framework from which to understand these effects. The ELM in particular indicates that emotions play different roles depending on the level of cognitive effort individuals allocate to a persuasive message.

Low-thinking conditions: according to the ELM, when thinking is low (when people are unwilling or unable to scrutinize attitude-relevant information because, for example, it is low in personal relevance or many distractions are present), variables such as a person's emotional state have an impact on attitudes by the operation of relatively simple, low-effort processes such as forming a direct association between the feeling state and the attitude object. Or, emotion could serve as part of an affect or 'How do I feel about it' heuristic (e.g., I feel good, so I must like it or choose it; Schwarz and Clore 1988, Slovic *et al*. 2002) (see AFFECT-AS-INFORMATION MODEL). Under low-thinking conditions, an emotion generally impacts on attitudes in a manner consistent with its *valence. Thus, incidental positive affect produces more positive attitudes toward an object, but incidental negative affect elicits more negative attitudes. Early demonstrations of this phenomenon can be found in the extensive research on mere exposure and evaluative conditioning (Zajonc and Markus 1982). Repeatedly presenting an object or pairing it with stimuli that bring about positive feelings can lead to more positive

attitudes compared with presenting the object a few times or pairing it with stimuli that produce negative reactions.

High-thinking conditions: incidental affect can also influence attitudes under high-thinking conditions, but the processes are different. Under high-thinking conditions, when people are carefully scrutinizing persuasive messages for merit, emotional states themselves can also be scrutinized for their information value. Thus, for example, sadness (an emotion with negative value as a simple cue under low-thinking conditions) could be a positive attribute of a movie drama when processed as an argument (Martin *et al*. 1997). If the emotion is not scrutinized as evidence or is dismissed in this regard, it can still affect judgements by biasing one's evaluation of the evidence—especially if that evidence is ambiguous. Forgas (1995) refers to this as an *affect infusion* effect. Indeed, research suggests that *moods and emotions can affect the thoughts that come to mind when processing a message (Petty *et al*. 1993) as well as perceptions of the likelihood of various outcomes described in the message. For example, in one study (DeSteno *et al* 2004) participants who were made to feel sad rather than angry prior to receiving a message showed an increased estimate of the likelihood of sad versus angering consequences, and thus were more influenced by a message advocating that sad rather than angering consequences would follow the failure to adopt a recommendation. Participants made to feel angry were more persuaded by the message pointing to angering consequences.

Emotion can also affect confidence in people's thoughts in response to a persuasive message. Under high-thinking conditions, not only are people influenced by the number and valence of thoughts that they generate, but also by the confidence they have in those thoughts. The more confidence people have in their thoughts, the more they will use them to form attitudes (Petty *et al*. 2002). *Appraisal theories of emotion suggest that some emotions are related to certainty whereas others are linked to doubt (Smith and Ellsworth 1985). For example, happiness and anger are associated with more confidence than sadness and surprise. Thus, in high-thought conditions, experiencing the emotions associated with confidence after thought generation should be more *self-validating* and should therefore lead to greater use of the thoughts than experiencing the emotions associated with doubt. Consistent with this idea, Briñol *et al*. (2007) manipulated whether message recipients experienced happiness or sadness after a persuasive message. When the message was strong (and thoughts were thus mostly favourable), people who were happy following message processing were more persuaded than those who were sad. However, when participants received a weak message on the same topic (and thoughts were mostly unfavourable), the effects of the emotion induction were reversed. Furthermore, the self-validation effects for emotion were confined to high-thinking conditions. In contrast, under low-thinking conditions, emotions had a direct effect on attitudes, consistent with a simple cue effect.

Unconstrained thinking conditions: emotions can also affect attitudes by influencing the extent of information processing when it is not already constrained by other variables to be high or low. In one early experiment, Bless *et al*. (1990) found that sad mood induced prior to a message created greater processing (a larger influence of argument quality on thoughts and attitudes; Petty and Cacioppo 1986) than happy mood.

Several theories have been proposed to explain why happiness tends to lead to less information processing than sadness. One view—*the feelings-as-information* framework (Schwarz and Clore 1988)—holds that individuals' emotions serve as informational cues regarding the status of their environment. Negative affective states inform individuals that their current environment is problematic, and therefore engender a relatively high level of effortful processing to deal with this situation. In contrast, positive states signal that the current situation is safe and, therefore, do not require a high level of cognitive effort. Another possibility is suggested by the *hedonic contingency model* (Wegener *et al*. 1995). This framework suggests that individuals in a happy state will process less if the message is expected to undermine one's positive state. However, if the message is expected to induce positive feelings, then happiness will not undermine processing and may even increase it beyond neutral or sad states. A third explanation relies on the association between emotions and certainty. Specifically, emotions such as happiness and anger, which are associated with certainty, should decrease information processing relative to emotions such as sadness and surprise, which are associated with uncertainty (Tiedens and Linton 2001). Which of these mechanisms is responsible for the impact of emotional states on information processing probably depends on what goals are salient to the person at the time and what information the emotion conveys in that context.

Corrections for perceived effects of emotion

In closing, we note that the effects of incidental emotions that we have addressed tend to occur primarily when the underlying cause of the emotion is not clear. However, if people are aware of the source of the emotion, they might not want it to exert any biasing impact on their judgement. When incidental affect becomes salient and people do not want their judgements to become biased by it, they may attempt to correct for

its assumed biasing impact if they have the ability to do so. According to the flexible correction model (FCM; Wegener and Petty 1997), in such situations people will attempt to correct their judgements based on their naïve theory regarding the expected effect of the emotion on judgement.

Because corrective efforts work to avoid or remove perceived biases, the FCM holds that corrections proceed in a direction opposite to the perceived bias and in a magnitude commensurate with the expected size of the bias. Because emotions are believed by most people to create emotion-congruent judgements, attempts to correct for bias often reduce emotion-congruent biases and can result in emotion-incongruent outcomes. For example, in one study in which emotion was made salient (DeSteno *et al.* 2000), individuals under high-thinking conditions made judgements of *lower* likelihood for sad events when feeling sad rather than angry, and for angering events when feeling angry rather than sad—the opposite of the normal biasing pattern, suggesting an overcorrection for a presumed bias.

Summary

There are many ways that emotions contribute to attitudes and persuasion. First, affect has long been recognized as one of the fundamental bases of attitudes. In addition, when the affect associated with an object is consistent with the overall attitude, the attitude is generally more consequential than when the attitude is inconsistent with object-relevant affect. With respect to persuasion, appeals based on emotion are most effective in changing attitudes based on emotion. However, the effectiveness of emotional messages, especially fear appeals, depends on a number of other variables. Emotions can also influence attitude change even if they stem from sources extraneous to the persuasive communication. The impact of such emotions is the result of different processes depending on whether thinking is high, low, or unconstrained. Finally, if the source of an incidental emotion is salient, people will sometimes correct their judgements for the presumed effect of the emotion, sometimes creating the opposite bias in judgements due to overcorrection.

RICHARD E. PETTY, DUANE T. WEGENER, AND LEANDRE R. FABRIGAR

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attractiveness Attractiveness is a physical quality of face, voice, or body that elicits positive responses, or 'attraction'. There is no 'gold standard' of attractiveness, but rather a variety of interchangeable currencies. Facial attractiveness is augmented by averageness, symmetry, certain sexually dimorphic qualities, a positive expression or behaviour, youthfulness, or familiarity (Rhodes and Zebrowitz 2002). The components of vocal attractiveness include a less nasal, less monotonous, and more resonant voice as well as a small range of vocal pitch, a more mature sounding voice in college students, and lower-pitched voices in men. There is a curvilinear relationship between body attractiveness and weight, with lower attractiveness associated with the extreme high and low ends of the distribution. Body attractiveness is also related to sexually dimorphic cues, higher for women with a more 'feminine' waist-to-hip ratio and higher for men with a more 'masculine' ratio. Although cultural factors have an influence on the qualities deemed attractive, particularly the body qualities, some universal process is implicated by cross-cultural agreement in judgements of facial attractiveness coupled with the finding that even young infants prefer attractive faces. The nature of that universal process remains an active area of investigation that tests hypotheses derived from evolutionary, social, developmental, and cognitive psychology. These hypotheses have focused primarily on sexual attraction, but they can also concern attraction to infants, peers, and leaders. In addition to elucidating the components of attractiveness, research has identified myriad social consequences. People attribute more positive psychological traits to individuals with more attractive faces, voices, and bodies—the attractiveness halo. This effect appears early in development, and it is culturally widespread, although the particular positive traits may depend upon cultural values. Moreover, more attractive individuals receive more positive social outcomes across the lifespan in several domains, including close relationships, encounters with strangers, school, employment, and criminal justice settings.

LESLIE A. ZEBROWITZ

attributional style Attributional style, or explanatory style, is a cognitive personality variable that reflects how people characteristically explain the causes of bad events (Peterson and Seligman 1984) (see ATTRIBUTION THEORY; APPRAISAL STYLE) The construct emerged from the refor-