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The Influence of Affect on Attitude

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AFFECTIVE INFLUENCE ON ATTITUDE

Priests of the medieval Catholic Church understood something about the relationship between affect and attitude. To instill the proper attitude in parishioners, priests dramatized the power of liturgy to save them from Hell in a service in which the experience of darkness and fear gave way to light and familiar liturgy. These ceremonies "were written and performed so as to first arouse and then allay anxieties and fears" (Scott, 2003, p. 227):

> The service usually began in the dark of night with the gothic cathedral's nave filled with worshippers cast into total darkness. Terrifying noises, wailing, shrieks, screams, and clanging of metal mimicked the chaos of hell, giving frightened witnesses a taste of what they could expect if they were tempted to stray. After a prolonged period of this imitation of hell, the cathedral's interior gradually became filled with the blaze of a thousand lights. As the gloom diminished, cacophony was supplanted by the measured tones of Gregorian chants and polyphony. Light and divine order replaced darkness and chaos (R. Scott, personal correspondence, March 15, 2004).

This ceremony was designed to buttress beliefs by experience and to transfigure abstractions into attitudes. In place of merely hearing about "the chaos and perdition of hell that regular performances of liturgy were designed to hold in check" (Scott, 2003), parishioners should actually feel reactions of fear and confusion when contemplating Hell, and of hope and relief at the familiar sounds of liturgy.

By what processes do such momentary affective reactions become attitudes? This chapter explores some of the answers that social psychologists give to that question. Before proceeding, however, we discuss three sets of distinctions that underlie our treatment of affect and attitude. The first concerns the similarities and differences among attitudes and affective conditions. The second concerns the evaluative and importance information conveyed by the valence and arousal dimensions of affect. The third concerns direct versus indirect influences of affect on attitude.

Three Orienting Distinctions

Attitudes and Other Evaluative Conditions

"Affect" refers to evaluative reactions that are embodied. Two common forms of affect are moods and emotions, both of which are affective states. "States" exist when multiple systems of the organism simultaneously reflect the same condition. Thus, emotional states exist when the same affective reaction to the same object is manifest in multiple systems at the same time (Clore & Ortony, 2000). For example, a person who is in a state of fear may simultaneously look, feel, think, and act afraid, as well as have fearful patterns of physiology and brain activation. If emotions are particular kinds of evaluative reactions to objects, and attitudes are also evaluative tendencies toward objects, how do attitudes differ from emotions?

That question is addressed elsewhere (Schimmack & Crites, this volume; Fabrigar, MacDonald, & Wegener, this volume), but a useful additional comparison is that the evaluative meanings basic to both emotions and attitudes act differently because they are differently constrained (Clore & Colcombe, 2003). Table 11.1 depicts two of these constraints-temporal and object constraints. For example, moods and emotions are ephemeral and cannot be stored. Whatever evaluative information they carry is temporally constrained, existing only as long as the supporting cognitions, perceptions, or other elicitors are active, and vanishing as soon as one is no longer in that state. The same is not true of attitudes, because attitudes are not evaluative states, but evaluative tendencies, that do not necessarily vanish when one stops thinking about the attitude object. Thus, the evaluative meanings of attitudes are not constrained by time and may be either temporary or enduring (Eagly & Chaiken, 1993).

Another kind of constraint concerns whether or not the evaluative meaning is focused on a specific object. In that regard, attitudes and emotions are similar. Both are evaluations of something specific. By contrast, moods and temperaments are examples of conditions that are not dedicated to specific objects. Both are evaluative orientations without built-in direction; without being constrained by an object. Thus, cheerful moods and cheerful temperaments may make things in general seem positive. But, as shown in Table 11.1, moods differ from temperaments in part because the evaluative inclinations of moods are momentary or constrained by time. In contrast, evaluative inclinations based in temperament are neither object-specific nor temporally-specific. Thus, one can be said to have a cheerful temperament, even if one is momentarily cheerless.

According to Table 11.1, both emotions and attitudes have objects. If so, then understanding how emotion influences attitude might involve asking how the evaluative aspects of emotions, which are necessarily ephemeral, become an attitudinal evaluation, which has no such temporal constraint.

Table 11.1 indicates that the evaluative inclinations of moods also differ from those of attitudes in their object constraints. Hence, understanding how moods influence attitudes involves asking how an evaluative state, which was not about anything in particular, becomes constrained to be about a specific attitude object. For example, how might simply being in a foul

TABLE 11.1
Some Constraints on Evaluative Meaning That Differentiate Attitudes From
Other Evaluative Conditions

	Temporally Constrained State	Temporally Unconstrained Tendency
Object-focused	Emotion	Attitude
No Object Constraint	Mood	Temperament

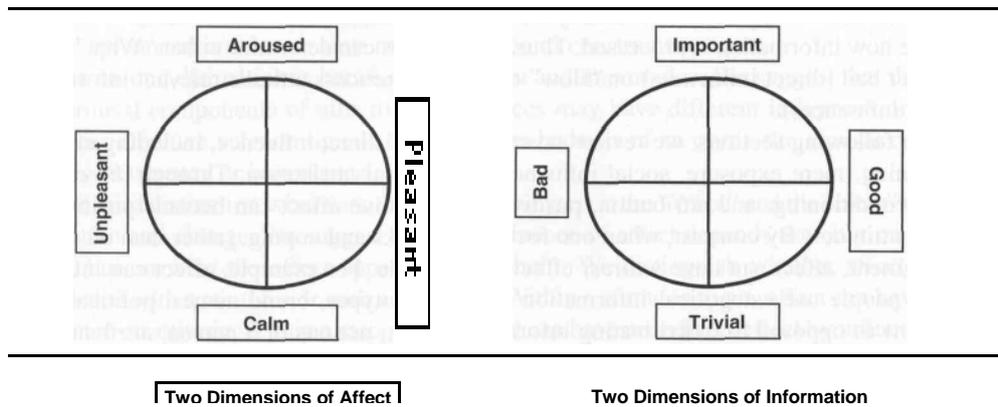Two Dimensions of Affect   Two Dimensions of Information

FIG. 1.1. Valence and Arousal as Two Dimensions of Embodied Affective Experience. The subjective experience of affect is generally found to vary along two dimensions (valence and arousal), which serve as embodied information (evaluation and importance) about the object of the affect.

mood influence one's attitude toward something? One approach to answering that question lies in the information about value and importance that is conveyed in affect.

Affective Value and importance

Affective experience appears to have both valence and arousal components. These are depicted here as independent, bipolar dimensions (Russell, 2003). Valence can also be separated into two dimensions, each of which varies in arousal or intensity (Watson & Tellegen, 1985). With respect to attitude formation, the valence component can be thought of as embodied evaluation, and the arousal component can be thought of as an embodied perception of importance (Frijda, Ortony, Sonnemans, & Clore, 1992). This characterization of the experience and the information inherent in valence and arousal cues is depicted in Fig. 11.1.

As discussed by Schimmack and Crites (this volume), emotions arise when situations are perceived as positive or negative in some way and also as personally relevant, urgent, or important. These appraisals of value and importance are represented in embodied form as feelings that are pleasant or unpleasant and that are characterized by high or low arousal. The experience of such feelings in turn conveys information that something in a situation is good or bad and important or trivial. According to the affect-as-information hypothesis (Clore et al., 2001; Schwarz & Clore, 1983) affect influences attitude. Positively or negatively valenced feelings then signal positive or negative evaluations and attitudes, whereas feelings of arousal commandeer attention (Simon, 1967) and make attitude-relevant information memorable (Cahill & McGaugh, 1998).

The fact that embodied evaluations signal both Value and Importance is reflected in the organization of this chapter. In addition, at a higher level of organization, one can also distinguish between affective influences on both the "What" and the "How" of attitude formation and change, as we see next.

Affect and the "What" and "How" of Attitude Formation and Change

The impact of affect depends not only on the affect itself, but on what the affect appears to be about. Affect tends to transfer its goodness or badness to whatever is in mind at the time. Thus,

if one is focused on some object, that object may be experienced as correspondingly good or bad. But if one is focused not on an object, but on a task, then the same affective cues can influence how information is processed. Thus, one's focus can determine either "What" object is good or bad (direct influences) or "How" one should process attitude relevant information (indirect influences).

In the following sections, we review several forms of direct influence, including affective conditioning, mere exposure, social influence, and causal attribution. Through *direct* association, conditioning, and attribution, positive and negative affect can become positive and negative attitudes. By contrast, when one focuses on tasks and coping, rather than on objects and judgment, affect can have *indirect* effects on attitude. For example, affect can influence whether people use categorical information (e.g., stereotypes, brand names, political party affiliation) as opposed to individuating information (e.g., actions of a person, attributes of a product, or votes of a candidate).

We are suggesting that the specific influence of affect depends on the object of one's attention at the time. At the broadest level, organisms can attend either to objects or to actions. With respect to attitudes, an *object focus* allows organisms to learn what is good and what is bad in their physical and social worlds, whereas an *action focus* allows them to evaluate how well they are coping in that world.

These two kinds of focus can also be seen in two forms of reward learning: *classical conditioning* and *instrumental learning.* Like the two forms of affective influence on attitudes, the two forms of affective influence on learning involve a transfer of value from affect to object. The two forms (whether of affective influence or of learning) differ from each other mainly in the kinds of objects to which affective value becomes associated. Pavlov's dogs attended to the stimulus of a bell, and the associated affect from the delivery of food presumably generated a positive attitude toward that conditioned stimulus. But in the instrumental learning of Skinner's pigeons and Thorndike's rats, the affect from reward conferred its value on actions or responses that were instrumental in obtaining reward.

These two kinds of learning correspond to the distinction in cognitive psychology between *semantic knowledge* and *procedural knowledge.* Semantic knowledge, too, involves information about objects in the world, whereas procedural memory involves information about action. We raise these distinctions here because they map onto the two kinds of affective influence on which we focus. Affect provides evaluative information that can either modify evaluative representations of objects in the world (semantic knowledge) or modify evaluations of possible responses to such objects (procedural knowledge). Thus, affect can either influence attitude by serving directly as information about the value of the attitude object, or indirectly by serving as information about the value of one's thoughts or inclinations regarding the object. Finally, we distinguish between two kinds of direct effects. One concerns the role of the *valence component* of affect in determining the valence component of attitude, and the other concerns the role of the *arousal component* of affect in making lasting or memorable attitudes.

Summary

Three kinds of distinctions are helpful in reviewing research on affect and attitude. One distinction is between the evaluative aspects of attitudes and the evaluative aspects of affect. The secret to affective influences on attitude is ultimately that both affect and attitudes, despite their differences, are evaluative. Thus, the evaluation embodied in affect can be conditioned, associated, inferred, attributed or otherwise transformed into the evaluative tendencies of attitude. Conversely, when attitudes are strong, attitude objects can also elicit affect. Table 11.1 suggested that two kinds of constraints on the generality of these kinds of evaluations distinguish attitude from emotion, mood, and temperament. For example, the evaluative meanings in attitude and

emotion are both about specific objects. However, since emotions are ephemeral, their evaluative meanings are constrained by time, whereas attitudes and their evaluative tendencies need not be ephemeral and hence have no such temporal constraints.

The second distinction is between evaluation and importance. We suggest that the valence and arousal components of affective experiences may have different influences on attitude. Whereas affective valence signals the goodness-badness of an event, the arousal component signals its urgency or importance.

The third distinction is between affective influences on the "What" and the "How" of attitude formation and change. We suggest that the influence of affect depends not only on the affect itself, but on what the affect appears to be about. We distinguish whether affect becomes associated with a stimulus or with a response. Within a stimulus focus, affect can have a direct influence on attitude. Within a response focus, it can have an indirect effect by influencing how one processes attitude relevant information such as stereotypes and persuasive messages. We suggest that the value transfer from affect to attitude in these two kinds of influence correspond to a similar transfer of value from rewards to stimuli in classical conditioning and to responses in instrumental learning. We turn next to the first of these—direct influences of affect on attitude.

Direct Influence of Affect on Attitude

Classical Conditioning and Affective Association

Thinking of attitudes as conditioned affective responses is an old and familiar idea (e.g., Razran, 1954; Staats & Staats, 1958). Hence, one would think that attitudinal conditioning would be well understood, and issues about how it works long settled. On the contrary, basic questions remain. Moreover, interest in affect and conditioning has never been higher, and recent research includes some surprising conclusions (for reviews, see De Houwer, Thomas, & Baeyens, 2001; Hermans, Baeyens, & Helen, 2003; Kruglanski & Stroebe, this volume). For example, despite the fact that classical conditioning would seem to be the mother of all primitive, noncognitive explanations for behavior, some reviewers conclude that there is no convincing evidence of classical conditioning in humans without conscious awareness of the contingency between conditioned and unconditioned stimuli (Lovibond & Shanks, 2002). In addition, despite appearances, the associational process whereby rewards and punishments influence attitudes is apparently not really an example of classical or Pavlovian conditioning (De Houwer et al., 2001). A review of simple evaluative associations versus Pavlovian conditioned responses shows a number of instructive differences, which we describe. Before touching on those issues, however, a bit of history is in order.

Associationism. There has long been a desire among philosophers and psychologists to use physical principles to understand psychological phenomena. The conditioned reflex is one example. Descartes suggested that just as mirrors automatically reflect light, we also have "reflexes" that automatically reflect aspects of the environment, as when people withdraw their hands from fire. Using that idea, associationist philosophers from Locke to Hume tried to explain how moral, cognitive, and affective life might be generated from associations involving such reflexes. At the time, this issue was controversial because there was a tension between the idea of randomness implied by such associationism and the dominant rationalist theories, which were especially concerned with questions of moral order.

John Sutton (1998), a current day neurophilosopher, suggests that Descartes' associationism, which today may seem too mechanistic, was in his day seen as too random. The concern was that without executive control over the construction of meaning, people would not be able to

maintain a stable moral sense or even a stable self. In contrast, today we seem less concerned with people's moral sense (for better or worse), and research suggests a diminished role for central processing (Cooney & Gazzaniga, 2003). Indeed, some conclude that our sense of executive control (Clark, 1997) and conscious will (Wegner, 2002) are illusory. These trends in cognitive science seem quite compatible with the associationism we see in conditioning approaches to attitudes.

Classical Conditioning Of Attitude. Most reviews of conditioning and attitude start with Razran's early experiments in which such stimuli as musical selections, paintings, photographs, and slogans were presented during free luncheons. In one such experiment, he obtained measures of ethnic prejudice from New Yorkers by having them rate photographs of college women presented once unlabeled and again two weeks later with Jewish, Italian, or Irish names. He then applied the luncheon technique to 12 of the participants. For this part, he presented the items that had shown the most bias as they ate a free lunch. Their subsequent rerating of the items appeared to show that the free lunch had conditioned away the ethnic bias. It is hard to know whether conditioning was actually shown, because items chosen on the basis of extremity of response tend to regress to the mean by chance when rerated. Such changes in rating might look like attitude change, but not be. However, Razran did other luncheon studies that were not subject to such shortcomings. For example, in one, Razran (1954) presented music and pictures that had been associated with eating and found that they increased "frequencies of food-related free verbalizations, frequencies of food-related rhyme finding, and speed of unscrambling food-related letter-scrambled words" (Razran, 1954, p. 274). A second point, however, as noted by Razran, is that despite the visceral nature of the stimuli involved, these conditioned responses were actually cognitive ones. For example, although the pictures and music did remind people of food-related material, there was no evidence for conditioned hunger or desire for food, as might have been expected.

Another early study that is particularly relevant to affect and attitude is Watson and Raynor's (1920) famous demonstration of conditioned aversion in Little Albert, a 9-month-old child. The study is one of the most cited pieces of research in psychology. However, it consists simply of Watson's description of how Little Albert reacted when Watson struck a metal rod with a hammer behind the child's head when a white rat (and later a rabbit) was placed before him. Textbooks generally overstate the evidence for generalization (as did Watson himself subsequently). Little Albert did not, as some suggest (Wolpe, 1958), develop a phobia for rats and other furry objects. Also, the study did not illustrate "preparedness" to learn to fear furry things (Seligman, 1970). There was clear evidence of some aversion, but the evidence for generalization and resistance to extinction was not as impressive as often claimed in textbooks (Harris, 1979). Indeed, a week later, reactions were sufficiently weak that Watson instituted new conditioning trials to strengthen the aversion.

Another touchstone in discussions of conditioning and attitude are early experiments by Staats and Staats (1958). They showed changes in the evaluation of words referring to nationalities (e.g., Dutch, Swedish) or of male names (e.g., Tom, Bill) after repeatedly being associated with positive or negative words. For example, the words Swedish and Dutch were paired with positive or negative words, whereas the words German, Italian, French, and Greek were paired with random words. So, Dutch might be paired with such words as gift, sacred, and happy, whereas Swedish might be paired with such words as bitter, ugly, and failure. Afterwards, participants were given a booklet with six pages. On each was one of the national names and a pleasant to unpleasant rating scale. They were told to indicate how they felt about each word in order to see if their feelings influenced their recall. After eliminating nearly 20% of the participants who indicated awareness of the pairings, they found that the stimuli associated with positive or negative words were rated more and less positively, respectively.

In the intervening years, there were several other pivotally important demonstrations of attitude conditioning, including studies by Zanna, Kiesler, and Pilkonis (1970) and research by Krosnik, Betz, Jussim, and Lynn (1992), which used subliminal affective pictures as a UCS in order to control for awareness of the conditioned stimulus-unconditioned stimulus (CS-UCS) contingency. More recently, Olson and Fazio (2001) have examined the classical conditioning of evaluative reactions by looking at implicit measures of attitude. They paired pictures of two Pokemon characters with positive and negative words and images. Each was paired 20 times with valence words, and these trials were embedded in 430 other trials. Subjects were told that the slides were random, and that their task was simply to hit a response key as fast as possible when an image appeared. The task was said to concern video surveillance. They later assessed participants' recognition of the pairings and conducted a funnel interview, neither of which suggested much awareness.

The results showed conditioning both on explicit evaluations and on the Implicit Association Test (IAT). It is not clear how adequate the funnel interview was, but they eliminated the six of 56 participants who mentioned one of the contingencies in response to a direct question. An evaluation might have emerged only after participants were asked for their opinion (Experiment 1) or were asked to make evaluative responses as part of the IAT assessment procedure (Experiment 2). In support of this possibility, Olson and Fazio (2002) note that a previous study (Fazio, Lenn, & Effrein, 1984) had shown consolidation of evaluative information into an attitude only after direct questions about attitude.

To test this possibility, they repeated the study, but assessed attitude formation by presenting the previously conditioned Pokemon characters subliminally. The procedure involved both forward and backward masking. Attitude conditioning was still evident even though participants were not asked to consciously evaluate the figures. That is, positive and negative words were evaluated more quickly when preceded by subliminal exposure to the Pokemon figure of the same (conditioned) valence.

The authors argue that the associations were formed without awareness. The basis of this claim is that the results were unaffected by eliminating the 10% of participants who explicitly mentioned the associations in response to the question, "Did you notice anything unusual about the items that were presented with the Pokemon Shielder and Metapod?" In the original Olson and Fazio (2001) studies, awareness was measured by explicit memory for specific CS-UCS pairs. Participants were classified as aware only if they could accurately recognize which specific items had appeared together, and recognition of such specific item pairings was at chance.

The results suggested that the prior results were not due to procedure-induced, conscious evaluation of the attitude objects. On the other hand, the evidence for attitude was the reaction time to evaluate the associated words, a procedure which may have kept any prior evaluations active. Also, the attitude assessment took place immediately after the association procedure and in the same basic situation.

Awareness. Is awareness of the contingency between the CS and the UCS necessary for conditioning? In a 1974 paper, the cognitive psychologist William Brewer reviewed the literature and made the surprising conclusion that there was no convincing evidence of classical conditioning in humans without awareness. To prepare this chapter, we wrote to him to see if the evidence over the intervening 30 years had changed his mind. His response was fascinating. He said that despite the lack of evidence, he never doubted the possibility of unconscious conditioning in humans. He noted the following quote from his original review: "... given that Homo sapiens evolved from much simpler organisms and that the lower brain centers still function, it would seem strange if human beings showed no unconscious, automatic learning at all" (p. 28).

He said that this would have been his reply to our request a week earlier, but that he had just learned of a new review (Lovibond & Shanks, 2002) that reaffirmed his original claim and of still another, earlier review (Boakes, 1989, p. 389), which stated that "[Brewer's] conclusion still stands that there is no convincing evidence for conditioning in human subjects without awareness of the contingencies." The gist of the argument made by Lovibond and Shanks (2002) is that most of the attempts to assess awareness have simply been inadequate, with the result that any evidence that might support the idea of unconscious conditioning is ambiguous.

Interestingly, just as social psychologists are investing their faith more and more in unconscious determinants of behavior, investigators of conditioning are concluding that classical Pavlovian conditioning, the great hope for a peripheralist explanation of behavior, may require consciousness (Walther, 2002). However, several researchers have recently argued that the kinds of evaluative associations studied by social psychologists are actually not examples of classical conditioning of the Pavlovian variety, an issue to which we turn next.

Evaluative Association vs. Classical Conditioning

An interesting development in this literature lies in the distinction made by Baeyens, Eelen, Crombez, and Van den Bergh (1992) between what they call Pavlovian conditioning and evaluative conditioning (or simple association). The distinction is easily made, because classical or Pavlovian conditioning is an association of two events, and it concerns developing expectations that the UCS will follow the CS, which simply acts as a signal that the UCS is about to occur. Thus, when Pavlov sounded a bell, dogs in his lab came to expect food powder in their mouths. Expecting food triggered various responses, including salivation, which Pavlov measured, and perhaps dopamine and positive affect, which he did not measure.

The evaluative conditioning done by social psychologists, on the other hand, simply involves ensuring that participants process the meaning of two stimuli together, so that one then tends to think of them together. Without any electric shock or food powder being involved, no activity is required, and there is no necessity to marshal bodily resources to cope with such events. All that is required is for the organism to passively process lexical, pictorial, or other valenced items. It is rather like a concept learning task (Davey, 1994) or an impression formation task. Thus, when neutral Chinese ideographs (CS) are processed at the same time as smiling or angry faces (UCS), later thoughts about the ideographs are likely to include the pleasantness or unpleasantness of the faces with which they had consistently been paired (Winkielman, Zajonc, & Schwarz, 1997).

Pavlovian conditioning is a form of expectancy learning that allows the organism to prepare for responses to an expected event. By contrast, evaluative association simply induces a change in valence by making one also think about an associated positive or negative stimulus. The difference is in whether the CS makes one prepare for the UCS, or simply think (consciously or unconsciously) of the UCS, without expecting it to occur.

This characterization makes it easy to understand various other differences that have come to light between these phenomena. For example, Pavlovian conditioning extinguishes when the CS is presented without being followed by the UCS, but evaluative associations show no such extinction. Of course, if evaluative associations are more like impression formation or concept learning than like conditioning, extinction would not be expected. Our attitude toward a person who has been rude to us may not change even if he does not continue to be rude on subsequent occasions.

De Houwer et al. (2001) note that the preparation to cope with a UCS elicited by Pavlovian conditioning may be expensive in terms of resources and energy, which may explain why it is sensitive to extinction, and why it generally involves awareness of the CS-UCS relation. By contrast, evaluative "conditioning" or evaluative association is a simpler process of determining

the valence of a stimulus by averaging across the valence of the stimuli with which it co-occurred in the past (Baeyens, Helen, & Crombez, 1995).

Although De Houwer et al. (2001) still use the term "conditioning," some question whether the conditioning metaphor is really helpful in thinking about results from the evaluative association paradigm. For instance, Davey (1994) suggests conceptual categorization might be a more accurate characterization of the process. If a CS is processed in the context of a positive UCS, for example, then aspects of the CS that can be considered positive become salient. One essentially recategorizes the CS on the basis of these newly salient features within the context provided by the UCS. More generally, perhaps what contexts do is to get one to respond to contextually appropriate aspects or subvarieties of a stimulus.

This idea also explains context effects in studies using the IAT (Greenwald, McGhee, & Schwartz, 1998). The results of IAT studies often make people look both sexist and racially prejudiced. However, if one changes the usual context, the prejudiced pattern of response times can be made to disappear. For example, Lowery, Hardin, and Sinclair (2001) found that responses by White participants that would reflect negative stereotypes of African Americans did not appear in an IAT study with a black experimenter. Presumably, in that context, the category "Black" suggested people like the experimenter, rather than nameless, faceless, stereotypic black persons.

Regardless of how one thinks about studies of attitude conditioning, it seems clear that attitude responses can be created or altered by pairing neutral stimuli with stimuli that already have evaluative meaning. DeHouwer et al. (2001) suggest that the method provides a means to shape the way people behave toward new or previously neutral stimuli such as products, people, or ideas. Conditioning has long enjoyed the status of a basic process in terms of which other more complex processes might be explained. But it may be illuminating to consider still more basic processes.

The Gestalt Basis of Conditioning, Priming, and Mood Effects

In their review of affective conditioning, Hermans et al. (2003) suggested that priming and conditioning are curiously similar techniques. Both involve one stimulus followed by a second. In priming, the first influences reactions to the second, whereas in conditioning, the second influences responses to the first. At some level, the processes involved are presumably similar or identical. Indeed, at a still more basic level, they are also similar to the processes involved in the affective influence of mood on judgment.

These three processes are similar in the sense that in each an evaluation of one thing is influenced by its association with something else. In priming studies, the evaluative meaning of an initial prime influences responses to a later target. Both conditioning and priming employ evaluative words or pictures, but they involve different temporal relations. In conditioning, the target to be influenced comes before the source of evaluation, whereas in priming, the order is reversed. In both, reactions to the target are influenced by reactions to other stimuli presented at about the same time. In mood studies, both the nature of the evaluative stimulus and the timing of stimuli are different. The source of evaluation is the affect from background mood (rather than of affect from an evaluative word or picture), and the target is presented during the mood (rather than before, as in priming, or after, as in conditioning). When asked for a judgment, one may attend to how one feels, and an association is thus formed between affect and the target stimulus or object of judgment. But the processes seem very similar regardless of whether the effective stimulus is the positive meaning of a word or pleasant affect, and whether the affective information comes before, after, or during the processing of the target.

Underlying the particulars of these paradigms of attitude research, one can find a unity of process. Not only attitude formation, but also everyday sense-making depends on an automatic

tendency to knit the separate experiences of each moment into a seamless narrative fabric. In filmmaking, this process is known by the French term *montage* (editing). Exploited today in all films, it was originally developed by the early Russian filmmaker Serge Eisenstein, who appreciated that successive scenes in a film are automatically linked together, which makes a compelling way to tell a story. Thus, if frames of a crouching tiger are followed by frames of a woman screaming, we seem to have witnessed the heroine's fear of a charging tiger, but if the initial scene had depicted a small child crawling along a window ledge, we would have experienced her fear of the child falling. The alternative technique for filming, *mise en scene* shows all of the relevant elements in a single scene. The French term meaning "placing on stage," is now used in film studies to designate how a particular scene is framed. As in film, so in reality, the emotional meaning of a moment depends on what experiences succeed each other or are associated in time. We are suggesting simply that just as successive sequences of scenes on film become a narrative whole, so the experience of affect also joins with whatever else is in mind at the time to form a narrative. This tendency for current mental content to be taken as the object of affect has been referred to as the "affective immediacy principle" (Clore et al., 2001).

One way to view all these phenomena is in terms of the Gestalt principle by which stimuli experienced closely in time and space are automatically seen as connected (Heider, 1958). At each unfolding moment, we rely on the content of short-term memory to provide coherence. Brain-damaged individuals with short-term memory deficits frequently find themselves confused, because without some short-term carryover from the last moment, the current moment makes no sense (Sacks, 1985). Normal individuals sometimes have related experiences when they make comments such as, "I know I came in here to get something, but I can't remember what it was."

In this segment, we have suggested that conditioning, priming, and mood effects may rest on a more basic mechanism that might be called "experiential montage." Before leaving the conditioning topic, we examine in the next segment some limitations of conditioning as an explanation of the role of affect in attitude. In that discussion, we make two points. The second of those is that cognitive, cultural, and interpersonal processes, rather than conditioning, often mediate the influence of affect on attitude. The first point, to which we now turn, concerns the assumption that almost anything can become conditioned to almost anything else. We noted earlier that this randomness assumption was seen as objectionable during the era of the Enlightenment because it threatened belief in a moral order. In the next section we suggest that the assumption is objectionable today because it appears to be false.

Limitations of Conditioning Explanations

The enthusiasm with which we pursue conditioning as a primary explanation of everyday attitudes should perhaps also be tempered by other evidence, such as the findings of a study of attitudes toward dogs (Doogan & Thomas, 1992; see also Rimm, Janda, Lancaster, Nahl, & Dittmar, 1977). A survey of 100 college students and 30 children showed that only about half had early experiences that could have directly conditioned a fear of dogs, and many of these were simply additional recollections of being afraid rather than instances of harm. The other individuals seemed to have learned primarily by observation, parental warnings, and TV news stories about dog attacks.

Biological Preparedness. Not all stimuli have an equal potential of becoming conditioned stimuli. For example, simply by virtue of being primates, we are likely to develop a more or less negative attitude to snakes and spiders. Neither we nor our chimpanzee cousins are apparently born with this attitude, but rather we come "prepared" (Seligman, 1970) to learn the attitude. The evolutionary argument is simply that primates who readily learned to

avoid snakes, spiders, and angry faces had a greater chance to become one of our grandparents than those who did not. It is assumed that such preparedness for fear learning can operate automatically and be independent of conscious processing. The best known evidence comes from Mineka, Davidson, Cook and Keir (1984) showing that young monkeys readily learn to fear snakes simply by seeing another monkey show fear.

A systematic examination using pictures of snakes as conditioning stimuli has been done by the Swedish investigator Arne Öhman (Öhman & Soares, 1998). He and his collaborators find that when briefly presented pictures of snakes are visually masked and followed by electric shock, skin conductance responses readily become conditioned. The remarkable part of these experiments is that the unconscious exposure to snakes or spiders or angry faces readily led to conditioning, but pairing unconscious presentations of pictures of flowers, mushrooms, or happy faces did not result in conditioned skin conductance responses.

Even when associated images of mushrooms were equally reliable signals of shock onset, there was little attitude conditioning. Such results suggest that we are more prepared to dislike snakes than we are to dislike mushrooms. However, if ingestion of mushrooms were followed by nausea and vomiting, they too could become intensely disliked, an example of the well known Garcia effect (Garcia & Koelling, 1966). In the original demonstration, Garcia discovered that rats will readily associate taste, but not visual or auditory cues, with nausea. Amazingly, an association is formed even when a taste is separated from nausea by hours. Further, if the food is novel, a single association can establish an aversion that lasts for years.

Öhman and Soares (1998) concluded that such "prepared" stimuli are detected by an automatic preattentive system that acts independently of controlled attentional processes. Similarly, Garcia showed taste aversion conditioning even with unconscious animals. On the other hand, might the preparedness studied by Öhman simply be some weak dislike? Then, when subliminal exposure triggers reactions that are weak, but compatible with the reactions elicited by shock, conditioning might occur more easily than to stimuli without such a headstart. The different reaction to mushrooms when associated with shock and with nausea might mean that a match between the mode of exposure (e.g., ingestion) and the locus of negative outcome (e.g., nausea in the stomach) is critical. In any case, the notion that conditioning involves random association of stimulus and response may not be tenable on biological grounds.

Cognitive Preparedness. Analogous limitations concern our cognitive preparedness to make certain associations between affect and attitude objects. Affective reactions to stimuli are usually embedded in mental and causal models that support their association. Thus, adults who burn their linger on the stove may be surprised at their clumsiness, but they are not surprised that pain could follow such an act. They need not have the experience again and again to establish an association. Even the least sophisticated of us have a crude mental model of heat transfer that supports associations between the stimulus of heat and the pain of being burned. Associations are involved, of course, but the experience of being burned enlivens an already existing, nonrandom association based in a latent mental model that supports and maintains the association. Similarly, an experience of being bullied by adolescent males with tattoos would likely be enmeshed in at least a half-baked model that makes that association more likely than one that might support an expectation that one would be bullied by the class president or the valedictorian. Once one has the idea that certain kinds of individuals may present certain kinds of threats under certain conditions, one has an attitude. But the critical association is likely to be one based on cognitive structures of knowledge and belief.

Cultural Preparedness. The appeal of affect and of conditioning as explanations for attitude lies partly in their apparent simplicity and seemingly non-cognitive nature. However, the affective influence on some attitudes comes not from conditioning, but from cultural

ideology. For example, cross-cultural research on negative attitudes toward obese people suggests that the ability of obesity to elicit negative affect depends on implicit inferences about blame, which in turn implicate ideological and cultural assumptions. Crandall et al. (2001) found evidence that prejudice against obese people is based on assumptions of individual responsibility, which are predominant in individualistic, but not collectivist cultures. Crandall et al. refer to their approach as an "ideological theory of prejudice." They define ideology as a network of interrelated beliefs and values that "not only enshrine ideas and explanations but entail evaluation and affect" (Brown, 1973, p. 13).

In the foregoing, we suggest that psychologists have placed too much faith in the infinite malleability of associations and hence of attitudes. In the following section, we suggest that we may also have placed too much faith in the correlated assumption that affective meaning comes from simple, primitive processes.

In the experiments by Staats and Staats (1958) the names of countries were presented with positive or negative words. These studies suggest that people learn attitudes by associating positive or negative concepts to persons or groups. Presumably affective comments from others do influence our attitudes, but some (Sinclair, Huntsinger, Skorinko, & Hardin, 2003) suggest that such influences arise as part of a process of maintaining our own identities, rather than by classical conditioning. In addition, linguists realized early on that mere association probably would not take us very far in understanding semantic learning (Chomsky, 1968).

Bottom-up explanations dominated psychology until the cognitive revolution highlighted the top-down role played by cognitive structure. Analogously, it should not be a surprise that social attitudes often also reflect social structure and interpersonal relations. In that regard, an alternative understanding of how we learn word meanings (including evaluative meanings), is known as "Theory of Mind." That approach, to which we now turn, serves as our final limitation of bottom-up, classical conditioning approaches to attitude learning.

Theory of Mind. "Theory of mind" refers to the understanding that people have mental states such as thoughts, beliefs, and desires that can be inferred from behavior. Although Premack and Woodruff (1978), who coined the term, investigated mind-reading abilities in chimpanzees, "theory of mind" entered into the study of human development and has generated a great amount of empirical research on how children acquire this fundamental aspect of social cognition (e.g., Astington, 2000; Leslie, 1987; Lewis &Mitchell, 1994; Wellman, 1990; Zelazo, Astington, & Olson, 1999).

In his book on the learning of word meaning, Paul Bloom (2000) proposes that theory of mind is crucial for understanding how children learn what things mean. In a comparison that is potentially informative for attitude theorists, he contrasts two forms of learning. One was suggested by John Locke and the other by St. Augustine. Locke proposed that we learn word meanings by association. With repeated association between hearing a name and seeing an object, a child will respond to the presentation of the stimulus object with the response of the name. Augustine, on the other hand, suggested that word meanings are actually learned from one's elders in context as the child infers the intent of others who use particular words. Bloom proposes that Augustine had the right idea, and that research bears him out. His elaboration of the Augustinian account of how he learned the meanings of words as a child is framed in terms of theory of mind.

Theory of mind research is based on the idea that much of a child's cognitive development hinges on the child coming to understand what other people have in mind when they do or say something. The focus is not limited to figuring out specific and localized references, but assumes also that we operate out of a more general theory of other people's perspectives. It is important to note that investigators of theory of mind do not assume that children are engaged in deep philosophical thought. On the contrary, the power of the approach lies in the

idea that under the broad umbrella of "theory of mind" are a host of inferential moves, which children (and the rest of us) employ more or less automatically. For instance, at some point in development, children come automatically to use the gaze of others to disambiguate what they mean when they refer to something in the room. Indeed, even in the second year of life, children develop an intense interest in the behavior of others and can already make accurate inferences about false beliefs on the part of others (Onishi & Baillargeon, 2002).

The importance of such automatic social information processing can be seen dramatically by considering the difficulty of interacting with autistic children (Baron-Cohen, Tager-Flusberg, & Cohen, 1993). An important way of understanding many of the cognitive aspects of autism is precisely that they are deficient in theory of mind. They tend to be focused on the non-living, mechanical aspects of their environment, and often have special difficulty with language and communication. For example, autistic children experience another person's words to refer to what they themselves are looking at, rather than using the speaker's gaze. Normally, automatic social inference processes are quite fundamental for social interaction and for cognitive development generally.

If understanding how word meanings are learned requires a theory of mind perspective, then understanding how affective meanings are learned may too. The potential explanatory power of the approach recommends it to social psychologists, but theory of mind is also appealing because it provides an appropriately social perspective on attitude learning.

Category-Triggered Affect

Another socially-derived, top-down approach to affect and attitude draws on schema theory. Fiske (1982) pointed out that we can have strong affective reactions to individuals we have never encountered simply by thinking of them as members of a category to which we already have affective reactions. In her treatment of schema-triggered affect, she proposed that as we apply a schema or category to others, they tend to inherit whatever affective reaction we have to the category. Thus, in political discourse, or what passes for political discourse during elections, candidates attempt to get voters to place their opponents in undesirable categories and to place themselves in desirable categories. They do so in the knowledge that individuals are painted with the same brush as the categories of which they are seen to be members.

When individuals are stereotyped, they are assumed to have all of the attributes that are stereotypically seen as characteristic of the group to which they belong. However, in addition, Fiske and Pavelchek (1986) provided a model of both piecemeal and category-based evaluation, suggesting that categorization occurs first, and is followed by piecemeal processing if categorization is not successful. According to the model, encountering an attitude object elicits existing attitudes toward the object. Other attribute information may be ignored if it is inconsistent with the category activated by the stimulus.

The model has also been applied in marketing contexts. At great expense, producers of consumer goods attempt to create positive stereotypes about their brand name. They bank on the idea that products introduced within a positive brand name will inherit the brand-based affect. Conversely, companies involved in direct mail marketing have the reverse problem. They often attempt to disguise the mail they send out to avoid it being categorized as "junk mail," because it is a negative category and mail thus categorized is more likely to be thrown away than read (Zhao, 1993). Thus, they may include category-inconsistent features, such as the use of handwriting, rather than printing, or the use of the recipient's name, rather than a generic address such as "Resident."

We discuss the affective dynamics of categorization and stereotyping further in a later section. For now, however, we turn our attention from such molar processes to a very molecular process of affective influence-mere exposure.

Mere Exposure

Mere exposure describes the observation that the repeated, unreinforced presentation of a stimulus is sufficient to increase positive affect toward that stimulus, relative to a stimulus that has not been presented repeatedly. In a classic study, Zajonc (1968) presented Chinese-looking characters, nonsense words, or yearbook photographs for either 0, 2, 5, 10, or 25 times to participants. Participants subsequently rated how "good" or "bad" the meanings of the Chinese characters or of the nonsense words were, and how much they liked the person shown in the photographs. For all three kinds of stimuli, participants' ratings increased with increasing numbers of presentations. Many studies have since replicated and extended this basic effect, suggesting that the mere exposure effect is a robust phenomenon (Bornstein, 1989). The effect has been documented for a great number of different stimuli, including ecologically relevant stimuli, such as foods (Crandall, 1984; Rogers & Hill, 1989), drinks (Pliner, 1982), music (Peretz, Gaudreau, & Bonnel, 1998), brand names (Baker, 1999; Janiszwewski, 1993), and urban environments (Herzog, Kaplan, & Kaplan, 1976).

Bornstein and colleagues (Bornstein, Leone, & Galley, 1987) also investigated the applicability of the mere exposure effect to social situations of everyday life. Participants were subliminally primed with the photograph of a person they later interacted with (a confederate in the experiment), or a blank slide. Subsequently, the participant and two confederates were asked to evaluate poems to determine if their author was a man or a woman. Participants were more likely to agree with the confederate with whose face they had been primed. These and other findings (e.g., Moreland & Beach, 1992) suggest that the mere exposure effect is relevant to phenomena occurring outside of the psychological laboratory.

Increased liking of a stimulus also occurs when participants are not consciously aware of having been repeatedly exposed to that stimulus. The first demonstration of a mere exposure effect with subliminal stimulus presentation was documented by Kunst-Wilson and Zajonc (1980). Polygons were shown for 1 ms, five times each. Participants consistently preferred previously seen polygons over new ones, although they indicated recognizing those previously exposed only at chance level. Thus, conscious awareness of the stimuli does not appear to be necessary for mere exposure effects to occur (Monahan, Murphy, & Zajonc, 2000; see Bornstein, 1992).

Bornstein and D'Agostino (1992) specifically compared the magnitude of mere exposure effects of consciously perceived versus subliminally presented stimuli. Either polygons or yearbook photographs were presented for either 5 ms or 500 ms, and were subsequently masked. They were presented for 0, 1,5, 10, or 20 exposures. After repeated exposure, participants rated each on scales measuring affect (like-dislike) and recognition (old-new). Consistent with previous findings, frequently exposed figures and faces received more positive ratings than infrequently exposed figures. In addition, the effects were significantly larger for stimuli presented for 5 ms, compared with stimuli presented for 500 ms. Because effect sizes tended to be greater when stimuli were not recognized, Bornstein (1989) concluded that awareness tends to inhibit the mere exposure effect.

Although mere exposure has been documented in hundreds of studies, explanations regarding its mechanism remain controversial. Whereas some have argued for an affective basis (Zajonc, 1980, 2001), others have argued for a cognitive basis (Bornstein & D'Agostino, 1992; Klinger & Greenwald, 1994).

Early attempts to explain mere exposure effects did not fare well in empirical tests, because they were unable to explain the later emerging findings involving stimuli presented outside of conscious awareness (see Harrison, 1977; Stang, 1974, Bornstein, 1989 for reviews). More recent explanations have identified a central role of perceptual fluency or ease of processing as a result of repeated stimulus exposure.

Theories that account for the mere exposure effect in terms of fluency fall into two categories. Some investigators propose that fluency has no affective valence (Bornstein & D'Agostino, 1994; Jacoby, Kelley, & Dywan, 1989; Mandler, Nakamura, & Van Zandt, 1987). Others propose that fluency has a positive valence (e.g., Harmon-Jones & Alien, 2001; Reber, Winkielman, & Schwarz, 1998; Winkielman, Schwarz, Fazendeiro, & Reber, 2003).

As an example of the first approach, Mandler et al. (1987) proposed a nonspecific activation model in which repeated exposure leads to increased accessibility of the stimulus representation. As a consequence, participants should rate any stimulus property, including affective judgments of liking, as more extreme. Evidence for this hypothesis is that participants rate nonaffective properties (e.g., brightness or darkness of stimuli) more highly for frequently exposed stimuli (Mandler et al., 1987). Hence, an important aspect of this model is that fluency leads to more extreme judgments of *any* kind, whether positive or negative, affective or nonaffective. Related to this view is the perceptual fluency/attributional model (Bornstein, 1992; Bornstein & D'Agostino, 1994; Jacoby et al., 1989). It suggests that perceptual fluency is simply misattributed as liking. Support for this position comes from the finding that the effect size depends on the delay between stimulus presentation and ratings (Bornstein, 1989). The higher the delay, the more positive the ratings, suggesting that time passing after stimulus exposure reduces the likelihood that participants correctly attribute affective responses to previous exposure. In other words, when participants are aware of having seen the stimulus previously, the experience of fluency is simply attributed to frequency of exposure and not to liking. Similarly, lower ratings are found when participants are explicitly given alternate explanations for the experience of fluency (Bornstein & D'Agostino, 1994). Conversely, subliminal presentation makes the correct attribution of fluency impossible, leading to larger effects than supraliminally presented stimuli (Bornstein, 1989).When presentation times allow awareness, effects are strongest for very brief exposure times (< 1 s) and get increasingly weaker with larger exposure times (Bornstein, 1989).

If fluency is indeed the driving force behind the mere exposure effect, then manipulations that increase fluency should lead to more positive evaluations. In other words, perceived fluency by itself should create the mere exposure effect in the absence of repeated stimulus presentations. Precisely this effect was found in several studies (Reber et al., 1998). For example, in one study pictures of objects were shown to participants. In order to manipulate fluency, some pictures were preceded by a subliminal presentation of their contours, whereas other pictures were preceded by contours of other objects. As expected, those pictures whose own contours had appeared first were liked better than the other pictures. Thus, a "mere exposure" effect was created even when all pictures were presented only once. Additional studies manipulating fluency demonstrated that similar effects to those of perceptual fluency have been obtained with conceptual fluency (see Winkielman et al., 2003).

However, Winkielman and colleagues (Reber et al., 1998; Winkielman & Cacioppo, 2001; Winkielman et al., 2003) argue that high fluency, that is, fast and effortless processing of information, may signal positive states of the environment, and of one's own cognitive processes. As a result, fluency leads to positive affect as well as to positive evaluations of target stimuli. Repeated stimulus exposure results in higher ratings of positive affect than single exposures (Monahan et al., 2000). The same picture arises from EMG measures in that high fluency is associated with activation of the zygomaticus muscle used for smiling, but not with the corrugator muscle used for frowning. Thus high fluency appears to involve positive affect, but not negative affect (Harmon-Jones & Alien, 2001; Winkielman & Cacioppo, 2001).

The nonspecific activation model proposed by Mandler and colleagues (1987) and the related perceptual fluency/attributional model (Bornstein, 1992; Bornstein & D'Agostino, 1994) suggest that repeated exposure leads to higher ratings of any stimulus-relevant dimension. However, Winkielman et al. (2003) note that the data on this issue are equivocal. Although

Mandler et al. (1987) found increases in ratings for brightness and darkness, they did not find increased "disliking" of frequently exposed stimuli. A similar finding was reported by other researchers (Seamon, McKenna, & Binder, 1998), who in fact were not able to replicate Mandler et al.'s (1987) findings on stimulus brightness and darkness.

Further, studies of affective evaluations demonstrate an asymmetric effect, such that only positive evaluations, but not negative evaluations, are influenced by fluency manipulations, regardless of how questions concerning the ratings are worded. For instance, Reber et al. (1998) found that high fluency led to increased judgments of liking and decreased judgments of disliking. Similarly, Winkielman and Cacioppo (2001) instructed half of their participants to report their positive affect, and half to report their negative affect after a fluency manipulation. Only positive affect increased when exposed to high fluency. Those reporting negative affect did not show similar increases. In addition, as noted above, measures of facial muscle activity only revealed activation for muscles involved in positive affect, but not for those involved in negative affect (Harmon-Jones & Alien, 2001; Winkielman & Cacioppo, 2001).

To summarize, recent research on the mere exposure effect has focused on whether experiences of perceptual fluency have an affective valence or not. Data by Winkielman using multiple methods suggest that fluency does have a positive affective quality. Given that we all have implicit goals to comprehend our surroundings (Kelly, 1955), cognitive fluency should indeed be positive (see Mackie & Smith, 2002). Thus, an affective component appears to be part of the processes that result in the mere exposure effect. Zajonc (2001) recently proposed another affective mechanism involved in the mere exposure effect. He argued that it can be viewed as an example of classical conditioning in which the absence of negative consequences serves as a rewarding unconditional stimulus. However, direct data supporting this conjecture are currently lacking, and would perhaps be difficult to obtain. Yet, evidence has been accumulating that the mere exposure effect is mediated by affect, albeit not in the manner that Zajonc (1980) initially envisioned.

Zajonc (1980) saw the mere exposure effect as an example of affect that was not mediated by cognition. The critical finding was that the effect is larger when people are unaware of having previously been exposed to the relevant stimulus. If one assumes that most cognitive operations are unconscious, however, then that finding takes on a different significance. From an affect-as-information perspective, the finding mirrors the dynamics also seen in mood research (see Clore & Colcombe, 2003). Affect (regardless of whether it is from mood, frequent prior exposure, or some other source) is likely to influence liking of unrelated objects only if the true source of the affect is ambiguous or unknown. In the mere exposure paradigm, the positive affect is from fluency of processing rather than anything inherent in the stimulus. When the fluency is experienced as familiarity from prior exposure rather than as spontaneous liking, then the mere exposure effect is less likely to be observed. To explore further the role of unexplained affect in attitude, we turn next to the mood and judgment paradigm.

Mood and Evaluative Judgment

Affective feelings elicited by objects routinely influence evaluative judgments of them. In addition, irrelevant feelings arising from associated happy or sad moods can also affect such evaluative judgments (e.g., Esses & Zanna, 1995; Forgas, Bower, & Krantz, 1984; Forgas & Moylan, 1991; Gasper & Clore, 1998; Keltner, Locke, & Audrain, 1993; Ottati & Isbell, 1996). However, as in the case of mere exposure, affect from mood tends to influence liking only when the cause of the affect is not obvious. But before reviewing relevant research, some background is in order.

Background. In the 1960s and 1970s social psychologists were not receptive to the idea that phenomenal experience played a role in attitude and evaluative judgment. The emphasis

was on how people combine information in attitudes and impressions. Research focused on whether people add (Fishbein, 1963), average (Anderson, 1965), or respond to proportions (Byrne & Clore, 1966) of positive and negative information (see Wyer & Albarracín, this volume). Less often asked were questions about what information enters into attitudes. Fishbein and Ajzen (1975) maintained that attitudes are based on beliefs and evaluations concerning properties of attitude objects, whereas Clore and Byrne (1974) emphasized the role of affective feelings. Progress in resolving such disputes was slow because feelings and beliefs about particular objects tend to be highly correlated. Although problematic for research, such a confounding of beliefs and feelings is advantageous in everyday life. If people's feelings and beliefs routinely conflicted (see Fabrigar, MacDonald, & Wegener, this volume), making ordinary decisions could be laborious and unreliable.

Method. Charles Gouaux (1971) solved the research problem by showing mood-inducing films to his subjects. In this way, he varied feelings independently of beliefs. At about the same time, Griffitt and Veitch (1971) did something similar by conducting an experiment in either a normal room or a hot and crowded room. These investigators found that feelings could influence attitude and attraction independently of beliefs, but more importantly, they devised a new research tool. Since then, mood induction procedures have become a staple in social psychology. The technique is valuable as a way of independently varying thoughts and feelings, despite the fact that they are ordinarily thoroughly entwined.

Memory-Based Models. Despite demonstrations that affect does influence judgment, investigators were reluctant to assign a primary role to feelings. The mood method caught on, but initial explanations reverted to the traditional idea that judgments must be based on beliefs about objects of judgment. At about the same time, both Isen (Isen, Shalker, Clark, & Karp, 1978) and Bower (Bower, Monteiro, & Gilligan, 1978) proposed memory-based models of affective influence. Using the idea of spreading activation from Anderson and Bower's (1973) human associative memory (HAM) model, they treated mood as a node in a memory network. When moods are induced, they suggested, activation spreads from the mood node to mood-congruent concepts in semantic memory and to mood-congruent events in episodic memory. In this way, mood could influence judgment by making accessible a biased sample of information from memory. For example, in happy moods, one is more likely to recall positive information about a target object, and hence bias judgment in a positive way. A virtue of these models was that they were consistent with traditional approaches (Arkes & Hammond, 1986), which emphasized that judgments are based on beliefs. The role of emotion, therefore, was assumed to be indirect, determining which beliefs were retrieved from memory to serve as the basis for judgment.

Affect-as-Information Model. The affect-as-information view is a general approach to which many investigators have made contributions, elaborations, and variations. Wyer and Carlston (1979) suggested that the knowledge or information that one was in a mood might itself influence attitude and attraction. They focused on affective knowledge or *information about* one's feelings. Schwarz and Clore (1983) applied the idea but have emphasized the embodied information of feelings, rather than conceptual information about feelings. They examined the role of mood in judgments of life satisfaction in two experiments.

In one experiment, they asked participants ostensibly to help in the construction of a Life Event Inventory (LEI). Participants were to supply a detailed description of a happy or sad experience in their recent past which in fact served as a mood induction technique. In a second experiment, the researchers relied on warm and sunny versus cold and rainy spring weather to induce happy and sad moods. In that study, they asked questions about life satisfaction

during a telephone interview conducted on either warm and sunny or cold and rainy days. Each experiment showed that happy moods led to higher ratings of life satisfaction compared to those by individuals in sad moods.

The experiments also included attribution manipulations, which consisted of making salient a plausible alternative cause of participants' feelings. The first experiment was conducted in an odd, sound-proofed room covered in insulation and electrical shielding. The oddness of the room was exploited in a cover story suggesting that spending time in the room might make them feel tense (or pleasantly relaxed). Participants were given an opportunity to rate how much the room contributed to their current feelings before making their life satisfaction ratings.

In the second experiment, the telephone interviewer had said that he was calling from Chicago, so that for half of the respondents, he could ask at the beginning, "By the way, how is the weather down there?" The purpose of that pleasantry was to make salient an external possible cause for their feelings, which was in this case the true cause.

Schwarz and Clore (1983) found that in both experiments, the effects of mood on judgments of life satisfaction disappeared in the condition in which an external plausible cause for their feelings was salient (the sound-proofed room or the sunny or rainy weather). At the end of the interview, respondents were also asked about their current mood, and it is important to note that the external attribution manipulation had no effect on self-reported mood. Rather than changing how they felt, the external attributions changed the apparent relevance of the experienced information of happy and sad feelings for determining life satisfaction. Once attributed to being in an odd room or experiencing foul weather, feelings of sadness, for example, were not experienced as informative about their level of life satisfaction.

The results suggested that affect can influence judgment directly, provided that it is experienced as a reaction to the object of judgment. Moreover, the effect did not appear to be an obligatory consequence of affect, but instead was contingent on how it was experienced; that is, on the apparent information value of the affect. This account contrasts with the idea that mood automatically activates mood-congruent material in memory and then serves as the basis for judgment. It is common, of course, to make judgments on the basis of what comes to mind about the object of judgment. But independently of such belief-based judgments, it appears that people also (implicitly) ask themselves, "How do I feel about it?" (Schwarz & Clore, 1988).

The misattribution paradigm is useful for analytic purposes to disentangle affect from beliefs. The results do not imply that the affect of attitude is easily misattributed. Indeed, specific attitudes, like specific emotions, should be resistant to misattribution, because their affect is already dedicated to an object (see Table 11.1).

Research showing that mood effects on evaluative judgments are actually due to mood can be seen from a study by Strack, Schwarz, and Gschneidinger (1985). They asked participants to describe happy or sad life events either in a vivid or in a pallid way. They found that only vivid accounts produced moods and mood-congruent judgments. In contrast, pallid accounts tended to produce the opposite. Specifically, they judged their life satisfaction to be greater after recalling unpleasant experiences than after recalling pleasant ones. Their judgments contrasted their current lives to the positivity or negativity of the events they had recalled. Thus, event recall by itself does not have the same effect on judgment as mood.

The difference between an affect-as-information explanation and a memory-based explanation can be seen by imagining being asked how much one likes one's meal at a restaurant. Traditional judgment theory (Anderson, 1981) would suggest that we answer such questions by retrieving stored evaluations from memory. Essentially one would be saying, "I know that I am enjoying my meal because it is lasagna, and I know that 1 like lasagna." Alternatively, people may simply taste the food and answer on the basis of the on-line experience of pleasure

or displeasure. In other words, they may use their affect directly as information, rather than indirectly as a cue to retrieve stored knowledge about one's likes.

When Is Affect Used as Information? Isbell and colleagues (Isbell & Wyer, 1999; Ottati & Isbell, 1996) found mood effects on liking for stimulus persons described as political candidates. However, these effects occurred mainly when judges were not well informed about politics. For those high in political expertise, happy moods led to lower, rather than higher, evaluations of candidates, suggesting that they corrected their judgments for the influence of feelings and relied instead on their expertise. It would be a mistake, however, to conclude that affect plays a role only in the attitudes of novices. Lodge and Taber (2004) note that affect actually plays a larger role in the judgments of politically sophisticated individuals because politically relevant stimuli are more likely to elicit affect in them. Thus, when affect is from an irrelevant source, such as induced moods (e.g., Ottati & Isbell, 1996), we should expect less influence of affect, whereas when the affect stems from the attitude object itself, we might expect more affect and hence more effect with greater sophistication (Lodge & Taber, 2004).

Forgas (1995) concurs that affect should have no influence on judgment when prior judgments can be retrieved. His affect infusion model differentiates situations into those that are "open" versus "closed" and that involve high versus low effort. It says that mood should have an influence in "open," but not "closed" situations. A "closed" situation is one in which a specific answer already exists in memory or is dictated by motivation. An "open" situation involves some amount of processing, which can be either heuristic (low effort) or substantive (high effort). Forgas categorizes the affect-as-information approach (Clore, Schwarz, & Conway, 1994; Schwarz & Clore, 1983) as low effort or heuristic, and the memory-based approach (Forgas & Bower, 1987) as high effort or substantive.

An Affect Heuristic. The idea of a "How do I feel about it?" heuristic was proposed in Schwarz and Clore (1988), who suggested that use of the heuristic is likely when little other information is available and when time constraints put a premium on attentional resources. Since then, Slovic and colleagues (Slovic, Finucane, Peters, & MacGregor, 2002) have also proposed an "affect heuristic."

The idea that affect is used as a heuristic suggests that mood effects should be found mainly when judgments are made quickly. However, Forgas (1995) reports greater mood effects on tasks that take longer, providing evidence for two kinds of mood effects, one that is a heuristic shortcut, and another that involves more effortful, substantive processing. But for many judgments, asking oneself how one feels about an object is not a shortcut, but is the most relevant data to be considered. Indeed, even in choices that are backed up by considerable research, one may still ask how the tentative decision feels. If it does not feel right, good decision makers may go back to the drawing board.

Affective Bias? Investigators of judgment and decision making tend to see affective influences on judgment as biases. Such language assumes that pure, unbiased judgments would not involve affect. But we assume that affect did not evolve to conflict with common sense. Indeed, work on emotional intelligence (Mayer & Salovey, 1997) suggests that it is important for judgments to be informed by emotion. Damasio (1994) arrives at similar conclusions from studies of patients with damage to the prefrontal cortex. He argues that the poor judgment among these individuals does not result from deficits in intelligence, but from deficits in their ability to use affective reactions as feedback.

Alternative Affective Representations

Investigations of affective influences often focus on mood or other affective feelings. However, other forms of affective information appear to have similar influences. For example, evidence

(Clore & Colcombe, 2003) suggests that without necessarily changing people's moods, unconsciously primed affective thoughts can have the same cognitive consequences as affective feelings of mood. The same also appears to be true of facial expressions (Schnall & Clore, 2002; Strack, Martin, & Stepper, 1988), and even colors (Soldat, & Sinclair, 2001). Although unconscious priming, posed expressions, and related stimuli can affect mood under certain circumstances, it is also useful to entertain a broader view, recognizing that multiple representations of affective meaning can each have similar effects.

According to Clore and Colcombe (2003), parallel effects can be expected for mood, unconsciously primed evaluative concepts, feedback from facial expressions, and perhaps other affectively meaningful cues to the extent that they all convey information about goodness or badness. Indeed, even in studies of felt mood, according to the affect-as-information approach, it is not the feelings per se that are important but their information value. What is critical for affective information to influence judgment is that it is experienced as compelling by virtue of seeming to arise spontaneously from within. The spontaneity and compellingness of the evaluative information is more important than whether the medium of the information is facial muscles, motor action, visceral feelings, or thoughts. We have argued that the influence of affective feedback on judgment and processing is not limited to feelings, but that affective, information can be represented in multiple media.

Affect in Attitudes Toward Actions

Complementing research on affect and judgment is theorizing about affect and decision making. From an attitude framework, we might think of affective influences on decision making as influences of affect on attitudes toward actions (Fishbein & Ajzen, 1975).

Risk-as-Feeling. Loewenstein, Weber, Hsee, and Welch (2001) have proposed a risk-as-feeling model. They suggest that feelings often constitute a major component in decision making processes, and lead to decisions that are primarily made on the basis of feelings rather than cognitive processes. In particular, risky decisions are often governed by fear and anxiety that work independently of cognitive considerations of risks. Decision-relevant feelings might come from vividly imagined consequences of a decision, and from personal experiences or familiarity of the consequences of making a decision. For example, Loewenstein et al. (2001) consider the case of deciding whether or not to get insurance against floods or earthquakes. Most people are likely to overestimate the occurrence of such adverse events when confronted with anecdotal reports, rather than actual probabilities of floods and earthquakes. Thus, personally knowing somebody who witnessed an earthquake, and the resulting fear of the same event happening to oneself, can override other pieces of information, and lead to decisions that neglect cognitive factors. Loewenstein et al. refer to their model as dealing with "anticipatory" emotion: feelings experienced while the decision is being pondered. In contrast, "anticipated" affect comes into the picture when considering the emotional implications of having made a certain decision.

Affect Decision Theory. A model that deals with such anticipated emotion is the affect decision theory proposed by Mellers, Schwartz, Ho and Ritov (1997). These authors argue that a person's expectation about an outcome has important consequences on the emotional response to that outcome. In their research, participants were given certain expectations about the amount of money they would win or lose in a gamble, and these expectations were either confirmed or violated. The results indicated that affective responses were not a linear function of the absolute amount of money. A greater win was not necessarily perceived as more pleasant than a smaller win. Instead, the amount of the win interacted with the participant's

expectation of the win: Unexpected wins were experienced as more pleasant than expected wins. Participants engaged in counterfactual reasoning so that they considered not only what actually happened, but what *could* have happened. As noted by Mellers et al., this reasoning led to the counterintuitive finding that an unexpected win of $5.40 produced more positive affect than an expected win of $9.70. Thus, expectations about predicted outcomes form the basis for counterfactual comparisons so that certain wins lead to disappointment, whereas certain losses lead to relief.

Specific Emotions and Attitude

Thus far, we have focused on the role of positive and negative affect in positive and negative attitudes. But some investigators have begun to examine specific emotions (Lerner, Small, & Loewenstein, 2004). For example, DeSteno, Dasgupta, Bartlett, and Cajdric (2004) focused on anger. They proposed that anger should influence automatic evaluations of outgroups because of its functional relevance to intergroup conflict and competition, whereas other negative emotions that are less relevant to intergroup relations (e.g., sadness) should not. In two experiments, they created minimal ingroups and outgroups. The minimal groups situation involved asking New Yorkers to estimate "How many people ride the New York subway everyday?" Participants were then told (on a random basis) whether they were an under- or an over-estimator. Experimenters gave red wristbands to the underestimators and blue wristbands to the overestimators. They then induced anger, sadness, or a neutral state. Automatic attitudes toward the in- and outgroups were assessed using pictures in an evaluative priming measure (Experiment 1) and the Implicit Association Test (Experiment 2). The results showed that anger created automatic prejudice toward the outgroup, whereas sadness and neutrality resulted in no automatic intergroup bias.

Mackie, Devos, and Smith (2000) also examined the role of specific emotions in attitudes toward outgroups. They proposed that emotions such as fear are characterized by different action tendencies than emotions such as anger. They proposed that groups that are feared should be avoided, whereas groups responded to with anger may elicit an aggressive stance. In three experiments, they found evidence that people had different inclinations toward outgroups to which they felt fear as opposed to anger. When the ingroup was strong (enjoyed collective support of group members), people were more willing to entertain such actions as arguing with, confronting, opposing, and attacking the outgroup. Moreover, they found that the relation between appraisal of group strength and offensive action tendencies was mediated by self-reported anger.

In addition to specificity of behavioral inclinations, some attitudes may also involve specificity in the kind of evaluation involved. For example, Haidt (2001) has proposed an emotion-based account of what might be thought of as moral attitudes. He argues that many of our moral evaluations are based on disgust or other emotional reactions. In his view, moral reasoning of the sort studied by Kohlberg (1969) may often be after-the-fact justifications for moral judgments, rather than causes of them. For example, in what he calls demonstrations of "moral dumbfounding," Haidt asked students to consider such scenarios as one involving consensual sex between a brother and sister. The students tend to find such actions morally objectionable. However, when asked why, their reasons are often insubstantial and faltering, leading some to say essentially, "I don't know why, it is just disgusting." He suggests that what may appear to be a lack of insight may actually be an accurate account of the emotional basis of moral attitudes.

In the foregoing sections, we have discussed in some depth the many ways in which affective valence may influence attitudinal valence. Before leaving this discussion of the direct influences of affect on attitude, we consider the role played by the other major facet of affect-arousal.

Arousal as Importance

Affective feelings are evanescent. One does not store feelings in memory; they last only as long as they are being experienced, and no longer. Of course, a person might remember the fact that he or she was happy on some occasion, but one cannot look into memory and find the happy feelings. One can even mentally replay an emotional event, and elicit feelings, but those are new feelings, not memories of the original ones. Long ago, Bartlett (1932) showed that we do not store experiences as experiences, but rather that we reconstruct them later. The same is true of visceral feelings (Loewenstein, 1996), including emotions (Wyer et al., 1999). If so, how can momentary affect become attitudes, which are not necessarily momentary?

One answer may lie in the arousal aspect of affect. The arousal aspect of affect conveys information about urgency and importance (Fig. 11.1), and that embodiment of importance makes events memorable. Indeed, recent research on the neuroscience of memory shows how the adrenaline elicited during affective experience acts to consolidate memory for those events over time (Cahill & McGaugh, 1998). Presumably, a psychologically important event is one that may be affectively arousing, and that arousal makes it more memorable. If so, similar subsequent events may remind one of that event and elicit related affective reactions experienced as an affective attitude.

William James (1890) said that, "If we remembered everything, we should on most occasions be as ill off as if we remembered nothing." The key, he suggested, lies in selecting what to remember. One hundred years later, it is becoming clearer that emotion helps us in selecting what is important to remember.

Memory is generally thought of as divided into short-term and long-term memory, and "memory consolidation" refers to the process by which memories get transferred from the short-term to the long-term store. This is where emotion comes in. The brain has to decide what is worth retaining from all of the experiences that pass through short-term memory. We can try to make something more memorable by consciously attending to it or by practicing it. But when an event triggers the release of adrenaline, we will remember it even without trying to. As things get emotional, the stress hormone adrenaline stimulates the amygdala, which tags the experience as important for storage in other areas of the brain.

Arousal appears to be a way to give information preferential weighting for storage. Thus, the most important experiences result in the strongest memories. Moreover, since it is the arousal rather than the valence of an experience that matters, it can make both good news and bad news more memorable.

The primary work on arousal and memory has been done by McGaugh and colleagues (Cahill & McGaugh, 1998). For example, one study showed that a series of emotionally evocative film clips were better recalled than a series of neutral clips taken from the same films (Cahill et al., 1996). The emotional clips depicted themes of animal mutilation or violent crime, whereas the neutral clips were similar in style, but less emotionally arousing, including scenes of court proceedings, travel, and so on.

Students watched the films while glucose utilization in the brain was measured by positron emission tomography (PET). Three weeks later they were contacted by telephone and asked to recall the film clips. The results showed that mean activity in the amygdala showed a clear relationship to later mean recall of the emotional clips, but not of the nonemotional clips. Thus, amygdala activity during emotional experiences is related to long-term, conscious recall of those experiences, but such amygdala activity is not relevant to recall of nonemotional situations.

These findings support the view that although neutral experiences can be remembered without involvement of stress hormones or amygdala activation, when one is emotionally aroused, stress hormones stimulate the amygdala to influence storage of that material in memory.

Irrelevant Arousal Is Also Effective. As it happens, arousal-induced memory enhancement can occur even when the source of the arousal is irrelevant, and even if it comes after learning has already taken place. For example, Nielson (2003) found such effects when she showed an arousing film after people memorized a list of words such as fire, queen, and butterfly (see also Pearson, 2002). Half of the participants watched a film of a dentist pulling a tooth, complete with blood and screeching drill. Twenty-four hours later, these traumatized participants' memory for the list was about 10% better than the memory of participants who watched a dull film about tooth brushing. Apparently even if the material is not personally meaningful, emotion can aid memory.

We have long known that emotionally charged events are easier to remember. Psychologists have usually assumed that this occurs because people focus more on emotional events or because they essentially engage in more practice of emotional events as they ruminate about them. Now, it appears that adrenaline does the work, by activating the amygdala, which signals the hippocampus, which helps decide what to remember. These results are consistent with animal data showing that memory can be enhanced by administering adrenalin shortly after aversive training at the time that it would normally have been released by aversive stimulation. It thus appears that, "Long-term memories are not made instantaneously: they consolidate over time after learning (Cahill & McGaugh, 1998, p. 294)."

Arousal Can Hinder as Well as Help. It should be noted, however, that arousal can interfere with memory, as well as enhance it. The dose-response curve for adrenaline is an inverted U, so that either too much or too little adrenaline does not improve memory. We may fail to remember either mundane events or events accompanied by truly extreme emotion, but in general, strong emotion yields strong memories.

Implications. What are the implications of these discoveries about emotion and memory for the establishment of attitude? LeDoux (1996) has suggested that "emotion is memory." In other words, he thinks of an emotion that is triggered in some situation as an embodied memory of the significance of such situations. If so, then it may be equally sensible to say that "attitude is memory" (at least for attitudes originating in personal affective experience). The research to date, however, has not focused on whether emotion during an experience makes the emotional significance, as opposed to making the situational details, memorable.

From research in which volunteers watched a grim film of a rabbit-processing factory, Cahill found that the more viewers ruminated over the next two days on what they had seen, they more they could remember. He suggests that replaying a memory reelicits adrenaline and reactivates the amygdala (Pearson, 2002). Indeed, some (Pittman, 1989) suggest that the problem in cases of posttraumatic stress disorder (PTSD) is that in addition to the memorability of the original trauma, each time it is remembered, new arousal further increases its memorability until the memory becomes disabling.

To the extent that the remembered details support the ability of a situation to reelicit emotion, then the processes we have discussed may be important in transforming momentary emotional experiences into attitudes. On the other hand, mood research suggests that the generality of affective influences may depend specifically on forgetting about the details of the situation in which the affect originated (Keltner et al., 1993). Jacobs and Nadel (1985) too say that old phobias recur when the activity of the hippocampus, which is responsible for situating memories, is dampened. Under such conditions the emotional significance of experience with the phobic object becomes unconstrained by the time and place of its original occurrence. Thus, stereotyped and persistent reactions may be elicited that are not constrained by an appropriate context in memory. And similar spreading of fearful reactions can occur over time as animals forget the aspects of the environment that served as safety signals (Hendersen,

1978). Thus, to develop a generic attitude may require that the affect become attached to some attribute of the stimulus object divorced from a particular time and place. It is possible, therefore, that remembering well the situational details of emotional moments would limit or constrain emotional memories to be relevant only to that situation, thus inhibiting production of a generalized attitude. On the other hand, well remembered situations should have a greater capacity to elicit an emotional and attitudinal response.

Summary of Direct Effects

This large segment covers the direct influences of affect on attitude, including, most notably, classical conditioning. The idea of reducing complex phenomena to simple reflexes dates at least to Descartes, who envisioned explanations based on behavioral reflexes that were as automatic as the physical reflections of light from mirrors.

Classical Conditioning. We reviewed classic studies of attitude conditioning (Razran, 1954; Watson & Raynor, 1920; Staats & Staats, 1958), as well as recent ones (Olson & Fazio, 2001). However, some investigators (Baeyens et al., 1992; DeHouwer et al., 2001) suggest that the simple affective associations involved in attitude development do not fit the Pavlovian conditioning mold. Pavlovian conditioning, on the one hand, involves expectations about the occurrence of an event (UCS), awareness of event contingency, and extinction of expectancies when the conditioned stimulus is no longer followed by such events. The simple associations involved in affect and attitude, on the other hand, do not depend on expectations of events, do not appear to require awareness, and do not show extinction effects. In these respects, such associations may be more like impression formation than like conditioned responding.

Narrative Coherence. We suggested that a single gestalt principle may underlie various phenomena, including affective conditioning or association, affective priming, and mood effects on judgment. In all of these, succeeding moments of experience tend to form perceptual groupings. This automatic process of linking successive experiences together is presumably also responsible for the narrative coherence that makes everyday experiences meaningful.

Limitations to Conditioning Models. An additional limitation of classical conditioning as a paradigm for attitude development is the implication that the relevant associations are random and haphazard. This criticism was anticipated even during the Enlightenment by critics of associationism (Sutton, 1998). Modern research suggests that we are evolutionarily prepared (Seligman, 1970) to learn particular kinds of responses to particular classes of stimuli, as is evident in phenomena such as the Garcia effect (Garcia & Koelling, 1966). In addition, certain things become associated with affect not haphazardly or by conditioning, but because we are cognitively or culturally prepared to associate them (as components of structured knowledge and cultural assumptions). As a further counterpoint to associationistic explanations, we discussed how theory of mind provides a social and cognitive account of how children learn affective meaning (Bloom, 2000). Finally, we emphasized that objects may also simply inherit the affective reactions to the groups or categories to which they are seen to belong (Fiske, 1982).

Mere Exposure. We next turned to studies of mere exposure (Zajonc, 1968; 2001), the observation that increased exposure to novel stimuli increases liking. The effect is greatest when people are unaware of the prior exposures (Kunst-Wilson & Zajonc, 1980), interpreted initially as evidence that affect can be processed prior to and independently of cognition. Critics emphasized that since most cognitive processing takes place outside of awareness, lack of awareness does not imply lack of cognition. Others offered cognitive interpretations in

terms of familiarity and fluency of processing (e.g., Bornstein & D'Agostino, 1992). Recent evidence (Winkielman et al., 2003) suggests, however, that cognitive fluency (in the context of goals to understand) elicits positive affect, which in turn elicits liking. Thus, mere exposure is an affective phenomenon, but not one that bypasses ordinary cognitive processing.

Mood and Judgment. Research on mood and judgment was a final example of direct influences of affect. As with mere exposure, induced affect from mood influences judgment mainly when its source is not obvious. Clear demonstrations of affect in attitude involved inducing mood independently of beliefs in research on interpersonal attraction (Gouaux, 1971; Griffitt & Veitch, 1971). Early explanations reconciled these observations with traditional notions that judgments depend on beliefs. Theorists (Bower et al., 1978; Isen et al., 1978) proposed that affect served to activate cognitive material in memory-the real bases for judgment. Others (Schwarz & Clore, 1983) proposed that affect itself can act as information about the value of attitude objects. According to the affect-as-information approach, judgments are sometimes made by (implicitly) asking, "How do I feel about it?" (Schwarz & Clore, 1988). Although sometimes called a judgment "heuristic" (Slovic et al., 2002), others note that affective influences need not be viewed as shortcuts (Forgas, 1995; Wyer et al., 1999), nor as sources of "bias" to be overcome (Ketelaar & Clore, 1997; Damasio, 1994; Salovey & Mayer, 1990).

We noted that sources of affective information other than mood show mood-like effects on judgment and information processing. To the extent that expressions, colors, and subliminal primes also provide compelling information about value, they should function the same as mood regardless of whether or not they induce mood.

Attitude Toward Action. Affect can also influence attitudes toward actions, as seen in hypotheses aimed at explaining affect in decision making. These include both risk-as-feeling (Loewenstein et al., 2001) and affect decision theory (Mellers et al., 1997). In addition, research is increasingly focused on the role of specific emotions such as disgust (Lerner et al., 2004) and anger (DeSteno et al., 2004). Mackie et al. (2000), for example, suggest that outgroups eliciting anger may incline people toward aggression, whereas those eliciting fear may simply be avoided.

Arousal and Memory. Finally, research on long term memory for arousing events (Cahill & McGaugh, 1998) suggests that the arousal component of affect may also be important for attitude formation. We ended this section by asking whether remembering well the details of emotional moments would establish or limit the establishment of general attitudes.

Although affect has many *direct* influences on attitude, as described in this section, there are also *indirect* influences that are important. We turn to these indirect influences now.

Indirect Influence of Affect on Attitudes

When people focus directly on attitude objects with the goal of evaluating them, then positive and negative affective cues are likely to be experienced as manifestations of liking and disliking. This represents a direct effect on attitude. But in task situations when people focus on their own expectations and inclinations to respond and have a performance goal, then the same affective cues may be experienced as information about their own efficacy, rather than as liking. In such situations, individuals who feel efficacious (by virtue of being in a happy mood) tend to rely on cognitively accessible information, such as stereotypes, whereas those who do not (by virtue of being in a sad mood) tend to focus on individuating information. In this way, affect may have an indirect effect on attitude, for example, by governing whether people rely on categorical or individuating information (Fiedler, 1988; Schwarz, 1990).

Affect and Stereotyping

Few areas of social psychology have received as much attention in the past decade as stereotyping. A thorough review is beyond the scope of this chapter. Nevertheless, two salient points in this literature are relevant to a treatment of affect and attitude. The first is the development during the 1990s of a dual process view of stereotyping (Devine, 1989). The second is research on affective triggers for stereotyping (Bodenhausen, 1993).

The idea that stereotyping follows naturally as a response to ethnic labeling was explicit in Allport's (1954) initial writing on the topic, as was the idea that people sometimes put the brakes on their prejudices. Thus, in a sense Allport also anticipated the current dual-process view of stereotyping. In the meantime, some social psychologists also have treated stereotype activation as an automatic consequence of intergroup contact. But these same investigators have often emphasized that people can and do control such automatic stereotyping (Brewer, 1988; Fiske & Neuberg, 1990; for a review see Devine & Montieth, 1999).

Interestingly, these treatments of stereotyping have tended to take emotion out of stereotyping. Rather than assuming that the impulse to stereotype ethnic minorities results from deep seated anger, which motivates displacement and scapegoating (Dollard & Miller, 1950), this view sees stereotyping as just another instance of cognitive categorization. Recent work using the IAT has also contributed to the idea that ethnic stereotypes are part of most people's world knowledge and stereotypic names and labels tend to activate such knowledge even among minority group members.

Despite the fact that the existence of stereotypes may not implicate emotion, some research does suggest that affect plays a role in the use of stereotypes in judgments and decisions. Specifically, studies of mood and processing show that stereotypes are more likely to be used when individuals are in happy than in sad moods.

Bodenhausen, Sheppard, and Kramer (1994) asked participants induced to be happy and sad to act as jurors. Before reading about the crime, participants read the target's name and home town, which identified him in half of the cases as Hispanic. This identification was intended to activate a stereotype, and the research examined when this information would and would not be used in judgments of guilt. They found that the stereotype had more impact on the judgments of jurors in happy, rather than in sad, moods.

The research shows clearly that affective cues can play a role in the use of stereotypes. However, the role played by affect is not unique to stereotyping. Indeed, happy mood appears to have the same influence on the use of any categorical information. For example, Bless and colleagues (Bless et al., 1996) examined the role of mood in people's use of scripts (schemas about action sequences) to process information from stories. In a recognition task, they found that individuals in happy moods made more script-consistent errors. That is, they falsely recognized information that they had not actually heard, but which was consistent with the restaurant script they had used to encode the story.

Additional findings in the study by Bless et al. (1996) help explain why happy mood increases reliance on stereotypes, scripts, and other general knowledge structures. Older explanations had assumed that individuals in happy moods might be sufficiently preoccupied that they had limited attentional resources for systematic processing (Worth & Mackie, 1987). Or perhaps positive feelings implied that systematic processing was unnecessary (Schwarz, 1990). To test these explanations, Bless et al. (1996) included a secondary task as participants listened to the story. They found that participants in happy moods did not lack the ability or motivation for systematic processing. In fact, they performed better than those in sad moods on the secondary task. Instead, it appeared that their reliance on the restaurant script to process the story left them with extra attentional resources for doing the secondary task.

The greater use of the accessible cognitions on the part of happy mood participants suggests that in task situations positive affect serves as efficacy feedback (Clore et al., 2001). That is, positive affective cues provide a green light for relying on expectations, inclinations, and accessible cognitions. They confer value on the processor's own constructive efforts (Fiedler, 2001) and cue a relational orientation, in which people process incoming information in relation to accessible cognitions and general knowledge structures (Bless & Fiedler, 1995). Negative affect serves as a stop sign that tends to reduce reliance on accessible cognitions and increases reliance on external information in the environment.

Subsequent research by Isbell (1999, 2004) has provided further evidence for an affect-as-information interpretation of mood and stereotyping results. In a series of studies, her participants read one of a series of narratives in which a character engages in behaviors, some of which imply one stereotype and some of which imply another. Beforehand, they were given an expectation intended to cue one of the two stereotypes. For example, the character in the story was described either as an introverted librarian or an extraverted salesperson. When she asked later for ratings of the character, she consistently found that individuals in happy, but not those in sad moods, used their initial expectations and activated stereotypes. Her results were thus consistent with those of Bodenhausen et al. (1994).

Attribution. As a test of the affect-as-information interpretation, Isbell (2004) also introduced an attribution manipulation. Participants rated how the writing task, which had been used as a method of mood induction, had made them feel. This process made salient the true cause of their positive or negative affective feelings. Once their true cause became salient, these irrelevant feelings were no longer experienced as feedback about the value of their accessible cognitions. As predicted, the results were reversed for individuals in the attribution groups, so that sad but not happy individuals now relied on the activated stereotype. Why do attribution manipulations not simply eliminate mood effects? Presumably, reversals occur because ordinary processing already involves both top-down and bottom-up processing. Inhibiting the kind of processing style encouraged by their now discounted feelings leaves only the opposing tendency, resulting in reversed results in which sad mood individuals now use stereotypes and happy mood individuals do not.

In addition to her attribution results, in other versions of the same paradigm, Isbell also asked her participants to recall the story they had heard. She found, as expected, that individuals in happy moods recalled significantly more stereotype-inconsistent behaviors from the story. Consistent with the prior person memory literature (Wyer & Srull, 1989), increased schema-inconsistent recall is a clear indication that individuals in happy moods were actively using the accessible stereotype to process the story. That is, behaviors that do not fit the stereotype tended to stick out and received more practice, leading to greater recall.

Anger. One further surprising but important fact about mood and stereotyping concerns the effects of anger. Bodenhausen at al. (1994) manipulated anger in addition to happy and sad mood. He found that responses of participants in angry moods showed that they also relied on stereotypes. Thus, happy and angry mood led to the same results, even though happy is considered a positive emotion and anger a negative emotion. But the affect-as-information hypothesis concerning mood effects on processing maintains that the nature of affective influences should depend on the information conveyed by the affect in that situation. If feelings of anger (like positive affective feelings) are experienced as information that one's own position is correct, then it is not surprising that in angry, as well as in happy moods, people rely on accessible cognitions, including stereotypes. Tiedens and Linton (2001) also provide evidence that emotions associated with certainty (e.g., disgust) promote heuristic processing, whereas emotions associated with uncertainty (e.g., fear) promote systematic processing.

Egalitarian Goals. Most research on mood and stereotyping concerns the tendency for individuals in happy or angry moods, but not in sad moods, to use stereotypes. According to the affect-as-information approach, however, this result occurs because stereotypes are fairly accessible for most people (at least in the usual experimental situations studied). But what if the people studied were chronic egalitarians? Would positive mood make chronic egalitarians stereotype less? Dunn and Clore (2004) tested this hypothesis with participants who possessed a chronic goal to treat women in an egalitarian fashion. Following the approach used by Moskowitz, Gollwitzer, Wasel, and Schaal (1999), they first asked men to rate women as a group on various gender-stereotypical attributes. Next, participants completed a survey that forced them to endorse stereotypical statements about women. Finally, they were again asked to rate women on stereotypical attributes. The idea is that people with egalitarian goals who have been forced to endorse stereotypical statements should compensate by describing women in counter-stereotypical ways at the next opportunity. Thus, participants who rated women as substantially less stereotypic on the final survey than the initial survey were classified as "chronic egalitarians."

A week later, they first listened to happy or sad music to induce mood and then completed a lexical decision task involving a series of pictures and letter strings. On each trial, a picture of a male or female appeared followed by a stereotypically female word, a gender-neutral word, or a nonword. Stereotype activation was measured by the degree to which pictures of women facilitated detection of stereotypically female words.

Consistent with previous research, they found that non-chronic egalitarians exhibited greater stereotyping on the lexical decision task in happy, rather than in sad, moods. In contrast, chronic egalitarians exhibited the opposite pattern, showing greater stereotyping in sad, rather than in happy, moods. This finding indicates that rather than exerting a direct influence on stereo-typing, positive affect simply influences reliance on accessible strategies of social perception. For people who typically avoid stereotyping, happy moods apparently minimize rather than promote stereotypical thinking.

Category-Triggered Affect. In the first section of the chapter, we discussed Fiske's work on schema-triggered affect. We noted that Fiske and Pavelchek (1986) proposed a theory concerning when one would focus on categorical information and when one would focus on individuating information. That work predated the research on mood and stereotyping, which implies that affect is one of the important conditions determining whether people focus on categorical or individuating information. As in the case of stereotyping, whether or not the affective reactions to individuals are dictated by affective reactions to their group depends on whether perceivers focus on their group identity or individual identity. That, in turn, appears to depend partly on mood.

This tendency for certain emotions to foster the use of stereotypes when accessible does not imply that happy or angry individuals would be more likely to form stereotypes in the first place. For example, happy and sad mood participants show no greater tendency to include stereotypic attributes in lists of characteristics of various ethnic groups (Esses & Zanna, 1995). Also, within the illusory correlation paradigm, both happy and sad mood inductions have been found to disrupt both the formation of illusory stereotypes (Hamilton, Stroessner, & Mackie, 1993) and accurate judgments of the variability of individuals within groups (Stroessner & Mackie, 1992).

Brand Names. We noted earlier that reliance on brand names in the consumer domain may operate somewhat like stereotyping. In line with such an interpretation, Adaval (2001) examined influences of mood on intentions to buy various products, including sneakers and jeans. She provided information about both brand names (e.g., Levi's vs. Rustler) and product

quality (e.g., high vs. low quality workmanship). She found that variation in the favorability of the brands had significantly more impact on the decisions of individuals in happy moods than on decisions of those in sad moods. Thus, regardless of the kind of attitude object, positive affect appears to promote a tendency to focus on global, categorical information, whereas in negative states, individuals focus more on individuating details.

Party Identification. In a related vein, some observations suggest that voters in positive moods are also more likely to rely on the party identification of candidates. Consistent with the insights from mood research, Marcus and MacKuen (1993) show that anxiety inhibits reliance on predispositions such as partisan identification and ideological conviction, making voters learn more about issues and candidates. Instead of voting on the basis of category-level information, anxious voters rely on more individuated information (Marcus, Neuman, & MacKuen, 2000). This process lays the groundwork for change from habitual voting patterns. For example, in the 1988 presidential election, Republican attacks made Democrats more anxious about their candidate, opening up the possibility of defection of Democratic voters. Such defections often hold the key factor in elections (e.g., Clinton Republicans in 1996 and Reagan Democrats in 1984). Marcus suggests (personal communication, March 2, 2004) that who gets anxious is also a key factor. For example, when things go bad in Iraq or in the economy during a Republican administration, Republican voters would be more likely to get anxious than Democrats.

Summary. When associated with attitude objects, positive affect may be experienced as liking. But during task performance, it may be experienced as efficacy (Clore et al., 2001) or fluency (Mackie & Smith, 2002). In turn, such positive feedback should lead to the confident use of accessible cognitions, including stereotypes. Indeed, Bodenhausen et al. (1994) showed greater stereotype use in happy than in sad moods. We emphasized an affect-as-information interpretation of mood effects on stereotyping. Consistent with that view, Isbell (2003) showed that the effect could be reversed by changing attributions. Also consistent are findings of increased stereotype use for other emotions that implicate either confidence in one's own view, including anger (Bodenhausen et al., 1994) and disgust (Tiedens & Linton, 2001). Finally, that stereotype accessibility is the key can be seen from research showing that individuals for whom egalitarianism is accessible show less rather than more stereotype use in happy moods (Dunn & Clore, 2004).

Stereotype use was seen as part of a general tendency to adopt a category-level focus (Fiske & Pavelchek, 1986; Gasper & Clore, 2002) when positive affect empowers current thoughts. Applications of this idea can be seen in related affective influences on attention to brand names as opposed to product attributes by consumers (Adaval, 2001) and political party identification as opposed to specific candidate attributes among voters (Marcus & MacKuen, 1993). A second kind of indirect influence, to which we turn next, concerns the role of affect in determining whether individuals scrutinize persuasive arguments or tend to accept them as presented.

Affect and Persuasion

As discussed extensively by Johnson, Maio, and Smith-McLallen (this volume), two basic ways of processing persuasive messages have been identified (Chaiken, Liberman, & Eagly, 1989; Petty & Cacioppo, 1986). One way is to focus on the actual content of a persuasive message, and to scrutinize the message content with regard to the quality of its arguments. This strategy of dealing with persuasive messages has been termed "central" (Petty & Cacioppo, 1986) or "systematic" (Chaiken et al., 1989) processing. In contrast, "peripheral" or "heuristic" processing involves disregarding the content of the message, focusing instead on additional cues irrelevant to the actual content, such as the source of the information or the status or the

expertise of the person conveying it. As a consequence of the different routes of processing, when participants use the central/systematic route of responding to message content, they tend to be persuaded more by strong arguments, and less by weak arguments. However, the strength of the argument matters less when the peripheral route is chosen. In that case, other "peripheral" factors, such as the credibility of the source of the message or the intention of the communicator become important in the persuasive process.

The model assumes also that the same information can be processed in either or both a central or a peripheral manner (Petty & Cacioppo, 1986). For example, the attractiveness of a woman advertising beauty products could either be a relevant cue, indicating that the beauty products work, or an irrelevant cue, consisting of positive affective reactions to her beauty that become associated with the product. The model thus emphasizes that multiple roles can be played by particular factors. The influence of mood or extraneous affect is an example of a factor that can either be relevant or irrelevant. For example, the positive feelings of a person processing the proposals of a political candidate may act as a valid argument, whereas the positive feelings from hearing the "Star-Spangled Banner" in the background may act as an irrelevant cue, rather than a valid argument. Indeed, a whole literature has been generated investigating the effects of mood on persuasion (for reviews, see Mackie, Ascuncion, & Rosselli, 1992; Schwarz, Bless, & Bohner, 1991; Eagly & Chaiken, 1993).

Persuasion and Affective States. One robust finding is that in happy moods, people are persuaded equally by strong and weak arguments, whereas in sad moods, people are persuaded more by strong, and less by weak arguments (Bless, Bohner, Schwarz, & Strack, 1990; Bless, Mackie, & Schwarz, 1992; Mackie & Worth, 1989; Sinclair, Mark, & Clore, 1994; Worth & Mackie, 1987). For example, Bless et al. (1990) induced moods by having students contemplate a pleasant or an unpleasant event from their own lives. Participants then considered strong or weak arguments supporting an increase in student services fees at their university. A positive mood resulted in a propensity to use the peripheral route, by paying little attention to the message content, such as the quality of arguments. In contrast, participants in the negative mood condition were persuaded only by strong arguments; presumably, they paid more attention to argument content and elaborated on it more.

However, these effects were malleable: When they were distracted by a secondary task, people in negative moods elaborated less, and in fact, performed much like participants in happy moods (Bless et al., 1990). In contrast, participants in happy moods showed no effects of the distracter task, suggesting that they did not engage in elaborative processing in the first place. Further, when given explicit instructions to evaluate argument quality, happy mood participants were persuaded only by strong arguments, an indication that they were able to engage in elaborative processing when explicitly asked to do so (Bless et al., 1990).

Several explanations have been offered for the effects of moods on persuasion (for an extensive discussion of this issue, see Bless & Schwarz, 1999). The findings described above were initially interpreted by Bless and colleagues (1990) as indicating that when in a happy mood, people are simply not *motivated* to pursue effortful processing, and instead, rely on less demanding styles of processing. Since this deficit can be overcome by specific instructions, it does not reflect a deficit in cognitive capacity, as suggested by others (Mackie & Worth, 1989). The cognitive capacity hypothesis postulates that because positive mood states activate large amounts of connected positive content in memory (Isen, 1987), cognitive resources are not available for systematic elaboration of the message content for individuals experiencing a positive mood (Mackie & Worth, 1989; Worth & Mackie, 1987). Support for this position comes from the finding that when participants in happy moods were given additional time to elaborate message content, the effects of positive mood on persuasion were eliminated (Mackie & Worth, 1989).   ,

However, several empirical findings are inconsistent with a cognitive capacity account. It has also been suggested that negative mood states (rather than positive ones) limit cognitive processing capacity (Ellis & Ashbrook, 1988). Further, if participants experiencing positive moods are indeed unable to engage in elaborative processing, instructions should not make a difference, but they did in the studies reported by Bless et al. (1990). In addition, investigators (Isen, 1987) have repeatedly found that happy moods in fact lead to better performance, relative to neutral or sad moods, for example, on creative problem solving tasks. A series of experiments that is particularly instructive in this context was reported by Bless and colleagues (Bless et al., 1996). They found that, compared to sad or neutral moods, happy moods increased reliance on script-based information, which led to better rather than worse performance on a secondary task. Thus, positive mood did not compromise performance, as would be expected according to limited capacity accounts.

Although in earlier work they argued for a motivational explanation of mood on persuasion (Bless et al., 1990), in later accounts, Bless and Schwarz (1999) rephrased their position as reflecting reliance on "general knowledge structures" that can function independently of motivational or cognitive capacity constraints. For example, as noted by Bless and colleagues (1996), in some situations, happy individuals actually outperform individuals in sad or neutral moods, because they can use general knowledge structures such as schemas, expectations, and stereotypes. Thus, limitations on cognitive capacity do not seem to be responsible for the effects of mood on persuasion. It seems more plausible that participants in positive moods process persuasive arguments less systematically because their affective cues signal that they have already done sufficient processing (Martin, Ward, Achee, & Wyer, 1993).

This notion is consistent with the view that affective states confer informational value when it comes to cognitive processing (Clore, 1992; Clore et al., 1994; Schwarz & Clore, 1983, 1988, 1996). According to this account, negative moods indicate a problematic environment, whereas positive moods signal a safe and benign environment. As a cognitive consequence, people in bad moods are more likely to engage in systematic processing, whereas people in good moods are less likely to engage in effortful processing, and instead, do more heuristic processing. Consistent with the assumption that mood states signal processing requirements, Sinclair et al. (1994) found that the impact of mood states on persuasion can be eliminated when their informational value is called into question. Following the procedure described earlier (Schwarz & Clore, 1983), students were approached on either a sunny or a rainy day. While they were exposed to persuasive messages, their attention was, or was not, drawn to the weather as an external, irrelevant source of their mood. Only when participants did not focus on the weather as the cause of their feelings did the usual influence of mood on persuasion occur, with happy participants being equally persuaded by strong and weak arguments and sad participants being persuaded by strong arguments only. When attention was drawn to the weather, participants discounted the affective information, eliminating its influence on persuasion. Thus, affect serves as an implicit signal for the kind of cognitive processing strategy to pursue, but it loses this function when the feelings are experienced as task irrelevant.

A somewhat different perspective has been put forward by Petty and colleagues (Petty, DeSteno, & Rucker, 2001; Petty, Schumann, Richman, & Strathman, 1993). In line with their elaboration likelihood model (Petty & Cacioppo, 1986), they argue that affective cues serve different functions depending on the likelihood of cognitive elaboration. According to this model, classical conditioning is an example of a *direct* affective influence under conditions of low elaboration: An attitude object that has become associated with positive affect is evaluated positively, whereas an attitude object that has become associated with negative affect is evaluated negatively (Razran, 1940). In other words, mood functions as a direct, peripheral cue when elaboration likelihood is low. In contrast, when elaboration likelihood is high, such as when the attitude object is highly personally relevant, the relevance of the mood itself

is judged, and mood has an influence on attitudes that is mediated by the affectively toned thoughts generated by the mood. Finally, moderate elaboration conditions are hypothesized to influence persuasion in the manner that resulted in the differential interaction effects of mood state and argument quality observed by Mackie and Worth (1989), and Bless and colleagues (1990, 1992).

The affect as information and elaboration-likelihood positions are not entirely dissimilar. Petty and colleagues suggest that negative affect should lead to more central processing and positive affect to more peripheral processing. Similarly, a cognitive tuning explanation suggests that negative affect implies a problematic situation, leading participants to engage in systematic processing, and positive affect signals a benign situation, leading participants to engage in heuristic processing. There are variations on how best to phrase an informational view. An alternative, for example, would be to predict that positive moods lead to the use of accessible information and negative moods to decreased use of such information. If one assumes that the most accessible information in the persuasion studies is the persuasive argument presented, then happy recipients may be prone to accept them, and sad recipients prone not to rely on such accessible information, but to scrutinize the details of the arguments. Such systematic processing leads them to accept or reject the arguments on their merits: to reject weak and accept strong arguments.

Loose ends in these explanations have been pointed out by Wyer et al. (1999) who noted that even in the original data by Bless et al. (1990), happy recipients were found to counterargue more than sad recipients, which is inconsistent with the idea that positive affect leads to less systematic processing.

Although some evidence favors the elaboration-likelihood model (see Wegener & Petty, 2001), other data are harder to reconcile with it. For example, findings from the Bless et al. (1990) studies appear inconsistent. These researchers included a condition that led to high elaboration (specific instructions to evaluate argument quality), but they did not find the main effect of mood that would be predicted by the elaboration likelihood model. Further, working while being distracted could be considered a low elaboration condition, but it also did not result in a direct effect of mood. Finally, Sinclair et al. (1994) also used a manipulation that could be characterized as a high elaboration condition. The participants consisted of students for whom comprehensive final exams were very relevant, because the introduction of the exams in the near future was presented as a distinct possibility. One concern about the multiple role model of affect has been that it does not unambiguously determine what factors count as low, moderate or high levels of elaboration (Eagly & Chaiken, 1993).

In addition to specifying when people use affect in persuasive messages, a model of when they correct for its influence has also been outlined (Petty & Wegener, 1993; Wegener & Petty, 1997). A related, two-step model that specifies one process for both the usage and the discounting of affective information has recently been proposed by Albarracín and Kumkale (2003). These authors propose that affect confers information in persuasion situations if, and only if, two conditions are met: First, message recipients must notice their affective reaction, and second, they must judge it as relevant. If people either fail to attend to their feelings or do attend to them, but attribute them to an irrelevant cause, then affect may play no role in persuasion. To actually have an influence, affect must be noticed, but not be judged irrelevant. One implication of their model is that at low levels of thought, increases in attention to one's feelings may increase the role of irrelevant affective influences, whereas further in creases in attention may decrease affective influences (see also Gasper & Clore, 2000; Gohm & Clore, 2000). They suggest, therefore, that the motivation and ability to process arguments systematically should be associated with persuasion in a curvilinear manner, so that irrelevant affect should influence persuasion primarily for moderate levels of motivation and ability.

Although such irrelevant affective influences implicate low motivation or ability to correctly attribute feelings, the influence of relevant affect generated by considering the arguments themselves do not. Indeed, argument-induced affect might play the biggest role among individuals most motivated and able to make correct attributions. Specifically, Albarracín and Kumkale (2003) predicted that reduced ability and motivation should have a curvilinear effect on the impact of irrelevant (mood-based) affect, but should linearly reduce the impact of message-induced (relevant) affect.

Indeed, they found that when either motivation or ability was low, participants' attitudes were strongly influenced by the experimental mood induction. Presumably, low ability in combination with high motivation, or low motivation in combination with high ability allowed participants to go through the first step of the model, affect identification, but prevented them from proceeding to the next stage, discounting the affective reaction as irrelevant. In contrast, when both ability and motivation were high, participants were able to discount the effects of the mood induction, and thus eliminated its influence on their attitude. Finally, when both ability and motivation were low, participants were unlikely to even complete the first stage of the process, affect identification, and thus, also showed no effects of affect on their attitudes. Overall, this research integrates the motivational and attentional capacity aspects of earlier models into the affect-as-information framework, and provides compelling evidence for it.

Persuasion and Affect Regulation. In the studies reviewed thus far, affect can be seen as providing information about the persuasion situation or the quality of the arguments. Such informational functions come into play under conditions of performance motivation. Sometimes, however, people may be more motivated to feel good than to perform well. Thus, when driving to work, one might switch from a news station to a music station on the radio if one's momentary motivation to maintain one's mood were greater than one's motivation to be well informed. Wegener, Petty, and Smith (1995) induced such hedonic motivation by emphasizing the enjoyable versus depressing nature of their persuasive material. When individuals expected the persuasive arguments to be uplifting, those in happy moods were more, rather than less, likely than those in sad moods to differentiate strong and weak arguments. The authors proposed the hedonic contingency model (HCM) which suggests that the usual mood effects on the processing of strong and weak arguments can also reflect the unpleasantness of thinking deeply about counterattitudinal material. That is, if individuals were momentarily focused more on enjoyment than performance, those in happy moods might want to avoid such unpleasant thoughts, producing the reverse of the usual mood and processing effect. Similar reversals of mood effects were reported by Martin et al. (1993) on liking, as opposed to persuasion, when they similarly manipulated emphasized hedonic over performance concerns.

Persuasion and Affective Messages. All of the research reviewed above deals with the effects of emotional states on processing persuasive communications. Additional work has been conducted where the affective component is not in the mood state of the recipient, but in the persuasive message itself. This research falls into two categories, namely, the work on fear appeals (for a detailed review, see Eagly & Chaiken, 1993), and the work that compares cognitive and emotional message content (Edwards, 1990; Edwards & von Hippel, 1995; Fabrigar & Petty, 1999; Rosselli, Skelly, & Mackie, 1995).

In a classic study, Janis and Feshbach (1953) investigated the influence of various levels of fearful content on compliance with a persuasive appeal. Participants received information about the benefits of brushing one's teeth. For the high fear appeal, participants were presented with very graphic images of tooth decay, whereas for the low fear appeal, participants were presented

with X rays of cavities and pictures of healthy teeth. A medium fear appeal condition consisted of pictures with a moderate level of depicted tooth decay. Two findings were noteworthy: First, compared to the other two fear conditions, participants in the high fear condition showed the lowest amount of reported compliance with the message of the communication, tooth brushing. Second, these participants were also more susceptible to counterarguments that they were exposed to one week after the original study. Thus, these authors and others (Hovland, Janis, & Kelley, 1953) suggested that high fear appeals tend to result in a defensive reaction, where message recipients actively try to minimize the threat's reality and relevance in their own life.

However, research in the years to follow did not necessarily find the same kind of evidence (Eagly & Chaiken, 1993), and others concluded that high fear appeals in fact do lead to increased persuasion (Boster & Mongeau, 1984). Extensions of the work on fear appeals (Rogers, 1983) went on to include mediating cognitive aspects, such as one's own perceived vulnerability to the threat, and one's sense of efficacy in dealing with it. Recent work has also addressed the match of the persuasive message with the mood state of the perceiver. For instance, Sengupta and Johar (2001) found that under some conditions, anxiety leads to improved elaboration of the persuasive message. When participants experiencing high levels of anxiety were given a message that was very relevant to their anxiety, they elaborated it extensively. In contrast, interference of high anxiety was found when they were given a message that was unrelated to the source of their anxiety. These authors argue that higher motivation to process the message can compensate for cognitive deficits associated with high anxiety (cf. Eysenck, 1982). Along similar lines, Petty and colleagues (Petty et al., 2001) concluded in their review of the literature on persuasion using fear appeals that when people feel competent and motivated to bring about an action in the face of likely threat, then fear appeals can be very effective. If, on the other hand, people feel that they do not possess the necessary skills or resources to deal with the threatening message, then messages with fear appeal can have the unintended effect of resulting in denial of the persuasive message, and as a consequence, less elaboration of its content.

Rather than being specific to fear, persuasive messages can differ in whether the content focuses on affective or on cognitive information (Edwards, 1990; Edwards & von Hippel, 1995; Fabrigar & Petty, 1999). For example, Edwards (1990) found that persuasive appeals were more successful when the appeal matched the content of the initial attitude formation, such that attitudes that had been formed on an affective basis were more easily changed by affectively toned appeals, whereas attitudes that had been formed on a cognitive basis were more easily changed by a cognitive appeal. However, mismatching effects for affective and cognitive appeals have also been reported (Millar & Millar, 1990). In Edwards' (1990) work, participants had either tasted a beverage (affective appeal) or read about its benefits (cognitive appeal), so it could be objected that the affective appeal involved a direct experience of the attitude objects, whereas the cognitive appeal did not. In subsequent work, Fabrigar and Petty (1999, experiment 2) conducted a study where both kinds of appeals consisted of an indirect experience. Participants learned about an unfamiliar animal, a "lemphur," and were exposed to either affective or cognitive information about it. They were able to confirm the presence of matching effects when controlling for direct versus indirect experience.

Zanna and Rempel (1988) suggested that there may be individual differences in whether people's attitudes are more consistent with the favorability of their feelings or more consistent with the favorability of their beliefs. Huskinson and Haddock (2004) recently pursued this idea and found considerable individual differences. In addition, they found that attempts to change attitudes that were affective or cognitive were more successful when they were consistent with the individual's general tendency to base their attitudes on affect or beliefs.

Summary. In happy moods, people tend to be persuaded equally by strong and weak arguments, whereas in sad moods, people are persuaded only by strong arguments and reject weak arguments. Whereas some investigators (Worth & Mackie, 1987) assume that happy moods reduce processing resources, others (Bless & Schwarz, 1999) propose that individuals in happy moods engage in heuristic processing because of the positive information conveyed by their feelings. In addition, Bless et al. (1996) showed that rather than engaging in heuristic processing because of reduced resources, individuals in happy moods actually have spare resources because they are engaging in heuristic processing. Still others (Sinclair et al., 1993) have shown that such mood effects can be eliminated if the feelings of mood are attributed to the weather.

From a somewhat different perspective, Petty and colleagues (1993; 2001) show that mood can have multiple effects depending on the likelihood of cognitively elaborating persuasive messages. Extending this logic, Albarracín and Kumkale (2003) proposed a two stage model of mood effects. They suggest that whether mood has an effect or not depends first on whether or not the message recipients notice their affect, and second, whether or not they judge it as relevant.

Finally, research has also been done on affect elicited by persuasive messages themselves. For example, Janis and Feshbach's (1953) classic work on the effectiveness of fear appeals has been revisited (Petty et al., 2001) with the suggestion that whether fear appeals are effective or not depends on the ability of message recipients to cope. It was finally noted that whether factual or emotional appeals work best may depend on how the attitudes in question were originally established (Edwards, 1990).

Affect and Cognitive Dissonance

In addition to changing attitudes via persuasive arguments, another method of attitude change beloved by social psychologists is through cognitive dissonance. In everyday life, too, an effective method of change can be to point out to people their inconsistencies. Young children are often alarmingly observant in spotting inconsistencies in parental rules and pronouncements. The traditional explanation for dissonance emphasized the role of uncomfortable tension elicited by an awareness of the inconsistency between beliefs and freely chosen actions (Festinger, 1957). In contrast to the original theory and later attributional interpretations (Cooper & Fazio, 1984), recent treatments of dissonance have emphasized affect rather than arousal, by assuming that dissonance is an emotional state of discomfort (Elliott & Devine, 1994; Harmon-Jones, 2001; Higgins, Rhodewalt, & Zanna, 1979; Losch & Cacioppo, 1990; Van Overwalle & Jordens, 2002). Olson and Stone (this volume) provide a fuller discussion of these studies. Moore (2003) has proposed an affect-as-information interpretation of dissonance-based attitude change. He had participants write counterattitudinal essays supporting tuition increases at their university. Counterattitudinal behavior under choice conditions is expected to produce cognitive dissonance, which Moore characterized as a negative state. After their essays, participants wrote about happy or sad life events to induce mood. As predicted, positive affect provided an "all clear" that eliminated dissonance-based attitude change.

Rather than increasing attitude change, as might be expected, sad moods can also reduce change for a different reason. Sad participants took the opportunity to attribute all their negative affect, including the negative affect of dissonance, to the immediately preceding, and relatively salient, mood induction procedure. Prior research (Schwarz & Clore, 1983) had shown that people are more likely to explain negative than positive affect, since negative affect signals a problem that needs attention. Accordingly, the negative mood group attributed their affect to the mood induction procedure and tended not to engage in dissonance-based attitude change. The salience of the negative mood manipulation appears to have served as a lightning rod to draw

off dissonance-based affect by changing its meaning. Thus, taking an affect-as-information approach, Moore (2003) has provided a contemporary reinterpretation of cognitive dissonance as negative affect. His data suggested that dissonance effects could be eliminated either by providing positive affect as an antidote to dissonance or by changing the apparent source, (and hence the information value), of the negative affect of dissonance. The attribution of affect finding is similar to the attribution of arousal finding obtained much earlier (Zanna & Cooper, 1976).

Persuasion and the Affective Immediacy Principle. Although positive affect reduced attitude change in Moore's (2003) experiments, Rhodewalt and Corner (1979) have reported the opposite result. Comparing the two studies, one suspects that the influence of affective cues on attitude change and persuasion depends on when affect enters the picture. Moore (2003) found less attitude change when he introduced happy mood *after* essay writing, because positive mood nullified the dissonance-induced discomfort that usually elicits attitude change. But Rhodewalt and Comer (1979) found more attitude change when participants smiled *during* their writing of the counterattitudinal essays. This occurred presumably because smiling informed participants that they were happy about the persuasive message (which would have been their focus) rather than being happy about their own attitude. These findings are consistent with our assumption that the impact of affect ultimately depends on what is in focus at the time (Clore et al., 2001).

Further support comes from results reported by Briñol and Petty (2003), who found that affective cues from head nodding and shaking could either increase or decrease persuasion, depending on whether participants were having positive or negative thoughts about persuasive messages at the time. More generally, these results are all consistent with the idea expressed in the "affective immediacy principle" (Clore et al., 2001), which says that, "affective feelings tend to be experienced as reactions to current mental content."

Affect as Evidence

Another indirect influence of affect on attitude formation stems from the fact that people tend to believe what they feel. This observation has been expressed as a feelings-as-evidence hypothesis (Clore & Gasper, 2000):

> *The Feelings-as-Evidence hypothesis is that belief-consistent feelings may be experienced as confirmation of those beliefs.* Evidence from the sensations of feeling may be treated like sensory evidence from the external environment, so that something both believed propositionally and also felt emotionally may seem especially valid. In this sense ... feeling is believing, (p. 25)

The hypothesis suggests that, for example, feeling negative affect at the same time as one entertains negative thoughts may validate them and give them gravity. Indeed, the subjective experience of affect can serve almost like a sixth sense, dedicated not to vision, audition, or touch, but to evaluation. Versions of this idea have recently been expressed in other related hypotheses, which we describe briefly.

Affect Confirmation. The affect confirmation hypothesis is that people weight affect-consistent information more than affect-inconsistent information in evaluative judgments. Adaval (2001) tested her idea in a consumer study, mentioned earlier. She manipulated mood using videos, and then collected judgments about several consumer products. Product information included brand names and positive or negative product attributes (e.g., for sneakers, a soft, flexible sole vs. a hard, inflexible sole). Analyses showed that as raters evaluated the products, they gave more weight to positive attributes when they were themselves in positive moods,

and more weight to negative information when they were in negative moods. The experienced affect seemed to serve as evidence of the importance of similarly-valenced attributes.

Affective Certainty. Tamir, Robinson, and Clore (2002) propose a related model to explain enhanced performance on self-relevant reaction time tasks when actual feelings (of mood) matched beliefs about usual feelings (trait affect). The idea again was that affective experience could provide confirming data for self theories, and that (relative to states of affective disconfirmation) such affective certainty would make people more efficient at accessing their attitudes or deciding between wanted things (e.g., love) and unwanted things (e.g., disease). Four experiments found just such performance benefits on attitude-relevant tasks, and not on tasks with no personal relevance (e.g., recognizing animal words).

Self-Validation. A different, but related idea has been proposed independently by Briñol and Petty (2003). This hypothesis does not focus on experienced affect, but suggests that cues such as head nods and arm flexion may be experienced as validation of thoughts that come to mind. They note that one's ideas would seem to be validated if others nodded their heads and invalidated if others shook their heads. In several experiments they examined whether one's own head movements would serve a similar validating or invalidating function (see also Epley & Gilovich, 2001, 2004).

In a persuasion paradigm, they presented either strong or weak persuasive arguments. They reasoned that people would have positive thoughts about strong arguments and negative thoughts about weak arguments. Moreover, head nods should validate and head shaking should invalidate whatever thoughts were current. As expected, they found that in response to strong arguments, people were more persuaded when they nodded and less persuaded when they shook their heads. Especially interesting was confirmation of the expectation that in response to weak arguments, the reverse should occur. Indeed, shaking one's head "no" after weak arguments produced more persuasion than after strong ones. Essentially, the double negative of head shaking in response to negative thoughts increased the persuasiveness of weak arguments. They also measured thought confidence and showed that it played a mediational role. More generally, they showed that self-produced affective information (in the form of head nodding and shaking) acted like an experiential validation of participants' thoughts.

Summary. In this final segment of the indirect effects section of the chapter, we noted that renewed interest in cognitive dissonance effects has begun to emphasize the negativity rather than the arousal components of dissonance. For example, some investigators have found that positive affect seems to nullify the motivation for dissonance reduction. Indeed, examination of an affect-as-information model of dissonance phenomena (Moore, 2003) found elimination of dissonance effects, either from positive affect or from misattributions of the negative affect of dissonance.

Another kind of indirect influence occurs when affect acts as evidence for some affectively similar belief. We proposed that affect functions rather like a sixth sense. Positive and negative feelings provide affective experiences of value, just as rough and smooth feelings provide tactile experiences of texture, or sensations of lightness and darkness provide visual experiences of illumination. Adaval (2001) found *affect confirmation* effects in which feelings of mood seemed to confirm the positive or negative value of product attributes. Similarly, Tamir et al. (2002) found *affective certainty* effects when people's general affective beliefs about themselves were confirmed by their current feelings. Such congruence made them fast in making decisions about things they wanted or did not want. And Briñol and Petty (2003) found that persuasion effects could be altered by nodding or shaking one's head when these movement were experienced as *self-validation* or invalidation of thoughts about persuasive messages. This sample of research

rounds out our consideration of the indirect influences of affect and affect-relevant action on attitude.

We turn next to a consideration of some larger issues about affect and cognition in attitude.

Issues About Affect and Cognition

Western thought has tended to cast emotion and cognition into conflicting roles. But social psychologists (Salovey & Mayer, 1990) and neuroscientists (Damasio, 1994) now suggest that emotion fosters rather than hinders adaptive rationality. For these and other reasons, research on emotion has skyrocketed in recent years, becoming one of the most sought-after intellectual exports from psychology (McLemee, 2003). Indeed, the pace of development and export has been so rapid that natural corrective forces have not kept pace. In this section, we review work that suggests that second thoughts are in order about some widely held ideas about affect, including the "automatic evaluation effect" and the "low road to emotion."

Automatic Evaluation Effect?

Attitudes help us anticipate the consequences of situations so that we can act accordingly. Hence, it can be important for attitude objects to be able to elicit affect readily (Fazio & Powell, 1997). One of the most important demonstrations of such automatic evaluative reactions was a study of affective priming by Fazio, Sanbonmatsu, Powell, and Kardes (1986). They found faster evaluations of target words when primes of similar valence preceded the words by about 300 ms. Thus, seeing a positive word (e.g., "friend") facilitated categorizing another word (e.g., "birthday") as positive relative to categorizing a negative word (e.g., "anger") as negative (see Klauer, 1998, for a review).

The effectiveness of such evaluative congruence in speeding performance suggests that people may automatically evaluate stimuli. The fact that a similar effect occurs even when the task is not explicitly about evaluative categorization led Bargh (1997) to conclude that objects are processed evaluatively before they are processed descriptively. However, others (Rolls, 1999) assume that objects are first classified descriptively (at some level) before affective analysis.

Storbeck and Robinson (2004) explicitly examined whether evaluative or descriptive priming is more basic. They noted that most studies of evaluative priming include words (as primes and targets) that vary systematically in evaluative meaning but not also in descriptive meaning. As a result, research participants are left with no choice but to implicitly categorize primes and targets evaluatively, because no descriptive categories are consistently available. If so, then such studies may provide evidence that people engage in automatic stimulus classifications of some kind, but may be relevant to whether evaluative classifications have a favored status.

To test this hypothesis, Storbeck and Robinson (2004) repeated standard priming studies, varying evaluative and descriptive similarity independently. Thus, their words included positive and negative animal words (e.g., puppy, spider) and positive and negative texture words (e.g., silky, rough), or in some cases, religious words (e.g., angel, Hell). In three experiments, they consistently found descriptive priming, but not evaluative priming. Three different methods-an evaluative task, a descriptive task, and a lexical decision task-all led to the same conclusion. Evaluative priming was found only when they eliminated the possibility of using descriptive similarity between primes and targets, as other investigators had inadvertently done before them.

These results suggest that declarative memory is organized descriptively, rather than evaluatively. Indeed, the utility of a system in which the activation of one negative concept would activate all other negative concepts, even a little bit, is unclear. Storbeck and Robinson (2004)

review a variety of behavioral, neurological, and electrophysiological studies relevant to the question and conclude: "These results are rather dramatic in suggesting that affective analysis is typically dependent, or parasitic, on some prior semantic analysis." Similar conclusions about the priority of semantic analysis have also been reached by De Houwer and Randell (2004) using a pronunciation task.

Of course, people probably do evaluate just about everything they encounter, and they presumably do so automatically. Evaluation, moreover, is the most powerful dimension of connotative meaning, and according to Osgood, this is true of all words in all languages (Osgood, Suci, & Tannenbaum, 1957). Also, people can decode evaluative meaning independently of semantic meaning in the real world via tone of voice, prosody of speech, and manner of expression. Indeed, automatic inferences about evaluative word meanings can occur even on such extrasemantic bases as whether words are printed in light or dark fonts (Meier, Robinson, & Clore, 2004) and whether words appear up or down on a computer screen (Meier & Robinson, 2004). But apart from such presentational considerations, the evaluative meanings of the words themselves probably cannot be processed independently of their descriptive meanings. Thus, evidence for the "automatic evaluation effect" adduced from studies of affective priming may need a second look, as recent data suggest an "automatic *categorization* effect" rather than an "automatic *evaluation* effect."

The "Low Road" to Emotion?

A related issue in psychology concerns whether or not emotion arises out of cognitive appraisals (interpretations of stimuli) or whether emotion plays by its own rules. One position in this debate is captured in Zajonc's (1980) proposal that, "Preferences need no inferences." Zajonc (2001) and others taking a related view (Berkowitz & Harmon-Jones, 2004) often cite as supporting evidence LeDoux's discovery of a possible "low road" to emotion (e.g., LeDoux, Romanski, & Xagoraris, 1989). This work established aversive conditioning in rats by pairing electric shock with a change in the illumination of a light. The procedure was successful despite the fact that lesions had eliminated the visual cortex from the circuit. Conditioning was accomplished via a subcortical pathway going directly from the sensory thalamus (where sensory signals are processed) to the amygdala (which is important in emotional reactions) without first going to the cerebral cortex. The results were important because they showed activation of emotion-relevant reactions (avoidance) without involvement of the cortex. These results show that an emotion-relevant response can occur before the object of the emotion could be identified (even implicitly) at the cortical level and before one could feel an emotion. By this low route, information about possible threat could apparently reach the amygdala by a direct route 7 ms before it could arrive indirectly via the cortex. It has been argued that these few milliseconds would have conferred a survival advantage.

These findings and their subsequent dissemination (LeDoux, 1996) have fired the imagination of social science writers (Goleman, 1995) as potential ways of explaining phenomena in social psychology (Zajonc, 1998), political science (McDermott, 2003), advertising, and related disciplines. Does this low road to affect really offer a new view of attitude formation? The amygdala may be important for attitude, since this small, almond-shaped organ plays a critical role in fear and possibly other emotions. But can attitudes be created via the "low road" to the amygdala without cortical involvement?

Storbeck (2004) has recently reviewed the literature relevant to LeDoux's discovery for its relevance to social psychologists. He concluded that the low route discussed by LeDoux probably has little relevance to phenomena in social psychology. The evidence suggests that only very simple stimuli can be detected using this low road, such as changes in illumination, which is what LeDoux used as a CS. Without the involvement of the visual cortex, the

pictures, faces, or words generally used as stimuli in social psychological experiments cannot be discriminated. Hence, the "low road" to emotion that LeDoux found for rats probably does not hold much promise for explaining human attitudes.

Some findings also suggest that direct connections between the thalamus and the amygdala diminish as one moves up the phylogenetic scale, and that they may not exist at all in primates and humans (Dolan, 2000; Kudo, Glendenning, Frost, & Masterson, 1986). Of course, there are other subcortical routes to the amygdala in humans. However, the larger conclusion is that evaluative reactions appear to be generally dependent on cortical analyses. Even the subcortical routes that play a role in visual detection are thoroughly intertwined with cortical areas. A similar interplay between cortical and subcortical processes is apparent in affect (see Davidson & Irwin, 1999; Davidson, Jackson, & Kalin, 2000, for reviews). It is probably not the case, therefore, that attitudes, judgments, and behaviors in humans are adequately explained by the "low road" idea.

It should be clear, however, that success in tracing pathways to the amygdala has been a major breakthrough, which has spurred examination of subcortical affective processes generally. We assume that further research will show additional subcortical contributions to affect, and hence to attitude in humans. However, the surprisingly popular idea that affect is fundamentally subcortical is not consistent with the data (Davidson, 2003). Hence, contrary to the wealth of recent citations by social scientists, low road accounts are implausible explanations of affective influences on attitudes, consumer choices, or political preferences.

Summary

Because affective forces seem powerful and resist control, many psychologists believe that affective and evaluative processes occur earlier and are more fundamental than cognitive and descriptive processes. However, research increasingly suggests that this conclusion may be misguided. Many aspects of affective processing are automatic and unconscious, of course, but that is also true of ordinary cognitive processing. Also, organisms do place a high priority on evaluative information, but in head to head comparisons, descriptive priming appears to trump evaluative priming unless evaluative categorization is made salient.

Recent research also casts doubt on the relevance for social psychology of what has been called the "low road to emotion." LeDoux's (1996) demonstration of aversive conditioning in rats via a rapid subcortical route from the sensory thalamus directly to the amygdala was a landmark achievement. However, the assumption that such findings might illuminate human emotions may be unwarranted. Although subcortical processing doubtlessly plays an important role in emotion, such processes are thoroughly intertwined with higher, cortical processing.

In the final section, we turn from existing ideas about affect that we think have been misapplied to a discussion of three new ideas that may be useful in understanding affect and attitudes.

Affective Attitudes as Emergent and Embodied Evaluative Constancy

Multiple Kinds of Affect

Our review of affective influences on attitude has examined a variety of processes as though they act in isolation. In fact, however, we expect that powerful attitudes often emerge from multiple affective sources. Strack and colleagues (see Neumann & Strack, 2000; Neumann, Forster, & Strack, 2003) have discussed multiple affective *manifestations* such as positive and negative feelings and approach and avoidance behavior, but our point concerns multiple *kinds* of affect.

If affect and attitude are both representations of value, what is the source of that value? How do we know that something is good or bad? As indicated at the beginning, Ortony et al. (1988) propose three sources of value (goals, standards, and tastes), which underlie three kinds of affect (being pleased at outcomes, approving of actions, and liking objects). These in turn are bases for three kinds of evaluation (e.g., utilitarian, moral, and aesthetic). These different kinds of good are not really comparable. Thus, one cannot fix a price on morality. Indeed, attempts to do so are the stuff of tragedy, as dramatized in Goethe's *Faust.*

In addition, the case can be made that sensations become compelling perceptions of reality to the extent that they transcend simple sensory accounting. For example, we see objects in hologram-like reality when both eyes provide parallel, but slightly different images of the same thing. Presumably, such emergence reflects the fact that it is computationally simpler to perceive one object as "out there" rather than seeing two highly redundant sensory images. In analogous fashion, we suggest that emotional realities may emerge from parallel perceptions of multiple kinds of good or bad in a single object. Consider a leader whose policies are seen as good in a utilitarian sense, whose actions seem moral, and who is also personally attractive or eloquent. A combination of these different affective reactions (being pleased, approving, liking) might command a degree of loyalty to the leader none of them by themselves could elicit. Similarly, people fall in love, not only because their beloved may be good for them in some way (being pleased), but perhaps also because the person's actions may seem excellent or admirable (approving), and because the person him or herself may be beautiful or handsome (liking). From such diverse sources, the person's goodness may be beyond mental accounting, creating what may be experienced as a transcendent reality that may not be shared in the perceptions of others. In a different, but related formulation, Thagard and Nerb (2002) conceptualize affective processes as "emotional gestalts," reflecting the dynamical nature of an "emotional state as a gestalt that emerges from a complex of interacting environmental, bodily, and cognitive variables" (Thagard & Nerb, 2002, p. 275).

We are suggesting that to the extent that, like emotions, attitudes have multiple constituents, they can take on a life of their own, because of the incommensurability of the multiple affective reactions from which they stem. Research on mood (Schwarz & Clore, 1983) suggests that the influence of affect on judgment depends on the implicit mental accounting for the affect. Thus, attitudes from multiple, incomparable sources may be powerful, as love and hate are powerful, in part because they resist attributional accounting and transcend the constraints on evaluation that such accounting seem to bring (Wilson, Gilbert, & Centerbar, 2003). In addition to this process, however, affectively-based attitudes may also be powerful because they are embodied.

Embodied Evaluation

Traditionally psychologists have focused on the *belief* components of attitude. Fishbein and Ajzen (1975), however, have pointed out that it is the *evaluative* component of belief that contributes the main portion of an attitude. The point of an affective approach to attitude is to broaden the concept to include evaluative aspects that go beyond evaluative beliefs. Research increasingly makes it clear that evaluative feelings, in addition to evaluative beliefs, influence attitudes. Attitude objects about which one has strong beliefs also have the capacity to elicit evaluative feelings (Fazio & Powell, 1997). The power of attitude, like the power of emotion, lies in the fact that attitudes can be *experienced* as well as known. Thus, it is possible that the study of attitudes, certainly the study of affect and attitudes, may be informed by the idea of *embodiment.* Affective processes are fundamentally embodied: Bodily processes such as expressive behaviors, physiological changes, and actions are central components of the subjective experience of affect.

In recent years, a related concept of "embodied cognition" has become prominent in cognitive science. Investigators of embodied cognition assume that cognitive processes are influenced and constrained by the way we function in the world with our bodies (Barsalou, 1999; Clark, 1997; Glenberg, 1997; Lakoff& Johnson, 1999; Varela, Thompson, &Rosch, 1991). The same assumptions that underlie the idea of embodied cognition are applicable to embodied affect (Schnall, 2004). For example, central to the embodied cognition position is the assumption that cognition ultimately serves action, and a similar assumption can be made about affect and emotion. Thus, affect provides information about the liking or disliking of objects and situations, and about the value of pursuing or avoiding particular actions. Similarly, we assume that attitudes serve not merely as mental structures of preference, but also as a compass for action.

A second assumption is that both cognitive and affective processes are constrained not only contextually, but also by the nature of the human body. Affectively relevant bodily cues can consist of facial expressions, postures, or general behaviors of approach and avoidance, and all of these provide powerful influences on attitudes, as discussed by Olson and Stone (this volume). Finally, a third shared assumption concerns emergent properties. Both affective and cognitive processes involve emergent properties that arise in nonlinear ways and that result in action-relevant consequences. Overall, this position derives from the realization that investigators need to treat the evolution of human cognitive and affective processes as components of the evolution of human bodies (Schnall, 2003). In line with this functional orientation toward affect and attitudes, we conclude this chapter with the thought that one function served by attitude is to provide affective constancy, which would appear to be important in everyday social relations.

Attitudes Afford Evaluative Constancy

How do one's momentary affective experiences become attitudes? It can be instructive to think about attitudes as analogous to perceptions. An overarching aim of the perceptual system appears to be to construct perceptual constancy from sensory variation. Thus, a tabletop exists as a rectangle of constant size in our perception, even though our actual retinal image of the table top may change dramatically in size and shape as we pass by. With this perceptual constancy as a model, one can view attitudes as the outcome of processes directed toward affective constancy. We do not react to visual or auditory stimuli as such, but rather to a model of the thing seen or heard (Bregman, 1990). Thus, for example, when a car passes between us and a person across the street, we do not assume that she ceased to exist, despite the fact that she disappears from our retina momentarily. Perception is aimed at establishing the constancies that lie behind our changing sensory representations.

Person perception also deals with constructed models of others, rather than with specific behaviors. We do not cease to perceive others as "friendly" or "trustworthy" during their absence. Momentary disagreements with friends and family do not usually end the relationship or make us adopt new attitudes toward them. This is true, we assume, because the others with whom we interact are really *virtual* others or models of others. We do not simply react to the words and behaviors we hear and see in an online, bottom-up fashion. They are framed and given meaning as the words and behaviors of an idealized mental entity (Blascovich, 2002; Heise, 1979).

Such affective models help maintain love, loyalty, and commitment to partners, teams, organizations, causes, political parties, candidates, products, and ideas. We may retain our identities as fans even when our team loses, and we remain loyal Americans, Israelis, or Japanese even when our candidate or party is not in power. One's mental models of objects

allows us to maintain object constancy despite visual occlusion or gaps in attention. So too one's attitude toward others affords the evaluative constancy so indispensable to social life.

Conclusions and Summary

In this section we summarize what we have covered and list (in italics) 20 tentative conclusions. The first half of this chapter is titled, "Direct Influence of Affect on Attitude," which is divided into valence-based and arousal-based influences. We suggested that: *(1) Two dimensions of affect, valence and arousal, each play a different role in attitude formation. The valence component can be thought of as embodied evaluation and the arousal component as embodied importance or urgency.* The valence-based phenomena include affective conditioning, affective priming, category-triggered affect, mere exposure, and mood-congruent judgment.

Reflecting recent trends in the literature, we distinguished classical, Pavlovian conditioning (which involves preparation for coping with an expected rewarding or punishing event) from affective association (which involves simply processing a target stimulus and a valenced stimulus together). The two processes turn out to be distinguishable empirically. We reviewed the classical studies of attitude conditioning, and suggested that, *(2) Despite appearances, the associational process whereby rewards and punishments influence attitudes may not be an example of classical or Pavlovian conditioning.* Attitude formation is better captured by a process of simple affective association than by Pavlovian classical conditioning. We also discussed limitations of conditioning as a model of attitude formation. For example, *(3) Not only biological preparedness, but also cognitive and cultural preparedness constrain the affective associations people make.* Moreover, we suggested that, *(4) AH associational phenomena from conditioning to affect-as-information may depend on the same underlying Gestalt processes, whereby temporally contiguous experiences become a unit, providing a narrative flow from one moment to the next.* We also discussed social psychological implications of Bloom's (2000) theory of mind approach to how children learn the meanings of words. His work implies that, *(5) Children learn (affective) meanings not by bottom-up associations (John Locke), but by top-down inferences about what others mean (Augustine).*

Returning to more molecular processes, we reviewed research on the mere exposure phenomenon, concluding that rather than as originally envisioned, *(6) Mere exposure effects are due to the positive affective consequences of the experience of cognitive fluency.*

The status of the mood and judgment literature was the next topic. Taking an affect-as-information approach, we suggested that, *(7) Implicit attributions underlie both mere exposure effects and mood effects on attitude.* Although investigators of judgment and decision making refer to affective influences as "biases," and several investigators consider the use of affect as a judgment heuristic, we emphasized that, *(8) Rather than being solely a source of judgment bias, affect plays an essential role in effective judgment and decision making.*

Next we noted that the influence of affective feedback on judgment and processing is not limited to feelings, but that similar effects can be seen with other affective cues, including facial expressions, subtly or unconsciously primed concepts, and even colors. We concluded that, *(9) The spontaneity and compellingness of the evaluative information is more important than whether the information is in the form of visceral feelings, facial muscle contraction, motor action, or primed thoughts.*

Under the heading of "Attitudes toward Actions," we briefly discussed other models of affect and decision making, including the idea of *Risk as Fear* and *Affect Decision Theory.* Finally, we departed from simple notions of valence to consider how specific emotions might mediate attitudes toward outgroups. We reviewed Mackie and Smith's (2002) proposal that,

(10) Groups that are feared tend to be avoided, whereas groups responded to with anger may elicit an aggressive stance.

We proposed that in addition to valence, the arousal component of affect also has direct effects as a marker of the importance of events. Recent work on hormones and memory show that, *(11) The arousal elicited by important events facilitates consolidation of experiences into lasting attitude-relevant memories.*

In the second half of the chapter, we turned from direct to indirect influence of affect on attitudes. This represented a shift from an "object focus," in which affect influences evaluations of physical and social objects in the world, to an "action focus," in which affect influences the processing of attitude relevant information. We suggested that differences in whether or not value is transferred from affective reaction to object versus action parallels differences in the transfer of value from reward in classical versus instrumental conditioning or in semantic versus procedural learning. For example, by empowering one's own point of view, *(12) Individuals in happy (and perhaps also angry) moods use their own categorical cognitions, including stereotypes, brand names, and party identification, whereas those in sad moods focus on individuating information about persons, products, and candidates.*

Affect also influences reactions to persuasive messages. A consistent finding is that, *(13) Individuals in positive moods tend to be moderately persuaded by both strong and weak persuasive arguments, whereas individuals in sad moods tend to be persuaded only by strong arguments and not by weak ones.* We also considered affective interpretations of cognitive dissonance (as opposed to traditional arousal interpretations). Research suggests that the influence of affect on dissonance-induced attitude change may depend on the timing of affect inductions. Such findings are consistent with the immediacy principle, which says that, *(14) The object of affective reactions, and hence of affect-based attitudes, depends on what is in mind when affect is experienced.* As in classical conditioning, the associations that occur in the real world tend to reflect the constraints imposed by cognitive and situational structure.

A final indirect effect implicates an "affect-as-evidence" hypothesis, which predicts that, (15) *Feelings may serve as experiential evidence for compatible thoughts and beliefs occurring at the time.* In addition, head nods or other positive after-relevant cues may similarly serve to validate (and head shakes may invalidate) concurrent thoughts.

Subsequently, two phenomena with implications for the relationship between affect and cognition were considered. Recent research suggests that, *(16) Contrary to the "automatic evaluation" hypothesis, descriptive priming takes precedence over evaluative priming when the two are directly compared.* In addition, recent contributions from cognitive neuroscience leads to the conclusions that, *(17) Popular assumptions about a rapid "low road" to emotion, which elicits affect before cortical interpretation is possible, appear to be inapplicable to human attitude research.*

We suggested that attitudes of love and loyalty may occur when different, incommensurate kinds of affective information converge in the same object. We speculated that, *(18) Diverse sources of good (or bad) may confound mental accounting to be experienced as transcendent goodness (or badness).* We suggested, too, that, *(19) The power of affect arises in part from the embodied nature of affect.* Finally, taking a functional view, we suggested that, *(20) Despite constantly changing affective experience, attitudes can afford an evaluative constancy that is indispensable to social life.*

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REFERENCES

Adaval, R. (2001). Sometimes it just feels right: The differential weighting of affect-consistent and affect-inconsistent product information. *Journal of Consumer Behavior, 28,* 1-17.

Albarracín, D., & Kumkale, G. T. (2003). Affect as information in persuasion: A model of affect identification and discounting. *Journal of Personality and Social Psychology, 84,* 453-469.

Allport, G. W. (1954). *The nature of prejudice.* Reading, MA: Addison-Wesley.

Anderson, J. R., & Bower, G. H. (1973). *Human associative memory.* Washington, D.C: Winston.

Anderson, N. H. (1965). Averaging versus adding as a stimulus-combination rule in impression formation. *Journal of Experimental Psychology, 70,* 394-400.

Anderson, N. H. (1981). *Foundations of information integration.* New York: Academic Press.

Arkes, H. R., & Hammond, K. R. (Eds.). (1986). *Judgment and decision making: An interdisciplinary reader.* New York: Cambridge University Press.

Astington, J. W. (Ed.). (2000). *Minds in the making: Essays in honor of David R. Olson.* Maiden, MA: Blackwell.

Baeyens, F., Helen, P., & Crombez, G. (1995). Pavlovian associations are forever: On classical conditioning and extinction. *Journal of Psychophysiology, 9,* 127-141.

Baeyens, F., Eelen, P., Crombez, G., & Van den Bergh, O. (1992). Human evaluative conditioning: Acquisition trials, presentation schedule, evaluative style and contingency awareness. *Behaviour Research and Therapy, 30,* 133-142.

Baker, W. E. (1999). When can affective conditioning and mere exposure directly influence brand choice? *Journal of Advertising, 25,* 31-46.

Bargh, J. A. (1997). The automaticity of everyday life. In R. S. Wyer (Eds.), *Advances in social cognition* (Vol. 10, pp. 1-61). Mahwah, NJ: Lawrence Erlbaum Associates.

Baron-Cohen, S., Tager-Flusberg, H., & Cohen, D. J. (Eds.). (1993). *Understanding other minds: Perspectives from autism.* Oxford, UK: Oxford University Press.

Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences, 22,* 577-660.

Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology.* Cambridge: Cambridge University Press.

Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion, 4,* 107-130.

Blascovich, J. (2002). Social influence within immersive virtual environments. In R. Schroeder (Ed.), *The social life of avatars* (pp. 127-145). London: Springer-Verlag.

Bless, H., Bohner, G., Schwarz, N., & Strack, F. (1990). Mood and persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin, 16,* 331-345.

Bless, H., Clore, G. L., Schwarz, N., Golisano, V, Rabe, C., & Wolk, M. (1996). Mood and the use of scripts: Does happy mood really lead to mindlessness? *Journal of Personality and Social Psychology, 71,* 665-679.

Bless, H., & Fiedler, K. (1995). Affective states and the influence of activated general knowledge. *Personality and Social Psychology Bulletin, 21,* 766-778.

Bless, H., Mackie, D. M., & Schwarz, N. (1992). Mood effects on attitude judgments: Independent effects of mood before and after message elaboration. *Journal of Personality and Social Psychology, 63,* 585-595.

Bless, H., & Schwarz, N. (1999). Sufficient and necessary conditions on dual processing models: The case of mood and information processing. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 423-440). New York: Guilford.

Bloom, P. (2000). *How children learn the meaning of words.* Cambridge, MA: MIT Press.

Boakes, R. A. (1989). How one might find evidence for conditioning in adult humans. In T. Archer & L. G. Nilsson (Eds.), *Aversion, avoidance and anxiety: Perspectives on aversively motivated behavior* (pp. 381-402). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bodenhausen, G. V. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition and stereotyping: Interactive processes in group perception* (pp. 13-37). San Diego, CA: Academic Press.

Bodenhausen, G. V., Sheppard, L. A., & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology, 24,* 45-62.

Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968-1987. *Psychological Bulletin, 106,* 265-289. Bornstein, R. F. (1992). Subliminal mere exposure effects. In R. F. Bornstein & T. S. Pittman (Eds.), *Perception without awareness: Cognitive, clinical, and social perspectives* (pp. 191-210). New York: Guilford.

Bornstein, R. F., & D'Agostino, P. R. (1992). Stimulus recognition and the mere exposure effect. *Journal of Personality and Social Psychology, 63,* 545-552.

Bornstein, R. F., & D'Agostino, P. R. (1994). The attribution and discounting of perceptual fluency: Preliminary tests of a perceptual fluency/attributional model of the mere exposure effect. *Social Cognition, 12,* 103-128.

Bornstein, R. F., Leone, D. R., & Galley, D. J. (1987). The generalizability of subliminal mere exposure effects: Influence of stimuli perceived without awareness on social behavior. *Journal of Personality and Social Psychology, 53,* 1070-1079.

Boster, F. J., & Mongeau, P. (1984). Fear-arousing persuasive messages. In R. N. Bostrom (Ed.), *Communication yearbook* (Vol. 8, pp. 330-375). Beverly Hills, CA: Sage.

Bower, G. H., Monteiro, K. P., & Gilligan, S. G. (1978). Emotional mood as a context of learning and recall. *Journal of Verbal Learning and Verbal Behavior, 17,* 573-585.

Bregman, A. S. (1990). *Auditory scene analysis: The perceptual organization of sound.* Cambridge, MA: Bradford Books, MIT Press. Brewer, M. B. (1988). A dual process model of impression formation. In T. Srull & R. Wyer (Eds.), *Advances in social cognition* (Vol. 1). Hillsdale, NJ: Lawrence Erlbaum Associates.

Brewer, W. F. (1974). There is no convincing evidence for operant or classical conditioning in adult humans. In W. B. Weimer & D. S. Palermo (Eds.), *Cognition and the symbolic processes* (pp. 1 -42). Hillsdale, NJ: Lawrence Erlbaum Associates.

Briñol, P., & Petty, R. E. (2003). Overt head movements and persuasion: A self-validation analysis. *Journal of Personality and Social Psychology, 84,* 1123-1139.

Brown, L. B. (1973). *Ideology.* Harmondsworth, UK: Penguin. Byrne, D., & Clore, G. L. (1966). Predicting interpersonal attraction toward strangers presented in three different stimulus modes. *Psychonomic Science,* 4, 239-240.

Cahill, L., Haier, R. J., Fallon, J., Alkire, M. T., Tang, C., Keator, D., Wu, J., &. McGaugh, J. L. (1996). Amygdala activity at encoding correlated with long-term, free recall of emotional information. *Proceedings of the National Academy of Sciences, 93,* 8016-8021.

Cahill, L., & McGaugh, J. L. (1998). Mechanisms of emotional arousal and lasting declarative memory. *Trends in Neuroscience, 21,* 294-299.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Affect and social behavior* (pp. 152-206). New York: Cambridge University Press.

Chomsky, N. (1968). *Language and mind.* New York: Harcourt, Brace, Jovanovich.

Clark, A. (1997). *Being there: Putting the brain, body, and world together again.* Cambridge, MA: MIT Press.

Clore, G. L. (1992). Cognitive phenomenology: Feelings and the construction of judgment. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 133-163). Hillsdale, NJ: Lawrence Erlbaum Associates.

Clore, G. L., & Byrne, D. (1974). A reinforcement-affect model of attraction. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (pp. 143-170). New York: Academic Press.

Clore, G. L., & Colcombe, S. (2003). The parallel worlds of affective concepts and feelings. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 335-369). Mahwah, NJ: Lawrence Erlbaum Associates.

Clore, G. L., & Gasper, K. (2000). Feeling is believing: Some affective influences on belief. In N. H. Frijda, A. S. R. Manstead, & S. Bern (Eds.), *Emotions and beliefs: How do emotions influence beliefs?* (pp. 10-44). Cambridge: Cambridge University Press.

Clore, G. L., & Ortony, A. (2000). Cognition in emotion: Never, sometimes, or always? In R. D. Lane & L. Nadel (Eds.), *The cognitive neuroscience of emotion* (pp. 24-61). New York: Oxford University Press.

Clore, G. L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of Social Cognition* (pp. 323-417). Hillsdale, NJ: Lawrence Erlbaum Associates.

Clore, G. L., Wyer, R. S., Dienes, B., Gasper, K., Gohm, C. L., & Isbell, L. (2001). Affective feelings as feedback: Some cognitive consequences. In L. L. Martin & G. L. Clore (Eds.), *Theories of mood and cognition: A user's handbook* (pp. 27-62). Mahwah, NJ: Lawrence Erlbaum Associates.

Cooney, J. W., & Gazzaniga, M. S. (2003). Neurological disorders and the structure of human consciousness. *Trends in Cognitive Sciences, 7,* 161.

Cooper, J., & Fazio, R. (1984). A new look at dissonance theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 17, pp. 229-266). New York: Academic Press.

Crandall, C. S. (1984). The liking of food as a result of exposure: Eating doughnuts in Alaska. *Journal of Social Psychology, 125,* 187-194.

Crandall, C. S., D'Anello, S., Sakall, N., Lazarus, E., Wieczorkowska, G., Feather, N. T. (2001). An attribution-value model of prejudice: Anti-fat attitudes among six nations. *Personality and Social Psychology Bulletin, 27,* 30-37.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason and the human brain.* New York: Putnam.

Davey, G. C. L. (1994). Defining the important questions to ask about evaluative conditioning: A reply to Martin and Levey (1994). *Behaviour Research and Therapy, 32,* 307-310.

Davidson, R. J. (2003). Seven sins in the study of emotion: Correctives from affective neuroscience. *Brain and Cognition, 52,* 129-132.

Davidson, R. J., & Irwin, W. (1999). The functional neuroanatomy of emotion and affective style. *Trends in Cognitive Science, 3,* 11-21.

Davidson, R. J., Jackson, D. C., & Kalin, N. H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. *Psychological Bulletin, 126,* 890-906.

De Houwer, J., & Randell, R. (2004). Robust affective priming in a conditional pronunciation task: Evidence for the semantic representation of evaluative information. *Cognition and Emotion, 18,* 251-264.

De Houwer, J., Thomas, S., & Baeyens, F. (2001). Associative learning of likes and dislikes: A review of 25 years of research on human evaluative conditioning. *Psychological Bulletin, 127,* 853-869.

DeSteno, D., Dasgupta, N., Bartlett, M.Y., & Cajdric, A. (2004). The effect of emotion on automatic intergroup attitudes. *Psychological Science, 15,* 319-324.

Devine, P. G. (1989). Stereotypes: Their automatic and controlled components. *Journal of Personality and Social Psychology,* 56,5-18.

Devine, P. G., & Montieth, M. J. (1999). Automaticity and control in stereotyping. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 339-360). New York: Guilford.

Dolan, R. (2000). Functional neuroimaging of the amygdala during emotional processing and learning. In J. P. Aggleton (Ed.), *The amygdala: A functional analysis* (pp. 631-654). New York: Oxford University Press.

Dollard, J., & Miller, N. E. (1950). *Personality and psychotherapy.* New York: McGraw-Hill.

Doogan, S., & Thomas, G. V. (1992). Origins of fear in adults and children: The role of conditioning processes and prior familiarity with dogs. *Behaviour Research and Therapy, 30,* 387-394.

Dunn, L. W., & Clore, G. L. (2004, August). *Mood and stereotyping: The moderating role of egalitarian goals.* Poster presented to the American Psychological Association, Honolulu.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* Orlando, FL: Harcourt Brace.

Edwards, K. (1990). The interplay of affect and cognition in attitude formation and change. *Journal of Personality and Social Psychology, 59,* 202-216.

Edwards, K., & von Hippel, W. (1995). Hearts and minds: The priority of affective versus cognitive factors in person perception. *Personality and Social Psychology Bulletin, 21,* 996-1011.

Elliott, A. J., & Devine, P. G. (1994). On the motivational nature of dissonance: Dissonance as psychological discomfort. *Journal of Personality and Social Psychology, 67,* 382-394.

Ellis, H. C., & Ashbrook, P. W. (1988). Resource allocation model of the effect of depressed mood states on memory. In K. Fiedler & J. P. Forgas (Eds.), *Affect, cognition and social behavior.* Toronto: Hogrefe International.

Epley, N., & Gilovich, T. (2001). Putting adjustment back in the anchoring and adjustment heuristic: Divergent processing of self-generated and experimenter-provided anchors. *Psychological Science, 12,* 391-396.

Epley, N., & Gilovich, T. (2004). Are adjustments insufficient? *Personality and Social Psychology Bulletin, 30,* 447-460.

Esses, V. M., & Zanna, M. P. (1995). Mood and the expression of ethnic stereotypes. *Journal of Personality and Social Psychology, 69,* 1052-1068.

Eysenck, M. (1982). *Attention and arousal, cognition and performance.* Berlin, Germany: Springer.

Fabrigar, L. R., & Petty, R. E. (1999). The role of the affective and cognitive bases of attitudes in susceptibility to affectively and cognitively based persuasions. *Personality and Social Psychology Bulletin, 25,* 363-381.

Fazio, R. H., Lenn, T. M., & Effrein, E. A. (1984). Spontaneous attitude formation. *Social Cognition, 2,* 217-234.

Fazio, R. H., & Powell, M. C. (1997). On the value of knowing one's likes and dislikes: Attitude accessibility, stress, and health in college. *Psychological Science, 8,* 430-436.

Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology, 50,* 229-238.

Festinger, L. (1957). *A theory of cognitive dissonance.* Evanston, IL: Row, Peterson.

Fiedler, K. (1988). Emotional mood, cognitive style, and behavior regulation. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition, and social behavior* (pp. 100-119). Toronto: Hogrefe International.

Fiedler, K. (2001). Affective states trigger processes of assimilation and accommodation. In L. L. Martin & G. L. Clore (Eds.), *Theories of mood and cognition: A user's handbook* (pp. 85-98). Mahwah, NJ: Lawrence Erlbaum Associates.

Fishbein, M. (1963). An investigation of the relationship between beliefs about an object and the attitude toward that object. *Human Relations, 16,* 233-240.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior.* Reading, MA: Addison-Wesley.

Fiske, S. T. (1982). Schema-triggered affect: Applications to social perception, in M. S. Clark & S. T. Fiske (Eds.), *Affect and cognition: The seventeenth annual Carnegie symposium on cognition* (pp. 55-78). Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influence of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1-74). New York: Academic Press.

Fiske, S. T., & Pavelchek, M. A. (1986). Category-based versus piecemeal-based affective responses: Developments in schema-triggered affect. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 167-203). Chichester, UK: Wiley.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117,* 39-66.

Forgas, J. P., & Bower, G. H. (1987). Mood effects on person perception judgments. *Journal of Personality and Social Psychology, 53,* 53-60.

Forgas, J. P., Bower, G. H., & Krantz, S. E. (1984). The influence of mood on perception of social interactions. *Journal of Experimental Social Psychology, 20,* 497-513.

Forgas, J.P. & Moylan, S. (1991). Affective influences on stereotype judgments. *Cognition and Emotion, 5,* 379-395.

Frijda, N., Ortony, A., Sonnemons, J., & Clore, G. (1992). The complexity of intensity: Issues concerning the structure of emotion intensity. In M. Clark (Ed.), *Emotion. Review of personality and social psychology* (Vol. 13, pp. 60-89). Newbury Park, CA: Sage.

Garcia, J., & Koelling, R. A. (1966). Relation of cue to consequence in avoidance learning. *Psychonomic Science, 4,* 123.

Gasper, K. & Clore, G. L. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology, 74,* 1350-1363.

Gasper, K., & Clore, G. L. (2000). Do you have to pay attention to your feelings to be influenced by them? *Personality and Social Psychology Bulletin, 26,* 698-711.

Gasper, K. & Clore, G. L. (2002). Attending to the big picture: Mood and global vs. local processing of visual information. *Psychological Science, 13,* 34-40.

Glenberg, A. M. (1997). What memory is for. *Behavioral and Brain Sciences, 20,* 1-55.

Gohm, C. L., & Clore, G. L. (2000). Individual differences in emotional experience: Mapping scales to processes. *Personality and Social Psychology Bulletin, 26,* 679-697.

Goleman D. (1995). *Emotional Intelligence.* New York: Bantam.

Gouaux, C. (1971). Induced affective states and interpersonal attraction. *Journal of Personality and Social Psychology, 20,* 37-43.

Greenwald, A. G., McGhee, D., & Schwartz, J. L. K. (1998). Measuring individual differences in cognition: The Implicit Association Task. *Journal of Personality and Social Psychology, 74,* 1469-1480.

Griffitt, W., & Veitch, R. (1971). Hot and crowded: Influences of population density and temperature on interpersonal behavior. *Journal of Personality and Social Psychology, 17,* 92-98.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review. 108,* 814-834.

Hamilton, D. L., Stroessner, S. J., & Mackie, D. M. (1993). The influence of affect on stereotyping: The case of illusory correlations. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 39-61). New York: Academic Press.

Harmon-Jones, E. (2001). The role of affect in cognitive dissonance processes. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 237-255). Mahwah, NJ: Lawrence Erlbaum Associates.

Harmon-Jones, E., & Allen, J. J. B. (2001). The role of affect in the mere exposure effect: Evidence from psychophysiological and individual differences approaches. *Personality and Social Psychology Bulletin, 27,* 889-898.

Harris, B. (1979). Whatever happened to Little Albert? *American Psychologist, 34,* 151-160.

Harrison, A. A. (1977). Mere exposure. In L. Berkowitz *(Ed.), Advances in experimental social psychology* (Vol. 10, pp. 39-82). New York: Academic Press.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Heise, D. R. (1979). *Understanding events: Affect and the construction of social action.* New York: Cambridge University Press.

Hendersen, R. (1978). Forgetting of conditioned fear inhibition. *Learning and Motivation, 8,* 16-30.

Hermans, D., Baeyens, F., & Eelen, P. (2003). On the acquisition and activation of evaluative information in memory: The study of evaluative learning and affective priming combined. In J. Musch & K. C. Klauer (Eds.), *The Psychology of Evaluation: Affective Processes in Cognition and Emotion* (pp. 139-168). Mahwah, NJ: Lawrence Erlbaum Associates.

Herzog, T. R., Kaplan, S., & Kaplan, R. (1976). The prediction of preference for familiar urban places. *Environment and Behavior, 8,* 627-645.

Higgins, E. T., Rhodewalt, F., & Zanna, M. P. (1979). Dissonance motivation: Its nature, persistence, and reinstatement. *Journal of Experimental Social Psychology, 15,* 16-34.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change.* New Haven, CT: Yale University Press.

Huskinson, T. L. H., & Haddock, G. (2004). Individual differences in attitude structure: Variance in the chronic reliance on affective and cognitive information. *Journal of Experimental Social Psychology 40,* 82-90.

Isbell, L. (1999). Beyond heuristic information processing: Systematic processing in happy and sad moods. Unpublished Doctoral Dissertation, University of Illinois at Urbana-Champaign.

Isbell, L. M. (2004). Not all happy people are lazy or stupid: Evidence of systematic processing in happy moods. *Journal of Experimental Social Psychology, 40,* 341-349.

Isbell, L. M., & Wyer, R. S. (1999). Correcting for mood-induced bias in the evaluation of political candidates: The roles of intrinsic and extrinsic motivation. *Personality and Social Psychology Bulletin, 25,* 237-249.

Isen, A. (1987). Positive affect, cognitive processes and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203-253). New York: Academic Press.

Isen, A. M., Shalker, T. E., Clark, M., & Karp, L. (1978). Affect, accessibility of material in memory, and behavior: A cognitive loop? *Journal of Personality and Social Psychology, 36,* 1-11.

Jacobs, W. J., & Nadel, L. (1985). Stress-induced recovery of fears and phobias. *Psychological Review, 92,* 512-531.

Jacoby, L. L., Kelley, C. M., & Dywan, J. (1989). Memory attributions. In H. L. Roediger & F. I. M. Craik (Eds.), *Varieties of memory and consciousness: Essays in honor of Endel Tulving* (pp. 391-422). Hillsdale, NJ: Erlbaum.

James, W. (1890). *The principles of psychology* New York: Dover Publication.

Janis, I. L., & Feshbach, S. (1953). Effects of fear-arousing communications. *Journal of Abnormal and Social Psychology, 48,* 78-92.

Janiszwewski, C. (1993). Preattentive mere exposure effects. *Journal of Consumer Research, 20,* 376-392.

Kelly, G. A. (1955). *The psychology of personal constructs.* New York: Narton.

Keltner, D., Locke, K. D., & Audrain, P. C. (1993). The influence of attribution on the relevance of negative feelings to personal satisfaction. *Personality and Social Psychology Bulletin, 19,* 21-29.

Ketelaar, T., & Clore, G. L. (1997). Emotions and reason: Proximate effects and ultimate functions. In G. Matthews (Ed.), *Personality, Emotion, and Cognitive Science* (pp. 355-396), Amsterdam: Elsevier Science Publishers (North-Holland).

Klauer, K. (1998). Affective priming. In W. Stroebe and M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 8, pp. 67-103). New York: Wiley.

Klinger, M. R., & Greenwald, A. G. (1994). Preferences need no inferences: The cognitive basis of unconscious mere exposure effects. In P. M. Niedenthal & S. Kitayama (Eds.), *The heart's eye: Emotional influences in perception and attention* (pp. 67-85). San Diego, CA: Academic Press.

Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347-480). Chicago: Rand McNally.

Krosnik, J. A., Betz, A. L., Jussim, L. J., & Lynn, A. R. (1992). Subliminal conditioning of attitudes. *Journal of Personality and Social Psychology, 18,* 152-162.

Kudo, M., Glendenning, K., Frost, S., & Masterson, R. (1986). Origin of mammalian thalamocortical projections. I. Telencephalic projection of the medial geniculate body in the opossum (Didelphis virginiana). *Journal of Comparative Neurology, 245,* 176-197.

Kunst-Wilson, W., & Zajonc, R. (1980). Affective discrimination of stimuli that can not be recognized. *Science, 207,* 557-558.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought.* New York: Basic Books.

LeDoux, J. (1996). *The emotional brain: The mysterious underpinnings of emotional life.* New York: Simon & Schuster.

LeDoux, J., Romanski, L., & Xagoraris, A. (1989). Indelibility of subcortical emotional memories. *Journal of Cognitive Neuroscience, 1,* 238-243.

Lerner, J. S., Small, D. A., & Loewenstein, G. (2004). Heart strings and purse strings: Carry-over effects of emotions on economic decisions. *Psychological Science, 15,* 337-341.

Leslie, A. M. (1987). Pretense and representation: The origins of "Theory of Mind". *Psychological Review, 94,* 412-426.

Lewis, C., & Mitchell, P. (Eds.). (1994). *Children's early understanding of mind: Origins and development.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Lodge, M., & Taber, C. S. (2004). *The primacy of affect for political candidates, parties, and issues: An experimental test of the hot cognition hypothesis.* Unpublished manuscript, State University of New York at Stony Brook.

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65,* 272-292.

Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin, 127,* 267-286.

Losch, M. E., & Cacioppo, J. T. (1990). Cognitive dissonance may enhance sympathetic tonus, but attitudes are changes to reduce negative affect rather than arousal. *Journal of Experimental Social Psychology, 26,* 289-304.

Lovibond, P. F., & Shanks, D. P. (2002). The role of awareness in Pavlovian conditioning: Empirical evidence and theoretical implications. *Journal of Experimental Psychology: Animal Behavior Processes, 28,* 3-26.

Lowery, B., Hardin, C., & Sinclair, S. (2001). Social influence effects on automatic racial prejudice. *Journal of Personality and Social Psychology, 81,* 842-855.

Mackie, D. M., Ascuncion, A. G., & Rosselli, F. (1992). The impact of positive affect on persuasion processes. In M. S. Clark (Ed.), Emotion and social behavior. *Review of Personality and Social Psychology* (Vol. 14, pp. 247-270). Newbury Park, CA: Sage.

Mackie, D. M., Devos, T., & Smith, E. R. (2000). Intergroup Emotions: Explaining offensive action tendencies in an intergroup context. *Journal of Personality and Social Psychology, 79,* 602-616.

Mackie, D. M., & Smith, E. R. (Eds.). (2002). *Beyond prejudice: From outgroup hostility to intergroup emotions.* Philadelphia: Psychology Press.

Mackie, D. M., & Worth, L. T. (1989). Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology, 57,* 27-40.

Mandler, G., Nakamura, Y., & Van Zandt, B. J. (1987). Nonspecific effects of exposure on stimuli that cannot be recognized. *Journal of Experimental Psychology: learning, Memory and Cognition, 13,* 646-648.

Marcus, G. E., & Mackuen, M. B. (1993). Anxiety, enthusiasm, and the vote: The emotional underpinnings of learning and involvement during presidential campaigns. *American Political Science Review, 87,* 672-685.

Marcus, G. E., Neuman, W. R., & Mackuen, M. B. (2000). *Affective intelligence and political judgment.* Chicago: University of Chicago Press.

Martin, L. L., Ward, D. W., Ahee, J. W., & Wyer, R. S. (1993). Mood as input: People have to interpret the motivational implication of their moods. *Journal of Personality and Social Psychology, 64,* 317-326.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional Intelligence: Educational implications.* New York: Basic Books.

McDermott, R. (2003). *The feeling of rationality: The meaning of neuroscientific advances for political science.* Working paper. Department of Political Science, University of California, Santa Barbara. (Paper delivered at Harvard University, March 20, 2003).

McLemee, S. (2003). Getting emotional. *The Chronicle of Higher Education, 49,* (24) (Feb 21), A14.

Meier, B. P., Robinson, M. D., & Clore, G. L. (2004). Why good guys wear white: Automatic inferences about stimulus valence based on color. *Psychological Science, 15,* 82-87.

Meier, B. P., & Robinson, M. D. (2004). Why the sunny side is up: Associations between affect and vertical position. *Psychological Science, 15,* 243-247.

Mellers, B. A., Schwartz, A., Ho, K., & Ritov, I. (1997). Decision affect theory: Emotional reactions to the outcomes of risky options. *Psychological Science, 8,* 423-429.

Millar, M. G., & Millar, K. U. (1990). Attitude change as a function of attitude type and argument type. *Journal of Personality and Social Psychology, 59,* 217-228.

Mineka, S., Davidson, M., Cook, M., & Keir, R. (1984). Observational conditioning of snake fear in rhesus monkeys. *Journal of Abnormal Psychology, 93,* 355-372.

Monahan, J. L., Murphy, S. T., & Zajonc, R. B. (2000). Subliminal mere exposure: Specific, general, and diffuse effects. *Psychological Science, 11,* 462-466.

Moore, S. E. (2003). *Inconsistency-as-lnformation: An examination of the effects of incidental positive and negative affect on the cognitive dissonance reduction process.* Unpublished doctoral dissertation, University of Alberta.

Moreland, R. L., & Beach, S. R. (1992). Exposure effects in the classroom: The development of affinity among students. *Journal of Experimental Social Psychology, 28,* 255-276.

Moskowitz, G. B., Gollwitzer, P. M., Wasel, W., & Schaal, B. (1999). Preconscious control of stereotype activation through chronic egalitarian goals. *Journal of Personality and Social Psychology, 77,* 167-184.

Neumann, R., Forster, J., & Strack, F. (2003). Motor compatibility: The bidirectional link between behavior and evaluation. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 371-391). Mahwah, NJ: Lawrence Erlbaum Associates.

Neumann, R., & Strack, F. (2000). Experiential and nonexperiential routes of motor influence on affect and evaluation. In H. Bless & J. P. Forgas (Eds.), *The message within: The role of subjective experience in social cognition and behavior* (pp. 52-68). Philadelphia: Psychology Press.

Nielson, K. (Nov. 17, 2003). *Society for Neuroscience.* Orlando, FL.

Öhman, A., & Soares, J. J. F. (1998). Emotional conditioning to masked stimuli: Expectancies for aversive outcomes following nonrecognized fear-relevant stimuli. *Journal of Experimental Psychology: General, 127,* 68-82.

Olson, M. A., & Fazio, R. H. (2001). Implicit attitude formation through classical conditioning. *Psychological Science,* 72,413-417.

Olson, M. A., & Fazio, R. H. (2002). Implicit acquisition and manifestation of classically conditioned attitudes. *Social Cognition,* 20,89-103.

Onishi, K., & Baillargeon, R. (2002, April). 15-month-old infants' understanding of false belief. Paper presented at the Biennial International Conference on Infant Studies, Toronto.

Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotions.* New York: Cambridge University Press.

Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning.* University of Illinois Press, Chicago.

Ottati, V., & Isbell, L. (1996). Effects of mood during exposure to target information on subsequently reported judgments: An on-line model of misattribution and correction. *Journal of Personality and Social Psychology, 71,* 39-53.

Pearson, H. (2002). Bloody teeth boost memory. *Nature: Science Update.* [Nature News Service], www.nature.com

Peretz, I., Gaudreau, D., & Bonnel, A.-M. (1998). Exposure effects on music preference and recognition. *Memory and Cognition, 26,* 884-902.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral cues to attitude change.* New York: Springer.

Petty, R. E., DeSteno, D., & Rucker, D. D. (2001). The role of affect in attitude change. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 212-233). Mahwah, NJ: Lawrence Erlbaum Associates.

Petty, R. E., Schumann, D. W., Richman, S. A., & Strathman, A. J. (1993). Positive mood and persuasion: Different roles for affect under high- and low-elaboration conditions. *Journal of Personality and Social Psychology, 64,*5-20.

Petty, R. E., & Wegener, D. T. (1993). Flexible correction processes in social judgment: Correcting for context-induced contrast. *Journal of Experimental Social Psychology, 29,* 137-165.

Pittman, R. K. (1989) Post-traumatic stress disorder, hormones, and memory. *Biological Psychiatry, 26,* 221-223.

Pliner, P. L. (1982). The effects of mere exposure on liking for edible substances. *Appetite, 3,* 283-290.

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences,* 7,515-526.

Razran, G. H. S. (1940). Conditional response changes in rating and appraising sociopolitical slogans. *Psychological Bulletin, 37, 481.*

Razran, G. H. S. (1954). The conditioned evocation of attitudes (cognitive conditioning?) *Journal of Experimental Psychology, 48,* 278-282.

Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science, 9,* 45-48.

Rhodewalt, F, & Comer, R. (1979). Induced-compliance attitude change: Once more with feeling. *Journal of Experimental Social Psychology, 15,* 35-48.

Rimm, D. C., Janda, L. H., Lancaster, D. W., Nahl, M., & Dittmar, K. (1977). An exploratory investigation of the origin and maintenance of phobias. *Behavior Research and Therapy,* 15, 231-238.

Rogers, P. J., & Hill, A. J. (1989). Breakdown of dietary restraint following mere exposure to food stimuli: Interrelationships between hunger, salivation and food intake. *Addictive Behaviors, 14,* 387-397.

Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. In J. T. Cacioppo & R. E. Petty (Eds.), *Socialpsychophysiology: A sourcebook* (pp. 153-176). New York: Guilford.

Rolls, E.T. (1999). *The Brain and Emotion.* Oxford, UK: Oxford University Press.

Rosselli, F., Skelly, J. J., & Mackie, D. M. (1995). Processing rational and emotional messages: The cognitive and affective mediation of persuasion. *Journal of Experimental Social Psychology, 31,* 163-190.

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review, 110,* 145-172.

Sacks, O. (1985). *The man who mistook his wife for a hat.* New York: Summit Books.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality,* 9, 185-211.

Schnall, S. (2004). Embodiment in affect and cognition. Unpublished Manuscript.

Schnall, S., & Clore, G. L. (2002, June). *Enacted affect as information: How facial expressions influence recall of emotional events.* Paper presented at the meeting of the American Psychological Society, New Orleans.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E.T. Higgins & R. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527-561). New York: Guilford.

Schwarz, N., Bless, H., & Bohner, G. (1991). Mood and persuasion: Affective states influence the processing of persuasive communication. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 161-199). San Diego, CA: Academic Press.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45,* 513-523.

Schwarz, N., & Clore, G. L. (1988). How do I feel about it? Informative functions of affective states. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 44-62). Toronto: Hogrefe International.

Schwarz, N., & Clore, G. L. (1996). Feelings and phenomenal experience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: A handbook of basic principles* (pp. 433-465). New York: Guilford.

Scott, R. (2003). *The Gothic Enterprise.* Berkeley, CA: University of California Press.

Seamon, J. G., McKenna, P. A., & Binder, N. (1998). The mere exposure effect is differentially sensitive to different judgment tasks. *Consciousness and Cognition, 7,* 85-102.

Seligman, M. E. P. (1970). On the generality of the laws of learning. *Psychological Review, 77,* 406-418.

Sengupta, J., & Johar, G.V. (2001). Contingent effects of anxiety on message elaboration and persuasion. *Personality and Social Psychology Bulletin, 27,* 139-150.

Simon, H. A. (1967). Motivational and emotional controls of cognition. *Psychological Review, 74,* 29-39.

Sinclair, R. C., Mark, M. M., & Clore, G. L. (1993). Mood-related persuasion depends on (mis)attributions. *Social Cognition, 12,* 309-326.

Sinclair, S. Huntsinger, J., Skorinko, J., & Hardin, C. (2003). *Social tuning of the self: Consequences for the self-evaluations of stereotype targets.* Unpublished manuscript, University of Virginia.

Sinclair, R. C., Mark, M. M., & Clore, G. L. (1994). Mood-related persuasion depends on (mis)attributions. *Social Cognition. 12,* 309-326.

Slovic, P., Finucane, M., Peters, E., & MacGregor, D. G. (2002). The affect heuristic. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *The psychology of intuitive judgment heuristics and biases* (pp. 397-420). Cambridge: Cambridge University Press.

Soldat, A. S., & Sinclair, R. C. (2001). Colors, smiles, and frowns: External affective cues can directly affect responses to persuasive communications in a mood-like manner without affecting mood. *Social Cognition, 19,* 469-490.

Stang, D. J. (1974). Methodological factors in mere exposure research. *Psychological Bulletin, 81,* 1014-1025.

Staats, A. W., & Staats, C.K. (1958). Attitude established by classical conditioning. *Journal of Abnormal and Social Psychology, 11,* 187-192.

Strack, R, Martin, L. L., & Stepper, S. (1988). Inhibiting and facilitating conditions of the human smile: A nonobtrusive test of the facial feedback hypothesis. *Journal of Personality and Social Psychology, 54,* 768-777.

Strack, F., Schwarz, N., & Gschneidinger, E. (1985). Happiness and reminiscing: The role of time perspective, mood, and mode of thinking. *Journal of Personality and Social Psychology, 49,* 1460-1469.

Storbeck, J. (2004). *Cleaning-up the "quick and dirty" low route to affective analysis: Implications for social psychologists.* Unpublished Manuscript, University of Virginia.

Storbeck, J., & Robinson, M. (2004). Preferences and inferences in encoding visual objects: A systematic comparison of semantic and affective priming. *Personality and Social Psychology Bulletin, 30,* 81-93.

Stroessner, S. J., & Mackie, D. M. (1992). The impact of induced affect on the perception of variability in social groups. *Personality and Social Psychology Bulletin, 18,* 546-554.

Sutton, J. (1998). *Philosophy and memory traces: Descartes to connectionism.* Cambridge, UK: Cambridge University Press.

Tamir, M., Robinson, M. D., & Clore, G. L. (2002). The epistemic benefits of trait-consistent mood states: An analysis of extraversion and mood. *Journal of Personality and Social Psychology, 83,* 663-677.

Thagard, P., & Kerb, J. (2002). Emotional gestalts: Appraisal, change, and the dynamics of affect. *Personality and Social Psychology Review, 6,* 274-282.

Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology, 81,* 973-988.

Van Overwalle, F., & Jordens, K. (2002). An adaptive connectionist model of cognitive dissonance. *Personality and Social Psychology Review, 6,* 204-231.

Varela, F. J., Thompson, E., & Rosch, E. (1991). *The embodied mind: Cognitive science and human experience.* Cambridge, MA: MIT Press.

Walther, E. (2002). Guilty by mere association: Evaluative conditioning and the spreading attitude effect. *Journal of Personality and Social Psychology, 82,* 919-934.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98,* 219-235.

Watson, J. B., & Raynor, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3,* 1-14.

Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141-208). New York: Academic Press.

Wegener, D. T., & Petty, R. E. (2001). Understanding the effects of mood through the elaboration likelihood and flexible correction models. In L. L. Martin & G. L. Clore (Eds.), *Theories of mood and cognition: A user's handbook* (pp. 177-210). Mahwah, NJ: Lawrence Erlbaum Associates.

Wegener, D. T. , Petty, R. E., & Smith, S.M. (1995). Positive moods can increase or decrease message scrutiny: The hedonic contingency view of mood and message processing. *Journal of Personality and Social Psychology, 69,* 5-15.

Wegner, D. M. (2002). *The illusion of conscious will.* Cambridge, MA: MIT Press.

Wellman, H. M. (1990). *The child's theory of mind.* Cambridge, MA: MIT Press.

Wilson, T. D., Gilbert, D. T., & Centerbar, D. B. (2003). Making sense: The causes of emotional evanescence. In I. Brocas & J. Carrillo (Eds.), *The psychology of economic decisions. Vol. 1: Rationality and well being* (pp.209-233). New York: Oxford University Press.

Winkielman, P., & Cacioppo, J. T. (2001). Mind at ease puts a smile on the face: Psychophysiological evidence that processing facilitation increases positive affect. *Journal of Personality and Social Psychology, 81,* 989-1000.

Winkielman, P., Schwarz, N., Fazendeiro, T. A., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion.* Mahwah, NJ: Lawrence Erlbaum Associates.

Winkielman, P., Zajonc, R.B., & Schwarz, N. (1997). Subliminal affective priming resists attributional interventions. *Cognition and Emotion, 11,* 433-465.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* Stanford, CA: Stanford University Press.

Worth, L. T., & Mackie, D. M. (1987). Cognitive mediation of positive mood in persuasion. *Social Cognition, 5,* 76-94.

Wyer, R. S., & Carlston, D. E. (1979). *Social cognition inference and attribution.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Wyer, R. S., Clore, G. L., & Isbell, L. (1999). Affect and information processing. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (pp. 1-77). New York: Academic Press.

Wyer, R. S., & Srull, T. K. (1989). *Memory and cognition in its social context.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology: Monograph Supplement, 9,* 1-27.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35,* 117-123.

Zajonc, R.B. (1998). Emotions. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 591-632). Boston, MA: McGraw-Hill.

Zajonc, R. B. (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science, 10,* 224-228.

Zanna, M. P., & Cooper, J. (1976). Dissonance and the attribution process. In J. H. Harvey, W. J. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 1, pp. 199-217). Hillsdale, NJ: Lawrence Erlbaum Associates.

Zanna, M., P., Kiesler, C. A., & Pilkonis, P. A. (1970). Positive and negative attitudinal affect established by classical conditioning. *Journal of Personality and Social Psychology, 14,* 321-328.

Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar-Tal & A. Kruglanski (Eds.), *The social psychology of knowledge* (pp. 315-334). New York: Cambridge University Press.

Zelazo, P. D., Astington, J. W., & Olson, D. R. (Eds.). (1999). *Developing theories of intention: Social understanding and self control.* Mahwah, NJ: Lawrence Erlbaum Associates.

Zhao, K. (1993). *How categorization and deliberative processing explain consumer response to direct mail advertising.* Unpublished honor's thesis in marketing. Baruch College, City University of New York.