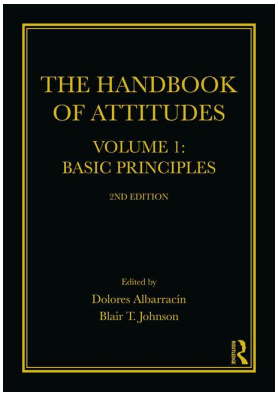

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The Influence of Affect on Attitude

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THE INFLUENCE OF AFFECT ON ATTITUDE

Gerald L. Clore and Simone Schnall

> One of the most influential ideas in psychology is that human behavior is, to a large extent, governed by likes and dislikes. . . . People prefer the company of people they like and try to avoid those they do not like; people buy and consume products they like rather than those they dislike; and they vote for and support politicians and ideas that they find sympathetic rather than repelling. Furthermore, preferences influence attention, memory, and judgments and form the basis of our emotional life.
>
> *(Hofmann et al., 2010, p. 390)*

Affective reactions are important because negotiating complex environments necessitates making frequent and effortless evaluations. Intelligent beings, therefore, require more than perception and cognition. They also must evaluate what they see, think, and remember and carry those evaluations with them in order to make choices, which is a large part of what affect and attitudes are for.

In this chapter, we discuss how various affective conditions differ from each other, after which we review research on the bottom-up processes by which affect creates attitudes, including: (a) conditioning and affective associations and (b) mood and affect attribution. We also review research on (c) top-down limitations on the explanatory power of affective associations imposed by biology, cognition, and culture. Finally, we discuss how attitudes result from theory of mind and categorization processes.

Differentiating Affective Conditions

Attitudes and emotions are both kinds of affective reactions, and both are responses to something specific. Given their similarities, one might ask whether people need both of them? The answer is "Yes" because emotions are ephemeral, whereas attitudes can last a long time. As a result, they have different functions. Emotions are evaluations that can be made quickly and flexibly to create an affective map of anticipated options and outcomes.

In addition to needing emotions that change, however, people also need attitudes that are resistant to change. Without them, people might abandon their friends and family in response to any unpleasantness. If people relied only on their immediate feelings, they might resign from groups whenever they got outvoted, seek a divorce after the first marital spat, and emigrate as soon as their political party was out of power. Fortunately, enduring attitudes dampen such drama, allowing individuals to

Table 6.1 Key Features That Distinguish Attitudes and Other Affective Conditions

	Temporally Limited	*Not Temporally Limited*
Object-Focused	*Emotion*	*Attitude*
Not Object-Focused	*Mood*	*Temperament*

maintain, rather than abandon, personal alliances and allegiances. (In a related way, enduring goals and intentions are dispositions that help people persist in projects despite occasional frustration.) It is apparent, then, that people need the potential stability of attitudes (and other dispositions) to keep their affective ship on an even keel in the face of the emotional winds that move them.

Table 6.1 distinguishes these and other affective conditions, including attitudes, emotions, moods, and temperament in terms of two features—time and object salience (Clore & Colcombe, 2003). *Emotions* and *moods* are time-limited, lasting only as long as their supporting cognitions, perceptions, and physiology are active, vanishing as soon as these dissipate. Attitudes are not limited by time and can be either temporary or enduring (Eagly & Chaiken, 1993). For example, one might be filled with the emotion of love for one's mother on Mother's Day, but later, when one's attention has shifted to something else, that emotion will dissipate. But an attitude of love toward one's mother can persist whether she happens to be in mind or not. That's the main difference. The other feature that distinguishes different affective conditions concerns their objects. *Attitudes* and *emotions*[1] are evaluations of something specific, whereas *moods* and *temperaments* are nonspecific. As a result of this lack of specificity, cheerful moods and temperaments make just about anything seem rosier. *Temperament* is also not temporally limited, continually remaining active in the background. Thus, despite feeling sad at depressing news, the background moods of cheerful individuals will return. Emotions, moods, attitudes, and temperaments are thus all evaluative conditions, but each has different constraints on its evaluative aspect—some evaluations are temporary and others not necessarily, some are about something specific, and others not necessarily about anything specific. For further discussion of the structure of emotion and attitude, see Fabrigar, MacDonald, and Wegener (2005; this volume) and Schimmack and Crites (2005).

In this chapter, we ask how the fleeting affective reactions[2] can become attitudes, which can endure? And we ask how moods, which are not necessarily about anything specific, can influence attitudes, which are always about something specific?

Classical Conditioning and Affective Association

A time-honored answer to questions about how momentary affect alters potentially enduring attitudes is that the process involves classical conditioning. That is, attitudes toward objects are learned when the objects are consistently associated with affective reactions. What is the current status of that old idea?

Given the long history of study of attitudes as classically conditioned responses (e.g., Razran, 1954; Staats & Staats, 1958), one might assume that attitudinal conditioning would be well-understood and issues about it long settled. Progress has definitely been made, as we shall see, but basic questions remain, and research suggests some surprising conclusions (for reviews, see De Houwer, 2007, 2009; Kruglanski & Stroebe, 2005). For example, whereas classical conditioning has the virtue as an explanation that it does not assume that attitude formation requires high-level processing, some investigators conclude that, on the contrary, human conditioning requires conscious awareness. Specifically, they conclude that there is no convincing evidence of classical conditioning in humans without awareness of the contingency between conditioned and unconditioned stimuli (Brewer, 1974; Lovibond & Shanks, 2002). In addition, some argue that the affective associations that influence attitudes are not

really examples of classical or Pavlovian conditioning (De Houwer et al., 2001). But we are getting ahead of ourselves. Before touching on those issues, a bit of history is in order.

Associationism

There has long been a desire among philosophers and psychologists to apply 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, 17th-century associationist philosophers Locke and Hume tried to explain how moral, cognitive, and affective life might be generated from associations involving reflexes. At the time, this issue was controversial, because the randomness implied by associationism was at odds with the prevailing assumption that there must be moral order in the universe.

Thus, Descartes' associationism, which today seems too mechanistic, was seen in his day as too random (Sutton, 1998). Without executive control over the construction of meaning, people could not maintain a stable moral sense or even a stable self. In contrast, today some propose a diminished role for central processing (Cooney & Gazzaniga, 2003) and suggest that our sense of executive control (Clark, 1997) and conscious will (Wegner, 2002) are illusory. These trends in cognitive science seem quite compatible with an associationist approach 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 (Razran, 1954). 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 2 weeks later with Jewish, Italian, or Irish names.[3] 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.

Another early study of affect and attitude was Watson and Raynor's (1920) demonstration of conditioned aversion in Little Albert, a 9-month-old child. The study has been 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 overstate the evidence for generalization, as did Watson himself. Little Albert did not, as some suggest (e.g., 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 evidence of aversion, but the evidence for generalization and resistance to extinction was not as impressive as often claimed in textbooks (Harris, 1979). In addition, Little Albert turns out not to have been the normal child that Watson claimed. He had profound neurological impairment and died a few years later of encephalitis (Fridlund, Beck, Goldie, & Irons, 2012). The case featured prominently in Watson's influential book advising parents on child rearing (Watson, 1928), but his account was grossly misleading.

Less controversial is an early experiment by Staats and Staats (1958). They showed changes in the evaluations of nationalities (e.g., Dutch, Swedish) and also of male names (e.g., Tom, Bill) after they were repeatedly associated with positive or negative words. So, the word Dutch might be

paired with such positive words as "gift," "sacred," and "happy," whereas the word Swedish might be paired with such negative words as "bitter," "ugly," and "failure." Afterwards, nationalities were rated on a pleasant-to-unpleasant rating scale. After eliminating nearly 20% of the participants who indicated awareness of the pairings, they found that the nationalities and male names associated with positive words were rated more highly than those associated with negative words.

In subsequent years, other demonstrations of attitude conditioning appeared (e.g., Zanna, Kiesler, & Pilkonis, 1970). For example, Krosnik, Betz, Jussim, and Lynn (1992) found conditioning effects even when affective pictures were presented subliminally to control for awareness of the contingency between the conditioned stimulus and the affective pictures. And Olson and Fazio (2001) found conditioning even when attitude was measured on implicit rather than explicit measures. The Olson and Fazio study paired pictures of two Pokemon characters with positive and negative words and images. Each was paired on 20 trials with valenced words that were embedded in 430 other trials. Participants 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.

These successful demonstrations would seem to have amply confirmed the hypothesis that attitudes are sometimes acquired through classical conditioning. However, at about the same time, other investigators began to argue that the process is not really an example of classical or Pavlovian conditioning (De Houwer et al., 2001).

Evaluative Association Versus Classical Conditioning

A review of simple evaluative associations versus Pavlovian conditioned responses shows a number of instructive differences (Baeyens, Eelen, Crombez, & Van den Bergh, 1992). Classical or Pavlovian conditioning is an association of two events, and it concerns developing expectations that the unconditioned stimulus (UCS) will follow the conditioned stimulus (CS), which acts as a signal that the UCS is about to occur. Thus, when Pavlov sounded a bell (CS), dogs in his lab came to expect food powder in their mouths (UCS). Expecting food triggered various responses, including salivation, which Pavlov measured, and perhaps dopamine and positive affect, which he did not measure.

The evaluative conditioning studied by social psychologists, on the other hand, usually involves simply ensuring that participants process the meaning of two stimuli together, so that they tend to be thought of together. Without electric shock or food powder, no activity is required, and no bodily resources need to be marshaled for a response. All that is required is the passive processing of lexical, pictorial, or other valenced items. The process is like a concept learning task (Davey, 1994) or an impression formation task (Moran, Bar-Anan, & Nosek, 2016).

A relevant experiment used Chinese ideographs as a CS (assumed neutral for most American participants) and smiling or angry faces as the positive or negative UCS (Winkielman, Zajonc, & Schwarz, 1997). After the association of these images, later thoughts about the ideographs would have included the pleasant or unpleasant paired faces. The ideographs presumably took on a valence simply by making participants also think of the associated positive or negative stimuli. But Pavlovian conditioning involves in addition expectancy learning and preparation for responding to an expected event. The difference is in whether the CS simply reminds one of the UCS or makes one prepare for the UCS. The preparation to cope with a UCS can be expensive in terms of energy resources, which may explain why Pavlovian conditioning is sensitive to extinction and why it generally involves awareness of the CS-UCS relationship (De Houwer et al., 2001). By contrast, the term "evaluative conditioning," as it has come to be called, refers to a simpler process of determining the valence of a stimulus from the valences of other stimuli with which it co-occurred in the past (Baeyens, Helen, & Crombez, 1995).

Mere association or *evaluative conditioning* also does not show the extinction typically seen in classical, Pavlovian conditioning. In classical conditioning, a conditioned response tends to extinguish if the CS is no longer followed by the UCS. But if evaluative conditioning is like impression formation or concept learning, then extinction would not be expected. Our attitude toward a person who has been rude to us, for example, once it is formed, may persist even if he is not rude on a subsequent occasion.

Although investigators (e.g., De Houwer et al., 2001) still use the term "conditioning," some question whether the conditioning metaphor is useful. Davey (1994) suggested that "conceptual categorization" would be a more accurate characterization of the process than "evaluative conditioning." If a CS is processed in the context of a positive UCS, for example, then aspects of the CS that can be considered positive may become salient, allowing one to recategorize the CS using these newly salient features. This may be what contexts do. They may get one to respond to contextually relevant aspects or examples of a stimulus (e.g., Lowery, Hardin, & Sinclair, 2001).

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. And the method provides a way of shaping how people will behave toward new or previously neutral products, people, or ideas (De Houwer et al., 2001). We turn now to a consideration of explanations of evaluative conditioning.

Explanations for Evaluative Conditioning

The phenomenon of *evaluative conditioning* has attracted a great deal of research attention (for a special journal issue, see Gast, Gawronski, & De Houwer, 2012; for a meta-analysis, see Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010). A theory-neutral definition of evaluative conditioning is *a change in the evaluation of a conditioned stimulus (CS) because of its pairing with a positive or negative unconditioned stimulus (US)* (De Houwer, 2007).

Five of the alternative explanations for evaluative conditioning current in the literature include proposals that it involves: (a) automatic affective associations, (b) inferred propositions about the associations, (c) both of these within a dual-process model, (d) a single stream model involving both processes, and (e) misattribution of the evaluation of the UCS to the CS.

The first explanation of evaluative conditioning is that repeated association creates an *automatic* connection between the mental representation of the neutral CS and the affective stimulus (UCS) or affective response (UCR) (Sweldens, Van Osselaer, & Janiszewski, 2010; Walther, Gawronski, Blank, & Langer, 2009).

The second possibility proposed by De Houwer (2007) is that, rather than being a low-level, automatic phenomenon, evaluative conditioning involves the formation of a *proposition* or belief that the neutral CS and the affective UCS are connected (e.g., De Houwer, 2009; Mitchell, De Houwer, & Lovibond, 2009).

The third possibility is a *dual-process* explanation proposed by Gawronski and Bodenhausen (2006). Their associative-propositional evaluation (APE) model is intended to explain the differences that emerge when attitudes are assessed by explicit measures and by implicit measures. Implicit measures reflect mere associations based on similarity of features and co-occurrences. Explicit measures reflect propositions about how things are related. Whereas associative processes simply reflect the existence of particular associations, propositional thinking is focused on the truth value or logical consistency of the proposition (Gawronski & Bodenhausen, 2011).

A fourth, iterative reprocessing model (Cunningham & Zelazo, 2007) holds that rather than attitudes resulting from battling dual processes, they emerge from a single, temporally extended process involving both early associative and later relational cognitive and contextual processing.

A final possibility is that evaluative conditioning involves the *misattribution* of evaluative responses. Jones, Fazio, and Olson (2009) proposed that evaluation of the affective stimulus (UCS)

gets misattributed to the neutral stimulus (CS) when they are experienced closely in time. That is, in the course of processing neutral and affectively charged stimuli together, the evaluation from the affective stimulus is experienced as coming from the neutral stimulus.

Automatic Associations

Much of the research on evaluative conditioning contrasts automatic associations and propositional processes. A central question concerns when mere association controls attitude and when relational or qualifying information plays a role. People are frequently exposed not only to mere associations, but also to relational information about how they are associated. For example, in the statement, "Batman fights crime," Batman can serve as a conditioned stimulus (CS) and "crime" as an unconditioned stimulus (UCS), but the verb "fights" provides relational information that changes the meaning of the association between Batman and crime. The question is, do people dislike Batman to some degree because of his association with crime, or do they like Batman because he fights crime (Moran, Bar-Anan, & Nosek, 2016). In other words, do people act like Pavlov's dogs, or do they process relational complexities?

As a real-world example of this issue, consider the experience of new mothers in Guinea (Johnson, 2017). Guinean mothers of newborns are warned that visitors are likely to insult their newborns, calling the baby "ugly" or "worthless." Visitors do this, because they know that insults make the baby seem less desirable, reducing the likelihood that evil spirits will steal it, whereas compliments put the newborn at risk. The question in this case is whether the mother's knowledge of this custom fully transforms the harsh-sounding insults into good wishes for her baby's well-being, or do the insults automatically sting, even if they are transformed? For the Guinean mothers, we do not really know the answer, but analogous questions have been asked of college students in experiments that do allow an answer.

A version of the question was asked in an early study of interpersonal attraction (Byrne, Rasche, & Kelley, 1974). Participants received a videotaped message from a stranger that was either flattering or unflattering. But they also learned that the persons sending the messages had been instructed to be either truthful or untruthful in what they said. The experiment thus varied not only the pleasantness of the comments but also their meaning. As in the case of the Guinean mothers, one condition involved false insults that were meant as compliments. When participants later rated their liking for the communicator, what happened? The answer is that the flattering or unflattering comments and their interpreted meaning both influenced liking. Each contributed independently to liking or disliking the communicator.

Similar conclusions come from a study done 40 years later (Moran, Bar-Anan, & Nosek, 2016). Participants saw pictures of four individuals (Chris, James, Michael, David), each of whom was associated with pictures of animals that were either cute (e.g., puppy) or nasty (e.g., cockroach). In addition, words denoting an action then appeared between the pictures of the person and the animal. They indicated that the person "gives" or the person "takes away" the cute or nasty animal.

The question was whether later liking for the four individuals would reflect their mere associations with the cute or nasty animals or would it depend on the meaning provided by their actions of giving or taking away the cute or nasty animals? The answer was again that both played a role, each contributing independently to the ratings of liking for the person. Even when the qualifying action was made especially salient by being presented for a relatively long time, the mere co-occurrence of persons with affective animals still influenced liking. A second experiment varied how much participants paid attention to affect or to meaning by asking them to rate either the affective animal or the meaning-giving action on each trial. As expected, paying special attention to the affective animal increased the role of affective association, whereas paying special attention to the meaning-giving action increased the role of relational meaning.

In other versions of this paradigm, the cute and nasty animals were replaced by pleasant or noxious sounds (Moran & Bar-Anan, 2013). The four neutral persons were associated either with pleasant music or unpleasant sounds, which they either started or stopped. Again, the results showed that liking depended both on their association with pleasant music or unpleasant sounds and on whether they started or stopped the music or sounds. Mere association with affective experiences had an impact on liking, but so did relational information about whether the person started or stopped the pleasant music or unpleasant sounds.

These experiments all involved explicit measures of attitude, but some studies have also included implicit measures. In one (Peters & Gawronski, 2011), participants read positive or negative information about each of four men (e.g., Mike lent money to a friend in financial trouble; Mike cheated during a poker game). Some were told at the time that the information was true and some that it was false. Another group was given the true-false indication only after they had already read the positive or negative information. The results showed that when the true-false information came immediately, both explicit and implicit measures showed its effects, and association alone had no effect. But when the true-false information came only at the end, after participants had already formed evaluative associations, then mere association affected the implicit attitude measure, even after participants had already corrected their explicit impressions for the true-false information.

Another study of the timing of the relational information was conducted by Hu, Gawronski, and Balas (2017). They asked how attitudes would be affected when relational information comes before or during the paired affective associations. They presented images of pharmaceutical products paired with images of positive outcomes (e.g., an elderly couple riding bikes) or negative images (e.g., an infant with an eye infection). Before the paired images appeared, however, relational information was presented that the drugs either *cause* or *prevent* the conditions depicted in the positive or negative images.

When the relational information came first, explicit and implicit measures of attitudes toward the pharmaceutical products differed. Explicit measures reflected the relational information (causing vs. preventing), while implicit measures reflected only the basic associations without the relational qualification. But when affective outcomes and the causing versus preventing information appeared at the same time, explicit and implicit measures both showed relational effects.

Propositions

It is a clear from the foregoing research that the mere association of neutral and valenced stimuli can result in evaluative conditioning. But De Houwer (2007, 2009) has argued that even such seemingly automatic conditioning by mere association actually occurs only when participants form a proposition relating the neutral CS and the affective UCS. As a result, much of the subsequent research on evaluative conditioning has focused on contrasting the automatic association hypothesis with this propositional hypothesis.

From a mere association view, for example, successful evaluative conditioning should be automatic and effortless, but some research shows that conditioning requires cognitive resources, a finding that favors a propositional explanation (Davies, El-Deredy, Zandstra, & Blanchette, 2012; Pleyers, Corneille, Yzerbyt, & Luminet, 2009). In addition, some findings indicate that successful conditioning requires that participants have relevant processing goals, but that should not be required for automatic processes (e.g., Corneille, Yzerbyt, Pleyers, & Mussweiler, 2009; Gast & Rothermund, 2011). Also, evaluative conditioning is apparently sensitive to how respondents think about the CS. For example, when the CS and UCS were both faces and some were said to be friends and some enemies, evaluative conditioning was successful only in the friend and not the enemy condition (Fiedler & Unkelbach, 2011; see also Förderer & Unkelbach, 2012). Such qualifications on evaluative associations are inconsistent with their being low-level, automatic phenomena, and they suggest instead that the connection between CS and UCS is really a higher-order proposition.

On the other hand, automaticity, according to Bargh (1997), is multidimensional. Thus, even if evaluative conditioning does use cognitive resources and is sensitive both to goals and cognitive framing, conditioning might still be difficult to control and might occur regardless of one's desire not to be influenced. For example, Gawronski, Mitchell, and Balas (2015) examined whether conditioning could be controlled. They compared three processes, including suppression of affective reactions to the UCS, reappraisal of the valence of the UCS, and facial blocking of emotional responses. All were effective in reducing evaluative conditioning when assessed by an explicit measure, but not when assessed by an implicit measure. The authors concluded therefore that repeated affective pairing can alter spontaneous reactions. Although one may be able to control the impact of such associations on explicit judgments, implicit reactions are difficult to control. Hence, Gawronski, et al. (p. 565) say that:

> [The data do not] allow us to ignore concerns about the effects of repeated stimulus pairings in commercial advertisements and negative campaigns. Even if we are able to suppress our emotional experiences, reappraise the stimulus event, or successfully block the facial expression of emotional responses, repeated co-occurrences of stimuli may nevertheless influence our spontaneous evaluative responses.

Another experiment varied the number pairings of the CS and UCS, because more trials should yield stronger mere associations. However, attitudes were not affected by the number of stimulus pairings. Therefore, the authors (Hu et al., 2017) interpreted the results as most consistent with the propositional account of evaluative conditioning (De Houwer, 2009). More generally, the research indicates that sometimes automatic associations seem to be at work, whereas at other times propositional inferences seem to be required (for a review, see Gawronski & Bodenhausen, 2011). As we have seen, one consideration is whether implicit or explicit attitude measures are employed.

WHAT DO IMPLICIT MEASURES MEASURE?

Increasingly, studies include implicit measures of attitude. Sometimes, "explicit" and "implicit" refers to whether people are aware or unaware of what is being measured (Petty, Fazio, & Briñol, 2008). However, others (e.g., Gawronski & Brannon, this volume) argue that an attitude measure is explicit when the evaluative aspect is explicit in the people's responses (e.g., saying, "I like dogs") and implicit when evaluations must be inferred from behavior (e.g., priming with the concept "dog" speeds rather than slows categorization of positive concepts as positive). (For a further discussion of implicit measures, see Bassili & Brown, 2005.) One commonly studied implicit measure is *Evaluative Priming* (Fazio, Jackson, Dunton, & Williams, 1995), which measures the extent to which priming with an attitude object facilitates or hinders the categorization of common words as positive or negative. The other most common measure is the *Implicit Association Test* or *IAT* (Greenwald, McGhee & Schwartz, 1998), which compares how quickly people categorize attitude objects when using the same (or opposite) responses as those used to categorize positive versus negative concepts.

A key question is whether different results for explicit and implicit measures suggest different underlying processes or whether the fact that such disparities change with timing and other procedural details contradict that idea? An alternative possibility is that explicit and implicit measures simply ask different questions. A commonly used version of a race IAT, for example, essentially asks whether a respondent has any negative associations about Black people. In the kind of the racist environments in which most of us live, neither Black nor White participants are likely to escape having some such negative associations. By contrast, explicit measures essentially ask about one's summary attitude, all things considered. For political figures, implicit and explicit measures are often highly correlated, but for many attitude objects, the answers can differ. When they do, any

notion that implicit measures reflect real attitudes and explicit measures reflect only socially acceptable cover-ups is not justifiable. Rather, implicit and explicit measures sometimes provide different answers, because they ask different questions.

The Implicit Association Test is fairly unreliable when the same person is tested on multiple occasions. Test-retest correlations across studies average about $r = .40$ (Bar-Anan & Nosek, 2014). What does that mean? One explanation is that, if one has a variety of associations to an attitude object, the one that happens to get sampled on a given occasion is likely to depend on the context (e.g., Wittenbrink, Judd, & Park, 2001). For example, the apparent prejudice of White respondents on the race IAT is reduced when there is a Black experimenter (Lowery et al., 2001). This change presumably occurs because in an experiment conducted by an African American college student, different associations to "Black person" arise than without that context.

IS AWARENESS NECESSARY?

In discussions of the automatic association hypothesis versus the propositional hypothesis, a finding that seems inconsistent with an automatic, low-level explanation concerns the role of awareness. As mentioned earlier, several reviews of research on classical Pavlovian conditioning conclude, surprisingly, that there is no convincing evidence of classical conditioning in humans without awareness (Boakes, 1989; Brewer, 1974; Lovibond & Shanks, 2002). This conclusion, however, rests on the fact that most of the attempts to assess awareness have simply been inadequate. As a result, evidence that might support the idea of unconscious conditioning remains ambiguous.

There is a long history of searching for evaluative conditioning without awareness, but Hütter and colleagues argue that previous ways of estimating awareness had critical flaws. In response, they devised a more diagnostic method based on Jacoby's (1991) process dissociation procedure (Hütter, Sweldens, Stahl, Unkelbach, & Klauer, 2012). Using this method, they found unambiguous evidence of evaluative conditioning without awareness when the conditioned stimuli had been consistently associated with positive or negative words or pictures.

Another important variable is whether the same or different valenced stimuli are paired with a conditioned stimulus. If the same evaluative word or picture is repeatedly associated with the same neutral stimulus, then evaluative conditioning is mediated by this specific, stimulus-stimulus (S-S) association. Since conditioning is then dependent on memory for that association, there is no evidence of S-S conditioning without awareness. But for associations in which different evaluative stimuli sharing a consistent valence are used, so that stimulus-response (S-R) conditioning occurs, then misattribution of that generalized evaluative response can occur, allowing "conditioning" without awareness.

The question of whether awareness is necessary for conditioning has also been examined in a functional magnetic resonance imaging (fMRI) study. Tabert et al. (2011) report a large fear-conditioning study associating a neutral visual stimulus with shock. They compared three groups: one was told about the CS-UCS contingency, one was distracted from becoming aware, and a third became aware despite the distracting stimuli. They found conditioning both with and without awareness, each involving different pathways in the brain. Conditioned amygdala responses were found without awareness, whereas conditioned subjective and electrodermal responses occurred only with awareness.

In a review of the large literature on awareness and evaluative conditioning, Sweldens, Corneille, and Yzerbyt (2014) note that, after 40 years of research on the question, some conclude that evidence for conditioning without awareness is still "inconclusive" (De Houwer, 2011, p. 410), whereas others conclude that it "cannot reasonably be denied" (Jones et al., 2010, p. 239). So, research on the question of awareness continues, and our understanding of the relevant processes and their complexities continues to grow.

Dual-Process Theory

One alternative to an automatic association or a propositional explanation is a dual-process explanation in which both processes are assumed. Gawronski and Bodenhausen (2006) proposed an associative-propositional evaluation (APE) model intended to explain the differences in attitudes assessed by implicit and explicit measures. The idea was that implicit measures simply reflect associative connections, whereas explicit measures reflect propositional thinking focused on the truth value or logical consistency of a connection (Gawronski & Bodenhausen, 2011).

Dual-process theories have been proposed in various areas of psychology (e.g., Stanovich & West, 2000; Kahneman, 2011). They assume two qualitatively different modes of information processing. The *associative* mode is fast and requires few cognitive resources, relying on heuristic reasoning and past associations to make judgments and decisions. The *propositional* mode is slow, effortful, and expensive in cognitive resources. The popularity of dual-process theories is evidenced by the large number of related distinctions that have been proposed—associative versus rule-based, automatic versus controlled, unconscious versus conscious, impulsive versus reflective, central versus peripheral, heuristic versus systematic, and emotional versus cognitive processing (Chaiken & Trope, 1999).

Some theories posit not only *dual processes* but also *dual systems* (e.g., Evans, 2003). In the study of reasoning, those systems are referred to as *System 1*, which is believed to be an evolutionarily older mode shared with other animals, and *System 2*, which is thought of as a uniquely human mode involving abstract reasoning and hypothetical thinking. That view proposes two minds in one brain, each competing with the other for control of inferences and actions. In one form or another, that idea can be traced as far back as Plato, who characterized the conflict between passion and reason as two horses pulling a chariot in different directions.

Gawronski and Bodenhausen (2011), however, note that their APE model is a *two-process* model, not a *two-systems* model. They are agnostic about whether associative and propositional processes operate in one or two systems. They are also skeptical that two separate systems could actually be found in the brain, since both processing modes presumably involve multiple brain processes.

Single Stream Models

Whether a dual-process approach is required depends on many factors. For example, as we have seen, some research indicates that whether there is a disparity between implicit and explicit measures depends partly on the timing of the information presented (Hu et al., 2017). Such results are not consistent with a dual-process account. In addition, some investigators propose that single-process approaches can handle phenomena that might initially seem to require a dual-process model. For example, Albarracín, Hart, and McCulloch (2006) suggest that a single associative process that varies in complexity can handle the same phenomena. Kruglanski and Dechesne (2006) also offer a single-process model, but in contrast to Albarracín's associationist approach, they assume that people are guided by syllogistic reasoning. They argue that, even when people are engaged in associative processing, they are actually following "if . . . then" rules, which operate at an unconscious as well as a conscious level. Kruglanski's *uni-modal model* assumes that the factors involved in attitude formation and change simply vary in processing difficulty (Kruglanski et al., 2007). For example, simple, brief, salient, and preliminary information requires little effort, whereas long, complex, obscure, and later-presented information requires more processing. Thus, as opposed to two different processes, some emphasize two stages of a single process.

Another alternative to dual-process models is the *iterative reprocessing model* of attitude and emotion proposed by Cunningham and Zelazo (2007). By adding time to the equation, the model

incorporates both early and late processes in one stream. The idea is that early, subcortical processes may react to novel stimuli in a very rudimentary way. That information is then iteratively processed and reprocessed by the amygdala. At each iteration it gets embellished with more and more contextual information with the elaborated information being reprocessed by the amygdala until a full-blown attitude may result that can be consciously experienced and reported.

At earlier iterations, evaluative associations lack relational and contextual information. Thus, rapidly presented words that are visually masked to interfere with conscious recognition may get processed without such qualifications as prefixes, suffixes, and negations. Early, unembellished stimuli can have different effects on implicit measures than later more elaborated stimuli have on explicit measures simply because the latter have been processed more extensively.

Attributions

The task of explaining conditioned evaluation, however, may require more than referring to mere association, which in any case seems to be more a description than an explanation. Jones, Fazio, and Olson (2009) have proposed misattribution as a promising mechanism (see also Moran, Bar-Anan, & Nosek, 2017). The idea is that value is transferred to the neutral stimulus (CS) by misattributing the affective response to the valenced stimulus (UCS). To test the hypothesis that the evaluative conditioning involves such implicit misattribution of evaluation to associated stimuli, Jones et al. (2009) conducted five experiments. The results indicated that evaluative conditioning was most successful whenever conditions favored confusion of the two sources of affect. Specifically, the valence change was greatest: (a) the more participants' shifted their gaze between the two stimuli, (b) the more the two stimuli appeared close together, and (c) when the neutral stimulus was made larger and hence more salient than the valenced stimulus. In the belief that the affect from mild stimuli would be more easily misattributed, the investigators also included both mild and strong evaluative stimuli. They found that evaluative conditioning was greatest for the strong stimuli, but it involved a different process, being not implicit but mediated by awareness.

Subsequent research comparing simultaneous or sequential presentations of paired stimuli found timing to be important to whether conditioning could occur without awareness (Hütter & Sweldens, 2013). The idea was that misattributions of evaluation would be most likely when neutral and valenced stimuli were presented at the same time. The authors infer that when the CS and UCS occur together, evaluative responses to each are confusable so that misattributions of evaluative responses can create what looks like conditioning effects.

Summary

We have alluded to several possible explanations for the process of evaluative conditioning, including classical conditioning (e.g., Staats & Staats, 1958); automatic associations (Peters & Gawronski, 2011); propositional beliefs (De Houwer, 2007); dual processes (Gawronski & Bodenhausen, 2006); single, temporally extended processes (Cunningham & Zelazo, 2007); and misattribution (Jones, Fazio, & Olson, 2009). After reviewing this literature, Gawronski and Bodenhausen (2011) concluded that no single explanation is adequate to account for all of the reported effects. For example, some findings fit an automatic associative learning account, some fit a propositional learning account, and some require multiple processes (Tabert et al., 2011).

Although which of these explanations is best is still a matter of debate, what is not debatable is that attitudes can develop toward previously neutral stimuli from an association with affective stimuli. Conditioning and association are thus basic processes in terms of which more complex phenomena can be partially explained. But of course, conditioning is only one such process. Before proceeding, let us think more generally about how experiences get bound together.

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 generally influences reactions to a second, whereas in conditioning, the second usually influences responses to the first. At some level, the processes involved are presumably similar or identical. Indeed, they are also similar to the processes involved in the affective influence of mood on judgment. In all of these, reactions to the target are influenced by reactions to other stimuli presented at about the same time.

In mood studies, the source of evaluation is the affect from background mood (rather than affect from an evaluative word or picture), and the target is generally presented during the mood. When asked for a judgment, one may focus on one's feelings so that an association is formed between the affect and the target or object of judgment. But the processes seem similar regardless of whether the effective stimulus is a positive word or picture or pleasant mood-based feelings and regardless of the timing involved.

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 Sergei 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, she would be seen as frightened by the tiger, but if the first image were of a child on a window ledge, the woman would be seen as afraid of the child falling. As in film, so in reality, emotional meaning depends on what experiences are associated in time. On film, the successive sequences become a narrative whole. In life too, experiences of affect get linked to whatever else is in mind at the time to form a narrative. We refer to this tendency for current mental content to become the object of affect as the *affective immediacy principle*, which is that affect is always about whatever is in mind at the time (Clore et al., 2001).

Gestalt psychology holds that stimuli experienced closely in time and space are automatically seen as connected. By that principle, at each unfolding moment, the content of short-term memory provides coherence. Thus, individuals with short-term memory deficits may often be confused, because, without the short-term carryover from the last moment, the current moment makes no sense (Sacks, 1985). Of course, we all have such experiences on occasion, as when we say, "I know I came in here to get something, but I can't remember what it was."

The Gestalt social psychologist Fritz Heider (1958) saw *causal attribution* as a key element in this sense-making process. For example, if one billiard ball hits another, and the second moves within .02 seconds, one automatically attributes the movement of the second to the action of the first. Similarly, if one finds a snake in one's shower, one is likely to experience apprehension. In that situation, it would be obvious what one's feelings meant, and no one would make any other attribution. Nevertheless, one can understand the feelings (and can act appropriately) only if they do get attributed to having seen the snake. Thus, such implicit causal attributions act as a glue that binds successive experiences together (Shaked & Clore, 2016). That idea is fundamental to research on the role played by affect from emotional moods in attitude judgment. We turn to that next.

Affect Attribution and Attitude

Attitudes are evaluative dispositions toward attitude objects. They are based on the affective feelings and evaluative beliefs that are elicited by the attitude object. Thus, one could answer an item on an attitude survey by asking oneself, "How do I feel about it?" Whatever affective feelings were elicited

by the attitude object could then provide a basis for evaluation. Thus, in one study, attitudes toward brands of advertised products were measured after consumers viewed a large number of commercials (Pham, Geuens, & De Pelsmacker, 2013). The investigators found that, especially if the advertised product was hedonic rather than utilitarian, the resulting attitudes could be predicted simply by coding the emotional content of the commercials.

In addition to affect that is elicited directly by the attitude object, attitudes can also be influenced by affect from irrelevant sources, such as experiences of happy or sad moods (for reviews, see Greifeneder, Bless, & Pham, 2011; Schwarz & Clore, 2007). The fact that affect from judgment-irrelevant sources can have an influence is important for understanding a host of real-world phenomena. For example, persons delivering bad news may be disliked as a result of their association with affect from the bad news, a phenomenon sometimes referred to as "killing the messenger." Similarly, the phenomenon of displacement or "scapegoating" results when negative affect from unfortunate outcomes is misattributed to a convenient, but perhaps less powerful, person, who then becomes a target of blame. More generally, in states of depression, dysphoric affect often fuels pessimism and negative attitudes, whereas good moods may lead to seeing the world through "rose-colored glasses."

In addition, to these real-world phenomena, however, the impact of irrelevant affect is important as a tool for studying the role of affect in attitude. Investigators typically induce mild mood states through films, stories, music, or writing about emotional experiences. These and other methods have been reviewed (e.g., Coan & Allen, 2007) and compared (Zhang, Yu, & Barrett, 2014). All were found effective, especially in combination. After moods have been induced, experimenters can then observe any affective influences on judgment and behavior independently of the influences of associated beliefs. Since feelings and beliefs are usually closely intertwined, inducing a mood with no overlap in cognitive content with the object of judgment is therefore a promising tool.

Induced irrelevant moods have been found to influence a variety of different judgments, including of life satisfaction (e.g., Keltner, Locke, & Audrain, 1993); consumer products (e.g., Pham, 1998); pictures (e.g., Isen & Shalker, 1982); risks (e.g., Gasper & Clore, 2000; Johnson & Tversky, 1983); and political figures (e.g., Forgas & Moylan, 1987). However, this technique can be successful only when respondents remain unaware of, or are distracted from thinking about, the true source of the affect.

One way to insure that affect is not tied to its true source is to present an emotional image outside of awareness. For example, Lapate, Rokers, Li, and Davidson (2014) presented a fear face (or a frowning face or a spider) to a person's less dominant eye while presenting moving visual patterns to the more dominant eye. Because moving images naturally capture visual attention, participants remained unaware of having seen the static and less bright, emotional image. Nevertheless, they made negative evaluations of a neutral face that was presented immediately afterward. The same effect did not occur in a control group in which the emotional image was presented to both eyes causing participants to be fully aware of the image. The research found that the negative affect from seeing the emotional image influenced judgment, but only when participants were unaware of its source. Importantly, skin conductance measures also showed that both groups had been equally emotionally aroused. An experiment with similar methods and results has also been reported by Anderson, Siegel, White, and Barrett (2012).

There is a long history of attempts to elicit affective reactions outside of awareness. The *continuous flash suppression* technique (Tsuchiya & Koch, 2005) just described is an especially promising method, because the emotional image can be exposed for a relatively long time (1,000 ms) before awareness becomes likely. Most behavioral research showing affective influences on judgment, however, have taken a different route. Studies have often used stories, films, music, or writing tasks to induce mildly emotional mood states to provide a ready source of affect without a clear cause. Before reviewing that research we place it into ahistorical context.

Background

In the 1960s and 1970s social psychologists were not very receptive to the idea that affective experiences play a role in attitude and evaluative judgment. The emphasis was more on how people combine belief-based information to form 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, 2005). Fishbein and Ajzen (1975) maintained that attitudes are based on beliefs and evaluations concerning the 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.

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 attraction toward a person independently of beliefs about them, but more importantly, they devised a new research tool. Since then, such mood induction procedures have become a staple in social psychology as a way of disentangling the effects of feelings from those of thoughts.

Memory-Based Models

Despite demonstrations that affect does influence judgment, investigators were initially reluctant to assign a primary role to feelings. The mood-based method caught on, but explanations still assumed that judgments must be based on beliefs about objects of judgment. At about the same time, both Isen and colleagues (Isen, Shalker, Clark, & Karp, 1978) and Bower and colleagues (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, which may bias judgment in a positive way. A virtue of these models was that they were consistent with traditional approaches emphasizing that judgments are based on beliefs (Arkes & Hammond, 1986). The role of emotion, therefore, was assumed to be an indirect one of determining which beliefs were retrieved from memory to serve as the basis for judgment.

AFFECT-AS-INFORMATION MODEL

An alternative possibility was proposed as the affect-as-information model. It is a general approach to which many investigators have made contributions, elaborations, and variations. Initially, 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* feelings. Schwarz and Clore (1983) applied the idea, emphasizing 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, to induce mood, they asked participants ostensibly to help in the construction of a Life Event Inventory by supplying a description of a happy or sad experience. In a second experiment, they relied on the first warm and sunny days of spring in the Midwestern United

States to induce positive moods and on the cold and rainy weather that inevitably follows to induce negative moods. They asked about life satisfaction during a telephone interview. Each experiment showed that happy moods led to higher ratings of life satisfaction than sad moods.

The experiments also included attribution manipulations for 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). Some participants were given an opportunity to rate how much the room contributed to their current feelings before making their life satisfaction ratings, which prevented the feelings from being misattributed as information relevant to life satisfaction.

In the second experiment, the telephone interviewer had said that she was calling from Chicago, so that for half of the respondents, she could ask at the beginning, "By the way, how is the weather down there?" The purpose of that pleasantry was to again make salient an external possible cause for their feelings to keep participants from experiencing them as their level of life satisfaction.

Schwarz and Clore (1983) found that, in both experiments, there was no effect of mood on life satisfaction when an external plausible cause for the feelings was made salient, but that attribution manipulation had no effect on self-reported mood. Rather than changing their feelings, the attributions changed their apparent relevance for determining life satisfaction. The results indicate that affect can influence judgment, provided it is experienced as a reaction to the object of judgment. The effect was not an obligatory consequence of affect, but was contingent on how it was experienced—on its apparent information value. This account contrasts with the idea that mood automatically activates mood-congruent material in memory, which in turn 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 they feel about it (Schwarz & Clore, 1988).

That such mood and judgment phenomena are actually due to affect can be seen from a study by Strack, Schwarz, and Gschneidinger (1985). Participants described happy or sad life events either in a vivid or in a pallid way, and the results showed that only vivid accounts produced moods and mood-congruent judgments. Pallid accounts produced the opposite: higher life satisfaction after recalling unpleasant experiences. Apparently, participants contrasted their current lives to the highly positive or negative events they had recalled. Thus, event recall by itself does not have the same effect on judgment as mood.

One critical aspect of the Schwarz and Clore (1983) experiments was that getting participants to attribute their feelings to a judgment-irrelevant source eliminated the influence of affect on judgment. There are many other examples of this attribution principle in mood studies. For example, in a mock jury study, jurors were more likely to render a guilty verdict after vivid descriptions of negative consequences from the defendant's actions (Kadous, 2001). However, before hearing the case, some jurors rated how anxious they felt about serving as jurors. When framed as due to this alternative plausible cause, the jurors still experienced the same negative affect, but it did not influence their verdicts as it did for jurors without such an alternative cause for the feelings.

Similar findings come from a study in which students judged a scientific experiment as flawed when they found the results personally distasteful (Munro, Stansbury, & Tsai, 2012). However, a separate group, who were led to attribute their negative feelings to unpleasant aspects of the experimental room, did not judge the research as flawed. In a second experiment, the same attributional effect was found when participants were told that they might feel tense because a beverage they had consumed had been caffeinated. The results of these studies indicate that the impact of affect depends, not on the affect alone, but on its information value or what it appears to be about. That is, the impact of affect depends on its object (Clore & Huntsinger, 2007).

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 might expect less influence of affect, whereas when the affect stems from the attitude object itself, we might expect more affect and greater impact (Lodge & Taber, 2004).

Forgas (1995) concurs that affect should have no influence on judgment when prior judgments of the same object can simply be retrieved from memory. His *affect infusion model* predicts that mood is likely to influence judgment in situations that involve some amount of processing, but not in situations where a specific answer already exists in memory or where one is motivated to arrive at a specific answer. Forgas says that the relevant processing can be either heuristic (low effort) or substantive (high effort). He categorizes the affect-as-information approach (Schwarz & Clore, 1983, 2007) as low effort or heuristic and the memory-based approach (Forgas & Bower, 1987) as high effort or substantive. His model concerns mood effects on judgment when substantive, high-effort processing occurs.

In a review of relevant literature, Greifeneder, Bless, and Pham (2011) have also examined when affect is most likely to be used in making judgments. They conclude that whether affect is used in making judgments depends on: (a) the salience of the feelings, (b) the representativeness of the feelings for the target, (c) the apparent relevance of the feelings to the judgment, (d) the evaluative malleability of the judgment, and (e) the level of processing intensity. They also conclude that, rather than being a maladaptive biasing factor, the use of feelings as information is frequent and generally sensible when making judgments (see also White & McFarland, 2009).

Decision Models

We are focusing in this chapter on affect-as-information as an interpretation of the process underlying affective influences on attitude. There are, however, other related accounts that have been offered, especially in the decision-making context.

Affect Heuristic

The idea of a "How do I feel about it?" heuristic was proposed by 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. Subsequently, Slovic and colleagues (Slovic, Finucane, Peters, & MacGregor, 2002; 2005) also proposed the *Affect Heuristic*. Their proposal involves a dual-process model that contrasts a rational *analytic system* with an intuitive *experiential system*.

One test of that idea involved health messages that relied on fear appeals (Averbeck, Jones, & Robertson, 2011). The fear appeals concerned either sleep deprivation or spinal meningitis. The experimenters assessed prior knowledge of these domains and found that knowledge moderated participants' reliance on the affect heuristic. They suggested that having prior knowledge of a domain activated the analytic system, insulating participants from fear appeals, whereas having little knowledge made people susceptible to fear appeals.

The idea that affect can serve as a judgment heuristic is a popular one, 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. Even in choices backed up by considerable deliberation, 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 (Isen & Means, 1983).

Risk-as-Feeling

Loewenstein, Weber, Hsee, and Welch (2001) 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 memory of, or vivid imagination of, the consequences of particular decisions. For example, Loewenstein et al. (2001) considered the case of deciding whether or not to get insurance against floods or earthquakes. People tend to overestimate the occurrence of such adverse events when confronted with anecdotal reports 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 a 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 argued that a person's expectation about an outcome has important consequences for the emotional response to that outcome. For example, research participants were given certain expectations about the amount of money they would win or lose in a gamble, and these expectations then 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; 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 and colleagues (1997), 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 (see also Heyman, Mellers, Tishcenko, & Schwartz, 2004).

Of course, people are sometimes wrong in their anticipations or affective forecasts about how events will make them feel. In general, research suggests that people are quick to orient to emotional stimuli, and as affective stimuli take up attentional resources, people are less sensitive to the factors likely to qualify anticipated outcomes. By contrast, observers who are more detached may be able to make more accurate forecasts (Buechel, Zhang, & Morewedge, 2017

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) arrived at similar conclusions from studies of patients with damage to the prefrontal cortex. He argued 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.

Affect-Incongruent Judgments

Thus far, the research we have reviewed provides a single set of expectations about affective influences on attitude judgments, which is easily summarized as *affect-congruency* or "rose-colored glasses" effects. That is, positive and negative affect generally lead to correspondingly positive and negative judgments. However, that is not always the case.

Recent research examined the effect of mood on attitudes toward Lance Armstrong, a cancer survivor and seven-time Tour d'France cycling champion (Schiller & Clore, 2014). He was chosen as the object of judgment just after he had been publicly disgraced by having to admit that his cycling records had been aided by performance-enhancing drugs. Participants in the experiment first described a personal event that had made them feel happy or sad and then rated the desirability of having a "Livestrong" bracelet, which Armstrong's foundation sold to raise money for cancer research. The results showed that mood influenced attitude toward having the bracelets, but instead of the usual rose-colored glasses effect, participants in happy moods gave evaluations of the bracelets that were more negative than participants in sad moods.

A conceptual replication of this study was conducted a year later when another well-known athlete was also disgraced by evidence of drug-aided performance (Schiller, 2017). This time the athlete was Alex Rodriguez (known as "A-Rod"), a visible public figure and star third baseman of the NY Yankees. Research participants learned about Rodriguez, underwent a mood induction, were shown a poster of him, and were asked to rate its desirability. Replicating the prior effect, the results showed that the most negative evaluations of the poster were made by participants in happy moods, while participants feeling sad gave more tentative evaluations.

In these experiments, rather than participants in positive moods giving Armstrong or Rodriguez the benefit of the doubt, they appeared more confident than those in negative moods, in their inclination to evaluate negatively products associated with these fallen sports icons. Rather than being about the athletes, participants' negative affect seemed to be about their initial negative opinions of the athletes. Thus, in addition to coloring perceptions of judgment objects, affect can apparently also have a metacognitive effect in which it is experienced as a reaction to one's own thoughts.

Affect Immediacy Principle

These results appear inconsistent with standard explanations of affective influences on judgment, because affect is usually assumed to be about the attitude object directly. However, the results are compatible with the *affective immediacy principle*, which says that *affect is always experienced as being about whatever is in mind at the time* (Clore et al., 2001). Both experiments asked about highly visible sports figures, and information about their drug use was made salient. As a result, participants' provisional negative opinion of the athletes should have been salient in participants' minds at the time, so that affect from their moods should have been experienced as reactions to their own initial opinions, rather than to the athletes. The working hypothesis, therefore, is that affect may often be self-reflective or serve as information about one's own reactions rather than as information about the world.

Additional evidence for this self-reflective or feedback function of affect comes from a study of advertising, which found that incidental affect was more likely to influence self-relevant judgments, such as, "I like the ad," than it was to influence object-referent judgments, such as, "The ad is good"

(Gorn, Pham, & Sin, 2001, Exp. 2). A similar observation comes from the well-known experiments on activating the smiling muscles by holding a pen in one's teeth (Strack, Martin, & Stepper, 1988), The incidental smile forced by keeping the pencil from touching the lips was found to influence participants' subjective judgments of how amused they were at cartoons they rated, but did not affect objective judgments about the quality of the cartoons.

Experiments concerning mood and judgments of trustworthiness are also compatible. Lount (2010) showed participants images of faces that had been pre-scaled for trustworthiness. He found that participants in positive moods went with their initial inclinations, rating trustworthy-looking faces as more trustworthy and untrustworthy faces and more untrustworthy than did participants in neutral moods. Rather than mood-congruency effects in which positive affect would make all of the faces look more trustworthy, positive affect provided feedback about participants' own inclinations. In particular, positive affect led to more negative ratings of untrustworthy-looking faces, which would have elicited a provisional negative attitude. In this way, the affect was shown to have what might be called a meta-attitudinal effect. That is, positive affect created a positive attitude toward participants' initial opinions of the faces. In general, then, these data indicate that the influence of affect on attitude is sometimes indirect rather than direct, with positive affect increasing and negative affect decreasing confidence in one's initial thoughts or opinions about attitude objects.

Self-Validation

A similar interpretation has been made by Petty and Briñol (2008) of studies of affect and persuasion.[4] Especially relevant data come from Briñol, Petty, and Barden (2007), who presented either strong or weak arguments about a new foster care program. Participants then listed their thoughts about the message they had read and engaged in a mood induction procedure. Feelings from positive moods then validated and feelings of negative moods invalidated those listed thoughts. Strong arguments had elicited mainly positive thoughts and weak arguments mainly negative thoughts. Hence, compared to negative moods, positive moods led to greater persuasion by strong arguments (because of the positive thoughts) and less persuasion by weak arguments (because of the negative thoughts). But most important, the results were mediated by the confidence people placed in their thoughts with individuals in happy moods feeling more confident in their thoughts than those in sad moods.

The investigators also administered the Need for Cognition scale, measuring how much people like or dislike engaging in extensive thought. If affect acted on participants' thoughts, as hypothesized, the mood-incongruent results should be seen especially for individuals high in need for cognition. That was what happened. Indeed, for individuals low in need for cognition, who presumably have fewer thoughts, positive affect simply led to more positive reactions to all of the arguments, a mood-congruent effect.

These mood-incongruent results are different from what has traditionally been found in mood and persuasion research, but they are consistent with the affect immediacy principle referred to previously. That is, apparently affect took as its object whatever was in mind at the time, which, for low need for cognition participants were the arguments themselves, but for high need for cognition participants were their own salient thoughts (for an expanded discussion of individual differences in this process, see Briñol & Petty, 2005; this volume).

Summary

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, which was presumed to be the real basis 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).

Affect can also influence attitudes in a decision-making context. Approaches to explaining affect in decision-making included the affect heuristic (Slovic et al., 2002), risk-as-feeling (Loewenstein et al., 2001), and affect decision theory (Mellers et al., 1997.In addition to affect-congruent findings in which affect acts like a lens so that positive affect leads to positive judgments and negative affect to negative judgments, we also discussed mood-incongruent findings. These occurred in cases where, rather than promoting leniency, positive affect increased confidence in negative as well as positive thoughts and inclinations so that positive affect can empower the expression of initially negative attitudes (Lount, 2010; Schiller & Clore, 2014). The same effect has been observed in studies of persuasion, where affect appears to validate or invalidate thoughts about persuasive arguments resulting in metacognitive influences on attitude (Petty & Briñol, 2008). Whether mood congruency or incongruency is found depends on the relative salience of the object of judgment and participants' thoughts (Briñol, Petty, & Barden, 2007).

Top-Down Influences on Attitude

We psychologists are often near-sighted in our explanations of attitude, reflecting the fact that traditional psychological research concerned the behavior of naïve rats, pigeons, and college students in novel situations removed from their usual ecology. The enthusiasm for conditioning or mere association as primary explanations of everyday attitudes should be tempered by 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. We might benefit, therefore, from considering a wider range of biological, social, and ecological factors in our emotional reactions.

Limitations on Associationism

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 we may come "prepared" (Seligman, 1970) to learn the attitude. The evolutionary argument is 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.

Young monkeys have been found to learn to fear snakes very readily after seeing another monkey show fear, whereas the same fear display to a flower had no such effect (Mineka, Davidson, Cook, & Keir, 1984). In other research, 7-month-old human infants showed no evidence of fear in response to pictures of snakes (LoBue & DeLoache, 2008). They were, however, quite good at quickly detecting a picture of a snake hidden among pictures of caterpillars. They were not similarly fast at

finding a caterpillar hidden among snakes. The same thing was found with snakes hidden among frogs (LoBue & DeLoache, 2008).

In one particularly interesting experiment, DeLoache and LoBue (2009) had infants sit on their mothers' laps while watching two videos side by side. One showed an undulating snake and the other showed another animal moving at about the same speed. The mothers were blindfolded so they could not provide any hints. The infants saw twelve pairs of brief videos, in each case one was of an undulating snake and one was of another moving animal (giraffe, rhinoceros, polar bear, hippopotamus, elephant, large bird). In addition, there was a sound track of an adult speaking in either a frightened or a happy voice. Which videos did the infants attend to? When the sound track was of a happy voice, they showed no preference, but when the sound track was of a frightened voice, the babies looked significantly longer at the snake video.

These and other experiments found that infants show no evidence of an innate fear of snakes, but that they very rapidly detect images of snakes, and they preferentially associate a fearful voice with the movement of snakes rather than to the movements of other animals. In other research, Öhman and Soares (1998) examined conditioned skin conductance responses when briefly presented pictures of snakes were visually masked and followed by electric shock. Although they found that unconscious exposure to snakes or spiders or angry faces readily led to conditioning, pairing unconscious presentations of pictures of flowers, mushrooms, or happy faces did not. Even when images of mushrooms reliably signaled shock, there was little attitude conditioning. Apparently, we are more prepared to dislike snakes than 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 would readily associate taste, but not visual or auditory cues, with nausea. Remarkably, an association was formed even when a taste is separated from nausea by hours. Furthermore, 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 head start. 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 occurs with any random association of stimuli and responses 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 finger 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 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 that

one would be bullied by the class valedictorian. Once one has the idea that certain kinds of individuals may present certain kinds of threats, one has an attitude.

These kinds of structured beliefs or stereotypes are byproducts of ordinary cognitive processing, but promote discrimination of minorities in housing and employment, racial profiling by police, and rationalizations for violence against minorities. The "Black Lives Matter" movement arose in 2013 as a social media phenomenon after the first of many high-profile acquittals of police for killing unarmed Black men and boys. It was a public reaction against the tragic consequences of the negative affective associations that can arise when relevant cognitive structures and beliefs pave the way (for a further discussion of cognitive influences on attitude, see Wegener, Clark, & Petty, this volume)

Cultural Preparedness

The "cognitive preparedness" that promotes particular affective associations is not, of course, simply an attribute of individual minds. Individuals are embedded in a cultural context, and the culture too prepares people in myriad ways to make some associations and not others. If attitudes are affective associations, why those associations rather than others?

Cross-cultural research suggests, for example, that obesity elicits negative affect in individualist cultures more than in collectivist cultures. Crandall et al. (2001) propose that, because of cultural assumptions that people are responsible for their own outcomes, individualists tend to see persons and their outcomes as a single unit. In the case of obesity, people are believed, at least implicitly, to be fat because they have no will power. Crandall and colleagues argue, therefore, "Blaming the victim is a cultural phenomenon" (p. 36). They refer to their approach as an "ideological theory of prejudice" (p. 36). They propose that, in individualist cultures, this tendency to make judgments of responsibility underlies many kinds of prejudice. Thus, culturally entrenched beliefs about controllability are also believed to underlie negative attitudes about homosexuality (Sakalli, 2002). (For further discussion of cultural influences, see Shavitt, this volume.)

We have been making the point that various kinds of preparedness make some affective associations more likely than others. However, in addition to the idea that beliefs and stereotypes enable certain affective associations, the reverse is also true. Existing affective associations also enable particular beliefs and stereotypes, because they justify those negative feelings (Hegarty & Golden, 2008). Indeed, research shows that prejudicial beliefs tend to arise to justify negative affective associations even when the affective associations are created in the lab and concern novel, fictional categories (Crandall, Bahns, Warner, & Schaller, 2011). Thus, it is unclear whether public attitudes about sexual orientation, for example, have changed because of changes in beliefs about controllability or whether the reverse is true.

At a larger level, feelings and beliefs exist in a dynamic relationship to each other. Whereas this chapter focuses on affective influences on attitudes, the relationship is bidirectional, and each constrains the other. This kind of mutual influence was studied intensively in the 1950s with the advent of cognitive dissonance theory (Festinger, 1957); balance theory (Heider, 1946); cognitive congruity theory (Osgood & Tannenbaum, 1955); and affective-cognitive consistency theory (Rosenberg, 1956). All of these assert that people strive for a balanced state of cognitions and feelings and that inconsistency is a negative state that motivates change in feeling or belief (or behavior).

In the foregoing, we suggest that psychologists have placed too much faith in the infinite malleability of associations and attitudes. Attitudes are not written on blank slates. In some cases, our mental and emotional slates appear to be biologically, cognitively, and culturally prepared for particular kinds of associations. But this view is also too limited, because it still implies that attitudes arise from affective experiences of individuals in isolation. For example, in the experiments by Staats and Staats (1958) the names of countries were repeatedly presented with positive or negative words, but in

all likelihood, more was involved. Indeed, in the study of semantic learning, linguists realized quite early on that mere association probably would not take us very far (Chomsky, 1968).

Conditioning and other 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 another alternative to bottom-up 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 research on how children acquire this aspect of social cognition (e.g., Astington, 2000; Leslie, 1987; Lewis & Mitchell, 1994; Wellman, 1990; Zelazo, Astington, & Olson, 1999).

Bloom (2000) proposed that theory of mind is crucial for understanding how children learn the meanings of words. In a comparison that is potentially informative for attitude theorists, he contrasts two forms of learning. John Locke maintained that we learn word meanings from repeated associations between objects and their names. But St. Augustine believed that they are learned when children infer the intent of their elders when uttering particular words. Bloom concludes that St. Augustine had the right idea, and some research bears him out. Much of children's cognitive development hinges on their coming to understand what others have in mind when they do or say something. In addition to figuring out specific, localized references, he assumes that people use a more general theory of other people's perspectives. This approach does not assume that children are continually engaged in deep philosophical thought. Rather, 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, children automatically use the gaze of others to disambiguate what they mean when they refer to something. Even in the second year of life, children develop an interest in the behavior of others and make accurate inferences about other people's false beliefs (Onishi & Baillargeon, 2002).

Our point is that, 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[5]

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, while campaigning, political candidates try to get voters to place them into desirable categories and their opponents into undesirable categories. They do so in the knowledge that individuals are painted with the same brush as the categories of which they are seen as 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 names. They bank on the idea that products introduced within a positive brand name will inherit the brand-based affect. Indeed, that is the whole point of "branding."

Conclusions and Summary

This chapter began by characterizing emotions, attitudes, moods, and temperaments as affective conditions that differ in whether or not they are temporary and whether or not they are about something specific. It asks how temporary affective feelings can become lasting attitudes. The first section reviewed the history of attempts to understand attitudes as products of classical conditioning. Eventually, investigators concluded that the process involved may not be an example of classical conditioning, and they renamed the phenomenon—"evaluative conditioning." A theory-neutral definition of evaluative conditioning is simply, *a change in the evaluation of a conditioned stimulus (CS) because of its pairing with a positive or negative unconditioned stimulus (US)*. Explanations of evaluative conditioning were reviewed, including those that assume: (a) automatic affective associations, (b) inferred propositions about the associations, (c) both of these within a dual-process model, (d) both of these in a single stream model, and (e) misattribution of the evaluation of the UCS to the CS.

Research has asked whether attitudes reflect raw associations with affective stimuli or whether they reflect affective meaning from relational information. For example, do people *dislike* Batman because he is associated with crime, or do they *like* Batman because he fights crime? A series of studies produced evidence for both processes. Mere association was especially apparent when implicit measures of attitude were included, whereas relational information sometimes governed attitude formation, especially when the relational information appeared at the same time as the evaluative information.

A dual-process model of evaluative conditioning, the associative-propositional evaluation (APE) model, was proposed to explain the differences in the processes detected by implicit and explicit measures. In contrast various single stream models, such the iterative reprocessing model, hold that stimuli are processed and reprocessed for personal relevance by the amygdala with low-level processes occurring early and contextual elaboration occurring as processing continues.

One explanation for how value is transferred from evaluative stimuli to neutral stimuli through association emphasizes misattribution. The idea is that, especially when the stimuli are confusable by virtue of being presented at more or less the same time, the affective aspect of the evaluative stimulus may be misattributed to the neutral stimulus.

Zooming out from the details of method, we proposed that the Gestalt principles by which successive events become a narrative whole are useful to account for the value transfer observed in such procedures as conditioning, priming, and the misattribution of mood.

The second main section of the chapter was titled Affect Attribution and Attitude. It discussed the effects of induced, irrelevant moods on attitude judgments. We reviewed the origins of the method and the early explanations that arose, emphasizing work from the affect-as-information approach. Reviewers of the mood and judgment literature conclude that the use of feelings in judgment is frequent and generally sensible when making judgments, rather than a source of bias. We also briefly reviewed affect and decision-making models, which tend to see affect more as a source of bias.

Mood and judgment studies usually find mood congruency effects in which people in positive moods see the world through rose-colored glasses. But some recent mood studies have observed mood-incongruent judgment both in attitude and persuasion studies. Explanations focus on the idea that, whereas affect may most often take as its object, the target of judgment, when an individual's thoughts or initial opinions of the target are made salient, affect is likely to take them as its object. Such effects were presented as consistent with the Affect Immediacy Principle (Clore et al., 2001), which says that affect is always experienced as being about whatever is in mind at the time.

The overall emphasis of the chapter was on how attitudes are acquired through conditioning, association, and attributions for affective experiences. The final section challenged the adequacy of that bottom-up view, discussing the limits on conditioning from biological, social, and cultural factors. As examples of top-down processes of affective influence, we considered social processes in attitude acquisition. Included was theory of mind processes in attitude formation wherein children and adults learn by inferring what others have in mind. Finally, we also considered schema-triggered affect, whereby people, products, and ideas can inherit affect and attitude value from the categories in which they are considered.

Looking Forward

Reviewing research is a backward-looking activity, but what of the future? Generally, the trajectory of research in psychology is away from a search for single, noncontingent causes toward a view of psychological phenomena as embedded and contextual in nature (e.g., Schwarz, 2007). Similarly, psychologists are coming to see attitudes (Cunningham & Zelazo, 2007) and emotions (Barrett, 2017) less as latent entities and more as emergent forms of evaluation arising from common processes.

One methodological result is that investigators are becoming less sanguine about the power of standard, between groups designs for establishing robust general principles (Nesselroade & Molenaar, 2016). In addition, some investigators champion the use of alternative methods, including field experiments, big data, archival research, and observational studies (Cheung, Hebl, & King, 2017). Others propose new analytic techniques, such as network modeling, as illustrated in the causal attitude network model, which conceptualizes attitudes as networks of causally interacting evaluative reactions that include beliefs, feelings, and behaviors toward attitude objects (Dalege et al., 2016).

One might imagine that the current information revolution would have produced in the public increasingly nuanced opinions. But such a surfeit of information seems to tax people's cognitive capacities, forcing them to rely on pre-existing beliefs and attitudes rather than acquiring new information. In response, new research might ask what conditions promote bottom-up processing that affords attitude change rather than top-down reliance on existing attitudes. An accessibility model of emotion reporting (Robinson & Clore, 2002) has established three principles for predicting when people engage in experienced-based versus belief-based emotion reporting. A productive line of research might apply those principles to the related problem of when people make judgments based on new experiences versus old attitudes.

It is a truism that positive affect leads to positive judgments and negative affect to negative judgments. In view of overwhelming evidence of such affect congruency, the research showing affect-incongruent judgments raises interesting questions. Do affect-congruent judgments stem from adopting a target focus and affect-incongruent judgments from adopting a self-focus? Do novel judgment objects attract attention to themselves but familiar objects shift attention to judges' pre-existing attitudes?

More generally, we note that the profoundly social nature of both emotions and attitudes is underappreciated and understudied. Although both *emotion* and *attitude* are social psychological constructs, we social psychologists often proceed as though they were products of the solitary

experiences of isolated individuals. Research and theory development focused on the distinctively social causes and consequences of attitudes is long overdue.

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Notes

1 Some investigators are currently shifting from a traditional "basic" emotions view to a constructivist view of emotion (Barrett, 2017). Discussion of this transition in theory is beyond the scope of this article, but the view presented here is compatible with such changes.
2 The chapter focuses on affective and evaluative reactions and their effects on attitudes. Studies of specific emotions often assume that particular emotions elicit particular goals, which then influence judgment in the service of choice behavior rather than of attitude. As a result, that research is not reviewed here.
3 Note that prejudice against immigrants is not new, only the groups have changed.
4 Since persuasion is covered in a separate chapter, see Johnson, Wolf, & Maio (this volume), research on affective influences on persuasion is not reviewed in this chapter.
5 A separate body of research, not reviewed in this chapter concerns affective influences on adoption of a global vs. local focus, including the use of stereotypes, brands, and other categorical information. Many experiments have shown that positive affect broadens attention and promotes a global focus (e.g., Gasper & Clore, 2002), including a greater use of stereotypes (e.g., Bless, Schwarz, & Kemmelmeier (1996). That turns out to be generally, but not always the case. For a review, see Huntsinger, Isbell, and Clore, 2014.

References

Albarracín, D., Hart, W., & McCulloch, K. C. (2006). Associating versus proposing or associating what we propose: Comment on Gawronski and Bodenhausen 2006. *Psychological Bulletin. 132*, 732–735.

Anderson, E., Siegel, E., White, D., & Barrett, L. F. (2012). Out of sight but not out of mind: Unseen affective faces influence evaluations and social impressions. *Emotion*, *12*, 1210–1221.

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

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

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

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

Averbeck, J., Jones, A., & Robertson, K. (2011). Prior knowledge and health messages: An examination of affect as heuristics and information as systematic processing for fear appeals. *Southern Communication Journal*, *76*, 35–54.

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.

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

Bar-Anan, Y., De Houwer, J., & Nosek, B. A. (2010). Evaluative conditioning and conscious knowledge of contingencies: A correlational investigation with large samples. *The Quarterly Journal of Experimental Psychology*, *63*, 2313–2335.

Bar-Anan, Y., & Nosek, B. A. (2014). A comparative investigation of seven indirect attitude measures. *Behavioral Research*, *46*, 668–688.

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.

Barrett, L. F. (2017). *How emotions are made: The secret life of the brain*. New York, NY: Houghton Mifflin Harcourt.

Bassili, J. N., & Brown, R. D. (2005). Implicit and explicit attitudes: Research, challenges, and theory. In D. Albarracín, B. T., Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 543–574). Mahwah, NJ: Lawrence Erlbaum Associates.

Bless, H., Schwarz, N., & Kemmelmeier, M. (1996). Mood and stereotyping: The impact of moods on the use of general knowledge structures. *European Review of Social Psychology*, 7, 63–93.

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.

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.

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. (2005). Individual differences in attitude change. In Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 575–615). Mahwah, NJ: Lawrence Erlbaum Associates.

Briñol, P., Petty, R. E., & Barden, J. (2007). Happiness versus sadness as a determinant of thought confidence in persuasion: A self-validation analysis. *Journal of Personality and Social Psychology*, *93*, 711–727.

Brown, L. B. (1973). *Ideology*. Harmondsworth, UK: Penguin.

Buechel, E. C., Zhang, J., & Morewedge, C. K. (2017). Impact bias or underestimation? Outcome specifications predict the direction of affective forecasting errors. *Journal of Experimental Psychology General*, *146*, 746–761.

Byrne, D., & Clore, G. L. (1966). Predicting interpersonal attraction toward strangers presented in three different stimulus modes. *Psychonomic Science*, *4*, 239–240.

Byrne, D., Rasche, L., & Kelley, K. (1974). When "I like you" indicates disagreement an experimental differentiation of information and affect. *Journal of Research in Personality*, *8*, 207–217.

Chaiken, S., & Trope, Y. (1999). *Dual-process theories in social psychology*. New York, NY: Guilford Press.

Cheung, H. K., Hebl, M., & King, E. B. (2017). Back to the future: Methodologies that capture real people in the real world. *Social Psychological and Personality Science*, published online July 12, 2017.

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

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

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, NY: 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., & Huntsinger, J. R. (2007). How emotions inform judgment and regulate thoughts. *Trends in Cognitive Sciences*, *11*, 393–399.

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.

Coan, J. A., & Allen, J. J. B. (2007). *The handbook of emotion elicitation and assessment*. New York, NY: Oxford University Press.

Cooney, J. W., & Gazzaniga, M. S. (2003). Neurological disorders and the structure of human consciousness. *Trends in Cognitive Sciences*, 7, 161–165.

Corneille, O., Yzerbyt, V., Pleyers, G., & Mussweiler, T. (2009). Beyond awareness and resources: Evaluative conditioning may be sensitive to processing goals. *Journal of Experimental Social Psychology*, *45*, 279–282.

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.

Crandall, C. S., Bahns, A. J., Warner, R., & Schaller, M. (2011). Stereotypes as justifications of prejudice. *Personality and Social Psychology Bulletin*, *37*, 1488–1498.Cunningham, W. A., & Zelazo, P. D. (2007). Attitudes and evaluations: A social cognitive neuroscience perspective. *Trends in Cognitive Sciences*, *11*, 97–104.

Dalege, J., Borsboom, D., van Harreveld, F., van den Berg, H., Conner, M., & van der Maas, H. L. J. (2016). Toward a formalized account of attitudes: The Causal Attitude Network (CAN) model. *Psychological Review*, *123*, 2–22.

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

Davies, S. R., El-Deredy, W., Zandstra, E. H., & Blanchette, I. (2012). Evidence for the role of cognitive resources in flavour-flavour evaluative conditioning. *Quarterly Journal of Experimental Psychology*, *65*, 2297–2308.

De Houwer, J. (2007). A conceptual and theoretical analysis of evaluative conditioning. *The Spanish Journal of Psychology*, *10*, 230–241.

De Houwer, J. (2009). The propositional approach to associative learning as an alternative for association formation models. *Learning & Behavior*, *37*, 1–20.

De Houwer, J. (2011). Evaluative conditioning: A review of procedure knowledge and mental process theories. In T. R. Schachtman & S. Reilly (Eds.), *Applications of learning and conditioning* (pp. 399–416). Oxford, UK: Oxford University Press.

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.

DeLoache, J., & LoBue, V. (2009). The narrow fellow in the grass: Human infants associate snakes and fear. *Developmental Science*, *12*, 201–207.

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.

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

Evans, J. (2003). In two minds: Dual-process accounts of reasoning. *Trends in Cognitive Sciences*, 7, 454–459.

Fabrigar, L. R., MacDonald, T. K., & Wegener, D. T. (2005). The structure of attitudes. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 79–124). Mahwah, NJ: Lawrence Erlbaum Associates.

Fazio, R. H., Jackson, J. R., Dunton, B. C., &Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of. Personality & Social Psychology*, *69*, 1013–1027.

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

Fiedler, K., & Unkelbach, C. (2011). Evaluative conditioning depends on higher order cognitive processes. *Cognition & Emotion*, *25*, 639–656.

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, NJ: Lawrence Erlbaum Associates.

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.

Förderer, S., & Unkelbach, C. (2012). Hating the cute kitten or loving the aggressive pit-bull: EC effects depend on CS—US relations. *Cognition and Emotion*, *26*, 534–540.

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., & Moylan, S. (1987). After the movies: Transient mood and social judgments. *Personality and Social Psychology Bulletin*, *13*, 478–489.

Fridlund, A. J., Beck, H. P., Goldie, W. D., & Irons, G. (2012). Little Albert: A neurologically impaired child. *History of Psychology*, *15*, 1–34.

Garcia, J., & Koelling, R. A. (1966). Relation of cue to consequence in avoidance learning. *Psychonomic Science*, *4*, 123–124.

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.

Gast, A., Gawronski, B., & De Houwer, J. (2012). Evaluative conditioning: Recent developments and future directions. *Learning and Motivation*, *43*, 79–88.

Gast, A., & Rothermund, K. (2011). What you see is what will change: Evaluative conditioning effects depend on a focus on valence. *Cognition and Emotion*, *25*, 89–110.

Gawronski, B., & Bodenhausen, G. V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*, *132*, 692–731.

Gawronski, B., & Bodenhausen, G. V. (2011). The associative-propositional evaluation model: Theory, evidence, and open questions. *Advances in Experimental Social Psychology*, *44*, 59–127.

Gawronski, B., Mitchell, D. G. V., & Balas, R. (2015). Is evaluative conditioning really uncontrollable? A comparative test of three emotion-focused strategies to prevent the acquisition of conditioned preferences. *Emotion*, *15*, 556–568.

Gorn, G., Pham, M. T., & Sin, L. Y. (2001). When arousal influences ad evaluation and valence does not (and vice versa). *Journal of Consumer Psychology*, *11*, 43–55.

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*, 146–1480.

Greifeneder, R., Bless, H., & Pham, M. T. (2011). When do people rely on affective and cognitive feelings in judgment?: A review. *Personality and Social Psychology Review*, *15*, 107–141.

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.

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

Hegarty, P., & Golden, A. M. (2008). Attributions about the controllability of stigmatized traits: Antecedents or justifications of prejudice? *Journal of Applied Social Psychology*, *38*, 1023–1044.

Heider, F. (1946). Attitudes and cognitive organization. *Journal of Psychology*, *21*, 107–112.

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

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.

Heyman, J., Mellers, B., Tishcenko, S., & Schwartz, A. (2004). I was pleased a moment ago: How pleasure varies with background and foreground reference points. *Motivation and Emotion*, *28*, 65–83.

Hofmann, W., De Houwer, J., Perugini, M., Baeyens, F., & Crombez, G. (2010). Evaluative conditioning in humans: A meta-analysis. *Psychological Bulletin*, *136*, 390–421.

Hu, X., Gawronski, B., & Balas, R. (2017). Propositional versus dual-process accounts of evaluative conditioning: The effects of co-occurrence and relational information on implicit and explicit evaluations. *Personality and Social Psychology Bulletin*, *43*, 17–32.

Huntsinger, J. R., Isbell, L. M., & Clore, G. L. (2014). The Affective control of thought: Malleable, not fixed. *Psychological Review*, *121*, 600–618.

Hütter, M., & Sweldens, S. (2013). Implicit misattribution of evaluative responses: Contingency-unaware evaluative conditioning requires simultaneous stimulus presentations. *Journal of Experimental Psychology: General*, *142*, 638–643.

Hütter, M., Sweldens, S., Stahl, C., Unkelbach, C., & Klauer, K. C. (2012). Dissociating contingency awareness and conditioned attitudes: Evidence of contingency-unaware evaluative conditioning. *Journal of Experimental Psychology: General*, *141*, 539–557.

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. M., & Means, B. (1983). The influence of positive affect on decision-making strategy. *Social Cognition*, *2*, 18–31.

Isen, A. M., & Shalker, T. E. (1982). The effect of feeling state on evaluation of positive, neutral, and negative stimuli: When you "accentuate the positive," do you "eliminate the negative"? *Social Psychology Quarterly*, *45*, 58–63.

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.

Jacoby, L. L. (1991). A process dissociation framework: Separating automatic from intentional uses of memory. *Journal of Memory and Language*, *30*, 513–541.

Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology*, *45*, 20–31.

Johnson, M. C. (2017). Never forget where you're from: Raising Guinean Muslim babies in Portugal. In A. Gottlieb & J. S. DeLoache (Eds.), *A world of babies: Imagined childcare guides for eight societies* (2nd Ed) (pp. 33–70). Cambridge: Cambridge University Press.

Jones, C. R., Fazio, R. H., & Olson, M. A. (2009). Implicit misattribution as a mechanism underlying evaluative conditioning. *Journal of Personality and Social Psychology*, *96*, 933–948.

Jones, C. R., Olson, M. A., & Fazio, R. H. (2010). Evaluative conditioning: The "How" question. In M. P. Zanna & J. M. Olson (Eds.), *Advances in experimental social psychology* (Vol. 43, pp. 205–255). San Diego: Academic Press.

Kadous, K. (2001). Improving jurors' evaluations of auditors in negligence cases. *Contemporary Accounting Research*, *18*, 425–444.

Kahneman, D. (2011). *Thinking, fast and slow*, 1st ed., New York, NY: Farrar, Straus and Giroux.

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 (NorthHolland).

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.

Kruglanski, A. W., & Dechesne, M. (2006). Are associative and propositional processes qualitatively distinct? Comment on Gawronski and Bodenhausen 2006. *Psychological Bulletin*, *132*, 736–739.

Kruglanski, A. W., Pierro, A., Mannetti, L., Erb, H.-P., & Chun, W. Y. (2007). On the parameters of human judgment. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 255–303). San Diego, CA: Elsevier Academic.

Kruglanski, A. W., & Stroebe, W. (2005). The influence of beliefs and goals on attitudes: Issues of structure, function, and dynamics. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 323–368). Mahwah, NJ: Lawrence Erlbaum Associates.

Lapate, R. C., Rokers, B., Li, T., & Davidson, R. J. (2014). Non-conscious emotional activation colors first impressions: A regulatory role for conscious awareness. *Psychological Science*, *2*, 349–357.

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.

LoBue, V., & DeLoache, J. S. (2008). Detecting the snake in the grass: Attention to fear-relevant stimuli by adults and young children. *Psychological Science*, *19*, 284–289.

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, Stony Brook.

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

Lount, R. (2010). The impact of positive mood on trust in interpersonal and intergroup interactions. *Journal of Personality and Social Psychology*, *98*, 420–433.

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.

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, NY: Basic Books.

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.

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

Mitchell, C. J., De Houwer, J., & Lovibond, P. F. (2009). The propositional nature of human associative learning. *Behavioral and Brain Sciences*, *32*, 183–246.

Moran, T., & Bar-Anan, Y. (2013). The effect of object-valence relations on automatic evaluation. *Cognition and Emotion*, *27*, 743–752.

Moran, T., Bar-Anan, Y., & Nosek, B. A. (2017). The effect of the validity of co-occurrence on automatic and deliberate evaluation. *European Journal of Social Psychology, 47*, 708–723.

Munro, G. D., Stansbury, J. A., & Tsai, J. (2012). A causal role for negative affect: Misattribution in biased evaluations of scientific information. *Self and Identity*, *11*, 1–15.Nesselroade, J. R., & Molenaar, P. C. M. (2016). Some behaviorial science measurement concerns and proposals. *Multivariate Behavioral Research*, *51*, 396–412.

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.

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.

Osgood, C. E., & Tannenbaum, P. H. (1955). The principle of congruity in the prediction of attitude change. *Psychological Review*, *62*, 42–55.

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.

Peters, K. R., & Gawronski, B. (2011). Are we puppets on a string? Comparing the impact of contingency and validity on implicit and explicit evaluations. *Personality and Social Psychology Bulletin*, *37*, 557–569.

Petty, R. E., & Briñol, P. (2008). Persuasion: From Single to Multiple to Metacognitive Processes. *Perspectives in Psychological Science*, *3*, 137–147.

Petty, R. E., Fazio, R. H., & Briñol, P. (2008). The new implicit measures: An Overview. In R. E. Petty, R. H. Fazio, & P. Briñol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 3–18). New York, NY: Psychology Press.

Pham, M. T. (1998). Representativeness, relevance, and the use of feelings in decision making. *Journal of Consumer Research*, *25*, 144–159.

Pham, M. T., Geuens, M., & De Pelsmacker, P. (2013). The influence of ad-evoked feelings on brand evaluations: Empirical generalizations from consumer responses to more than 1000 TV commercials. *International Journal of Research in Marketing*, *30*, 388–394.

Pleyers, G., Corneille, O., Yzerbyt, V., & Luminet, O. (2009). Evaluative conditioning may incur attentional costs. *Journal of Experimental Psychology: Animal Behavior Processes, 35*, 279–285.

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

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

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.

Robinson, M. D., & Clore, G. L. (2002). Beliefs, situations, and their interactions: Towards a model of emotion reporting. *Psychological Bulletin*, *128*, 934–960.

Rosenberg, M. J. (1956). Cognitive structure and attitudinal affects. *Journal of Abnormal Social Psychology*, *53*, 367–372.

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

Sakalli, N. (2002). Application of the attribution—value model of prejudice to homosexuality. *The Journal of Social Psychology*, *142*, 264–271.

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

Schiller, A. J. (2017). *Beyond affect congruence* (Doctoral Dissertation), University of Virginia, Charlottesville, VA

Schiller, A. J., & Clore, G. L. (2014, April 21). *When positive mood leads to negative evaluations: Affect as information about judgment intensity*. Bethesda, MD: Society for Affective Science Poster.

Schimmack, U., & Crites, S. L., Jr. (2005). The structure of affect. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 397–435). Mahwah, NJ: Lawrence Erlbaum Associates.

Schwarz, N. (2007). Attitude construction: Evaluation in context. *Social Cognition*, *25*, 638–656.

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, Ontario, Canada: Hogrefe International.

Schwarz, N., & Clore, G. L. (2007). Feelings and phenomenal experiences. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 385–407). New York, NY: Guilford Press.

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

Shaked, A., & Clore, G. L. (2016). Breaking the world to make it whole again: Attribution in the construction of emotion. *Emotion Review*, *9*, 27–35.

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.

Slovic, P., Peters, E., Finucane, M. L., & MacGregor, D. G. (2005). Affect, risk, and decision making. *Health Psychology*, *24*, S35–40.

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

Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate. *Behavioral and Brain Science*, *23*, 645–726.

Strack, F., 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.

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

Sweldens, S., Corneille, O., & Yzerbyt, V. (2014). The role of awareness in attitude formation through evaluative conditioning. *Personality and Social Psychology Review*, *18*, 187–209.

Sweldens, S., Van Osselaer, S., & Janiszewski, C. (2010). Evaluative conditioning procedures and the resilience of conditioned brand attitudes. *Journal of Consumer Research*, *37*, 473–489.
Tabert, K., Merz, C. J., Klucken, T., Schweckendiek, J., Vaitl, D., Wolf, O. T., & Stark, R. (2011). Influence of contingency awareness on neural, electrodermal and evaluative responses during fear conditioning. *Social, Cognitive, and Affective Neuroscience*, *6*, 495–506.
Tsuchiya, N., & Koch, C. (2005). Continuous flash suppression reduces negative after images. *Nature Neuroscience, 8*, 1096–1101.
Walther, E., Gawronski, B., Blank, H., & Langer, T. (2009). Changing likes and dislikes through the backdoor: The US-revaluation effect. *Cognition and Emotion*, *23*, 889–917.
Watson, J. B. (1928). Psychological care of the infant and child. New York, NY: Norton.
Watson, J. B., & Raynor, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology*, *3*, 1–14.
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.
White, K., & McFarland, C. (2009). When are moods most likely to influence consumers' product preferences? The role of mood focus and perceived relevance of moods. *Journal of Consumer Psychology*, *19*, 526–536.
Winkielman, P., Zajonc, R. B., & Schwarz, N. (1997). Subliminal affective priming resists attributional interventions. *Cognition and Emotion*, *11*, 433–465.
Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: Variability in automatically activated attitudes. *Journal of Personality and Social Psychology*, *81*, 815–827.
Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.
Wyer, R. S., & Albarracín, D. (2005). Belief formation, organization, and change: Cognitive and motivational influences. In D. Albarracín, B. T., Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 273–322). Mahwah, NJ: Lawrence Erlbaum Associates.
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, NY: Academic Press.
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.
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.
Zhang, X., Yu, H. W., & Barrett, L. F. (2014). How does this make you feel? A comparison of four affect induction procedures. *Frontiers in Psychology*, *5*, 689.