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Can Sadness Be Good for You?

On the Cognitive, Motivational, and Interpersonal Benefits of Negative Affect

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*H*omo sapiens is a remarkably moody species. Fluctuating affective states color and filter everything we think and do during our waking hours. What is the role of affective states in guiding our reactions to the manifold challenges of everyday life? And, in particular, are there any demonstrably adaptive benefits that flow from the temporary experience of negative mood states? Evolutionary theorists have long assumed that all affective reactions serve important adaptive functions, operating like functional "mind modules" that spontaneously spring into action in response to various environmental challenges (Forgas, Haselton, & von Hippel, 2007; Frijda, 1986; Tooby & Cosmides, 1992). This chapter surveys a number of experimental studies providing convergent and somewhat counterintuitive evidence for the often useful and adaptive consequences of mild negative affect for social cognition, judgments, motivation, and interpersonal behavior.

ON NEGATIVE AFFECT

Negative emotions have always been with us. Indeed, arguably, many of the greatest achievements of the human mind and spirit were born out of sadness, dysphoria, and even enduring depression. Many of the classic works

of Western culture and civilization also deal with the evocation and cultivation of negative feelings and emotions. There are more Greek tragedies than there are comedies, Shakespeare also wrote more numerous tragedies than comedies, and hilarity generally comes a distant second to seriousness in most great literature and art. It seems that dealing with negative affect and what it tells us about the human condition has long been the focus of many artists and writers.

Yet, remarkably, there is also another side to this tradition. The search for happiness has been an equally enduring theme in human affairs. Hedonism is sometimes considered as the most important simple and sovereign principle that can explain all human behavior (Allport, 1985), and utilitarian philosophers sought to explore the necessary and sufficient conditions for human happiness and the best ways to attain it. Our very own age is characterized by an incessant individual and cultural pursuit of happiness. So there is a strange duality about the way Western cultures, and modern industrial societies in particular, think about the costs and benefits of different affective states.

It is intriguing that despite the never-ending human quest for happiness, our emotional repertoire as a species is nevertheless also heavily skewed toward negative emotions. Four of the six basic emotions are negative—fear, anger, disgust, and sadness. These emotions were clearly adaptive in our ancestral environment, preparing the organism for flight, fight, or avoidance, and there is general agreement about their functional benefits. But what about sadness, perhaps the most ubiquitous of our negative emotions? What is the purpose or benefit of being sad? Although sadness is probably the most common of all our negative affective states, its possible adaptive functions remain puzzling and poorly understood (Ciarrochi, Forgas, & Mayer, 2006; Forgas, 2006).

Sadness in our culture is often considered an unnecessary and undesirable emotion. A plethora of self-help books promote the benefits of positive thinking, positive attitudes, and positive behaviors, consigning negative affect in general, and sadness in particular, to the category of "problem emotions" that need to be managed or eliminated if possible. Much of the psychology profession is employed in managing and alleviating sadness. Yet it seems that some degree of sadness and melancholia has been far more accepted in previous historical epochs than is the case today (Sedikides, Wildschut, Arndt, & Routledge, 2006). From the classic philosophers through Shakespeare to the works of Chekhov, Ibsen, and the great novels of the 19th century, exploring the landscape of sadness, longing, and melancholia has long been considered instructive and, indeed, ennobling. It is only in the last few decades that a veritable industry promoting the cult of positivity has managed to eliminate this earlier and more balanced view of the landscape of human affectivity.

The evidence reviewed here shows that negative affect in general, and sadness in particular, also have important adaptive consequences by spontaneously triggering cognitive, motivational, and behavioral strategies that are well suited to dealing with the requirements of demanding social situations (Frijda, 1986). This is not to suggest that positive affect has no beneficial consequences, such as promoting creativity, flexibility, cooperation, and life satisfaction (Forgas, 1994, 1998a, 1998b, 2002; Forgas & George, 2001). Rather, a number of empirical studies now demonstrate that negative moods such as sadness may often recruit a more attentive, accommodating thinking style that produces superior outcomes whenever detailed, externally oriented, inductive thinking is required (Bless & Fiedler, 2006; Forgas & Eich, 2012). This prediction is consistent with evolutionary, functionalist theories of affect that argue that affective states "exist for the sake of signalling states of the world that have to be responded to" (Frijda, 1988, p. 354).

It is the influence of moods rather than distinct emotions that is of interest here, as moods are more common and more enduring and typically produce more uniform and reliable cognitive and behavioral consequences than do more context-specific emotions (Forgas, 2002, 2007). Moods are low-intensity, diffuse, and relatively enduring affective states without a salient antecedent cause and therefore little conscious cognitive content. In contrast, emotions are more intense and short-lived, and they usually have a definite cause and conscious cognitive content (Forgas, 1995, 2002). This chapter begins with a brief review of theoretical approaches linking affect, motivation, and cognition. It then reviews a number of experiments demonstrating the beneficial effects of negative affective states for cognition, motivation, and interpersonal behavior. The role of different information-processing strategies in mediating these effects receives special attention.

AFFECT, COGNITION, AND BEHAVIOR

In empirical psychology, affect has long remained the most neglected member of the historical tripartite division of the human mind into cognition, affect, and conation. This may be partly due to the archaic idea that affect represents a more primitive, dangerous, and invasive force that is incompatible with rational thinking and behavior, a notion that can be traced back in Western philosophy to the works of Plato. Freud's psychoanalytic speculations gave further emphasis to this view of affect as a dangerous, invasive force that needs to be controlled. Fortunately, the past few decades saw a radical revision of this view. As a result of advances in physiology and neuroanatomy, we now know that affect is often an essential and adaptive component of responding adaptively to social situations (Adolphs & Damasio, 2001; Forgas, 1995, 2002; Zajonc, 2000).

Renewed psychological interest in affect emerged in the early 1980s, and Robert Zajonc (1980) was among the first to argue that affect often constitutes the primary and dominant dimension of responding to social situations (Unkelbach, Forgas, & Denson, 2008). Affect also plays a critical role in how people cognitively represent their everyday social experiences (Forgas, 1979, 1982), and many social "stimuli can cohere as a category even when they have nothing in common other than the emotional responses they elicit" (Niedenthal & Halberstadt, 2000, p. 381).

Only a few early experiments directly explored affective influences on cognition and behavior. For example, in one early study Feshbach and Singer (1957) found that attempts to suppress affect may paradoxically increase the "pressure" on affect to infuse unrelated attitudes and judgments. Their study showed that fearful persons were more likely to see "another person as fearful and anxious" (p. 286), especially when the fearful participants were trying to suppress their fear, indicating that the "suppression of fear facilitates the tendency to project fear onto another social object" (p. 286). In another early experiment, Razran (1940) showed that people who were made to feel good or bad (receiving a free lunch or being exposed to unpleasant smells) responded to sociopolitical messages in an affect-congruent manner. Similar conditioning experiments were subsequently reported by Clore and Byrne (1974), who explored affect infusion into interpersonal judgments and behaviors.

In contrast to earlier approaches, contemporary theories linking affect to cognition and behavior identify two kinds of affective influences: (1) *informational effects* (such as affect congruence), in which an affective state directly influences the valence of information that people access and use and (2) *processing effects*, in which affect influences the way information is processed.

Informational Effects

Affect can influence the valence of thinking and behavior according to two complementary theories of informational effects: *affect priming* and *affect-as-information* models. *The affect-priming* account (Bower, 1981) argues that affect is integrally linked to an associative network of memory representations. An affective state may thus selectively prime associated constructs previously linked to that affect, and such affect-congruent ideas are more likely to be used in subsequent constructive cognitive tasks. Early studies showed that people induced to feel good or bad tended to selectively remember more mood-congruent details from their childhoods and recalled more mood-congruent events from the recent past (Bower, 1981). Mood congruence can also influence how people interpret social behaviors (Forgas, Bower & Krantz, 1984) and form impressions of others (Forgas &

Bower, 1987). However, affect priming is also subject to several boundary conditions and is most reliably obtained when tasks require open, constructive processing, as is the case with many inferences and associations, with impression formation, and with interpersonal behaviors (e.g., Bower & Forgas, 2001; Forgas, 2002; Forgas & Eich, 2012).

A second, *affect-as-information* (AAI), model proposed by Schwarz and Clore (1988; Clore, Schwarz, & Conway, 1994; Clore, Gasper, & Garvin, 2001) suggests that "rather than computing a judgment on the basis of recalled features of a target, individuals may . . . ask themselves: "How do I feel about it? [and] in doing so, they may mistake feelings due to a pre-existing state as a reaction to the target" (Schwarz, 1990, p. 529). Thus affect congruence is due to an inferential error, as people misattribute a preexisting affective state to an unrelated social stimulus. The model makes very similar predictions to earlier conditioning theories (Clore & Byrne, 1974), emphasizing internal misattribution rather than temporal and spatial contiguity as responsible for affect infusion. Such affective misattribution is most probable when "the task is of little personal relevance, when little other information is available, when problems are too complex to be solved systematically, and when time or attentional resources are limited" (Fiedler, 2001, p. 175), as is the case, for example, when people are asked to perform personally uninvolving off-the-cuff judgments (Forgas & Moylan, 1987; Schwarz & Clore, 1988).

Processing Effects

Affect may also influence the *process* of cognition, that is, *how* people think (Clark & Isen, 1982; Fiedler & Forgas, 1988; Forgas, 2002). Early theories assumed that positive mood leads to less effortful processing (Clark & Isen, 1982; Sinclair & Mark, 1992), whereas negative mood promotes effortful and vigilant processing (Schwarz, 1990; Schwarz & Bless, 1991). Explanations of this effect at first emphasized either (1) *functional principles* suggesting that affective states signal the degree of effort and vigilance required in more or less demanding situations or (2) *motivational* principles, as happy people may seek to preserve their good moods by avoiding cognitive effort (mood maintenance) and dysphoric individuals increase cognitive effort to improve their moods (mood repair; Clark & Isen, 1982).

A more recent and comprehensive explanation for these processing effects by Bless and Fiedler (2006) suggests that rather than influencing processing effort, different moods have an evolutionary function recruiting qualitatively different processing *styles*. Following the processing dichotomy introduced by Piaget, they argue that negative moods call for *accommodative, bottom-up* processing, focused on the details of the external

world. In contrast, positive moods recruit *assimilative, top-down* processing and greater reliance on existing schematic knowledge and heuristics (Bless, 2000; Bless & Fiedler, 2006; Fiedler, 2001). Thus *assimilation* involves greater reliance on preexisting internal knowledge when responding to a situation, greater use of heuristics and cognitive shortcuts, and more top-down, generative, and constructive processing strategies in general. *Accommodation,* in contrast, involves increased attention to new, external, and unfamiliar information, increased sensitivity to social norms and expectations, and a more concrete, piecemeal, and bottom-up processing style. This affectively induced assimilative–accommodative processing dichotomy has received extensive support in recent years, suggesting that moods perform an adaptive function, preparing us to respond to different environmental challenges.

Several studies suggest that such a processing dichotomy associated with good and bad moods can have significant consequences. For example, Fiedler, Asbeck, and Nickel (1991) found that people experiencing positive moods were more likely to engage in constructive processing and were more influenced by prior priming manipulations when forming judgments about people, whereas negative mood reduced this tendency. Further, negative affect, by facilitating the processing of new external information, can also reduce judgmental mistakes such as the fundamental attribution error (Forgas, 1998a), reduce halo effects and primacy effects in impression formation (Forgas, 2011a, 2011b), improve the quality and efficacy of persuasive arguments (Forgas, 2007), and also improve eyewitness memory (Fiedler et al., 1991; Forgas, Vargas, & Laham, 2005), as I show later. The theory thus implies that *both* positive and negative moods can produce processing advantages, albeit in response to different situations that require different strategies. This model explicitly affirms that negative affect does have important adaptive functions, as several of the experiments reviewed here show.

Integrative Theories

As affect may influence both the *content* and the *process* of how people think, integrative theories such as the affect infusion model (AIM; Forgas, 1995, 2002) seek to link the informational and processing effects of mood and also to specify the circumstances that facilitate or inhibit affective influences on cognition and behavior. The AIM predicts that affective influences on cognition depend on the processing styles recruited in different situations that can differ in terms of two features: the degree of *effort* and the degree of *openness* of the information search strategy they recruit. By combining processing quantity (effort) and quality (openness, constructiveness), the model identifies four distinct processing styles:

direct-access processing (low effort, closed, not constructive), *motivated processing* (high effort, closed, not constructive), *heuristic processing* (low effort, open, constructive), and *substantive processing* (high effort, open, constructive).

Affect infusion into thinking and behavior is most likely when constructive processing is used, such as substantive or heuristic processing. In contrast, affect should not infuse thinking and behavior when motivated or direct-access processing is used. The AIM also recognizes that affect itself has a significant influence on information-processing strategies, consistent with the assimilative–accommodative distinctions proposed by Bless and Fiedler (2006).

There are thus good theoretical reasons to predict that affect has a significant influence on cognition, motivation, and interpersonal behavior in everyday life, including the likelihood that negative affect also has important beneficial effects in some situations. We now turn to reviewing a range of experiments demonstrating just such effects on cognition, motivation, and behavior. These experiments typically employ a two-stage procedure, as participants are first induced to experience an affective state (e.g., using exposure to happy or sad movies, music, autobiographical memories, or positive or negative feedback about performance). The effects of induced affect are then explored in subsequent tasks in what participants believe is a separate, unrelated experiment. Experimental evidence for the adaptive benefits of negative affect are summarized in four sections, discussing the benefits of negative affect for (1) memory, (2) judgments, (3) motivation, and (4) strategic interpersonal behaviors.

MEMORY BENEFITS:
WHEN BAD MOOD IMPROVES MEMORY

Recent experiments showed that more accommodative processing triggered by negative affect can produce a variety of cognitive benefits, improving memory, reducing judgmental errors, and improving communications. Memory—the ability to access previously encoded knowledge—is perhaps the most fundamental cognitive faculty (Forgas & Eich, 2012). Accurately remembering mundane, everyday scenes is a difficult and demanding task, yet such memories can be of crucial importance in everyday life, as well as in forensic and legal practice (Loftus, 1979; Neisser, 1982). Negative mood, by recruiting a more accommodative and externally focused processing style, should result in improved memory performance. This expectation was investigated in a realistic field experiment in a small suburban shop (Forgas, Goldenberg & Unkelbach, 2009). We were curious as to whether happy and sad people might remember differently a number of

small unusual objects (little trinkets, toys, Matchbox cars, etc.) that we placed near the checkout counter.

Mood was induced naturally, by carrying out the experiment on both cold, rainy, and unpleasant days (negative affect) and bright, sunny, warm days (pleasant affect; Schwarz & Clore, 1988). The mood effects of the weather were further reinforced by playing sad and depressing or cheerful and upbeat tunes within the store. We surreptitiously observed customers to make sure that they did spend enough time in front of the checkout counter to get a chance to see the objects we displayed. After they left the shop, a young female research assistant approached them and asked them to try to remember as many of the little trinkets they saw in the store as possible (cued recall task), and they also completed a recognition measure (Forgas et al., 2009). As expected, people in a slightly negative mood (on rainy days and exposed to sad music) had significantly better memory for the objects they saw in the shop than did happy people questioned on a bright, sunny day (see Figure 1.1). Thus it seems that mild, natural moods indeed have an effect on memory accuracy, with negative mood improving memory, consistent with the assimilative–accommodative processing model.

Eyewitness Accuracy

Remembering the details of everyday scenes is a fragile process that is often influenced by what people pay attention to, as well as by contamination by subsequent incorrect information (Fiedler et al., 1991; Loftus, 1979; Wells & Loftus, 2003). For example, misleading information obtained after the event can produce a false memory later on, the so-called misinformation effect (Loftus, 1979; Schooler & Loftus, 1993). Affective influences on eyewitness memory have received relatively little attention in the past (cf. Eich & Schooler, 2000), even though Fiedler et al. (1991) identified more than 20 years ago a need to examine "the mediating role of mood in eyewitness testimony" (p. 376). For example, more constructive and assimilative processing in positive moods may impair eyewitness accuracy by increasing the likelihood that misleading information will be incorporated into memories (Fiedler et al., 1991). In contrast, negative mood may constrain such distortions by triggering more accommodative processing and reducing the tendency to assimilate misleading information into the original memory (Forgas & Eich, 2012).

We explored this prediction in one experiment by first showing participants photos of a car crash scene (negative event) or, alternatively, a wedding party scene (positive event; Forgas et al., 2005, Exp. 1). One hour later, they were induced into happy or sad moods (after recalling happy or sad memories from their past in an ostensibly unrelated study) and then received questions about the earlier target scenes that either did or did not
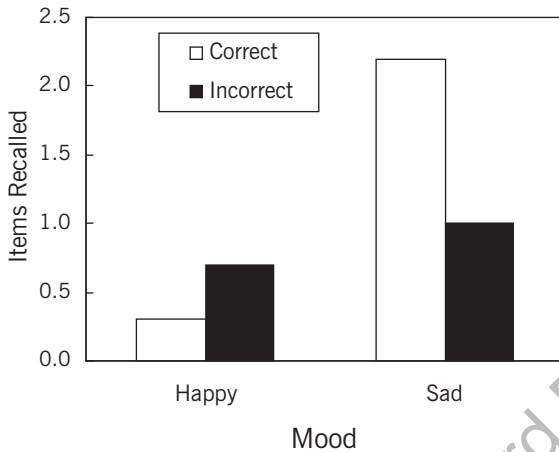
FIGURE 1.1. The effects of good or bad mood, induced by the weather, on correct and incorrect recall of items casually seen in a shop. After Forgas, Goldenberg, and Unkelbach (2009).

contain misleading, false information (e.g., "Did you see the stop sign at the scene?"—there was a yield sign, but no stop sign). After a further 45-minute interval, their memories for the target events were assessed. As expected, negative mood reduced and positive mood increased the tendency to assimilate misleading information into eyewitness memories. In fact, negative mood almost completely eliminated the common "misinformation effect" (Loftus, Doyle, & Dysert, 2008). A signal detection analysis confirmed that negative mood actually improved the ability to accurately discriminate between correct and false details.

We found a similar pattern in a subsequent experiment, in which students saw a staged but highly realistic 5-minute altercation between a lecturer and a female intruder (Forgas et al., 2005, Exp. 2). Misleading information was introduced 1 week later, when happy and sad eyewitnesses responded to questions about the incident that either did or did not contain false, planted information (e.g., "Did you see the young woman in a brown jacket approach the lecturer?"—the intruder wore a black jacket). We tested eyewitness memory after a further interval and found that those in negative mood while exposed to misleading information were less influenced by the planted details and retained more accurate eyewitness memory (see Figure 1.2), also confirmed by a signal detection analysis.

Interestingly, people seem unable to control this mood effect, even when explicitly instructed to do so. In a third study we showed participants videotapes of a robbery and a wedding scene. After a 45-minute interval,

False Alarms

FIGURE 1.2. Mood effects on the tendency to incorporate misleading informa-
tion into eyewitness memory (Experiment 2): Negative mood reduced and posi-
tive mood increased eyewitness distortions due to misleading information (false
alarms). After Forgas, Vargas, and Laham (2005).

they were induced into happy or sad moods using films and then received
questions that either did or did not contain misleading information about
the events. Even though some participants were explicitly instructed to con-
trol their affective states, exposure to misleading information reduced eye-
witness accuracy for happy participants but not for participants in negative
moods. These results establish that negative affect can improve memory per-
formance, consistent with the assimilative–accommodative theory (Bless,
2001; Fiedler & Bless, 2001; Forgas, 1995, 2002) that predicts that negative
affect recruits more externally oriented accommodative processing.

THE JUDGMENTAL BENEFITS OF NEGATIVE MOOD

Reducing the Fundamental Attribution Error

More attentive processing in negative affect could also improve the accuracy
of social judgments, such as people's tendency to succumb to the fundamen-
tal attribution error (FAE). This "dispositional bias" refers to the common
tendency by judges to infer intentionality and internal causation in observed
behaviors and ignore situational causes. By promoting more accommodative
processing, negative affect should reduce the incidence of the FAE by direct-
ing attention to situational information (Forgas, 1998a). In one experiment
happy or sad participants were asked to read and make inferences about the

writer of an essay advocating a popular or unpopular position (for or against nuclear testing), which they were told was either assigned or was freely chosen by the writer (e.g., Jones & Harris, 1967). Negative affect did reduce the FAE, a pattern also confirmed in a follow-up field study. Participants feeling good or bad after seeing happy or sad movies read and made attributions about the writers of popular and unpopular essays arguing for or against recycling. Once again, those in negative affective states were less likely to make incorrect, dispositional inferences based on assigned, coerced essays.

We also found direct evidence for the predicted processing differences using recall data. Happy or sad participants again made attributions about the writers of freely chosen or coerced essays (Forgas, 1998a, Exp. 3), and their recall memories of essay details were also assessed as an index of processing style. Negative affect decreased the incidence of the FAE, and those in negative moods also had better memory for essay details, consistent with their more accommodative processing style. A mediational analysis confirmed that processing style was a significant mediator of mood effects on judgmental accuracy.

Negative Affect Limits Halo Effects

Negative affect may also reduce some common judgmental biases such as halo effects and primacy effects in impression formation. Halo effects occur because judges tend to assume that a person having some positive features is likely to have others as well. For example, people judge a good-looking person as having a more desirable personality, or perhaps infer that a young unorthodox-looking female is less likely to be a competent philosopher than a middle-aged male. In a recent experiment we used just this manipulation (Forgas, 2011b), asking happy or sad judges to read a one-page philosophical essay about metaphysics. We also attached a photo of the writer showing either a casually dressed young female in one condition or a tweedy, bespectacled older male in the other condition, expecting that the appearance of the "writer" might exert a halo effect on judgments. Those in negative moods were indeed significantly less influenced by the appearance of the writer than were judges in positive moods. Happy judges showed a far greater halo effect and evaluated both the essay and the writer more positively when the photo showed an middle-aged male (typical philosopher) rather than a young female (Figure 1.3).
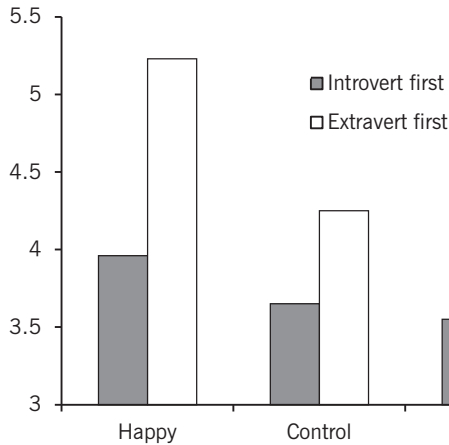
Negative Affect Reduces Primacy Effects

Primacy effects occur when judges place disproportionate emphasis on early information when forming impressions and pay less attention to later
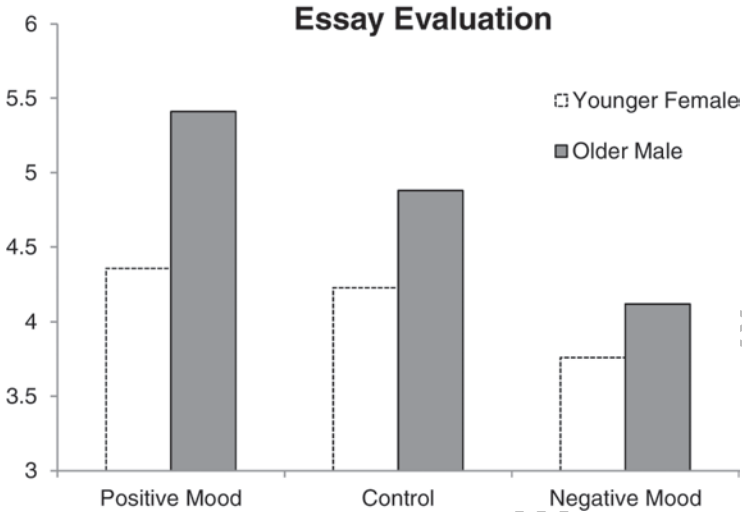
FIGURE 1.3. Mood moderates the incidence of halo effects on the evaluation of an essay: Positive mood increased and negative mood eliminated the halo effect associated with the appearance of the writer. After Forgas (2011b).

details (Asch, 1946; Luchins, 1958). First impressions are very important in many everyday situations, such as speed dating, job interviews, political communication, and marketing and advertising, yet little is known about how a judge's mood state influences primacy effects. Explanations of primacy effects emphasize cognitive mechanisms: People prematurely form a superficial impression based on early details and fail to process later stimulus information equally carefully and attentively. Primacy effects often disappear when every detail is processed equally carefully. As moods can play an important role in triggering qualitatively different processing strategies (Bless & Fiedler, 2006; Forgas, 2002, 2007), we predicted that primacy effects should be reduced by negative mood that recruits a more attentive, accommodative thinking style (Forgas, 2011a, 2011b).

Participants first received a mood induction (reminiscing about happy or sad events in their past) and then formed impressions about a target character, Jim, based on two descriptive paragraphs (Luchins, 1958). One paragraph described Jim as an extrovert, and the other paragraph described him as an introvert, and the order of presentation of the paragraphs was counterbalanced. We found a significant overall primacy effect, but negative mood completely eliminated this common judgmental bias. Conversely, primacy effects were consistently greater in those participants in positive moods (Figure 1.4).

FIGURE 1.4. The effects of mood and primacy on the evaluation of a target person: Positive mood increased and negative mood reduced the primacy effect on evaluative judgments (vertical axis). After Forgas (2011a).

Negative Affect Improves People's Ability to Detect Deception

As negative affect seems to improve attention to stimulus details, it may also improve people's ability to detect deception (e.g., Lane & DePaulo, 1999). To explore this possibility, we asked happy or sad participants to detect deception in the videotaped statements of people accused of theft who were either guilty or not guilty (Forgas & East, 2008b). Those in negative moods were more likely to make guilty judgments, but they were also significantly better at correctly distinguishing between truthful and deceptive targets (Figure 1.5). Negative affect actually enhanced people's ability to correctly discriminate between deceptive and truthful targets according to a signal detection analysis, confirming the beneficial cognitive consequences of mild negative affect (Forgas & East, 2008b).

Negative Affect Reduces Gullibility and Increases Skepticism

Negative affect may well function as a general defense against excessive gullibility. Much of what we know about the social world is based on untested and potentially misleading information we receive from other people. How do we decide whether such secondhand information we receive in everyday life is trustworthy or not? Rejecting valid information as false (excessive skepticism) is just as dangerous as accepting invalid information as true
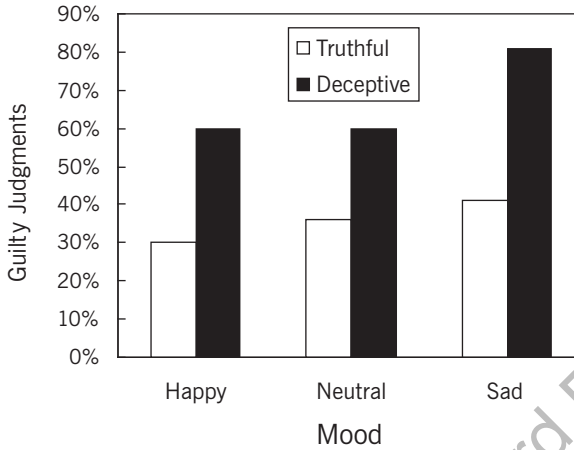
FIGURE 1.5. The effects of mood and the target's veracity (truthful, deceptive) on judgments of guilt of targets accused of committing a theft (average percentage of targets judged guilty in each condition). After Forgas and East (2008b).

(excessive gullibility). Several experiments suggest that negative affect has an overall beneficial influence on reducing gullibility and increasing skepticism. In one experiment happy or sad participants were asked to judge the likely truth of a number of urban legends and rumors, such as that power lines cause leukemia or that the CIA murdered John F. Kennedy (Forgas & East, 2008a). We found that negative mood increased skepticism and reduced gullibility, but only for new and unfamiliar claims. Presumably, judges already made up their minds about claims they were familiar with and simply retrieved those preformed judgments (direct-access processing), so their current moods had no influence on their judgments (Forgas, 2002). In a follow-up experiment we explicitly manipulated the familiarity of a variety of various ambiguous claims taken from trivia games. Positive mood increased gullibility, and negative mood again increased skepticism, consistent with a more externally focused and accommodative thinking style. In another experiment participants rated the likely truth of 25 true and 25 false general knowledge trivia statements and were also informed whether or not each claim was actually true. Two weeks later, after a positive or negative mood induction, only participants in negative moods were able to correctly distinguish between the true and false claims they had seen previously. Those in positive moods tended to rate all previously seen claims as true, confirming that happy mood increased and sad mood reduced their tendency to rely on the "what is familiar is true" heuristic. Thus negative mood confers a clear adaptive advantage by promoting a

more accommodative, systematic processing style (Fiedler & Bless, 2001) and more accurate discrimination between true and false claims.

Mood Effects on Truth Judgments

Evaluating the truth or falsity of information may also be subject to a number of heuristics, such as the "truth effect," in which cognitively fluent information is more likely to be judged as true than disfluent information. Subjective ease of processing, or *fluency*, is one of the most influential implicit cues people use in truth judgments. The experience of cognitive fluency itself is determined by a variety of factors, such as the familiarity, complexity, and clarity of the target information. Can positive affect increase and negative affect decrease the extent to which people rely on heuristic cues, such as fluency in their truth judgments? After an audiovisual mood induction (positive vs. neutral vs. negative films), participants judged the truth of 30 ambiguous statements presented with high or low visual fluency (against a high- or low-contrast background). Judges in neutral and positive moods rated fluent (presented with high contrast) claims as significantly more true than disfluent claims (presented with low visual contrast; Figure 1.6). However, negative affect completely eliminated this effect, demonstrating that affect can moderate people's reliance on fluency cues in truth judgments, consistent with Bless and Fiedler's (2006; Fiedler,
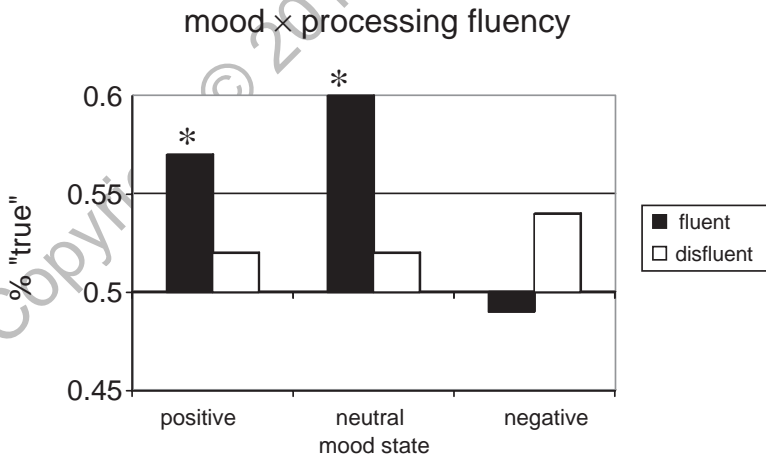
FIGURE 1.6. The interactive effects of mood and perceptual fluency on truth judgments: Negative mood significantly reduced the tendency for people to rely on visual fluency as a truth cue. Differences marked by an asterisk are statistically significant. After Koch and Forgas (2012).

2001) assimilative–accommodative processing dichotomy. Affective influences on truth judgments may be very important in real-life situations, as many such judgments (such as believing or disbelieving one's partner) occur in affect-rich contexts.

Judging Interpersonal Communication

One of the most difficult and demanding tasks in everyday social life is to decide whether a person is truthful or deceptive, and nonverbal expressions are notoriously hard to judge (Ekman & O'Sullivan, 1991; Jones, 1964). The same kinds of mood effects we identified previously may also influence people's tendency to accept or reject inherently ambiguous interpersonal communications as genuine or false. For example, when we asked happy or sad participants to judge the genuineness of positive, neutral, and negative facial expressions, those in negative moods were significantly less likely to accept facial expressions as genuine than were people in the neutral or happy condition. We also asked happy or sad judges to determine the genuineness of emotional facial expressions displaying the six basic emotions (i.e., anger, fear, disgust, happiness, surprise, and sadness). Once again, negative mood reduced and positive mood increased people's tendency to accept the facial displays as genuine, consistent with the more attentive and accommodative processing style associated with negative moods.

Negative Affect Reduces Stereotype Effects

Another common judgmental bias occurs when people rely on their preexisting stereotypes rather than valid individual information in responding to others (Bodenhausen, 1993). Can mood influence the implicit use of stereotypes? In one study we asked happy or sad people to generate rapid responses to targets who did or did not appear to be Muslims (visually identifiable by wearing a turban). Negative stereotypes about outgroups such as Muslims are difficult to assess using explicit measures, as people are unable or unwilling to reveal such prejudices. Implicit measures of prejudice, such as the Implicit Association Test (IAT), also suffer from serious shortcomings (Fiedler, Messner, & Bluemke, 2006). An alternative way to assess stereotype use is to employ disguised behavioral tasks that measure subliminal response tendencies (Forgas, 2003). For example, in the "shooter bias" paradigm (Correll, Park, Judd, & Wittenbrink, 2002) in which individuals have to shoot only at targets who carry a gun, U.S. participants show a strong implicit bias to shoot more at black than at white targets (Corell et al., 2002; Correll et al. 2007). We expected that Muslims might elicit a similar subliminal bias in a shooters' task and that positive mood should increase and negative mood reduce this reliance on their preexisting stereotypes.

We used a modified version of Correll et al.'s (2002) shooter game, asking happy or angry participants to shoot at targets appearing on a computer screen only when they were carrying a gun. We used morphing software to create targets who did or did not appear Muslim (wearing or not wearing a turban or the hijab) and who either held a gun or held a similar object (e.g., a coffee mug; see Figure 1.7). We found a significantly greater
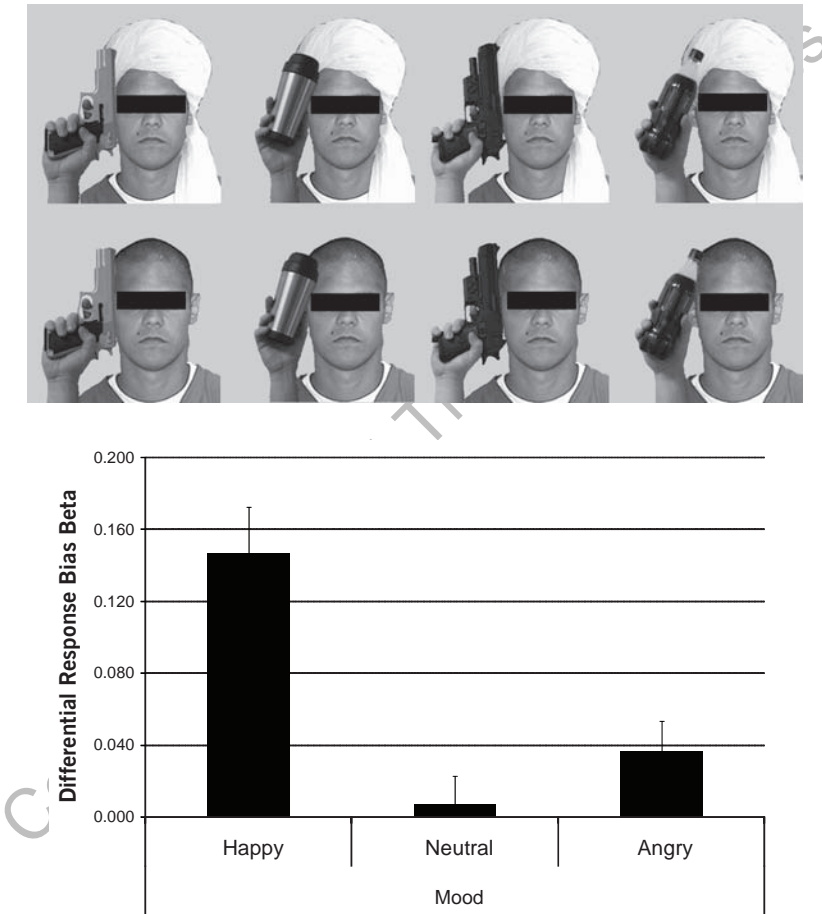
FIGURE 1.7. The turban effect: Stimulus figures used to assess the effects of mood and wearing or not wearing a turban on subliminal aggressive responses. Participants had to make rapid shoot–don't shoot decisions in response to targets who did or did not hold a gun and did or did not wear a Muslim headdress (a turban). Those in positive moods were more likely, and those in negative moods were less likely, to selectively shoot at targets wearing a turban.

tendency overall for participants to shoot more at Muslims rather than non-Muslims, but negative affect (induced anger) actually *reduced* this tendency. It was positive affect that increased a *selective* bias against Muslims, consistent with more top-down, assimilative processing that facilitates reliance on preexisting knowledge such as stereotypes in subliminal responses (Bless & Fiedler, 2006; Forgas, 1998a, 1998b, 2007).

MOTIVATIONAL BENEFITS: WHEN NEGATIVE MOOD INCREASES EFFORT AND MOTIVATION

To date we have looked at the cognitive benefits of negative affect. Considerable evidence now suggests that affect can also have a profound influence on motivation. In an influential paper, Clark and Isen (1982) suggested that positive affect can automatically trigger strategies designed to maintain and prolong a pleasant affective state: the *mood maintenance* hypothesis. In contrast, negative affect can serve as an evolutionary warning signal, automatically recruiting more effortful, attentive, and vigilant information processing and behavior, as a means of improving an unpleasant affective state: the *mood repair* hypothesis (Frijda, 1986). A similar idea was proposed by Schwarz (1990) in a *cognitive tuning* model suggesting that positive and negative affective states perform an automatic evolutionary signaling function indicating expected challenges and difficulties, motivating the organism to preserve or repair the affective state (Frijda, 1986). Thus feeling good can signal a safe, familiar situation requiring little effort and motivation to respond. In contrast, negative affect operates like a mild alarm signal, triggering more effort and motivation to deal with a more challenging environment. Thus negative mood, although unpleasant, may increase engagement and motivation. In contrast, positive affect may not only "feel good" but may also produce disengagement, reducing motivation and attention to the outside world (Forgas, 2007). Several experiments now provide support for such dichotomous motivational effects.

Negative Mood Can Increase Perseverance

There is a great deal of anecdotal and some scientific evidence suggesting that negative mood may sometimes trigger greater effort than positive affect (Clark & Isen, 1982). Any exertion of effort necessarily entails a fundamental psychological conflict. Although effort is costly and unpleasant in the short term, longer term success and gratification are unlikely to be achieved unless effort is extended. In one experiment we explored the possibility (Goldenberg & Forgas, 2013) that negative affect should produce beneficial motivational consequences and increase perseverance. In terms

of Atkinson's (1957) expectancy–value model, people should only engage in achievement-oriented actions if both the subjective probability of success (*expectancy*) and the incentive value of success (*value*) are high. As Feather (1992) suggested, the incentive value of the goal and the motivation to act depend mainly on the value attached to the desired end states, such as the anticipated hedonistic consequences of success or failure.

Hedonistic Discounting

If a person is already in a positive affective state, this may result in the *discounting* of the hedonistic value of expected future success, reducing perseverance and motivation (*hedonistic discounting*). In contrast, present negative affect may result in a higher evaluation of the expected hedonistic benefit of success on an achievement task, improving present effort and motivation. We decided to test the hypothesis that negative affect may actually increase the expected *value* of achievement and produce greater perseverance. Mood was induced by showing participants happy or sad films. Next, they were instructed to work on a demanding cognitive abilities task, comprising a number of difficult questions, for as long as they liked. Perseverance was assessed by measuring the total *time spent* on the task, total *number of questions attempted,* and total number of questions *correctly answered*. Expectancy-related and task-value beliefs were also assessed. As expected, participants in the positive-mood condition spent significantly less time working on the task compared with those in the negative-mood condition, attempted fewer items, and scored fewer correct answers (Figure 1.8). A mediational analysis supported the hedonistic discounting hypothesis, confirming that it was mood-induced differences in task-value beliefs that mediated mood effects on perseverance. These results are consistent with the theoretical prediction that negative mood may increase and positive mood decrease the motivation to persevere on effortful and demanding tasks.

Negative Affect Reduces Self-Handicapping

Negative affect may also improve motivation by reducing counterproductive strategies such as self-handicapping. Self-handicapping, first investigated by Jones and Berglas (1978), occurs when people create artificial handicaps for themselves as a means of protecting themselves from the damaging attributions they expect after failure. We hypothesized that self-handicapping might also serve a secondary purpose: to preserve a pleasant affective state. We investigated mood effects on people's tendency to *self-handicap* and create artificial hindrances for themselves (Alter & Forgas, 2007). Based on recent affect theories (Forgas & Eich, 2012), we predicted
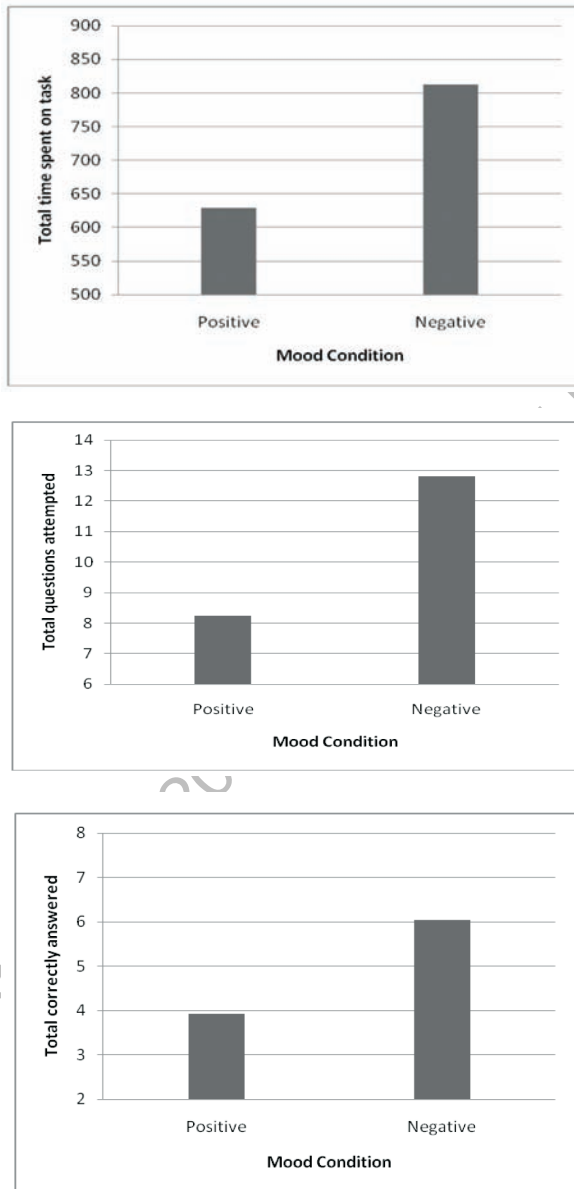
FIGURE 1.8. Positive affect reduces perseverance: The effects of induced mood on (top) the time spent (in seconds) on persevering with a cognitive abilities task, (middle) the number of tasks attempted, and (bottom) the number of questions correctly answered. After Goldenberg and Forgas (2013).

that positive mood should increase and negative mood decrease such defensive self-handicapping behaviors. Participants first received feedback about their performance on a task of "cognitive abilities," leading some of them to doubt their ability to do well on this task that they expected to perform again later in the experiment. They then underwent a positive, neutral, or negative mood induction using videos. Self-handicapping was assessed in terms of their subsequent decision in what they thought was an unrelated task to (1) drink a performance-enhancing or a performance-inhibiting herbal tea and (2) use the available time to engage or not engage in performance-enhancing cognitive practice.

When participants had reason to doubt their ability to perform well on a subsequent task, positive affect significantly increased their defensive tendency to self-handicap on *both* measures: Happy persons preferred the performance-inhibiting tea and engaged in less task-relevant practice (Figure 1.9). In contrast, negative affect reduced self-handicapping, consistent with those in a negative mood placing higher value on the expected hedonic benefits of succeeding in the task.

Given the pervasive role of affect in achievement outcomes, it is surprising that the influence of moods on perseverance and self-handicapping had received little prior attention. As predicted by the hedonistic discounting hypothesis, feeling happy may compromise the desire to work hard to obtain further hedonistic benefits. The beneficial consequences of negative affect on achievement may be particularly important in organizational settings, in which the presumed universal benefits of positive affect has
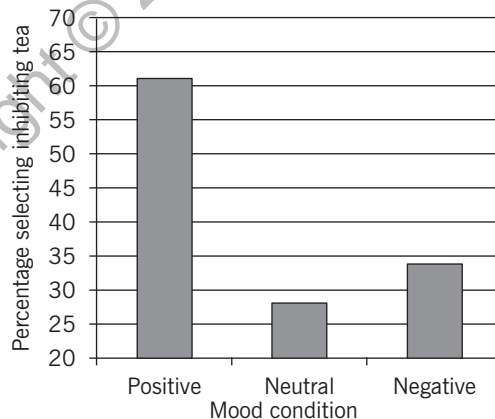
FIGURE 1.9. The effects of induced mood on self-handicapping: Percentage of participants who selected the performance-impairing tea as a function of mood condition. After Alter and Forgas (2007).

received almost exclusive emphasis in the past (Forgas & George, 2001). It now appears that in some circumstances, negative affect may deliver greater perseverance and a reduction in dysfunctional self-handicapping behaviors (Alter & Forgas, 2007; Goldenberg & Forgas, 2013).

INTERPERSONAL BENEFITS: CAN SAD MOOD MAKE YOU A NICER AND MORE EFFECTIVE PERSON?

One of the possible benefits of sad mood may have to do with its interpersonal functions. Evolutionary psychologists, puzzled by the ubiquity of dysphoria, have speculated that sad mood may provide hidden social benefits by possibly arousing interpersonal sympathy and reducing the likelihood of interpersonal challenges and competition (Forgas, Haselton, & von Hippel, 2007; Tooby & Cosmides, 1992). More recent work demonstrated a number of further interpersonal benefits. As *homo sapiens* is an extremely gregarious species, coordinating our interpersonal strategies presents a demanding cognitive task that requires open, constructive thinking. According to the AIM, affective states should have a mood-congruent influence on many interpersonal behaviors (Forgas, 1995a, 1999a, 1999b). Positive mood may selectively prime more optimistic, positive, but also more confident, assertive, and sometimes selfish behaviors. In contrast, sad mood should prime more pessimistic, negative interpretations and produce more cautious, polite, and considerate interpersonal strategies (Bower & Forgas, 2001; Forgas, 1995, 2002).

Thus, in situations calling for self-confidence and assertiveness (such as negotiation or self-disclosure), positive affect may confer distinct benefits (Forgas, 1994, 1998a, 2011c). We also found that female undergraduates who were feeling good after watching a happy film also communicated in a more positive way—they smiled more, disclosed more personal information, and generally acted in a more poised, skilled, and rewarding manner (Forgas, 2002). However, there is growing evidence that in other situations, in which more cautious and less assertive behavior is appropriate, it may be sad mood that produces real interpersonal benefits.

When Temporary Sadness Improves Politeness: Mood Effects on Request Strategies

Requesting is a complex communicative task that is characterized by uncertainty and typically requires open, elaborate processing. Requests must be formulated with just the right degree of assertiveness versus politeness so as to maximize compliance without risking giving offense. Whereas positive mood may prime a more optimistic and confident interpretation of the

request situation and thus produce a more assertive and less polite requesting style, sad mood should lead to more polite and considerate requests (Forgas, 1999a). This prediction is consistent with evidence suggesting robust mood-congruent effects on many social inferences and judgments (Forgas et al., 1984; Mayer & Hanson, 1995; Mayer, Gaschke, Braverman, & Evans, 1992). We found that when happy or sad persons were asked to select among more or less polite requests that they would use in easy or difficult social situations (Forgas, 1999a, Exp. 1), sad persons preferred more polite and happy participants preferred more assertive and impolite requests. Similar effects were found when happy and sad participants produced their own open-ended requests, rated for politeness and elaboration by trained judges. These mood effects on requesting were more powerful when requests were generated in a difficult rather than in an easy interpersonal situation and thus required more elaborate, substantive processing.

Similar mood effects on requesting also occur in real-life interactions. In one unobtrusive experiment (Forgas, 1999b, Exp. 2), participants first viewed happy or sad films. Next, the experimenter unexpectedly asked them to request a file from a person in a neighboring office. The participants' words when making the request were surreptitiously recorded by a concealed tape recorder. A subsequent analysis of their words showed that negative mood resulted in significantly more polite, elaborate, and hedging requests, whereas those in positive moods used more direct and less polite strategies (Figure 1.10).

Why do these effects occur? In uncertain and unpredictable interpersonal situations, people need to rely on open, constructive thinking to formulate their communicative strategies. Affect can selectively prime access
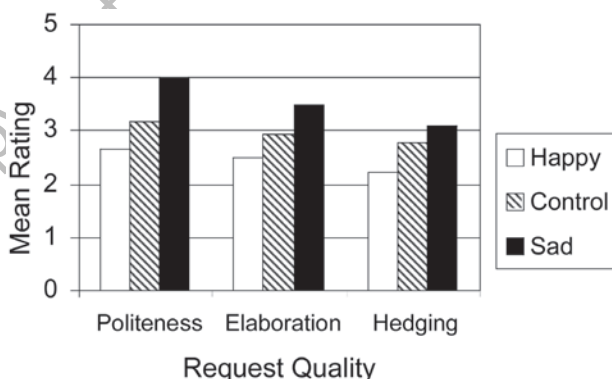
FIGURE 1.10. Mood effects on naturally produced requests: Positive mood increases and negative mood decreases the degree of politeness, elaboration, and hedging in strategic communications. After Forgas (1999b).

to more affect-congruent interpretations that will eventually influence behaviors. Of course, negative affect will not always result in more considerate and effective interpersonal strategies. Several experiments show that in some contexts, positive affect provides clear interpersonal benefits. For example, those in positive moods tend to be more effective and integrative negotiators (Forgas, 1998a), tend to respond more positively to requests directed at them in a natural setting (Forgas, 1998b), are better at managing interpersonal self-disclosure (Forgas, 2011c), and may be more effective in some organizational situations (Forgas & George, 2001). What I am arguing here is that these effects are not universal. In some situations in which more caution, tact, and consideration are required, it is negative rather than positive affect that seems to promote more effective interpersonal behaviors.

Negative Mood Can Increase Interpersonal Fairness

If somebody gave you a hundred dollars and your job was to divide the money between yourself and another person in any way you like, what would you do? How much would you keep for yourself? Selfishness versus fairness in situations such as these is a basic dimension of relating to others. A series of our experiments looked at mood effects on the levels of selfishness versus fairness that people display in strategic interactions such as the dictator game and the ultimatum game. Intriguingly, the possibility that affective states may influence interpersonal selfishness and fairness has received little attention in the past. Economic games offer a reliable and valid method to study interpersonal strategies such as fairness, self-ishness, trust, and cooperation. These experiments predicted that negative mood might increase and positive mood reduce concern with the fairness of allocations.

In the *dictator game* the allocator has the power to allocate a scarce resource (e.g., money) between him- or herself and another person in any way he or she sees fit. In the *ultimatum game*, proposers face a responder who has veto power to accept or reject the offer. If rejected, neither side gets anything. According to classical economic and behavioral theories, rational actors should always maximize benefits to themselves as far as possible. Actual research suggests a far more intriguing and unexpected pattern. Instead of rational selfishness, proposers frequently offer a fair and sometimes an even split to others, suggesting that their interpersonal decisions are not simply driven by the desire to maximize benefits to themselves.

Affective state may influence such decisions in at least two ways. First, because those in negative moods tend to access more negative information, they might construct more careful, cautious, pessimistic, and

socially constrained responses. Thus positive affect should produce more confident, assertive, optimistic, and, ultimately, more selfish strategic decisions, and negative mood should result in more cautious and less self-ish allocations. Second, affect can also influence *processing tendencies.* As Bless and Fiedler (2006) suggested, negative affect may recruit more *accommodative,* externally focused processing, and positive affect tends to facilitate more internally focused, *assimilative* thinking. In terms of this model, negative affect should automatically promote *accommodation* to the external demands of fairness norms. In contrast, positive affect should recruit a more internally oriented, *assimilative* processing style, increasing selfishness in allocations.

In several experiments, we (Tan & Forgas, 2010) explored the effects of mood on the behavior of allocators in the dictator game, with happy or sad allocators dividing scarce resources (raffle tickets) between themselves and an ingroup or an outgroup partner. Happy players were significantly more selfish and kept more raffle tickets to themselves than did sad players. In a follow-up experiment, we used a different mood induction (affect-inducing films), and, rather than using a single allocation task, a series of 8 allocations were used to different partners, with the names and photos of partners displayed for each task to increase realism. Overall, those in sad moods were again fairer and less selfish and gave more points to their part-ners than did happy individuals, supporting our main hypothesis. Further, as the trials progressed, happy individuals actually became *more* selfish, and sad individuals became more *fair* (Figure 1.11).

Can such mood effects on fairness also endure in the more complex decisional environment faced by players in the ultimatum game, in which proposers must necessarily consider the willingness of responders to accept or reject their offers? We explored this question (Forgas & Tan, 2013) by ask-ing happy or sad participants to make allocations as proposers in the ultima-tum game. The latency of their decisions was also recorded as a measure of processing style. As hypothesized, those in negative moods allocated signifi-cantly more resources to others than did happy individuals, confirming the predicted mood effects on selfishness and fairness. These mood effects could also be directly linked to differences in processing style, as sad individuals took longer to make allocation decisions than did happy individuals, consis-tent with their expected more accommodative and attentive processing style.

If negative mood indeed promotes more accommodative and exter-nally oriented processing, we should find that responders in negative moods should also be more concerned with external fairness norms and therefore should be more likely to reject unfair offers. In the final experiment in this series (Forgas & Tan, 2013), the same procedure was employed as in the previous experiment, but this time all participants were "randomly" allocated to be *responders* rather than *proposers.* We found the predicted
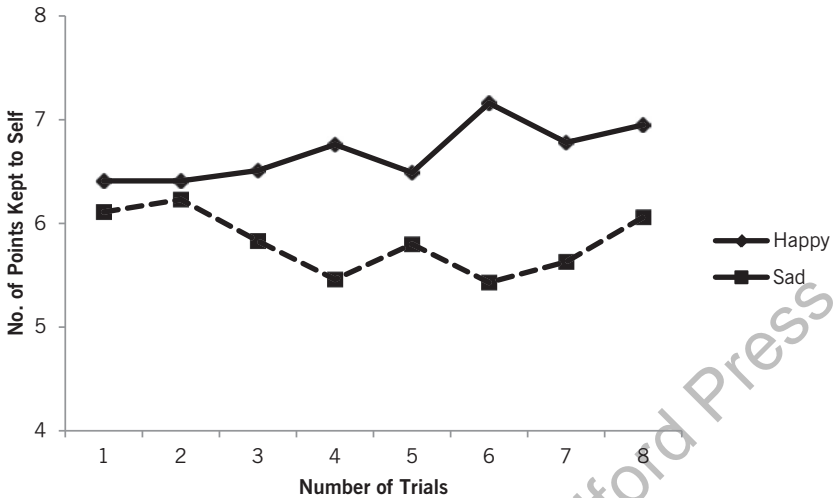
FIGURE 1.11. The effects of mood on selfishness versus fairness: Happy persons kept more rewards to themselves, and this effect is more pronounced in later trials.

significant mood main effect. Overall, 57% of those in negative moods rejected unfair offers compared with only 45% in the positive condition. Thus the tendency to reject unfair offers was consistently higher in negative than in positive moods, consistent with processing theories that predict that negative moods should increase and positive moods reduce attention to external fairness norms.

Paying greater attention to external information such as fairness norms when in a bad mood is also in line with recent findings showing that negative mood increases attention to external information and improves eyewitness memory, reduces stereotyping, increases politeness, and reduces judgmental errors (Forgas, 1998a, 1998b, 1999a, 1999b; Forgas et al., 2009; Unkelbach et al., 2008). These results further challenge the common assumption in much of applied, organizational, clinical, and health psychology that positive affect has universally desirable social and interpersonal consequences. Rather, our findings confirm that negative affect often produces adaptive and more socially sensitive outcomes.

Negative Affect Can Improve Persuasion and Interpersonal Strategies

Greater attention to external information in negative affect may also improve interpersonal effectiveness, such as social influence strategies.

One of the most ubiquitous influence strategies in everyday life is verbal persuasion. In order to get what we want from others, we typically rely on the medium of language to present as convincing a case as possible for a proposed view or action. Language represents a universal and highly flexible medium of social influence, allowing almost unlimited scope in producing an almost infinite variety of more or less effective persuasive strategies. Despite long-standing interest in how persuasive messages are processed by *recipients* (e.g., Bless, Mackie, & Schwarz, 1996; Eagly & Chaiken, 1993; Petty, DeSteno, & Rucker, 2001; Sinclair, Mark, & Clore, 1994), the question of how affect influences the *production* of persuasive messages has attracted far less attention (but see Bohner & Schwarz, 1993).

In a series of studies, I tested the prediction that accommodative processing promoted by negative affect should result in more concrete and factual thinking and better persuasive messages (Forgas, 2007). For example, participants received an audiovisual mood induction and were then asked to write persuasive arguments for or against an increase in student fees and for or against Aboriginal land rights. The arguments were rated by two raters for overall quality, persuasiveness, concreteness, and valence (positive–negative). Those in negative moods produced higher quality and more persuasive arguments on both issues than did happy participants. A mediational analysis showed that it was mood-induced variations in argument *concreteness* that influenced argument quality, with those in negative moods producing more concrete and informative arguments. In another study, happy or sad participants produced persuasive arguments for or against Australia becoming a republic and for or against a right-wing party. Negative affect again resulted in higher quality and more persuasive arguments (see Figure 1.12), consistent with negative mood promoting a more concrete processing style (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001; Forgas, 2002).

In Experiment 3 the arguments produced by happy or sad participants were presented to a naive audience of undergraduate students whose attitudes on the target issues had been previously assessed. Arguments written by participants in negative moods were significantly more successful in producing a real change in attitudes than were arguments produced by happy participants. In a final experiment, happy and sad people directed persuasive arguments at a "partner" to volunteer for a boring experiment using e-mail exchanges (Forgas, 2007). Some persuaders were additionally motivated by the offer of a reward of movie passes if successful. Negative mood again resulted in higher quality persuasive arguments than did positive affect. However, offering a reward reduced mood effects, as predicted by the affect infusion model (AIM; Forgas, 1995, 2002). As the model suggested, mood effects on information processing—and subsequent social
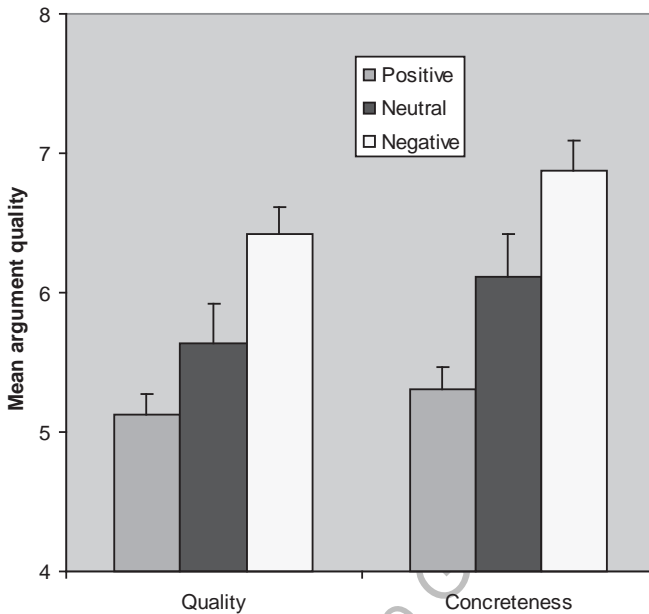
FIGURE 1.12. Mood effects on the quality and concreteness of the persuasive messages produced: Negative affect increases the degree of concreteness of the arguments produced, and arguments produced in negative moods were also rated as more persuasive. After Forgas (2007, Experiment 2).

influence strategies—were strongest in the absence of motivated processing. A mediational analysis again confirmed that negative mood induced more accommodative thinking and more concrete and specific arguments.

These experiments show that negative affect improved the quality and effectiveness of persuasive arguments because they contained more concrete details and more concrete and factual information. Such messages are seen by people as more interesting and more memorable. However, when motivation is already high, mood effects tended to diminish, as predicted by the AIM (Forgas, 2002). These results are consistent with negative affect promoting a more concrete, accommodative, externally focused information-processing style (Forgas, 1998a, 1998b; Forgas et al., 2005) that delivers marked benefits for the effectiveness of social influence strategies, such as persuasive arguments. Managing personal relationships involves a great deal of elaborate strategic information processing, and it is an intriguing possibility that mild negative affect may actually promote a more concrete, accommodative, and, ultimately, more successful communication style.

SUMMARY AND CONCLUSION

When considered jointly, the experiments reviewed here provide convergent evidence that negative affective states can provide distinct adaptive advantages in many everyday situations. These results are consistent with recent evolutionary theories that suggest that the affective repertoire of our species has been largely shaped by processes of natural selection and that all of our affective states—including the unpleasant ones—function as "mind modules" and can be shown to produce benefits in some circumstances (Tooby & Cosmides, 1992). These sets of findings stand in stark contrast with the overwhelming and unilateral emphasis on the benefits of positive affect in the recent literature, as well as in popular culture (Forgas & George, 2001). It is clear that positive affect is *not* universally desirable: People in negative moods are less prone to judgmental errors (Forgas, 1998b), are more resistant to eyewitness distortions (Forgas et al., 2005), are more motivated (Goldenberg & Forgas, 2013), are more sensitive to social norms (Forgas, 1999a, 1999b), and are better at producing high-quality and effective persuasive messages (Forgas, 2007). Given the consistency of the results across a number of different experiments, tasks, and mood inductions, the effects appear reliable.

Of course, we do not claim that negative affect is always beneficial or that positive affect does not have adaptive consequences in some settings. Clearly, intense, enduring, and debilitating negative affect such as depression has very negative consequences. We mostly looked here at the cognitive, motivational and interpersonal consequences of mild, temporary mood states of the kind that we all regularly experience in everyday life. Our findings are broadly consistent with the notion that over evolutionary time, affective states became adaptive, functional triggers to promote motivational and information-processing patterns that are appropriate in a given situation. Dealing with the demands of our social environment is necessarily a complex and demanding task that requires a high degree of elaborate processing (Forgas, 1995, 2002). The empirical studies presented here suggest that in many situations negative affect, such as sadness, may increase and positive affect decrease the quality and efficacy of cognitive processes and interpersonal behaviors. Much has been learned about the way affective states influence memory, thinking, and judgments in recent years, yet not enough is known about the evolutionary mechanisms that are responsible for the way we respond to various affective states.

REFERENCES

Adolphs, R., & Damasio, A. (2001). The interaction of affect and cognition: A neurobiological perspective. In J. P. Forgas (Ed.), *The handbook of affect and social cognition* (pp. 27–49). Mahwah, NJ: Erlbaum.

Allport, G. W. (1985). The historical background of social psychology. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (Vol. 1, 3rd ed., pp. 1–46). New York: McGraw Hill.

Alter, A. L., & Forgas, J. P. (2007). On being happy but fearing failure: The effects of mood on self-handicapping strategies. *Journal of Experimental Social Psychology, 43*, 947–954.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41*, 258–290.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behaviour. *Psychological Review, 64*(6, Pt. 1), 359–372.

Bless, H. (2000). The interplay of affect and cognition: The mediating role of general knowledge structures. In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 201–222). New York: Cambridge University Press.

Bless, H. (2001). Mood and the use of general knowledge structures. In L. L. Martin (Ed.), *Theories of mood and cognition: A user's guidebook* (pp. 9–26). Mahwah, NJ: Erlbaum.

Bless, H., & Fiedler, K. (2006). Mood and the regulation of information processing and behavior. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 65–84). New York: Psychology Press.

Bless, H., Mackie, D., & Schwarz, N. (1996). Mood effects on encoding and judgmental processes in persuasion. *Journal of Personality and Social Psychology, 63*, 585–595.

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

Bohner, G., & Schwarz, N. (1993). Mood states influence the production of persuasive arguments. *Communication Research, 20*, 696–722.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129–148.

Bower, G. H., & Forgas, J. P. (2001). Mood and social memory. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 95–120). Mahwah, NJ: Erlbaum.

Ciarrochi, J. V., Forgas, J. P., & Mayer, J. D. (Eds.). (2006). *Emotional intelligence in everyday life* (2nd ed.). Philadelphia: Psychology Press.

Clark, M. S., & Isen, A. M. (1982). Towards understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73–108). New York: Elsevier-North Holland.

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

Clore, G. L., Gasper, K., & Garvin, E. (2001). Affect as information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Erlbaum.

Clore, G. L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., pp. 208–221). Mahwah, NJ: Erlbaum.

Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of Personality and Social Psychology, 83*(6), 1314–1329.

Correll, J., Park, B., Judd, C. M., Wittenbrink, B., Sadler, M. S., & Keesee, T. (2007). Across the thin blue line: Police officers and racial bias in the decision to shoot. *Journal of Personality and Social Psychology, 92*(6), 1006–1023

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* New York: Harcourt Brace Jovanovich.

Eich, E. E., & Schooler, J. W. (2000). Cognition-emotion interactions. In E. E. Eich, J. F. Kihlstrom, G. H. Bower, J. P. Forgas, & P. Niedenthal (Eds.), *Cognition and emotion* (pp. 3–29). New York: Oxford University Press.

Ekman, P., & O'Sullivan, M. (1991). Who can catch a liar? *American Psychologist, 46*, 913–920.

Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues, 48*(2), 109–124.

Feshbach, S., & Singer, R. D. (1957). The effects of fear arousal and suppression of fear upon social perception. *Journal of Abnormal and Social Psychology, 55*, 283–288.

Fiedler, K. (2001). Affective influences on social information processing. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 163–185). Mahwah, NJ: Erlbaum.

Fiedler, K., Asbeck, J., & Nickel, S. (1991). Mood and constructive memory effects on social judgment. *Cognition and Emotion, 5,* 363–378.

Fiedler, K., & Bless, H. (2001). The formation of beliefs in the interface of affective and cognitive processes. In N. Frijda, A. Manstead, & S. Bem (Eds.), *The influence of emotions on beliefs.* New York: Cambridge University Press.

Fiedler, K., & Forgas, J. P. (Eds.). (1988). *Affect, cognition and social behavior.* Toronto, Ontario, Canada: Hogrefe International.

Fiedler, K., Messner, C., & Bluemke, M. (2006). Unresolved problems with the "I," the "A," and the "T": Logical and psychometric critique of the Implicit Association Test. *European Review of Social Psychology, 17,* 74–147.

Forgas, J. P. (1979). *Social episodes: The study of interaction routines.* London/New York: Academic Press.

Forgas, J. P. (1982). Episode cognition: Internal representations of interaction routines. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 59–104). New York: Academic Press

Forgas, J. P. (1994). Sad and guilty?: Affective influences on explanations of conflict episodes. *Journal of Personality and Social Psychology*, 66, 56–68.

Forgas, J. P. (1995). Mood and judgment: The Affect Infusion Model (AIM). *Psychological Bulletin*, 116, 39–66.

Forgas, J. P. (1998a). On feeling good and getting your way: Mood effects on nego-tiation strategies and outcomes. *Journal of Personality and Social Psychol-ogy*, *74*, 565–577.

Forgas, J. P. (1998b). Happy and mistaken?: Mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology, 75,* 318–331.

Forgas, J. P. (1999a). On feeling good and being rude: Affective influences on lan-guage use and requests. *Journal of Personality and Social Psychology*, *76*, 928–939.

Forgas, J. P. (1999b). Feeling and speaking: Mood effects on verbal communication strategies. *Personality and Social Psychology Bulletin*, *25*, 850–863.

Forgas, J. P. (2002). Feeling and doing: Affective influences on interpersonal behav-ior. *Psychological Inquiry*, *13*, 1–28.

Forgas, J. P. (2003). Why don't we do it in the road . . . ? Stereotyping and prejudice in mundane situations. *Psychological Inquiry, 14,* 249–255.

Forgas, J. P. (Ed.). (2006). *Affect in social thinking and behavior.* New York: Psy-chology Press.

Forgas, J. P. (2007). When sad is better than happy: Negative affect can improve the quality and effectiveness of persuasive messages and social influence strat-egies. *Journal of Experimental Social Psychology, 43,* 513–528.

Forgas, J. P. (2011a). Can negative affect eliminate the power of first impressions?: Affective influences on primacy and recency effects in impression formation. *Journal of Experimental Social Psychology, 47,* 425–429.

Forgas, J. P. (2011b). She just doesn't look like a philosopher . . . : Affective influ-ences on the halo effect in impression formation. *European Journal of Social Psychology, 41*, 812–817.

Forgas, J. P. (2011c). Affective influences on self-disclosure strategies. *Journal of Personality and Social Psychology, 100*(3), 449–461.

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

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

Forgas, J. P., & East, R. (2008a). How real is that smile?: Mood effects on accept-ing or rejecting the veracity of emotional facial expressions. *Journal of Non-verbal Behavior, 32*, 157–170.

Forgas, J. P., & East, R. (2008b). On being happy and gullible: Mood effects on skepticism and the detection of deception. *Journal of Experimental Social Psychology, 44,* 1362–1367.

Forgas, J. P., & Eich, E. E. (2012). Affective influences on cognition: Mood con-gruence, mood dependence, and mood effects on processing strategies. In A. F. Healy & R. W. Proctor (Eds.), *Handbook of psychology: Vol. 4. Experi-mental psychology* (pp. 61–82). New York: Wiley

Forgas, J. P., & George, J. M. (2001). Affective influences on judgments and behav-ior in organizations: An information-processing perspective. *Organizational Behavior and Human Decision Processes*, *86*, 3–34.

Forgas, J. P., Goldenberg, L., & Unkelbach, C. (2009). Can bad weather improve

your memory?: A field study of mood effects on memory in a real-life setting. *Journal of Experimental Social Psychology, 54,* 254–257.

Forgas, J. P., Haselton, M. G., & von Hippel, W. (Eds.). (2007). *Evolution and the social mind.* New York: Psychology Press.

Forgas, J. P., & Moylan, S. (1987). After the movies: The effects of transient mood states on social judgments. *Personality and Social Psychology Bulletin, 13,* 478–489.

Forgas, J. P., & Tan, H. B. (2013). To give or to keep?: Affective influences on self-ishness and fairness in computer-mediated interactions in the dictator game and the ultimatum game. *Computers and Human Behavior, 29,* 64–74.

Forgas, J. P., Vargas, P., & Laham, S. (2005). Mood effects on eyewitness memory: Affective influences on susceptibility to misinformation. *Journal of Experimental Social Psychology, 41,* 574–588.

Frijda, N. (1986). *The emotions.* Cambridge, UK: Cambridge University Press.

Frijda, N. (1988). The laws of emotion. *American Psychologist, 43,* 349–358.

Goldenberg, L., & Forgas, J. P. (2013). *Mood effects on perseverance: Positive mood reduces motivation according to the hedonistic discounting hypothesis.* Unpublished manuscript, University of New South Wales, Sydney, Australia.

Jones, E. E. (1964). *Ingratiation.* New York: Appleton–Century–Crofts.

Jones, E. E., & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of under-achievement. *Personality and Social Psychology Bulletin, 4,* 200–206.

Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology, 3,* 1–24.

Koch, A. S., & Forgas, J. P. (2012). Feeling good and feeling truth: The interactive effects of mood and processing fluency on truth judgments. *Journal of Experimental Social Psychology, 48,* 481–485.

Lane, J. D., & DePaulo, B. M. (1999). Completing Coyne's cycle: Dysphorics' ability to detect deception. *Journal of Research in Personality, 33,* 311–329.

Loftus, E. F. (1979). *Eyewitness testimony.* Cambridge, MA: Harvard University Press.

Loftus, E. F., Doyle, J. M., & Dysert, J. (2008). *Eyewitness testimony: Civil and criminal* (4th ed.). Charlottesville, VA: Lexis Law.

Luchins, A. H. (1958). Definitiveness of impressions and primacy–recency in communications. *Journal of Social Psychology, 48,* 275–290.

Mayer, J., & Hanson, E. (1995). Mood-congruent judgment over time. *Personality and Social Psychology Bulletin, 21,* 237–244.

Mayer, J. D., Gaschke, Y. N., Braverman, D. L., & Evans, T. W. (1992). Mood-congruent judgment is a general effect. *Journal of Personality and Social Psychology, 63,* 119–132.

Neisser, U. (1982). *Memory observed: Remembering in natural contexts.* San Francisco: Freeman.

Niedenthal, P., & Halberstadt, J. (2000). Grounding categories in emotional response. In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 357–386). New York: Cambridge University Press.

Petty, R. E., DeSteno, D., & Rucker, D. (2001) The role of affect in attitude change.

In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 212–236). Mahwah, NJ: Erlbaum.

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

Schooler, J. W., & Loftus, E. F. (1993). Multiple mechanisms mediate individual differences in eyewitness accuracy and suggestibility. In J. M. Puckett & H. W. Reese (Eds.), *Mechanisms of everyday cognition* (pp. 177–203). New York: Wiley.

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

Schwarz, N., & Bless, H. (1991). Happy and mindless, but sad and smart?: The impact of affective states on analytic reasoning. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 55–71). Oxford, UK: Pergamon Press.

Schwarz, N., & Clore, G. L. (1988). How do I feel about it?: The informative function of affective states. In K. Fiedler & J. P. Forgas (Eds.), *Affect, cognition, and social behavior* (pp. 44–62). Toronto, Ontario, Canada: Hogrefe.

Sedikides, C., Wildschut, T., Arndt, J., & Routledge, C. (2006). Affect and the self. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 197–216). New York: Psychology Press.

Sinclair, R. C., & Mark, M. M. (1992). The influence of mood state on judgment and action. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 165–193). Mahwah, NJ: Erlbaum.

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

Tan, H. B., & Forgas, J. P. (2010). When happiness makes us selfish, but sadness makes us fair: Affective influences on interpersonal strategies in the dictator game. *Journal of Experimental Social Psychology, 46*, 571–576.

Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow & L. Cosmides (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 19–136). London: Oxford University Press.

Unkelbach, C., Forgas, J. P., & Denson, T. F. (2008). The turban effect: The influence of Muslim headgear and induced affect on aggressive responses in the shooter bias paradigm. *Journal of Experimental Social Psychology, 44*, 1409–1413.

Wells, G. L., & Loftus, E. F. (2003). Eyewitness memory for people and events. In A. M. Goldstein (Ed.), *Handbook of psychology: Forensic psychology* (Vol. 11, pp. 149–160). New York: Wiley.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*, 151–175.

Zajonc, R. B. (2000). Feeling and thinking: Closing the debate over the independence of affect. In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 31–58). New York: Cambridge University Press.