

Affective Ingredients: Recipes for Understanding How Affective States Alter Cognitive Outcomes

By Karen Gasper & Lauren A. Spencer, The Pennsylvania State University

Citation:

Gasper, K., & Spencer, L. A. (2018). Affective ingredients: Recipes for understanding how affective states alter cognitive outcomes. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being*. Salt Lake City, UT: DEF Publishers. DOI:nobascholar.com

Abstract:

This chapter provides a guide to help people understand the complex effects that affect, a component of subjective well-being, might exert on various cognitive processes, including the use of abstract information, heuristics, stereotypes, and the effect of affect on persuasion and creativity. It reviews a number of different theories about how affect alters processing and suggests recommendations for future work to address current knowledge gaps. The key argument within this chapter is that affective states provide people with information. This information, when relevant, shapes how people think. Much of the research on this topic has focused on how happy or sad moods might shape processing by providing affective information. Specifically, happy moods indicate that one should feel safe, which results in people using more top-down, abstract information processing strategies. Sad moods indicate that one should be wary, which results in people using more bottom-up, detail-focused strategies. This view is helpful; however, it is an over-simplification. In particular, affective states are like basic ingredients. Just as the taste of an ingredient can change from one recipe to another, affective states can provide a range of different types of information depending on the context. This versatility is highly adaptive, but results in a greater need for specificity when it comes to understanding how affect alters thought.

Keywords: Affect, Mood, Persuasion, Creativity, Abstraction, Heuristics, Stereotypes

“To have a basic ingredient that can be prepared a million different ways is a beautiful thing.”

~ Chef Alice Waters (as quoted in Baker, 2013)

When it comes to understanding how affect influences thought, people often ponder questions such as — Are people who feel happy easier to persuade? Does sadness foster creativity? Will anger result in people relying on derogatory stereotypes? Typically, people desire “yes” or “no” answers, but the truth is often not that simple. This chapter discusses how everyday affective experiences alter some common information processing tasks, including persuasion, creativity, and reliance on abstract concepts, heuristics, and stereotypes. The chapter reviews basic findings, different theoretical explanations for them, and the debates within the literature. It also provides recommendations for future research, in order to address some of the knowledge gaps. Throughout this process, we argue that many of the contrasting ideas within the literature can be resolved by viewing affective states as akin to basic ingredients in a recipe. Follow one recipe and affect will produce one outcome; but change the recipe, and it might produce another. As Alice Waters notes in the quote above, this is a beautiful thing – for such ingredients are highly versatile and functional.

Before discussing how affect influences thought, we want to first discuss what affect is. Affect is a key component of subjective well-being, in that subjective well-being includes “...specific feelings that reflect how people are reacting to the events and circumstances in their lives” (Diener et al., 2017, p. 87). This affective component is comprised of both positive and negative affect (Diener, Lucas, & Oishi, 2002). Two kinds of affective states are moods and emotions. Moods are diffuse, long-term affective states that generally have no salient cause; whereas emotions are more specific, short-term affective reactions that have a specific source (see Beedie, Terry, & Lane, 2005). Two core dimensions of affect are: valence (positive or negative), which signals whether something is good or bad; and arousal (activated or

deactivated), which signals urgency (Russell, 2003; Storbeck & Clore, 2008). Much of the work on how affect alters processing centers on how commonly experienced, mild positive/happy and negative/sad moods alter thought. Given this focus, we will concentrate on this work, occasionally mentioning research on more specific emotional states when they are relevant.¹

Background

Researchers have proposed a range of theories to explain why and how affect alters thought. If affect is akin to an ingredient, then these different theoretical approaches are akin to different styles of cooking (e.g., Italian, Mexican, Ethiopian). These theories have different flavors, but often share some core assumptions about how affect might operate as an ingredient. First, many theories assume that affect alters information processing because it provides people with information that is experienced as being relevant to the task at hand (Schwarz, 2012; Schwarz & Clore, 1983, 2003). Second, if affect is experienced as irrelevant to the task, then affect exerts no influence. Thus, feelings are not constantly shaping thought. Third, variations in context can shape the meaning of this affective information (Martin, Ward, Achee, & Wyer, 1993). In sum, affect is not in every recipe, but when it is relevant to the recipe, the flavor that it adds will depend on what else is in the mix.

Theories about affect and information processing generally fall into one of three categories. These categories are theories that focus on affect as (1) interfering with people's mental capacity, which alters people's ability to think about the task, (2) providing a hedonic cue, which alters the extent to which people feel that they can cope with the affective consequences of the task, and (3) informing the task, which alters how people think about the task.

Affect: Interfering with Mental Capacity

In the 1980s and 1990s, researchers often argued that affect altered thought because it occupied working memory, thereby reducing people's cognitive capacity or mental resources (Ellis & Ashbrook, 1988; Mackie & Worth, 1989; Oaksford, Morris, Grainger, & Williams, 1996). Since then, research has cast substantial doubt on this idea (Bless, Clore, et al., 1996; Isen, 2001). For instance, positive affect, which was often thought to reduce capacity (Mackie & Worth, 1989), might not reduce it and could even enhance it (Gasper & Hackenbracht, 2015; Van Dillen & Koole, 2007; Yang, Yang, & Isen, 2013). Moreover, as this review will reveal, the effect of affect on thought often is context-dependent, with both positive and negative affects potentially inhibiting and promoting thought – something that would not happen if these effects solely were due to capacity deficits. Thus, capacity arguments are akin to a style of cooking that has gone out of favor.

Affect: Providing a Hedonic Cue

Some theories focus on the idea that affect shapes processing because it signals whether or not one can handle the affective consequences associated with performing the task. These theories, such as the *hedonic contingency hypothesis* (Wegener, Petty, & Smith, 1995) and the *mood-as-resource model* (Raghunathan & Trope, 2002) assume that when people perform a task, they might be concerned with how that task will make them feel. Affective states shape whether people are willing to endure the affective costs associated with performing the task (e.g., people in happy states might be less likely than those in sad states to perform a task that could dampen their good mood). The hedonic consequences of doing the task thus are the chief determinant of how affect will influence performance. Therefore, in this style of cooking, the concern is whether the outcome will result in too much or too little of a particular type of affective flavor.

Affect: Informing the Task

According to the *affect-as-information approach*, affective states provide people with information about their environments (Schwarz, 2012; Schwarz & Clore, 1983, 2003; see also *mood-as-input*, Martin et al., 1993). Happiness and some positive states indicate that the situation is safe and all is well; thus, people are free to explore and have fun (see Ashby, Isen, & Turken, 1999; Fredrickson, 1998). Sadness and some negative states indicate that the situation is problematic; thus people should be wary and diligent. Building on this idea, the *mood-as-general-knowledge approach* (Bless & Burger, 2017; Bless, Clore, et al., 1996; Bless, Schwarz, & Kimmelmeier, 1996), the *dual force model*, (Fiedler, Nickel, Asbeck, & Pagel, 2003; Fiedler, Renn, & Kareev, 2010) and the *cognitive-tuning account* (Schwarz, 2012) generally propose that because happy states signal safety, people in them feel that they can trust generalized knowledge structures (e.g., schemas, scripts, categorical information, procedural knowledge) as a means to organize and think about information. Happy states therefore encourage people to assimilate new information into their prior, generalized knowledge. Conversely, because sad states signal something is problematic, people in them feel that they should be wary of what they already know and focus on the current situation's details and

data as a means to solve the problem. Sad states therefore encourage people to accommodate/update what they already know to adapt to the new information (see: Schwarz & Clore, 2007). This logic often underlies researchers' arguments that happy and sad mood states, respectively, promote the following processing strategies: top-down vs. bottom-up (Bless & Burger, 2017), loose vs. tight (Fiedler, 1988), assimilative vs. accommodative (Fiedler et al., 2010), global vs. local (Gasper & Clore, 2002), heuristic vs. systematic, abstract vs. concrete/detailed (Schwarz & Clore, 2007), satisficing vs. optimizing (Kaufmann & Vosburg, 2002), and knowledge driven vs. stimulus driven (Fiedler, et al., 2003). This view differs from the hedonic view in that affect informs how information is processed rather than shapes the degree to which people think that they can cope with the affective consequences associated with doing the task.

The hypothesis that happiness promotes reliance on general strategies and sadness promotes reliance on detailed strategies is akin to a chef's go-to style of cooking – it is a theoretical view that is commonly employed and seems to work well for most occasions. But like all good styles of cooking, other versions of it have developed, including the *motivational dimensional model*, the *mood-congruent expectancies approach*, and the *affect-as-cognitive feedback* account. Each of these approaches has a different take on what type of information affect provides. We will discuss these views, as well as the hedonic views, in more depth below. In the process, we will review how affect influences various cognitive outputs, such as the use of abstract information, heuristics, stereotypes, and its effects on persuasion and creativity.

Cognitive Outputs

Abstract Information

Consistent with the view that happy states promote reliance on abstract/global concepts, numerous studies indicate that happy moods encourage a focus on the forest (i.e., abstract/global information); whereas sad moods encourage a focus on the trees (i.e., concrete/local information; Basso, Schefft, Ris, & Dember, 1996; Curby, Johnson, & Tyson, 2012; Derryberry & Reed, 1998; Johnson, Waugh, & Fredrickson, 2010; Moriya & Nittono, 2011; Rowe, Hirsh, & Anderson, 2007). For instance, relative to sad moods, happy moods encourage people to focus on the global shape of an image more so than the local elements that comprise it (Fredrickson & Branigan, 2005; Gasper, 2004a; Gasper & Clore, 2002). Similar preferences occur in language use with people in positive moods using more abstract than concrete language (Beukeboom & Semin, 2006; Forgas, 2011a; Isbell, McCabe, Burns, & Lair, 2013), framing actions in terms of why (abstract) rather than how (concrete) they were done (Beukeboom & Semin, 2005; Labroo & Patrick, 2009; Watkins, Moberly, & Moulds, 2011), and focusing on more abstract, idealistic rather than concrete, pragmatic arguments (Burger & Bless, 2016). Furthermore, these links might be bi-directional, in that construing action at abstract levels also can lead to positive affect (Freitas, Clark, Kim, & Levy, 2009).

Valence, however, might not be the sole determinant of these mood effects. According to the *motivational dimensional model of affect*, these effects might stem from the motivational qualities of the affective states (Gable & Harmon-Jones, 2008; Gable & Harmon-Jones, 2010a; Gable & Harmon-Jones, 2010b; Harmon-Jones & Gable, 2009). Affective states vary in the degree to which they are low or high in motivational intensity. In the motivational dimensional model of affect, affective states that are low in motivational intensity (affect that does not focus people on obtaining a goal, such as amusement), regardless of whether they are positive or negative, promote global processing because these states signal that one is free to explore. In contrast, affective states that are high in motivational intensity (e.g. affect that focuses people on obtaining a goal, such as desire or fear) promote local processing because they signal that one should focus on the goal (for a review see: Gable & Harmon-Jones, 2010b). Yet, there is disagreement concerning this view, in that others argue that motivational intensity might not be key, and instead one should focus on differences in affective activation to understand how affect alters attentional scope (Friedman & Förster, 2010, 2011). Regardless of which view one endorses, the key point is that affective valence, although important, is probably insufficient to capture how affect influences these processes. This work reveals that a more nuanced approach, which considers the many ways that affect can inform thoughts, is needed.

The finding that affective states can influence people's use of abstract information provides a crucial stepping-stone, in that it helps incorporate affect into a wide number of theories that discuss the importance of abstraction for both information processing and motivation (see Burgoon, Henderson, & Markman, 2013; Förster & Dannenberg, 2010; Fujita & Carnevale, 2012). For instance, abstract information plays a large role in construal level theory, which has implications for prediction, preference, and action (Trope & Liberman, 2010; for discussion see Bless & Burger, 2017). By establishing these connections, it becomes apparent that affect could serve as a key ingredient within a wide range of

psychological processes.

Heuristics

Heuristics are rules of thumb that people employ to solve problems. If happy moods promote reliance on generalized knowledge, then happy moods should increase the use of heuristic reasoning strategies. Indeed, relative to sad and neutral moods, happy moods promote the use of the following heuristics: the fundamental attribution error (Forgas, 1998; Stalder & Cook, 2014), the halo effect (Forgas, 2011b; Sinclair, 1988), the ease of retrieval heuristic (Greifeneder & Bless, 2008; Ruder & Bless, 2003), the conjunction fallacy (Gasper, 1999; but see Jundt & Hinsz, 2002), and the use of processing fluency as well as other cues as judgmental heuristics (Forgas, 2015; Koch & Forgas, 2012; Wyland & Forgas, 2010).

Happy moods also reduce the degree to which people use systematic strategies. For instance, happy moods can decrease reliance on clear, logical decision rules (de Vries, Holland, Corneille, Rondeel, & Witteman, 2012; Elsbach & Barr, 1999), lessen one's ability to accurately estimate correlation coefficients from graphic data (Sinclair & Mark, 1995), reduce reliance on Grice's principles for conversations (Koch, Forgas, & Matovic, 2013; Matovic, Koch, & Forgas, 2014), hurt syllogistic reasoning (Gasper, 1999; Melton, 1995; for exception see Radenhausen & Anker, 1988), and lessen the extent to which people use theory of mind when making judgments about others' mental states (Converse, Lin, Keysar, & Epley, 2008).

These differences in processing strategies also shape how mood alters evaluations of fairness (Hertel, Neuhof, Theuer, & Kerr, 2000). Sinclair and Mark (1991) proposed that happy moods promote attention to equality (50/50), whereas sad moods promote attention to equity (you get out what you put in) because equity is determined by systematically attending to the details. Indeed, when people learned that they had done 60% of the work, 84% of those in happy moods and 90% of those in neutral moods paid their partner using the equality norm; whereas only 33% of those in sad moods did so because they followed an equity norm (Inness, Desmarais, & Day, 2005). This focus on fairness also is evidenced by sad moods being associated with lower acceptance of unfair offers in the ultimatum game (Chung, Lee, Jung, & Kim, 2016; Harlé, Chang, van't Wout, & Sanfey, 2012; Harlé & Sanfey, 2007; Riepl, Mussel, Osinsky, & Hewig, 2016) and with making fairer offers relative to happy moods (Forgas & Tan, 2013). It should be noted that others did not find that sadness lowered acceptance of unfair offers, but rather disgust (Moretti & di Pellegrino, 2010) and anger (Srivastava, Espinoza, & Fedorikhin, 2009) did, presumably because these emotions signaled a negative view of the unfair offer (see also Harlé & Sanfey, 2010; for a meta-analysis on affect and justice, see Barsky & Kaplan, 2007).

At first glance, these effects suggest that positive affect might not be ideal, for it encourages the use of simple, heuristic strategies. This view, however, is a mischaracterization. First, reliance on heuristics does not always lead to poor decisions. Heuristics generally serve people well and are efficient (Ambady & Gray, 2002; Baron, 1990). For instance, happy moods promote reliance on small samples, which can be beneficial because it can lead to faster and more correct decisions (Fiedler et al., 2010). Heuristics also are a type of mental habit that allows people to devote their attention to other challenges (see Lyubomirsky, King, & Diener, 2005). Second, not all heuristics are promoted by happy moods. For instance, the anchoring heuristic occurs when individuals extensively think about the possibility that the anchor is correct. Research indicates that sad moods encourage people to think about the anchor, thereby increasing the anchoring bias relative to happy moods (Bodenhausen, Gabriel, & Lineberger, 2000; Englich & Soder, 2009; Estrada, Isen, & Young, 1997; for non-replication see Jundt & Hinsz, 2002). Third, as we will discuss later, when the situation is important and demands attention, happy moods promote complex thought (Isen, 2001; Schwarz & Clore, 2007). Thus, it might be best to view this work as indicating that compared to sadness, happiness promotes greater acceptance of generalized knowledge in relatively benign situations.

Persuasion

Research on mood and persuasion also suggests that happy moods promote less systematic processing strategies than sad moods. Numerous studies indicate that respondents in happy moods are less likely to be influenced by the strength of the persuasive agreements than those in neutral (Mackie & Worth, 1989; Worth & Mackie, 1987) and negative moods (Bless, Bohner, Schwarz, & Strack, 1990; Bless, Mackie, & Schwarz, 1992; Bohner & Weinerth, 2001; Schwarz, Bless, & Bohner, 1991; Sinclair, Mark, & Clore, 1994; for meta-analysis see Hullett, 2005). Moreover, when asked to write their own arguments, respondents in happy moods even produced less persuasive arguments than those in sad moods (Forgas, 2007; Forgas, East, & Chan, 2007). Thus, these data suggest that relative to neutral and sad moods, happy moods decrease the use of systematic processing strategies.

Yet, it is important to keep in mind that valence alone is not the sole determinant of these effects.

Other characteristics of the state might matter. For instance, happy moods could have these effects because they signal certainty. Tiedens and Linton (2001) found that certainty emotions (anger, contentment, and sadness with certainty) resulted in people relying less on the quality of the message than uncertainty emotions (worry, surprise, and sadness with uncertainty; see also Rydell et al., 2008). If so, affective states are flexible ingredients, providing a range of information that could alter the processing of persuasive communications.

Moreover, there are contextual factors that also shape how affective states might provide information during the persuasion process. First, the effects of affect can depend on people's motivation and ability to process the persuasive communication. Research indicates that affect may alter how people process the message when people possess *moderate* levels of motivation and ability to pay attention to the message. However, when people possess either low motivation and ability or high motivation and ability, then affect alters how much people like the message (for reviews see Petty, Fabrigar, & Wegener, 2003; Petty, Wheeler, & Tormala, 2003). That is, instead of affect altering how people think about the message, affect alters their evaluation of the message (see Petty, Schumann, Richman, & Strathman, 1993).² Not all research supports this view, however (see Albarracín & Kumkale, 2003; Batra & Stayman, 1990; Smith & Shaffer, 1991), but the findings bring up a critical issue – when does affect alter how a message is processed vs. how a message is evaluated?

Second, another key element to consider concerns the hedonic implications of the message. According to the *hedonic contingency hypothesis*, people in happy moods are motivated to sustain their positive feelings, resulting in them being uninclined to process mood-threatening messages that might make them feel bad (Wegener et al., 1995). In contrast, people in sad moods already feel bad. Hence, they are less concerned about processing mood-threatening messages because these messages would have limited affective consequences. Indeed, positive affect promotes message scrutiny when messages are hedonically rewarding (e.g. positive content, likeable source), but not when they are mood-threatening (Sinclair, Moore, Mark, Soldat, & Lavis, 2010; Turner, Underhill, & Kaid, 2013; Van Kleef, van den Berg, & Heerdink, 2015; Wegener & Petty, 1994; Wegener et al., 1995; see also Handley & Lassiter, 2002, for meta-analysis see Hullett, 2005). Similar findings also arise when the message is framed using a more positive, promotion-focused frame (e.g., attaining positive outcomes) than a more negative, prevention-focused frame (e.g., avoiding negative outcomes; Baek & Reid, 2013; Van Kleef et al., 2015). Thus, happy moods can promote message scrutiny as long as doing so is hedonically rewarding and not mood threatening.

Third, people in happy moods do not always focus on sustaining their mood. According to the *mood-as-resource model* (Das & Fennis, 2008; Das, Vonkeman, & Hartmann, 2012; Raghunathan & Trope, 2002; Trope, Ferguson, & Raghunathan, 2001), positive moods can operate as a resource that allows people to better cope with negative, self-relevant information (Lazarus, 1999). Specifically, people in happy states might be better equipped to cope with negative, self-relevant messages, because they have more positive affective reserves to draw upon to feel good when receiving negative feedback than those in negative moods. Consequently, positive moods increase the processing of self-relevant, negative information (Das & Fennis, 2008; Raghunathan & Trope, 2002). This effect is thought to occur because, when a negative message is highly self-relevant, the need for accuracy and knowledge can overpower the need to feel positively about one's self, thereby encouraging people to more thoroughly process the negative information.

At first glance, the mood-as-resource model seems to contradict the hedonic contingency hypothesis. The two views, however, operate under very different contextual situations. The mood-as-resource model predicts that happy states should encourage acquiring negative information because it is needed; whereas the hedonic contingency hypothesis suggests that happy states might encourage avoiding negative information when it is not needed. Indeed, Gasper and Zawadzki (2012) found that when help was needed, positive moods increased seeking out critical information in order to improve; whereas when help was not needed, negative moods increased seeking out critical information in order to ward off potential future problems (see also Albarracín & Hart, 2011; Trope & Pomerantz, 1998). Thus, positive affect can be a highly adaptive ingredient. It focuses people on acquiring negative information when it is needed, but ignoring it when it is not needed and perhaps mood threatening.

Lastly, mood can also influence persuasion by creating expectancies. According to the *mood-congruent expectancies approach* (Ziegler, 2010, 2013, 2014; Ziegler & Diehl, 2011; Ziegler, Schlett, & Aydinli, 2013; see also work on *affective coherence*, Huntsinger, 2013b; DeSteno, Petty, Rucker, Wegener, & Braverman, 2004), one's mood state creates an expectancy for what should happen. Happy moods encourage people to expect the world to be a good place; whereas sad moods encourage people to expect it to be a bad place. When people encounter a message that is congruent with their expectations (e.g., happy

moods and a trustworthy source, sad moods and an untrustworthy source), they are less likely to scrutinize that message than when they encounter a message that is incongruent with their expectancies (e.g., happy and untrustworthy source, sad and trustworthy source; Ziegler & Diehl, 2011). Thus, mood still provides information, but this information shapes what one expects, which in turn alters processing, rather than mood directly informing how one should process the information.

Clearly, there are many ways that affect can alter persuasion. As in the previous sections, researchers need to consider carefully how affect informs these processes. They also need to understand the context. Is the context promoting a moderate desire to process the information? Creating concerns about sustaining one's feelings? Activating concerns about learning negative and self-relevant information? Or altering one's expectancies? The answers to these questions should help determine how affective ingredients will influence persuasion.

Stereotyping

When people rely on a stereotype, they are using a pre-existing knowledge structure (specifically, information about a group or category) to judge a group member rather than relying on individuating information. Because positive affect often promotes the use of generalized knowledge structures, it should promote reliance on stereotypes. Indeed, numerous studies indicate that people in happy moods are more likely to rely on stereotypes to make judgments than those in neutral or sad moods (e.g., Bless, 2000; Bless, Clore, et al., 1996; Bless, Schwarz, & Kimmelmeier, 1996; Bless, Schwarz, & Wieland, 1996; Bodenhausen, 1993; Bodenhausen, Kramer, & Süsner, 1994; Curtis, 2013; Forgas, 2013; Huntsinger, Sinclair, Dunn, & Clore, 2010; Isbell, 2004; Park & Banaji, 2000; Stroessner & Mackie, 1992). For example, Bodenhausen, et al., (1994) had participants in positive or neutral moods read an alleged misconduct case and make judgments of guilt. Half of the participants learned that the person belonged to a stereotyped group. Participants in a happy mood judged the target as more guilty when the stereotype was activated than when it was not, but participants in a neutral mood did not differentially judge the target. Additionally, some negative moods seem to counteract processes associated with stereotyping, for they can promote concrete thought, accommodation of new information, or a focus on local, individuating, or behavioral information (e.g., Bless, Schwartz, & Wieland, 1996; Bodenhausen, Kramer, et al., 1994; Bodenhausen, Sheppard, et al., 1994; Isbell, 2004; Krauth-Gruber & Ric, 2000; Unkelbach, Forgas, & Denson, 2008).

As noted in the previous sections, affect is a versatile ingredient. These effects might not stem from the valence of the affective information, but rather from other qualities associated with the affective information. For example, Tiedens and Linton (2001) argued that people might rely on stereotypes more when they feel certain rather than uncertain. They found that disgust, a certainty-based emotion, promoted greater reliance on stereotypes than fear, an uncertainty-based emotion. Similarly, anger, another certainty-based emotion, also increased reliance on stereotypes compared to sad and neutral moods (Bodenhausen, Sheppard, et al., 1994).

In addition to considering the information the affect provides, one also needs to consider how the meaning of that information might be context dependent. For instance, Dasgupta, DeSteno, Williams, and Hunsinger (2009) found that the effects of anger and disgust on bias depended on whether the out-group's stereotype was one that typically aroused anger or disgust. They found that disgust, but not anger, elevated implicit outgroup bias when the targets were gay (an outgroup that was more associated with disgust than anger). Moreover, anger, but not disgust, elevated implicit outgroup bias when the targets were Arab (an outgroup that was more associated with anger than disgust). Thus, emotions provide information about the degree to which an outgroup is a threat, but only if the emotion is applicable to one's existing knowledge about that group. Another example comes from Unkelbach et al. (2008). They asked respondents in happy, angry, or neutral moods to play a game in which respondents decided whether to shoot an un/armed person; some targets wore an Islamic headdress. Happy participants exhibited a bias toward selectively shooting more Muslim targets, and angry participants had an increased tendency to shoot all targets. This finding suggests that happy moods might promote reliance on stereotypes; whereas anger increases the general tendency toward aggressive responses. Additionally, it is possible for affective states to shape evaluations of in/out group members via the mood-congruent expectancies model. Ziegler and Burger (2011), for example, found that people engaged in more effortful processing when the outgroup's membership was incongruent, rather than congruent, with one's mood-based expectancies. Together, this work underscores how the characteristics of the task can shape the way in which affective ingredients function.

In addition to examining whether stereotypes are applied, researchers have examined how affect alters the extent to which respondents perceive groups as being homogenous. Compared to neutral or sad moods, happy moods often increase perceptions of group homogeneity (Park & Banaji, 2000; Queller, Mackie, & Stroessner, 1996; Stroessner & Mackie, 1992; Stroessner, Mackie, & Michalsen, 2005). This

finding might occur because positive moods either decrease systematic thought, thereby preventing people from noticing differences, or because happy moods promote assimilation, which encourages seeing connections within the group. Indeed, positive moods promote broader inclusion of others into one's ingroup (Dovidio, Gaertner, Isen, & Lowrance, 1995; Ensari, Stenstrom, Pedersen, & Miller, 2009; Urada & Miller, 2000). This inclusion effect is interesting for it suggests that even though happy states might increase stereotyping, they also increase the inclusion of others into one's in-group.

In sum, happy moods generally promote stereotype use, perhaps by conveying that it is fine to rely on generalized knowledge or by signaling certainty in one's existing knowledge. Along these lines, anger, another certainty emotion, also can promote stereotype use, especially with regards to groups that often spark feelings of anger. Yet, even though happy moods increase reliance on stereotypic knowledge, they also encourage people to be more inclusive and more likely to assimilate others into one's group. Thus, an interesting avenue for future research is to explore when people will rely on stereotypes and when they will instead focus on connections and similarities between oneself and others.

Creativity

Numerous researchers have examined whether mood influences creativity (for meta-analyses see Baas, De Dreu, & Nijstad, 2008; Davis, 2009; Lyubomirsky, et al., 2005). Much of this work indicates that happy states promote creative thought. The idea being that because happy states encourage a focus on abstract information, people in them are better able to make higher-order connections and links promoting novel thought (Ashby et al., 1999; Estrada, Isen, & Young, 1994; Isen, 2001; Isen & Daubman, 1984; Isen, Niedenthal, & Cantor, 1992). This idea is supported by the *broaden and build theory* of positive emotions (Fredrickson, 1998), which argues that positive states might promote creativity because they signal safety, and hence one is free to play and explore (Friedman, Förster, & Denzler, 2007). Indeed, people in happy moods tend to perform well on tasks that are interesting and fun (Hirt, Devers, & McCrea, 2008). In support of these views, three meta-analyses revealed that, compared to neutral moods, experimentally induced positive moods increase creativity, effect sizes: $d = .30$ (Baas, De Dreu, & Nijstad, 2008), $d = .52$ (Davis, 2009), $d = .32$ (weighted; Lyubomirsky, et al., 2005). Moreover, the link might be bidirectional, in that creativity and inspiration also promote well-being and happiness (Thrash, Moldovan, Oleynick, & Maruskin, 2014).

The effect of negative moods on creativity is more complicated. In his meta-analysis, Davis (2009) concluded that positive moods promote more creativity than negative moods. However, Baas et al., (2008) concluded that there were no differences between positive and negative moods. Additionally, both meta-analyses found no significant difference between negative and neutral moods. These null effects could stem from the fact that research on positive mood often focuses mainly on happy/amused mood states; whereas research on negative moods often encompasses a wider range of states, such as sadness, fear, anger, and boredom. These negative states vary dramatically in terms of the types of information they provide, which could obscure an overall meta-analytic effect.

One promising approach to address the role of affect in creativity is to move beyond valence and consider other relevant affective elements, such as whether the affective states reflect an approach or avoidance orientation (Baas et al., 2008; Friedman & Förster, 2010). Approach states, such as excitement, might foster creativity because they signal that it is safe to explore; whereas avoidance states, such as fear, might dampen creativity because they signal the need for vigilance, especially when they are high in activation. Indeed, Baas et al., (2008) found a meta-analytic effect indicating that fear hampered creativity ($r = -.12$, 95%CI: $-.22$ to $-.02$), and later, Byron and Khazanochi (2011) found meta-analytic effects indicating that both state ($r_{\text{corrected}} = -.028$, 95%CI $[-.051, -.012]$) and trait ($r_{\text{corrected}} = -.166$, 95%CI $[-.186, -.147]$) anxiety hindered creativity. Part of the problem Baas et al., (2008) ran into testing the role of approach/avoidance in creativity is that they could find studies that examined high, but not low, activation states. Since then, more research has been conducted using low activation states, and it too suggests that even these states might differentially alter creativity depending on whether they activate approach or avoidance motivations (Bench & Lench, 2013; Gasper & Middlewood, 2014; Mann & Cadman, 2014; Middlewood, Gallegos, & Gasper, 2016). Furthermore, a recent meta-analysis on the association between psychopathology and creativity also supports this view (Baas, Nijstad, Boot, & De Dreu, 2016; but see also Taylor, 2017). Thus, what makes affect an influential ingredient in the creative process might be whether it signals approach/avoidance rather than its valence.

In addition to understanding which moods promote creativity, another key question concerns how they do so. One argument is that the abstract thought promoted by happy moods facilitates connections and links, encouraging the production of creative ideas (Ashby et al., 1999). Additionally, mood might alter the likelihood of accepting creative ideas. Affective states that signal caution and vigilance might indicate that creative ideas or strategies are inappropriate, undesired, or too risky to employ. For instance, individuals in

sad moods are creative when it is clear that creativity is appropriate and desired (Friedman et al., 2007; Gasper, 2003; Gasper, 2004b; Yamada & Nagai, 2015). Thus, some moods could have detrimental effects not because they influence the production of creative ideas, but rather because they influence the acceptance of them (de Vries et al., 2012).

In sum, approach states might promote more creativity than avoidance states, but clearly, more research needs to be done to confirm this hypothesis. In addition, research would benefit from employing an approach that considers not only what information the state is providing, but also how that information might shape the types of processes are involved in various types of creative tasks. That is, just as it matters in cooking *when* one adds an ingredient, so too might it matter at what stage of the creative process affect is operating.

Affect-as-Cognitive Feedback: Everything is Reversible

There is one last view of how affect alters processing that we want to discuss — the *affect-as-cognitive feedback account* (also called the *cognitive malleability approach*, for reviews see Huntsinger, Isbell, & Clore, 2014; Isbell, Lair, & Rovenpor, 2013; Ray & Huntsinger, 2017). This newer theoretical perspective argues that happy and sad moods do not directly promote the use of one processing strategy over the other. Instead, affect provides information that signals whether one should use the accessible strategy. Happy moods signal all is well and operate like a go-signal, providing information indicating that it is okay to use whatever strategy is accessible. Sad moods signal that there is a problem and operate like a stop-signal, providing information that one should be wary of and not use whatever strategy is accessible. Proponents of this view argue that happy moods have promoted the use of abstract knowledge, heuristics, and stereotypes not because they promote these strategies per se, but because these global strategies are typically the accessible, default strategy.

To test this idea, researchers primed various processing strategies (global vs. local, heuristic vs. systematic) to make one strategy more accessible than another. When global/abstract/heuristic strategies were accessible, relative to sad moods, happy moods promoted the effects that were typically found in the literature, such as increased out-group homogeneity effects (Isbell, Lair, & Rovenpor, 2016), greater attention to global features (Huntsinger et al., 2010, Huntsinger, 2013a), increased use of category information as a basis for judgment (Huntsinger, Isbell, & Clore, 2012), greater adoption of accessible goals (Huntsinger & Sinclair, 2010), engaging in more creative thought, greater use of the conjunction fallacy, but less use of the anchoring heuristic (Huntsinger & Ray, 2016). More importantly, when detailed/local/systematic process strategies were accessible, ALL of these effects reversed. That is, when detailed processing strategies were primed, people in happy moods used less global, abstract processing strategies than those in sad moods did.

This work has at least two interesting implications. First, prior work that found reversals in mood effects (e.g. happy moods promoting local strategies and sad moods promoting global strategies), which might seem to contradict current wisdom, could have found these effects because the studies activated local, rather than global, strategies as a means to complete the task. Second, this work also provides an interesting explanation for why null results might occur. Specifically, null effects might arise when no clear processing strategy is accessible, for when this happens, happy and sad moods do not differentially alter processing (Isbell et al., 2016). Thus, affect might shape the extent to which people use accessible strategies, and if no strategy is accessible, then affect might not alter information processing.

A key question is whether this view really challenges past work – is it a revolutionary way of cooking? In the affect-as-cognitive feedback experiments, researchers first prime a processing strategy (e.g. global vs. local). In doing so, they actually might be activating procedural knowledge about how to perform the task. According to Bless & Burger (2017), accessible prior knowledge can include procedural knowledge. Thus, one could argue that these studies are merely changing what type of procedural/prior knowledge (e.g., global vs. local procedural knowledge) is accessible. Happy moods therefore are still increasing reliance on prior knowledge; it is just that the priming manipulation changes what kind of prior knowledge is accessible. If so, it is unclear if affect provides a signal about relying on prior, generalized knowledge or if it provides a signal about relying on accessible knowledge (as the affect-as-cognitive feedback account proposes). Regardless of one's take on this issue, the affect-as-cognitive feedback account makes the important point that the effect of affect on processing is highly malleable. That is, affect is a wonderfully flexible ingredient that adapts to the situation, producing a range of outcomes depending on the how it informs the context.

When the Effects Disappear

Lastly, it is important to keep in mind that all of these effects depend on whether affect is experienced as providing *relevant* information. When affect is irrelevant, it should not influence processing. Greifeneder, Bless, and Pham (2011) provide an excellent review of the factors that determine when feelings are experienced as relevant to various judgments. Presumably, many of these factors would apply to understanding when feelings are experienced as relevant to processing, but a systematic review is needed to confirm this hypothesis. In terms of when affect is irrelevant, research indicates that irrelevance can be achieved by either (a) altering the perceived source or meaning of the affective cues or (b) changing the situational or task cues in such a way to override the affective information (Albarracín & Kumkale, 2003; Bless et al., 1990; Bodenhausen, Kramer, & Süsser, 1994; Faraji-Rad & Pham, 2012; Friedman et al., 2007; Gasper, 2004a; Isbell, McCabe, et al., 2013; Ruder & Bless, 2003; Sinclair et al., 1994; van Reijmersdal, Lammers, Rozendaal, & Buijzen, 2015). In addition, the intensity of the affective state might matter. If the affect manipulation is too mild, affective cues might not be noticed and not employed; if affective cues are too salient, they might be viewed as task-irrelevant and not employed (Bohner & Weinerth, 2001). Indeed, Davis's (2009) meta-analysis revealed that mood effects were stronger for moderately intense affective states compared to mild or very intense states. The mood effects also were stronger when a cover story was present rather than absent, perhaps because a cover story enhanced the degree to which affect was experienced as task-relevant. These factors are not minor considerations, for if any of them are present, they can negate whether affective ingredients play a role in shaping thought.

Recommendations for Future Research

Recommendation 1: View Each Affective Ingredient as Providing Multiple Rather than Single Sources of Information

When research on affect and information processing began, the key focus was on the state's valence, but affective states possess other key qualities that can provide information. These include such factors as the state's underlying appraisal dimensions (Arnold, 1960; Clore, Ortony, & Foss, 1987; Frijda, Kuipers, & Ter Schure, 1989; Lazarus, 1991; Moors, 2009; Roseman, Spindel, & Jose, 1990; Smith & Ellsworth, 1985; Smith, Tong, & Ellsworth, 2014), motivational orientations (e.g., approach/avoidance, motivational intensity; Fischhoff, Gonzalez, Lerner, & Small, 2012; Gable & Harmon-Jones, 2008; Gasper & Middlewood, 2014; Lerner, Li, & Weber, 2013; Tiedens & Linton, 2001) arousal/activation level (Storbeck & Clore, 2008), and intensity (Hackenbracht & Gasper, 2013; Lench & Bench, 2015). In this chapter, we only scratched the surface through our discussions of how motivational intensity, approach/avoidance, and differences in certainty might underlie these effects. There are many other ways that affective ingredients could shape thought. For instance, Griskevicius et al., (2009) used evolutionary theory to hypothesize that fear would activate self-protection, resulting in one wanting to blend in and not stand out among others in order to be safe; whereas romance would activate the desire to differentiate oneself from others, resulting in one wanting to stand out among others in order to attract a mate. Using this reasoning, they predicted and found that people in fearful moods were more persuaded by messages about being part of the group; whereas those in romantic moods were more persuaded by messages about differentiating oneself from others (see also, Griskevicius, Shiota, & Neufeld, 2010; Keltner, Haidt, & Shiota, 2006; Ng et al., 2017; Sauter, 2010). This example nicely illustrates how other affective elements, in this case the potential evolutionary functions of affect, might shape the information that affective provides.

The fact that affect can have so many influences is a beautiful thing, but this versatility also creates ambiguity concerning what cue is responsible for the effect. Fear, for instance, could signal negativity, avoidance, uncertainty, a focus on the future, urgency, and need for protection. With so many dimensions to consider, it becomes very important to delineate which of these possible signals underlies the effect. Right now, researchers often theorize that if affective state "x" signals "y", it should result in "z". They establish that "x" produces "z", but often do not adequately test or acknowledge all the possible "y"s. The field would benefit by trying to establish what piece(s) of information (the potential "y"s) underlie the effect. It is only with this information that one can know when fear will function more like sadness (a negative emotion), hope (an uncertainty emotion), or excitement (a high urgency emotion).

Recommendation 2: Consider How Affective States Might Operate in Conjunction with One Another

Researchers should consider how two or more affective states might operate together to alter information processing. Affect inductions often create more than one state, such as when sad mood manipulations elevate anxiety or disgust (Westermann, Stahl, & Hesse, 1996). Yet, researchers often assume that only one state predominates, not taking into account other potential affective influences (Gasper & Danube, 2016). Multiple affective states can interact with each other to alter thought (Middlewood et al., 2016). For instance, emotional ambivalence (e.g., experiencing happiness and sadness

at the same time) has been found to benefit problem-solving. Happiness promotes the exploration needed for creative solutions; whereas sadness promotes the systematic thought needed to evaluate them (George & Zhou, 2007; Kaufmann & Vosburg, 2002; Moss & Wilson, 2014; Rees, Rothman, Lehav, & Sanchez-Burks, 2013; Rothman, Pratt, Rees, & Vogus, 2016; van Harreveld, Nohlen, & Schneider, 2015). Even though people might simultaneously feel multiple states, research is currently lacking concerning how these complex states function together to shape thought.

Recommendation 3: Develop Models that Delineate When Affect Would Influence Processing, Judgment, or Both

Researchers often distinguish between affect altering judgment (evaluations of some object) and processing (how people think). This review focused on how affect alters processing, but a close examination of this discussion reveals that sometimes affect might alter these various cognitive outputs via judgment. For instance, affect might alter how people use a stereotype to process information about a group-member or it could just alter one's judgment of the group-member (e.g., I dislike members of group x). Affect might alter the generation of creative ideas or it might influence the evaluation of the suitability of those ideas. Affect also might alter how a persuasive message is processed or one's liking of the message. But when does affect alter processing, judgment, or both? In the persuasion domain, researchers have begun to address this issue by arguing that affect alters how people process messages when motivation and ability are moderate and how they judge the messages when motivation and ability are either both low or high (Petty, Fabrigar, & Wegner, 2003; Petty, Wheeler, & Tormala, 2003). This model, however, has not always worked, but at least it reflects an attempt to tackle this issue. The field desperately needs more theorizing that focuses on how the role of affect might change depending on the various stages and mechanisms that are involved within each of these various domains.

Recommendation 4: Examine to What Extent These Effects Extend to Naturally Arising Affective States and Traits

Most of the studies reviewed here examined how some type of manipulated affective state altered various cognitive outcomes. A few studies have examined how naturally arising state and trait affect might influence these outcomes, especially with regards to the processing of abstract information (Basso et al., 1996; Derryberry & Reed, 1998; Gable & Harmon-Jones, 2008) and creative thought (for meta-analysis see: Byron & Khazanchi, 2011). But our literature search revealed very little work examining these affects with regards to the use of heuristics (for exceptions see; Greifeneder & Bless, 2008, Hilbig, 2008; Riepl et al., 2016; also work exists looking at justice, see Barsky & Kaplan, 2007), persuasion (for exception see: DeBono, & McDermott, 1994), and stereotyping. Examining naturally arising state and trait affect is important, for these states might differ from manipulated affects in terms of the degree to which they seem relevant and salient – two qualities that could influence whether affect will alter thought (Gasper & Danube, 2016; Greifeneder et al., 2011). In addition, trait affect might not only alter processing, but also alter the meaning and relevance of state affect (Gasper & Clore, 1998). For instance, extroverted and neurotic individuals tend to differ in how much positive and negative affect they experience, and they also differ in how they view and use the information provided by positive and negative affective states (Augustine & Larsen, 2011; Rusting, 1999).³ Thus, there is a clear need to consider how naturally arising state and trait affective influences might operate independently and together to shape the way in which information is processed.

Recommendation 5: Move Toward Greater Scientific Rigor and Openness

In reviewing this literature, another issue that deserves attention is replicability. There are many conceptual replications (many researchers doing the same type of work), but not many “exact” replications (conducting the same study), let alone preregistered replications (registering hypotheses and methods before conducting the study). The only preregistered replication of mood and processing effects that we could find was by Domachowska et al., (2016), which replicated the work of Gable and Harmon-Jones (2008) on how positive affects high in motivational intensity narrow attentional scope. In terms of judgment, Yap et al. (2016) sought to replicate the effect of mood on judgments of life satisfaction (Schwarz & Clore, 1983). They found rather small effect sizes relative to the original work. Even though there are many reasons why a replication study might fail to find an effect, these studies provide information relevant to determining the strength and scope of these effects, which is needed to understand the practical significance of these findings.

A related issue is that there is not a lot of work that clearly delineates the overall magnitude of these effects. With the exception of research on affective influences on creativity, meta-analyses for some of these effects are scarce and many were conducted prior to the availability of newer techniques to detect bias. The affect and creativity meta-analyses revealed that the effect size for positive affect on creativity

ranged from $d = .30$ to $.52$ (see creativity section). Lench, Flores, and Bench (2011) conducted a meta-analysis that estimated the effect size of affect on cognition to be Hedges $g = .24$. This knowledge is important, for it suggests that many of the experiments on mood and processing might be underpowered. If a medium effect size is assumed ($d = .50$), then for an experiment that compares happy vs. sad moods, assuming 80% power, $\alpha = .05$, two-tailed test, one needs a sample size of 128 people. If the effect size is closer to $d = .25$, then the sample increases to 506 people. Many of the studies reviewed here had 20 to 50 participants per cell, resulting in studies that are either somewhat underpowered (if $d = .50$, then estimated power is $.70$ assuming 50 participants per cell) to very underpowered (if $d = .25$, then estimated power is only $.24$). If the original studies are underpowered, then they might be difficult to replicate. Of course, it is important to keep in mind that because these meta-analyses examined very heterogeneous samples, the true effect size could be higher or lower depending on the study's characteristics. Nevertheless, it would be fruitful if researchers increase their sample sizes, preregister their hypotheses, and share their data, materials, scripts and laboratory practices given the extent to which individual differences and contextual cues can shape these effects. In other words, researchers should clearly document their affective recipes.

Concluding Remarks

To answer the questions posed in the introductory paragraph: Yes, it might be easier to persuade a person in a happy mood. No, sad moods do not necessarily foster creativity. And, yes, anger does seem to increase reliance on derogatory stereotypes. However, the likelihood of finding these effects depends on the context. Affective states are basic ingredients that can have a wide number of effects. This feature makes them adaptive, versatile, and highly functional – but also can make their influence tricky to predict. At this point, researchers have developed some sound basic principles for understanding these effects: (a) affect provides information, (b) this information must be experienced as relevant to the task, and (c) individual, situational, and task characteristics can change the meaning of this information. These principles form a foundational recipe that people can use as a basis for understanding a range of different ways to approach this work. To move forward, researchers need to refine their affective recipes by asking questions that better assess and highlight the complex, interactive effects that affective states can have on information processing.

Footnotes

¹This review focuses on the effects of mild, everyday feelings, not on clinical affective reactions (e.g. depression, mania, etc.). Everyday feelings sometimes produce effects akin to those found in clinical populations, but sometimes they do not.

²When people think about the message, moods can also influence persuasion by increasing the confidence people have in their thoughts (Briñol, Petty, & Barden, 2007; Petty, Briñol, & Tormala, 2002).

³In addition, there are many other individual and cultural factors that can shape how affect is experienced and interpreted, which in turn influences how affect functions (see: Avnet, Pham, & Stephen, 2012; Gasper & Bramesfeld, 2006; Gasper & Clore, 2000; George & Zhou, 2002; Kashdan, Barrett, & McKnight, 2015; Tamir, 2009; Tamir, Bigman, Rhodes, Salerno, & Schreier, 2014).

References

Albarracín, D., & Hart, W. (2011). Positive mood + action = negative mood + inaction: Effects of general action and inaction concepts on decisions and performance as a function of affect. *Emotion, 11*, 951–957. doi:10.1037/a0024130

Albarracín, D., & Kumkale, G. T. (2003). Affect as information in persuasion: A model of affect identification and discounting. *Journal of Personality and Social Psychology, 84*, 453–469. doi:10.1037/0022-3514.84.3.453

Ambady, N., & Gray, H. M. (2002). On being sad and mistaken: Mood effects on the accuracy of thin-slice judgments. *Journal of Personality and Social Psychology, 83*, 947–961. doi:10.1037//0022-3514.83.4.947

Arnold, M. B. (1960). *Emotion and Personality*. New York, NY: Columbia University Press.

Ashby, F. G., Isen, A. M., & Turken, A. U. (1999). A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review, 106*, 529–550. doi:0033-295X/99

Augustine, A. A., & Larsen, R. J. (2011). Affect regulation and temporal discounting: Interactions between

- primed, state, and trait affect. *Emotion*, *11*, 403–412. doi:10.1037/a0021777
- Avnet, T., Pham, M. T., & Stephen, A. T. (2012). Consumers' trust in feelings as information. *Journal of Consumer Research*, *39*, 720–735. doi:10.1086/664978
- Baas, M., De Dreu, C. K. W., & Nijstad, B. A. (2008). A meta-analysis of 25 years of mood-creativity research: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, *134*, 779–806. doi:10.1037/a0012815
- Baas, M., Nijstad, B. A., Boot, N. C., & De Dreu, C. K. W. (2016). Mad genius revisited: Vulnerability to psychopathology, biobehavioral approach-avoidance, and creativity. *Psychological Bulletin*, *142*, 668–692. doi:10.1037/bul0000049
- Baek, T. H., & Reid, L. N. (2013). The interplay of mood and regulatory focus in influencing altruistic behavior. *Psychology & Marketing*, *30*, 635–646. doi:10.1002/mar.20634
- Baker, T. (2013, March). At home: Alice Waters. *Financial Times*. Retrieved from <https://www.ft.com/content/db42a9fa-914a-11e2-b4c9-00144feabdc0?mhq5j=e2>
- Baron, R. A. (1990). Environmentally induced positive affect: Its impact on self-efficacy, task performance, negotiation, and conflict. *Journal of Applied Social Psychology*, *20*, 368–384. doi:10.1111/j.1559-1816.1990.tb00417.x
- Barsky, A., & Kaplan, S. A. (2007). If you feel bad, it's unfair: A quantitative synthesis of affect and organizational justice perceptions. *Journal of Applied Psychology*, *92*, 286–295. doi:10.1037/0021-9010.92.1.286
- Basso, M. R., Scheffé, B. K., Ris, M. D., & Dember, W. N. (1996). Mood and global-local visual processing. *Journal of the International Neuropsychological Society*, *2*, 249–255. doi:10.1017/S1355617700001193
- Batra, R., & Stayman, D. M. (1990). The role of mood in advertising effectiveness. *Journal of Consumer Research*, *17*, 203–214. doi:10.1086/208550
- Beedie, C., Terry, P., & Lane, A. (2005). Distinctions between emotion and mood. *Cognition & Emotion*, *19*, 847–878. doi:10.1080/026999305410000057
- Bench, S., & Lench, H. (2013). On the function of boredom. *Behavioral Sciences*, *3*, 459–472. doi:10.3390/bs3030459
- Beukeboom, C., & Semin, G. (2005). Mood and representations of behaviour: The how and why. *Cognition & Emotion*, *19*, 1242–1251. doi:10.1080/02699930500203369
- Beukeboom, C. J., & Semin, G. R. (2006). How mood turns on language. *Journal of Experimental Social Psychology*, *42*, 553–566. doi:10.1016/j.jesp.2005.09.005
- 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, NY: Cambridge University Press.
- Bless, H., Bohner, G., Schwarz, N., & Strack, F. (1990). Mood and persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin*, *16*, 331–345. doi:10.1177/0146167290162013
- Bless, H., & Burger, A. M. (2017). Mood and the regulation of mental abstraction. *Current Directions in Psychological Science*, *26*, 159–164. doi:10.1177/0963721417690456
- Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology*, *71*, 665–679. doi:10.1037//0022-3514.71.4.665
- Bless, H., Mackie, D. M., & Schwarz, N. (1992). Mood effects on attitude judgments: Independent effects of mood before and after message elaboration. *Journal of Personality and Social Psychology*, *63*, 585–595. doi:10.1037/0022-3514.63.4.585
- Bless, H., Schwarz, N., & Kimmelmeier, M. (1996). Mood and stereotyping: Affective states and the use of general knowledge structures. *European Review of Social Psychology*, *7*, 63–93. doi:10.1080/14792779443000102
- Bless, H., Schwarz, N., & Wieland, R. (1996). Mood and the impact of category membership and individuating information. *European Journal of Social Psychology*, *26*, 935–959. doi:10.1002/(SICI)1099-0992(199611)26:6<935::AID-EJSP798>3.0.CO;2-N
- Bodenhausen, G. V. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. M. Mackie, & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive*

processes in group perception (pp. 13–37). San Diego, CA: Academic Press.

Bodenhausen, G. V., Gabriel, S., & Lineberger, M. (2000). Sadness and susceptibility to judgmental bias: The case of anchoring. *Psychological Science, 11*, 320–323. doi:10.1111/1467-9280.00263

Bodenhausen, G. V., Kramer, G. P., & Süsler, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology, 66*, 621–632. doi:10.1037//0022-3514.66.4.621

Bodenhausen, G. V., Sheppard, L. A., & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology, 24*, 45–62. doi:10.1002/ejsp.2420240104

Bohner, G., & Weinerth, T. (2001). Negative affect can increase or decrease message scrutiny: The affect interpretation hypothesis. *Personality and Social Psychology Bulletin, 27*, 1417–1428. doi:10.1177/01461672012711003

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. doi:10.1037/0022-3514.93.5.711

Burger, A. M., & Bless, H. (2016). Affect and the weight of idealistic versus pragmatic concerns in decision situations. *European Journal of Social Psychology, 46*, 323–340. doi:10.1002/ejsp.2164

Burgoon, E. M., Henderson, M. D., & Markman, A. B. (2013). There are many ways to see the forest for the trees: A tour guide for abstraction. *Perspectives on Psychological Science, 8*, 501–520. doi:10.1177/1745691613497964

Byron, K., & Khazanchi, S. (2011). A meta-analytic investigation of the relationship of state and trait anxiety to performance on figural and verbal creative tasks. *Personality and Social Psychology, 37*(2), 269–283.

Chung, H., Lee, E. J., Jung, Y. J., & Kim, S. H. (2016). Music-induced mood biases decision strategies during the ultimatum game. *Frontiers in Psychology, 7*, 453. doi:10.3389/fpsyg.2016.00453

Clore, G. L., Ortony, A., & Foss, M. A. (1987). The psychological foundations of the affective lexicon. *Journal of Personality and Social Psychology, 53*, 751–766. doi:10.1037//0022-3514.53.4.751

Converse, B. A., Lin, S., Keysar, B., & Epley, N. (2008). In the mood to get over yourself: Mood affects theory-of-mind use. *Emotion, 8*, 725–730. doi:10.1037/a0013283

Curby, K. M., Johnson, K. J., & Tyson, A. (2012). Face to face with emotion: Holistic face processing is modulated by emotional state. *Cognition & Emotion, 26*, 93–102. doi:10.1080/02699931.2011.555752

Curtis, G. J. (2013). Don't be happy, worry: Positive mood, but not anxiety, increases stereotyping in a mock-juror decision-making task. *Psychiatry, Psychology and Law, 20*, 686–699. doi:10.1080/13218719.2012.729019

Das, E., & Fennis, B. M. (2008). In the mood to face the facts: When a positive mood promotes systematic processing of self-threatening information. *Motivation and Emotion, 32*, 221–230. doi:10.1007/s11031-008-9093-1

Das, E., Vonkeman, C., & Hartmann, T. (2012). Mood as a resource in dealing with health recommendations: How mood affects information processing and acceptance of quit-smoking messages. *Psychology & Health, 27*, 116–127. doi:10.1080/08870446.2011.569888

Dasgupta, N., DeSteno, D., Williams, L. A., & Hunsinger, M. (2009). Fanning the flames of prejudice: The influence of specific incidental emotions on implicit prejudice. *Emotion, 9*, 585–591. doi:10.1037/a0015961

Davis, M. A. (2009). Understanding the relationship between mood and creativity: A meta-analysis. *Organizational Behavior and Human Decision Processes, 108*, 25–38. doi:10.1016/j.obhdp.2008.04.001

DeBono, K. G., & McDermott, J. B. (1994). Trait anxiety and persuasion: Individual differences in information processing strategies. *Journal of Research in Personality, 28*, 395–407. doi:0092-6566/94

de Vries, M., Holland, R. W., Corneille, O., Rondeel, E., & Witteman, C. L. M. (2012). Mood effects on dominated choices: Positive mood induces departures from logical rules. *Journal of Behavioral Decision Making, 25*, 74–81. doi:10.1002/bdm.716

Derryberry, D., & Reed, M. A. (1998). Anxiety and attentional focusing: Trait, state and hemispheric influences. *Personality and Individual Differences, 25*, 745–761. doi:10.1016/s0191-8869(98)00117-2

DeSteno, D., Petty, R. E., Rucker, D. D., Wegener, D. T., & Braverman, J. (2004). Discrete emotions and persuasion: The role of emotion-induced expectancies. *Journal of Personality and Social Psychology, 86*,

43–56. doi:10.1037/0022-3514.86.1.43

Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., & Oishi, S. (2017). Findings all psychologists should know from the new science on subjective well-being. *Canadian Psychology/Psychologie Canadienne*, *58*, 87–104. doi:10.1037/cap0000063

Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. In C. R. Snyder & S. J. Lopez (Eds.), *The Oxford handbook of positive psychology* (pp. 63–73). Oxford, England: Oxford University Press.

Domachowska, I., Heitmann, C., Deutsch, R., Goschke, T., Scherbaum, S., & Bolte, A. (2016). Approach-motivated positive affect reduces breadth of attention: Registered replication report of Gable and Harmon-Jones (2008). *Journal of Experimental Social Psychology*, *67*, 50–56. doi:10.1016/j.jesp.2015.09.003

Dovidio, J. F., Gaertner, S. L., Isen, A. M., & Lowrance, R. (1995). Group representations and intergroup bias: Positive affect, similarity, and group size. *Personality and Social Psychology Bulletin*, *21*, 856–865. doi:10.1177/0146167295218009

Ellis, H. A. & Ashbrook, P. W. (1988). Resource allocation model of the effects of depressed mood states on memory. In K. Fielder & J. Forgas (Eds.), *Affect, cognition, and social behavior* (pp. 25–43). Lewiston, NY: Hogrefe.

Elsbach, K. D., & Barr, P. S. (1999). The effects of mood on individuals' use of structured decision protocols. *Organization Science*, *10*, 181–198. doi:10.1287/orsc.10.2.181

Englich, B., & Soder, K. (2009). Moody experts—How mood and expertise influence judgmental anchoring. *Judgment and Decision Making*, *4*, 41–50.

Ensari, N., Stenstrom, D. M., Pedersen, W. C., & Miller, N. (2009). The role of integral affect and category relevance on crossed categorization. *Group Dynamics: Theory, Research, and Practice*, *13*, 281–299. doi:10.1037/a0016589

Estrada, C. A., Isen, A. M., & Young, M. J. (1994). Positive affect improves creative problem solving and influences reported source of practice satisfaction in physicians. *Motivation and Emotion*, *18*, 285–299. doi:10.1007/bf02856470

Estrada, C. A., Isen, A. M., & Young, M. J. (1997). Positive affect facilitates integration of information and decreases anchoring in reasoning among physicians. *Organizational Behavior and Human Decision Processes*, *72*, 117–135. doi:10.1006/obhd.1997.2734

Faraji-Rad, A., & Pham, M. T. (2012). Uncertainty increases people's reliance on their feelings. In Gürhan-Canli, Z., Otnes, C., & Zhu, R. (Eds.), *Advances in consumer research vol. 40* (p. 776). Duluth, MN: Association for Consumer Research.

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

Fiedler, K., Nickel, S., Asbeck, J., & Pagel, U. (2003). Mood and the generation effect. *Cognition & Emotion*, *17*, 585–608. doi:10.1080/02699930302301

Fiedler, K., Renn, S. Y., & Kareev, Y. (2010). Mood and judgments based on sequential sampling. *Journal of Behavioral Decision Making*, *23*, 483–495. doi:10.1002/bdm.669

Fischhoff, B., Gonzalez, R. M., Lerner, J. S., & Small, D. A. (2012). Evolving judgments of terror risks: Foresight, hindsight, and emotion: A reanalysis. *Journal of Experimental Psychology: Applied*, *18*, e1–e16. doi:10.1037/a0027959

Forgas, J. P. (1998). On being happy and mistaken: mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology*, *75*, 318–331. doi:10.1037//0022-3514.75.2.318

Forgas, J. P. (2007). When sad is better than happy: Negative affect can improve the quality and effectiveness of persuasive messages and social influence strategies. *Journal of Experimental Social Psychology*, *43*, 513–528. doi:10.1016/j.jesp.2006.05.006

Forgas, J. P. (2011a). Affective influences on self-disclosure: Mood effects on the intimacy and reciprocity of disclosing personal information. *Journal of Personality and Social Psychology*, *100*, 449–461. doi:10.1037/a0021129

Forgas, J. P. (2011b). She just doesn't look like a philosopher...? Affective influences on the halo effect in impression formation: Mood and halo effects. *European Journal of Social Psychology*, *41*, 812–817. doi:10.1002/ejsp.842

Forgas, J. P. (2013). Don't worry, be sad! On the cognitive, motivational, and interpersonal benefits of

- negative mood. *Current Directions in Psychological Science*, 22, 225–232. doi:10.1177/0963721412474458
- Forgas, J. P. (2015). Why do highly visible people appear more important? *Journal of Experimental Social Psychology*, 58, 136–141. doi:10.1016/j.jesp.2015.01.007
- Forgas, J. P., East, R., & Chan, N. Y. M. (2007). The use of computer-mediated interaction in exploring affective influences on strategic interpersonal behaviours. *Computers in Human Behavior*, 23, 901–919. doi:10.1016/j.chb.2005.08.010
- Forgas, J. P., & Tan, H. B. (2013). Mood effects on selfishness versus fairness: Affective influences on social decisions in the ultimatum game. *Social Cognition*, 31, 504–517. doi:10.1521/soco_2012_1006
- Förster, J., & Dannenberg, L. (2010). GLOMOsys: A systems account of global versus local processing. *Psychological Inquiry*, 21, 175–197. doi:10.1080/1047840X.2010.487849
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319. doi:10.1037//1089-2680.2.3.300
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & Emotion*, 19, 313–332. doi:10.1080/02699930441000238
- Freitas, A. L., Clark, S. L., Kim, J. Y., & Levy, S. R. (2009). Action-construal levels and perceived conflict among ongoing goals: Implications for positive affect. *Journal of Research in Personality*, 43, 938–941. doi:10.1016/j.jrp.2009.05.006
- Friedman, R. S., & Förster, J. (2002). The influence of approach and avoidance motor actions on creative cognition. *Journal of Experimental Social Psychology*, 38, 41–55. doi:10.1006/jesp.2001.1488
- Friedman, R. S., & Förster, J. (2010). Implicit affective cues and attentional tuning: An integrative review. *Psychological Bulletin*, 136, 875–893. doi:10.1037/a0020495
- Friedman, R. S., & Förster, J. (2011). Limitations of the motivational intensity model of attentional tuning: Reply to Harmon-Jones, Gable, and Price (2011). *Psychological Bulletin*, 137, 513–516. doi:10.1037/a0023088
- Friedman, R. S., Förster, J., & Denzler, M. (2007). Interactive effects of mood and task framing on creative generation. *Creativity Research Journal*, 19, 141–162. doi:10.1080/10400410701397206
- Frijda, N. H., Kuipers, P., & Ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, 57, 212–228. doi:10.1037//0022-3514.57.2.212
- Fujita, K., & Carnevale, J. J. (2012). Transcending temptation through abstraction: The role of construal level in self-control. *Current Directions in Psychological Science*, 21, 248–252. doi:10.1177/0963721412449169
- Gable, P. A., & Harmon-Jones, E. (2008). Approach-motivated positive affect reduces breadth of attention. *Psychological Science*, 19, 476–482. doi:10.1111/j.1467-9280.2008.02112.x
- Gable, P., & Harmon-Jones, E. (2010a). The blues broaden, but the nasty narrows: Attentional consequences of negative affects low and high in motivational intensity. *Psychological Science*, 21, 211–215. doi:10.1177/0956797609359622
- Gable, P., & Harmon-Jones, E. (2010b). The motivational dimensional model of affect: Implications for breadth of attention, memory, and cognitive categorisation. *Cognition & Emotion*, 24, 322–337. doi:10.1080/02699930903378305
- Gaspar, K. (1999). How thought and differences in emotional attention influence the role of affect in processing and judgment: When attempts to be reasonable fail. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database.
- Gaspar, K. (2003). When necessity is the mother of invention: Mood and problem solving. *Journal of Experimental Social Psychology*, 39, 248–262. doi:10.1016/S0022-1031(03)00023-4
- Gaspar, K. (2004a). Do you see what I see? Affect and visual information processing. *Cognition & Emotion*, 18, 405–421. doi:10.1080/02699930341000068
- Gaspar, K. (2004b). Permission to seek freely? The effect of happy and sad moods on generating old and new ideas. *Creativity Research Journal*, 16, 215–229. doi:10.1080/10400419.2004.9651454
- Gaspar, K., & Bramesfeld, K. D. (2006). Should I follow my feelings? How individual differences in following feelings influence affective well-being, experience, and responsiveness. *Journal of Research in Personality*, 40, 986–1014. doi:10.1016/j.jrp.2005.10.001=

- Gasper, K., & Clore, G. L. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology*, 74(5), 1350. doi:10.1037/0022-3514.74.5.1350
- 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. doi:10.1177/0146167200268005
- Gasper, K., & Clore, G. L. (2002). Attending to the big picture: Mood and global versus local processing of visual information. *Psychological Science*, 13, 34–40. doi:10.1111/1467-9280.00406
- Gasper, K., & Danube, C. L. (2016). The scope of our affective influences: When and how naturally occurring positive, negative, and neutral affects alter judgment. *Personality and Social Psychology Bulletin*, 42, 385–399. doi:10.1177/0146167216629131
- Gasper, K., & Hackenbracht, J. (2015). Too busy to feel neutral: Reducing cognitive resources attenuates neutral affective states. *Motivation and Emotion*, 39, 458–466. doi:10.1007/s11031-014-9457-7
- Gasper, K., & Middlewood, B. L. (2014). Approaching novel thoughts: Understanding why elation and boredom promote associative thought more than distress and relaxation. *Journal of Experimental Social Psychology*, 52, 50–57. doi:10.1016/j.jesp.2013.12.007
- Gasper, K., & Zawadzki, M. J. (2012). Want information? How mood and performance perceptions alter the perceived value of information and influence information-seeking behaviors. *Motivation and Emotion*, 37, 308–322. doi:10.1007/s11031-012-9304-7
- George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology*, 87, 687–697. doi:10.1037//0021-9010.87.4.687w34
- George, J. M., & Zhou, J. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Academy of Management Journal*, 50, 605–622. doi:10.5465/amj.2007.25525934
- Greifeneder, R., & Bless, H. (2008). Depression and reliance on ease-of-retrieval experiences. *European Journal of Social Psychology*, 38, 213–230. doi:10.1002/ejsp.451
- 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. doi:10.1177/1088868310367640
- Griskevicius, V., Goldstein, N. J., Mortensen, C. R., Sundie, J. M., Cialdini, R. B., & Kenrick, D. T. (2009). Fear and loving in Las Vegas: Evolution, emotion, and persuasion. *Journal of Marketing Research*, 46, 384–395. doi:10.1509/jmkr.46.3.384
- Griskevicius, V., Shiota, M. N., & Neufeld, S. L. (2010). Influence of different positive emotions on persuasion processing: A functional evolutionary approach. *Emotion*, 10, 190–206. doi:10.1037/a0018421
- Hackenbracht, J., & Gasper, K. (2013). Feeling more and feeling close: Affect intensity influences judgments of interpersonal closeness. *Social Cognition*, 31, 94–105. doi:10.1521/soco.2013.31.1.94
- Handley, I. M., & Lassiter, G. D. (2002). Mood and information processing: When happy and sad look the same. *Motivation and Emotion*, 26, 223–255. doi:10.1023/A:1021725130325
- Harlé, K. M., Chang, L. J., van 't Wout, M., & Sanfey, A. G. (2012). The neural mechanisms of affect infusion in social economic decision-making: A mediating role of the anterior insula. *NeuroImage*, 61, 32–40. doi:10.1016/j.neuroimage.2012.02.027
- Harlé, K. M., & Sanfey, A. G. (2007). Incidental sadness biases social economic decisions in the Ultimatum Game. *Emotion*, 7, 876–881. doi:10.1037/1528-3542.7.4.876
- Harlé, K. M., & Sanfey, A. G. (2010). Effects of approach and withdrawal motivation on interactive economic decisions. *Cognition & Emotion*, 24, 1456–1465. doi:10.1080/02699930903510220
- Harmon-Jones, E., & Gable, P. A. (2009). Neural activity underlying the effect of approach-motivated positive affect on narrowed attention. *Psychological Science*, 20, 406–409. doi:10.1111/j.1467-9280.2009.02302.x
- Hertel, G., Neuhof, J., Theuer, T., & Kerr, N. L. (2000). Mood effects on cooperation in small groups: Does positive mood simply lead to more cooperation? *Cognition and Emotion*, 14, 441–472. doi:10.1080/026999300402754
- Hilbig, B. E. (2008). Individual differences in fast-and-frugal decision making: Neuroticism and the recognition heuristic. *Journal of Research in Personality*, 42, 1641–1645. doi:10.1016/j.jrp.2008.07.001
- Hirt, E. R., Devers, E. E., & McCrea, S. M. (2008). I want to be creative: Exploring the role of hedonic

- contingency theory in the positive mood-cognitive flexibility link. *Journal of Personality and Social Psychology*, 94, 214–230. doi:10.1037/0022-3514.94.2.214
- Hullett, C. R. (2005). The impact of mood on persuasion: A meta-analysis. *Communication Research*, 32, 423–442. doi:10.1177/0093650205277317
- Hunsinger, M., Isbell, L. M., & Clore, G. L. (2012). Sometimes happy people focus on the trees and sad people focus on the forest: Context-dependent effects of mood in impression formation. *Personality and Social Psychology Bulletin*, 38, 220–232. doi:10.1177/0146167211424166
- Huntsinger, J. R. (2013a). Does emotion directly tune the scope of attention? *Current Directions in Psychological Science*, 22, 265–270. doi:10.1177/0963721413480364
- Huntsinger, J. R. (2013b). Incidental experiences of affective coherence and incoherence influence persuasion. *Personality and Social Psychology Bulletin*, 39(6), 792–802. doi:10.1177/0146167213482588
- Huntsinger, J. R., Isbell, L. M., & Clore, G. L. (2014). The affective control of thought: Malleable, not fixed. *Psychological Review*, 121(4), 600–618. doi:10.1037/a0037669
- Huntsinger, J. R., & Ray, C. (2016). A flexible influence of affective feelings on creative and analytic performance. *Emotion*, 16, 826–837. doi:10.1037/emo0000188
- Huntsinger, J. R., & Sinclair, S. (2010). When it feels right, go with it: Affective regulation of affiliative social tuning. *Social Cognition*, 28, 290–305. doi:10.1521/soco.2010.28.3.290
- Huntsinger, Jeffrey R., Sinclair, S., Dunn, E., & Clore, G. L. (2010). Affective regulation of stereotype activation: It's the (accessible) thought that counts. *Personality and Social Psychology Bulletin*, 36, 564–577. doi:10.1177/0146167210363404
- Inness, M., Desmarais, S., & Day, A. (2005). Gender, mood state, and justice preference: Do mood states moderate gender-based norms of justice? *The British Journal of Social Psychology*, 44, 463–478. doi:10.1348/014466604x17443
- Isbell, L. M. (2004). Not all happy people are lazy or stupid: Evidence of systematic processing in happy moods. *Journal of Experimental Social Psychology*, 40, 341–349. doi:10.1016/j.jesp.2003.06.003
- Isbell, L. M., Lair, E. C., & Rovenpor, D. R. (2013). Affect-as-information about processing styles: A cognitive malleability approach. *Social and Personality Psychology Compass*, 7, 93–114. doi:10.1111/spc3.12010
- Isbell, L. M., Lair, E. C., & Rovenpor, D. R. (2016). The impact of affect on out-group judgments depends on dominant information-processing styles: Evidence from incidental and integral affect paradigms. *Personality and Social Psychology Bulletin*, 42, 485–497. doi:10.1177/0146167216634061
- Isbell, L. M., McCabe, J., Burns, K. C., & Lair, E. C. (2013). Who am I?: The influence of affect on the working self-concept. *Cognition & Emotion*, 27, 1073–1090. doi:10.1080/02699931.2013.765388
- Isen, A. M. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology*, 11, 75–85. doi:10.1207/153276601750408311
- Isen, A. M., & Daubman, K. A. (1984). The influence of affect on categorization. *Journal of Personality and Social Psychology*, 47, 1206–1217. doi:10.1037//0022-3514.47.6.1206
- Isen, A. M., Niedenthal, P. M., & Cantor, N. (1992). An influence of positive affect on social categorization. *Motivation and Emotion*, 16, 65–78. doi:10.1007/bf00996487
- Johnson, K. J., Waugh, C. E., & Fredrickson, B. L. (2010). Smile to see the forest: Facially expressed positive emotions broaden cognition. *Cognition & Emotion*, 24, 299–321. doi:10.1080/02699930903384667
- Jundt, D. K., & Hinsz, V. B. (2002). Influences of positive and negative affect on decisions involving judgmental biases. *Social Behavior and Personality*, 30, 45–52. doi:10.2224/sbp.2002.30.1.45
- Kashdan, T. B., Barrett, L. F., & McKnight, P. E. (2015). Unpacking emotion differentiation: Transforming unpleasant experience by perceiving distinctions in negativity. *Current Directions in Psychological Science*, 24, 10–16. doi: 10.1177/0963721414550708
- Kaufmann, G., & Vosburg, S. K. (2002). The effects of mood on early and late idea production. *Creativity Research Journal*, 14, 317–330. doi:10.1207/s15326934crj1434_3
- Keltner, D., Haidt, J., & Shiota, M. N. (2006). Social functionalism and the evolution of emotions. In M. Schaller, J. A. Simpson & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 115–142). Madison, CT: Psychosocial Press.

- 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. doi:10.1016/j.jesp.2011.10.006
- Koch, A. S., Forgas, J. P., & Matovic, D. (2013). Can negative mood improve your conversation? Affective influences on conforming to Grice's communication norms: Mood effects on complying with Grice's maxims. *European Journal of Social Psychology*, *43*, 326–334. doi:10.1002/ejsp.1950
- Krauth-Gruber, S., & Ric, F. (2000). Affect and stereotypic thinking: A test of the mood-and-general-knowledge-model. *Personality and Social Psychology Bulletin*, *26*, 1587–1597. doi:10.1177/01461672002612012
- Labroo, A. A., & Patrick, V. M. (2009). Psychological distancing: Why happiness helps you see the big picture. *Journal of Consumer Research*, *35*, 800–809. doi:10.1086/593683
- Lazarus, R. S. (1991). *Emotion and Adaptation*. New York, NY: Oxford University Press.
- Lazarus, R. S. (1999). Hope: An emotional and a vital coping resource against despair. *Social Research*, *66*, 653–678.
- Lench, H. C., & Bench, S. W. (2015). Strength of affective reaction as a signal to think carefully. *Cognition and Emotion*, *29*, 220–235. doi:10.1080/02699931.2014.904223
- Lench, H. C., Flores, S. A., & Bench, S. W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior, and physiology: A meta-analysis of experimental emotion elicitation. *Psychological Bulletin*, *137*, 834–855. doi:10.1037/a0024244
- Lerner, J. S., Li, Y., & Weber, E. U. (2013). The financial costs of sadness. *Psychological Science*, *24*, 72–79. doi:10.1177/0956797612450302
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855. doi:10.1037/0033-2909.131.6.803
- Mackie, D. M., & Worth, L. T. (1989). Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology*, *57*, 27–40. doi:10.1037//0022-3514.57.1.27
- Mann, S., & Cadman, R. (2014). Does being bored make us more creative? *Creativity Research Journal*, *26*, 165–173. doi:10.1080/10400419.2014.901073
- Martin, L. L., Ward, D. W., Achee, J. W., & Wyer, R. S. (1993). Mood as input: People have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology*, *64*, 317–326. doi:10.1037//0022-3514.64.3.317
- Matovic, D., Koch, A. S., & Forgas, J. P. (2014). Can negative mood improve language understanding? Affective influences on the ability to detect ambiguous communication. *Journal of Experimental Social Psychology*, *52*, 44–49. doi:10.1016/j.jesp.2013.12.003
- Melton, J., R. (1995). The role of positive affect in syllogism performance. *Personality and Social Psychology Bulletin*, *21*, 788–794. doi:10.1177/0146167295218001
- Middlewood, B. L., Gallegos, J., & Gasper, K. (2016). Embracing the unusual: Feeling tired and happy is associated with greater acceptance of atypical ideas. *Creativity Research Journal*, *28*, 310–317. doi:10.1080/10400419.2016.1195639
- Moors, A. (2009). Theories of emotion causation: A review. *Cognition & Emotion*, *23*, 625–662. doi:10.1080/02699930802645739
- Moretti, L., & di Pellegrino, G. (2010). Disgust selectively modulates reciprocal fairness in economic interactions. *Emotion*, *10*, 169–180. doi:10.1037/a0017826
- Moriya, H., & Nittono, H. (2011). Effect of mood states on the breadth of spatial attentional focus: An event-related potential study. *Neuropsychologia*, *49*, 1162–1170. doi:10.1016/j.neuropsychologia.2011.02.036
- Moss, S. A., & Wilson, S. G. (2014). Ambivalent emotional states: The underlying source of all creativity? *The International Journal of Creativity and Problem Solving*, *24*, 75–99.
- Ng, J. W. X., Tong, E. M. W., Sim, D. L. Y., Teo, S. W. Y., Loy, X., & Giesbrecht, T. (2017). Gratitude facilitates private conformity: A test of the social alignment hypothesis. *Emotion*, *17*, 379–387. doi:10.1037/emo0000249
- Oaksford, M., Morris, F., Grainger, B., & Williams, J. M. (1996). Mood, reasoning, and central executive processes. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *22*, 476–492. doi:10.1037/0278-7393.22.2.476

- Park, J., & Banaji, M. R. (2000). Mood and heuristics: The influence of happy and sad states on sensitivity and bias in stereotyping. *Journal of Personality and Social Psychology*, *78*, 1005–1023. doi:10.1037//0022-3514.78.6.1005
- Petty, R. E., Briñol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology*, *82*, 722–741. doi:10.1037/0022-3514.82.5.722
- Petty, R. E., Fabrigar, L. R., & Wegener, D. T. (2003). Emotional factors in attitudes and persuasion. In R. J. Davidson, K. R. Scherer & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 752–772). New York, NY: Oxford University Press.
- Petty, R. E., Schumann, D. W., Richman, S. A., & Strathman, A. J. (1993). Positive mood and persuasion: Different roles for affect under high-and low-elaboration conditions. *Journal of Personality and Social Psychology*, *64*, 5–20. doi:10.1037//0022-3514.64.1.5
- Petty, R. E., Wheeler, S. C., & Tormala, Z. L. (2003). Persuasion and attitude change. In T. Millon, & M. J. Lerner (Eds.), *Handbook of psychology: Personality and social psychology*, vol. 5 (pp. 353–382). Hoboken, NJ: John Wiley & Sons Inc.
- Queller, S., Mackie, D. M., & Stroessner, S. J. (1996). Ameliorating some negative effects of positive mood: Encouraging happy people to perceive intragroup variability. *Journal of Experimental Social Psychology*, *32*, 361–386. doi:10.1006/jesp.1996.0017
- Radenhausen, R. A., & Anker, J. M. (1988). Effects of depressed mood induction on reasoning performance. *Perceptual and Motor Skills*, *66*, 855–860. doi:10.2466/pms.1988.66.3.855
- Raghunathan, R., & Trope, Y. (2002). Walking the tightrope between feeling good and being accurate: Mood as a resource in processing persuasive messages. *Journal of Personality and Social Psychology*, *83*, 510–525. doi:10.1037//0022-3514.83.3.510
- Ray, C., & Huntsinger, J. R. (2017). Feeling and thinking: An affect-as-cognitive-feedback account. *Social and Personality Psychology Compass*, *11*, e12314. doi:10.1111/spc3.12314
- Rees, L., Rothman, N. B., Lehavy, R., & Sanchez-Burks, J. (2013). The ambivalent mind can be a wise mind: Emotional ambivalence increases judgment accuracy. *Journal of Experimental Social Psychology*, *49*, 360–367. doi:10.1016/j.jesp.2012.12.017
- Riepl, K., Mussel, P., Osinsky, R., & Hewig, J. (2016). Influences of state and trait affect on behavior, feedback-related negativity, and P3b in the ultimatum game. *PLOS ONE*, *11*, e0146358. doi:10.1371/journal.pone.0146358
- Roseman, I. J., Spindel, M. S., & Jose, P. E. (1990). Appraisals of emotion-eliciting events: Testing a theory of discrete emotions. *Journal of Personality and Social Psychology*, *59*, 899–915. doi:10.1037//0022-3514.59.5.899
- Rothman, N., Pratt, M., Rees, L., & Vogus, T. (2016). Understanding the dual nature of ambivalence: Why and when ambivalence leads to good and bad outcomes. *Academy of Management Annals*, *11*, 33–72. doi:10.5465/annals.2014.0066
- Rowe, G., Hirsh, J. B., & Anderson, A. K. (2007). Positive affect increases the breadth of attentional selection. *Proceedings of the National Academy of Sciences*, *104*, 383–388. doi:10.1073/pnas.0605198104
- Ruder, M., & Bless, H. (2003). Mood and the reliance on the ease of retrieval heuristic. *Journal of Personality and Social Psychology*, *85*, 20–32. doi:10.1037/0022-3514.85.1.20
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, *110*, 145–172. doi:10.1037/0033-295X.110.1.145
- Rusting, C. L. (1999). Interactive effects of personality and mood on emotion-congruent memory and judgment. *Journal of Personality and Social Psychology*, *77*, 1073–1086. doi:10.1037/0022-3514.77.5.1073
- Rydell, R. J., Mackie, D. M., Maitner, A. T., Claypool, H. M., Ryan, M. J., & Smith, E. R. (2008). Arousal, processing, and risk taking: Consequences of intergroup anger. *Personality and Social Psychology Bulletin*, *34*, 1141–1152. doi:10.1177/0146167208319694
- Sauter, D. (2010). More than happy: The need for disentangling positive emotions. *Current Directions in Psychological Science*, *19*, 36–40. doi:10.1177/0963721409359290
- Schwarz, N. (2012). Feelings-as-information theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 289–308). London: Sage.

- Schwarz, N., Bless, H., & Bohner, G. (1991). Mood and persuasion: Affective states influence the processing of persuasive communications. *Advances in Experimental Social Psychology*, *24*, 161–199. doi:10.1016/S0065-2601(08)60329-9
- 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. doi:10.1037//0022-3514.45.3.513
- Schwarz, N., & Clore, G. L. (2003). Mood as information: 20 years later. *Psychological Inquiry*, *14*, 296–303. doi:10.1207/s15327965pli1403&4_20
- Schwarz, N., & Clore, G. L. (2007). Feelings and phenomenal experiences. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., Vol. 2, pp. 385–407). New York, NY: Guilford Press.
- Sinclair, R. C. (1988). Mood, categorization breadth, and performance appraisal: The effects of order of information acquisition and affective state on halo, accuracy, information retrieval, and evaluations. *Organizational Behavior and Human Decision Processes*, *42*, 22–46. doi:10.1016/0749-5978(88)90018-0
- Sinclair, R. C., & Mark, M. M. (1991). Mood and the endorsement of egalitarian macrojustice versus equity-based microjustice principles. *Personality and Social Psychology Bulletin*, *17*, 369–375. doi:10.1177/0146167291174003
- Sinclair, R. C., & Mark, M. M. (1995). The effects of mood state on judgmental accuracy: Processing strategy as a mechanism. *Cognition & Emotion*, *9*, 417–438. doi:10.1080/02699939508408974
- Sinclair, R. C., Mark, M. M., & Clore, G. L. (1994). Mood-related persuasion depends on (mis) attributions. *Social Cognition*, *12*, 309–326. doi:10.1521/soco.1994.12.4.309
- Sinclair, R. C., Moore, S. E., Mark, M. M., Soldat, A. S., & Lavis, C. A. (2010). Incidental moods, source likeability, and persuasion: Liking motivates message elaboration in happy people. *Cognition & Emotion*, *24*, 940–961. doi:10.1080/02699930903000206
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, *48*, 813–838. doi:10.1037//0022-3514.48.4.813
- Smith, S. M., & Shaffer, D. R. (1991). The effects of good moods on systematic processing: “Willing but not able, or able but not willing?” *Motivation and Emotion*, *15*, 243–279. doi:10.1007/bf00995645
- Smith, C. A., Tong, E. M. W., & Ellsworth, P. C. (2014). The differentiation of positive emotional experience as viewed through the lens of appraisal theory. In M. M. Tugade, M. N. Shiota, & L. D. Kirby (Eds.), *Handbook of positive emotions* (pp. 11–27). New York, NY: Guilford Press.
- Srivastava, J., Espinoza, F., & Fedorikhin, A. (2009). Coupling and decoupling of unfairness and anger in ultimatum bargaining. *Journal of Behavioral Decision Making*, *22*, 475–489. doi:10.1002/bdm.631
- Stalder, D. R., & Cook, J. A. (2014). On being happy and mistaken on a good day: Revisiting Forgas’s (1998) mood-bias result. *The Journal of Social Psychology*, *154*, 371–374. doi:10.1080/00224545.2014.914018
- Storbeck, J., & Clore, G. L. (2008). Affective arousal as information: How affective arousal influences judgments, learning, and memory. *Social and Personality Psychology Compass*, *2*, 1824–1843. doi:10.1111/j.1751-9004.2008.00138.x
- Stroessner, S. J., & Mackie, D. M. (1992). The impact of induced affect on the perception of variability in social groups. *Personality and Social Psychology Bulletin*, *18*, 546–554. doi:10.1177/0146167292185004
- Stroessner, S. J., Mackie, D. M., & Michalsen, V. (2005). Positive mood and the perception of variability within and between groups. *Group Processes & Intergroup Relations*, *8*, 5–25. doi:10.1177/1368430205048619
- Tamir, M. (2009). What do people want to feel and why? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science*, *18*, 101–105. doi:10.1111/j.1467-8721.2009.01617.x
- Tamir, M., Bigman, Y. E., Rhodes, E., Salerno, J., & Schreier, J. (2014). An expectancy-value model of emotion regulation: Implications for motivation, emotional experience, and decision making. *Emotion*, *15*(1), 90–103. doi:10.1037/emo0000021
- Taylor, C. L. (2017). Creativity and mood disorder: A systematic review and meta-analysis. *Perspectives on Psychological Science*. doi:10.1177/1745691617699653
- Thrash, T. M., Moldovan, E. G., Oleynick, V. C., & Maruskin, L. A. (2014). The psychology of inspiration. *Social and Personality Psychology Compass*, *8*, 495–510. doi:10.1111/spc3.12127

- Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology*, *81*, 973–988. doi:10.1037//0022-3514.81.6.973
- Trope, Y., Ferguson, M., & Raghunathan, R. (2001). Mood as a resource in processing self-relevant information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 256–274). Mahwah, NJ: John Wiley & Sons Inc.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*, 440–463. doi:10.1037/a0018963
- Trope, Y., & Pomerantz, E. M. (1998). Resolving conflicts among self-evaluative motives: Positive experiences as a resource for overcoming defensiveness. *Motivation and Emotion*, *22*, 53–72.
- Turner, M. M., Underhill, J. C., & Kaid, L. L. (2013). Mood and reactions to political advertising: A test and extension of the hedonic contingency hypothesis. *Southern Communication Journal*, *78*, 8–24. doi:10.1080/1041794X.2012.712194
- 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. doi:10.1016/j.jesp.2008.04.003
- Urada, D. I., & Miller, N. (2000). The impact of positive mood and category importance on crossed categorization effects. *Journal of Personality and Social Psychology*, *78*, 417–433. doi:10.1037/0022-3514.78.3.417
- Van Dillen, L. F., & Koole, S. L. (2007). Clearing the mind: A working memory model of distraction from negative mood. *Emotion*, *7*, 715–723. doi:10.1037/1528-3542.7.4.715
- van Harreveld, F., Nohlen, H. U., & Schneider, I. K. (2015). The ABC of ambivalence. In *Advances in experimental social psychology* (Vol. 52, pp. 285–324). Elsevier. doi:10.1016/bs.aesp.2015.01.002
- Van Kleef, G. A., van den Berg, H., & Heerdink, M. W. (2015). The persuasive power of emotions: Effects of emotional expressions on attitude formation and change. *Journal of Applied Psychology*, *100*, 1124–1142. doi:10.1037/apl0000003
- van Reijmersdal, E. A., Lammers, N., Rozendaal, E., & Buijzen, M. (2015). Disclosing the persuasive nature of advergames: Moderation effects of mood on brand responses via persuasion knowledge. *International Journal of Advertising*, *34*, 70–84. doi:10.1080/02650487.2014.993795
- Watkins, E. R., Moberly, N. J., & Moulds, M. L. (2011). When the ends outweigh the means: Mood and level of identification in depression. *Cognition & Emotion*, *25*, 1214–1227. doi:10.1080/02699931.2010.532389
- Wegener, D. T., & Petty, R. E. (1994). Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality and Social Psychology*, *66*, 1034–1048. doi:10.1037//0022-3514.66.6.1034
- Wegener, D. T., Petty, R. E., & Smith, S. M. (1995). Positive mood can increase or decrease message scrutiny: The hedonic contingency view of mood and message processing. *Journal of Personality and Social Psychology*, *69*, 5–15. doi:10.1037//0022-3514.69.1.5
- Westermann, R., Stahl, G., & Hesse, F. (1996). Relative effectiveness and validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology*, *26*, 557–580. doi:10.1002/(sici)1099-0992(199607)26:4<557::aid-ejsp769>3.3.co;2-w
- Worth, L. T., & Mackie, D. M. (1987). Cognitive mediation of positive affect in persuasion. *Social Cognition*, *5*, 76–94. doi: 10.1521/soco.1987.5.1.76
- Wyland, C. L., & Forgas, J. P. (2010). Here's looking at you kid: Mood effects on processing eye gaze as a heuristic cue. *Social Cognition*, *28*, 133–144. doi:10.1521/soco.2010.28.1.133
- Yamada, Y., & Nagai, M. (2015). Positive mood enhances divergent but not convergent thinking: Positive mood and creativity. *Japanese Psychological Research*, *57*, 281–287. doi:10.1111/jpr.12093
- Yang, H., Yang, S., & Isen, A. M. (2013). Positive affect improves working memory: Implications for controlled cognitive processing. *Cognition & Emotion*, *27*, 474–482. doi:10.1080/02699931.2012.713325
- Yap, S. C. Y., Wortman, J., Anusic, I., Baker, S. G., Scherer, L. D., Donnellan, M. B., & Lucas, R. E. (2016). The worth of mood on judgments of subjective well-being: Nine tests of the judgment model. *Journal of Personality and Social Psychology*. Advance online publication. doi:10.1037/pspp0000115
- Ziegler, R. (2010). Mood, source characteristics, and message processing: A mood-congruent expectancies

approach. *Journal of Experimental Social Psychology*, 46, 743–752. doi:10.1016/j.jesp.2010.04.014

Ziegler, R. (2013). Mood and processing of proattitudinal and counterattitudinal messages. *Personality and Social Psychology Bulletin*, 39, 482–495. doi:10.1177/0146167213478020

Ziegler, R. (2014). Mood and processing effort: The mood-congruent expectancies approach. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 49, pp. 287–355). San Diego, CA: Elsevier Academic Press.

Ziegler, R., & Burger, A. M. (2011). Mood and the impact of individuating information on the evaluation of ingroup and outgroup members: The role of mood-based expectancies. *Journal of Experimental Social Psychology*, 47, 1000–1006. doi:10.1016/j.jesp.2011.04.002

Ziegler, R., & Diehl, M. (2011). Mood and multiple source characteristics: Mood congruency of source consensus status and source trustworthiness as determinants of message scrutiny. *Personality and Social Psychology Bulletin*, 37, 1016–1030. doi:10.1177/0146167211410438

Ziegler, R., Schlett, C., & Aydinli, A. (2013). Mood and threat to attitudinal freedom: Delineating the role of mood congruency and hedonic contingency in counterattitudinal message processing. *Personality and Social Psychology Bulletin*, 39, 1083–1096. doi:10.1177/0146167213490808



© 2018 Ed Diener. Copyright Creative Commons: Attribution, noncommercial, no derivatives