OXFORD
UNIVERSITY PRESS

12

Action Control by Implementation Intentions

The Role of Discrete Emotions

SAM J. MAGLIO, PETER M. GOLLWITZER,
AND GABRIELE OETTINGEN

INTRODUCTION

At the end of the 10-year Trojan War, its hero Odysseus was exhausted and desperate to return home to Ithaca. The road home would prove to be as difficult as the war itself, fraught with challenges and temptations. None of these better demonstrates Odysseus' effective action control than his encounter with the Sirens. Known for their beautiful song—capable of tempting people into certain death—the Sirens were located on the path between Odysseus' ship and his home. They were approaching fast, and Odysseus devised a clever but simple plan: he ordered his crew to place wax in their ears, rendering them incapable of hearing the Sirens' song, and then to tie him to the mast of the ship, from which he would be unable to escape regardless of how strong the impending temptation might be. His ship neared the island of the Sirens, and the alluring song proved to be even more tempting than Odysseus had anticipated. He struggled to work free from the mast but remained securely in place. Before long, they had successfully sailed beyond the Sirens and were one step closer to attaining the goal of returning home safely.

In the modern era, this same principle of finding means by which to succeed in goal pursuit has become a major theme of research within the domains of motivation and self-regulation (Gollwitzer and Moskowitz 1996; Oettingen and Gollwitzer 2001). This research has drawn an important distinction between the setting of appropriate goals and the effective striving for goal attainment, and this chapter will focus primarily upon the latter. To return to the example of Odysseus, he had already chosen the goal of successfully returning home. In the service of this goal, he consciously willed an explicit plan—having himself tied to the mast of his ship. From there, however, he had in a sense surrendered his conscious intent to nonconscious control: though his conscious will had changed (e.g., to succumb to the temptation

of the Sirens), the bounds of the rope remained, guiding his behavior without his conscious intent. From our perspective, the rope provides a simple metaphor for the form and function of planning that specifies when, where, and how to direct action control in the service of long-term goals. This chapter will describe a specific (yet broadly applicable) type of planning: the formation of implementation intentions, or if-then plans that identify an anticipated goal-relevant situation (e.g., encountering a temptation) and link it to an appropriate goal-directed response (e.g., coping with temptations). In so doing, we will first develop a definition of such plans and elaborate upon their effects and effectiveness, especially as they operate outside of conscious awareness. Subsequently, we turn our consideration to an emerging topic within the domain of planning—the emotional precursors to the formation of plans.

Goal Intentions and Implementation Intentions

In working toward set goals, Gollwitzer and colleagues have suggested that merely wanting something is often not sufficient to enable goal attainment. For example, what would have come of Odysseus if his mental preparation for the goal of returning home had stopped there? This is what Gollwitzer (1993, 1999) has identified as a goal intention, which takes the structure of "I intend to reach Z," with Z relating to a certain outcome or behavior to which the person has committed him- or herself. However, Odysseus went one step further, furnishing his goal intention with a plan. To form an implementation intention (or if-then plan; Gollwitzer 1999), the person must identify both an anticipated goal-relevant situational cue (i.e., the *if-component*) and a proper goal-directed response (i.e., the *then-component*) and link the two. Thus, implementation intentions follow the form "*if* situation X arises, *then* I will perform the goal-directed response Y."

The furnishing of a goal intention with an implementation intention affords the person a better chance of ultimately attaining the desired goal. Gollwitzer and Sheeran (2006) conducted a meta-analysis of 94 independent studies involving more than 8,000 participants and reported an effect size of $d = .65$. This medium-to-large effect size represents the additional facilitation of goal achievement by implementation intentions compared with goal intentions alone. It is important to note that goal intentions alone have a facilitating effect on behavior enactment (Webb and Sheeran 2006). As a result, the implementation intention effect, arising in addition to the goal intention effect, is not only robust but also quite substantial.

Implementation Intentions as Strategic Automaticity in Goal Pursuit

Given how well they work, we next explore why implementation intention effects come about. A core component of the answer to this question is the translation of a conscious act of will (the formation of the plan) to nonconscious or automatic control of action (the execution of the plan). As we have described, the formation of an implementation intention requires the selection of a critical future situation, the corresponding behavioral response, and the link between the two (Gollwitzer 1999). In support of this coactivation, studies have indicated that implementation

intentions forge a strong association between the specified opportunity and the specified response (Webb and Sheeran 2007). As a result, the initiation of the goal-directed response specified in the if-then plan becomes automated. By automated, we mean that this behavior exhibits features of automaticity, including immediacy, efficiency, and lack of conscious intent. Said differently, the person facing the critical situation does not have to actively decide how to behave (e.g., succumb to the temptation or not). Like Odysseus, bound by ropes to the mast, their previous act of conscious and deliberate will in forming the plan has precluded the will in the critical situation: the prescribed behavior is executed automatically. Such automatic, predetermined behavior stands in stark contrast to people who have formed mere goal intentions.

Empirical evidence is consistent with this conception of strategic automaticity. If-then planners act quickly (Gollwitzer and Brandstätter 1997, Study 3), deal effectively with cognitive demands (Brandstätter, Lengfelder, and Gollwitzer 2001), and do not need to consciously intend to act at the critical moment (Sheeran, Webb, and Gollwitzer 2005, Study 2). In addition to this behavioral readiness, research on implementation intentions has also observed a perceptual readiness for the specified critical cues (e.g., Aarts, Dijksterhuis, and Midden 1999; Webb and Sheeran 2007). In sum, implementation intentions allow the person to readily see and seize good opportunities to move toward their goals. Forming if-then plans thus automates goal striving (Gollwitzer and Schaal 1998) by strategically delegating the control of goal-directed responses to preselected situational cues with the explicit purpose of reaching one's goals. The cool, rational agent engages an a priori strategy to take conscious control away from the hot, vulnerable future self.

Using Implementation Intentions to Solve Action Control Problems

As we have suggested, implementation intentions facilitate goal striving by automating behavioral responses upon encountering situational cues. Within the realm of goal implementation, there are a host of especially challenging problems that can hinder progress toward goal attainment. Research over the past decade has examined the effects of implementation intentions in remedying such problems. Though such effects are wide-reaching, we here focus on a handful of specific issues: starting on a goal, shielding a goal, allocating resources, and application to special challenges and populations.

Getting Started. Having set and committed to a goal, the first major hindrance can be getting started on work toward achieving the goal; evidence suggests that this problem can be solved effectively by forming implementation intentions. For instance, Oettingen, Hönig, and Gollwitzer (2000, Study 3) observed that people who furnished task goals (i.e., taking a concentration test) with implementation intentions were better able to perform the task on time (e.g., at 10 a.m. every Wednesday over four straight weeks). Further, implementation intentions may be particularly effective in fostering goal striving that is unpleasant to perform. For instance, the goals to perform regular breast examinations (Orbell, Hodgkins, and Sheeran 1997), resume functional activity after joint replacement surgery (Orbell

and Sheeran 2000), recycle (Holland, Aarts, and Langendam 2006), and engage in physical exercise (Milne, Orbell, and Sheeran 2002) were all more readily acted upon when people had furnished these goals with implementation intentions. Implementation intentions also were found to help attainment of goal intentions where it is easy to forget to act (e.g., regular intake of vitamin pills; Sheeran and Orbell 1999).

Goal Shielding. Ongoing goals require that people keep striving for the goal over an extended period of time, and implementation intentions can facilitate the shielding of such goal striving from interferences that stem from inside or outside the person (Gollwitzer and Schaal 1998). For instance, imagine a person who wants to avoid being unfriendly to a friend who is known to make sudden outrageous requests during casual conversations. To meet the goal of having an undisrupted casual conversation with her friend, the person may form one of the following implementation intentions. She can focus on preventing the unwanted response of being unfriendly by forming the implementation intention either to ignore the unfriendly request or to stay calm in the face of the request. Alternatively, she can focus on strengthening the striving for the focal goal (i.e., bringing the casual conversation to a successful ending) by planning it out in detail; for instance, she may form if-then plans that cover how the casual conversation with the friend is to run off from the beginning to its successful ending (Bayer, Gollwitzer, and Achtziger 2010).

Allocating Resources. An additional problem in goal striving is the failure to disengage from one goal in order to direct limited resources to other goals. Implementation intentions have been found to facilitate such disengagement and switching. Henderson, Gollwitzer, and Oettingen (2007) showed that implementation intentions can be used to curb the escalation of behavioral commitment commonly observed when people experience failure with a chosen strategy of goal striving. Furthermore, as implementation intentions subject behavior to the direct control of situational cues, the self should not be involved when action is controlled by implementation intentions. Therefore, the self should not become depleted (Muraven and Baumeister 2000) when task performance is regulated by implementation intentions, and thus individuals using implementation intentions should not show overextension effects in their limited cognitive resources. Within different paradigms, participants who had used implementation intentions to regulate behavior in a first task do not show reduced self-regulatory capacity (i.e., depletion) in a subsequent task (e.g., Webb and Sheeran 2003). Thus, implementation intentions successfully preserved self-regulatory resources as demonstrated by greater persistence on subsequent difficult tasks (i.e., solving difficult anagrams).

Special Challenges and Populations. Recent research has shown that implementation intentions ameliorate action control problems even when goal striving is limited by conditions that seem quite resistant to change by self-regulatory efforts (summary by Gollwitzer and Oettingen 2011). For instance, it was observed that implementation intentions facilitated achieving high scores on math and intelligence tests (Bayer and Gollwitzer 2007), even though such performances are known to be limited by a person's respective capabilities. Implementation intentions have also helped people succeed in sports competitions (Achtziger, Gollwitzer, and Sheeran 2008, Study 2) and negotiations over limited resources (Trötschel and Gollwitzer

2007), even though in such competitive situations a person's goal striving is limited by the opponents' behavior. Moreover, implementation intentions were found to help people's goal striving even in cases where effective goal striving is threatened by competing habitual responses; this seems to be true no matter whether these automatic competing responses are behavioral (e.g., Cohen et al. 2008; Mendoza, Gollwitzer, and Amodio 2010), cognitive (e.g., Gollwitzer and Schaal 1998; Stewart and Payne 2008), or affective (e.g., Schweiger Gallo et al. 2009) in nature. These latter findings suggest that forming implementation intentions turns top-down action control by goals into bottom-up control by the situational cues specified in the if-component of an implementation intention (Gilbert et al. 2009), and they explain why special samples that are known to suffer from ineffective effortful control of their thoughts, feelings, and actions still benefit from forming implementation intentions. Examples include heroin addicts during withdrawal and schizophrenic patients (Brandstätter, Lengfelder, and Gollwitzer 2001, Studies 1 and 2), frontal lobe patients (Lengfelder and Gollwitzer 2001), and children with ADHD (Gawrilow and Gollwitzer 2008).

Summary

In this section, we have described how forming implementation intentions—specifying the where, when, and how of performing a goal-directed response—facilitates the control of goal-relevant action. In going beyond a mere goal intention, the person who forms an implementation intention creates a crucial link between a critical situational cue and a desired behavioral response. The result is that the prescribed behavior is executed automatically (i.e., immediate, efficient, and without further conscious intent), preventing the fallible person in the hazardous situation from straying from the desired path. As Odysseus was bound to the mast of his ship by his "plan," so too do implementation intentions determine behavioral responding ahead of time. The result, with respect to the overarching goal, is an enhanced likelihood of successfully attaining that goal. This is accomplished by any of several applications of implementation intentions, including to issues of getting started, shielding the goal from competing concerns, appropriately allocating one's limited resources toward the goal, and even overriding special challenges (e.g., habitual problems) and the difficulties faced by special populations (e.g., children with ADHD). In sum, the self-regulatory exercise of furnishing goal intentions with implementation intentions provides a simple yet effective means of managing one's goal striving in the interest of achieving desired outcomes.

PRECURSORS TO PLANNING

As documented in the previous section, research spanning more than two decades has offered a clear prescription for people committed toward reaching a desired goal: the formation of if-then plans to enhance goal striving. That is, the primary empirical paradigm has people furnish goal intentions with if-then plans and then observes the benefits they enjoy for goal striving. Despite identifying a host of factors that contribute to the downstream consequences of forming these implementation

intentions, relatively little attention has been devoted to understanding the circumstances under which people may spontaneously generate them. In this section, we offer an initial attempt to reverse this trend. We suggest that the experience of certain specific (or discrete) emotions provides an insight into understanding why and how people may engage in the act of planning on their own. To develop our theoretical perspective, we first define what we mean by discrete emotion, relate emotion to an established precursor to plan formation, and then use this connection to make predictions for behavior. As we will suggest, the relation between emotion and planning provides a unique opportunity to investigate the interrelations among motivation, emotion, cognition, and action. Ultimately, by capitalizing on emotional experience, we suggest that these feeling states may play an important role in the goal pursuit process.

The Trouble with Emotions

To understand what is meant by emotion, it must first be distinguished from mood states. Whereas moods tend to arise from nonspecific sources and last for a relatively long period of time, emotions are more intense but fleeting feeling states that can be traced back to specific causes. For example, think of the difference between spending an entire day in a bad mood versus being made briefly afraid by a backfiring car. Furthermore, those short-lived emotions must be further subdivided by valence into positive emotions and negative emotions. That is, receiving a gift and receiving an insult are far from the same type of experience. For the purposes of the present chapter, we will investigate only negatively valenced emotions and their implications for planning. Nevertheless, mounting research speaks to the necessity of parsing further still the realm of negative emotion into specific or discrete emotions (e.g., Higgins 1997; Lerner and Keltner 2001; Lerner, Small, and Loewenstein 2004; Tiedens and Linton 2001). This is because discrete negative emotions vary with respect to the types of situations that elicit them and the style of cognition or appraisal that they activate (Lerner and Keltner 2000; Smith and Ellsworth 1985), a point to which we will momentarily return.

But first, having established a definition of what we mean by negative discrete emotions, we next ask why we would expect any benefit to come from them. After all, a large body of literature speaks to the detrimental consequences of negative emotion for thoughts and behaviors. To sample only a few, negative emotions can increase impulsivity at the expense of long-term interests (Loewenstein 1996) and compromise rational decision making (Damasio 1994; Shiv et al. 2005). Sadness can enhance the accessibility of other sad thoughts and prompt depressive rumination (Bower 1981; Nolen-Hoeksema, Morrow, and Fredrickson 1993), and anger can decrease risk estimates and increase risk-taking behaviors (Lerner and Keltner 2000, 2001). Given these effects, people commonly attempt to reduce their intensity or duration through a process of emotion regulation (Frijda, this volume; Gross 1998, 2007).

Without denying the potentially detrimental consequences of negative emotions (specifically, sadness and anger), we suggest that, in putting them to work in the service of a goal, they may provide practical benefits as well. This possibility seems

important to explore given how intricately connected emotional experience is to the process of implementing goals. To date, the main theme on the topic of emotion and motivation has explored the role of emotion in *setting* goals. For example, individuals prioritize goals expected to yield positive emotion (Oettingen and Gollwitzer 2001; Custers and Aarts 2005), base their initiation of goal-directed action on these emotions (Bagozzi, Baumgartner, and Pieters 1998), and consult their emotions as indicators of progress toward a goal (Carver and Scheier 1990; Schwarz and Clore 1983). However, as our primary concern here is the planning and implementation of goals, we address the relatively unexamined question of how emotion influences *striving* for goals.

Emotions Reconsidered

To understand how different negative emotions can have different consequences— good or bad—we first trace negative emotional experience back to its source. As we mentioned earlier, discrete negative emotions (like sadness and anger) are conceptualized as discrete because they arise from fundamentally different types of sources and activate different patterns of cognition and behavior. Let's take two goal-relevant examples, both related to buying a car. In the first scenario, imagine driving across town to your favorite dealership with your heart set on buying the newest model of your favorite make of car. You can practically feel the soft new leather seats and whiff that new car smell. But, when you arrive, you learn that the make you were hoping for has been discontinued. Driving back home, bemoaning your current car's cracked windshield and puny horsepower, it isn't hard to intuit a feeling state of sadness. On the other hand, your experience at the dealership could have been much different. Instead, imagine being told by the shifty salesman in a plaid jacket that price of the new model has been increased as the result of the inclusion of necessities—rust-proofing, customized floor mats—and that the price is nonnegotiable. Certain that the only function of these necessities is to boost his commission, you storm out of the dealership. You're again driving home, again in the same dull car you were hoping to replace, but the feeling state is now different—it is one of anger.

How might the patterns of thought in response to the events at the dealership differ between the two situations? Further, how will you respond—in thought and action—to being cut off in traffic on your drive back home depending on whether you just experienced scenario one or two? In response to discrete negative emotions, research has suggested that the patterns of thought prompted by an emotion extend beyond the emotion elicitor to novel situations and judgments. Within this tradition, no other pair of emotions has produced such discrepant results on judgment tasks as sadness and anger. This carryover effect has been documented in the divergent effects of sadness and anger on a host of cognitive assessments: causal judgment (Keltner, Ellsworth, and Edwards 1993), stereotyping (Bodenhausen, Sheppard, and Kramer 1994), and expectations and likelihood estimations (DeSteno et al. 2004; DeSteno et al. 2000).

But why do we observe these carryover effects? And why do they differ for sadness and anger? The appraisal tendency framework (Lerner and Keltner 2000, 2001) suggests a specific mechanism by which the experience of incidental emotion impacts

subsequent, unrelated judgments. Prior research on appraisal theory suggested that discrete emotions are characterized by different central themes—what it means, at the core, to experience that emotion (Lazarus 1991; Smith and Ellsworth 1985). In turn, the way a person thinks about the emotion elicitor (vis-à-vis these core themes) can be conceptualized as a specified cognitive appraisal pattern (Ortony, Clore, and Collins 1988; Smith and Ellsworth 1985; Smith and Lazarus 1993). The appraisal tendency framework posits that this pattern of thinking becomes generally activated and, in turn, is translated and applied beyond the emotion elicitor. Consequently, the salient theme underlying the experience of an emotion (and the cognitive appraisal pattern associated with it) colors later judgments.

The central themes of sadness and anger are, respectively, the experience of an irrevocable loss and the experience of an insult or injustice (Berkowitz and Harmon-Jones 2004; Keltner, Ellsworth, and Edwards 1993; Lazarus 1991). A central component underlying both is the sense of certainty, but in opposite directions: whereas sadness is characterized by uncertainty of the emotion's cause (attributed vaguely to situational forces), anger is characterized by a strong sense of certainty and the responsibility of a specific other person (Ortony, Clore, and Collins 1988). As such, sadness prompts a desire for better understanding, which gives rise to cautious and evenhanded information processing (Bless et al. 1996; Clore and Huntsinger 2009; Tiedens and Linton 2001). Conversely, anger is associated with heuristic processing and stronger feelings of optimism and control (Lerner and Keltner 2001; Tiedens and Linton 2001). Thus, with the induction of discrete negative emotion, the impact of the source fails to be distinguished from application to new targets. Essentially, the divergent patterns of judgment between people experiencing sadness and anger arise from the application of different patterns of cognition to new situations. From this perspective, it is understandable that, for example, anger may exaggerate risk taking or impulsiveness. However, given the appropriate outlet, might these emotions be successfully channeled toward beneficial action?

Action Phases and Mindsets

To answer this question, we examine the cognition-behavior link described in the mindset model of action phases (Gollwitzer 1990, 2012). The model postulates that goals are pursued via successive stages—or *action phases*—and that each phase is defined by the distinct task to be performed during it. Additionally, a distinct cognitive orientation—or *mindset*—corresponds to each phase and facilitates completion of the specified task. In the first, predecisional stage (the phase prior to the selection of a goal), the salient task is to choose the best goal to pursue. Accordingly, the person is predisposed to process desirability- and feasibility-related information about the options from an impartial and objective perspective and takes on a deliberative mindset. Subsequently, having chosen a goal, the person in the postdecisional stage now seeks opportunities to initiate action in working toward attainment of the chosen goal. Importantly, this stage can be further subdivided into two successive substages. The first is conceptualized as *preactional*, whereby people have chosen a goal and begin planning how to work toward it without actually having started to do so. Subsequently, when they begin active, behavioral goal striving,

they enter into the *actional* phase. Rather than objective assessment, cognition in both postdecisional phases is oriented toward effective goal striving, constituting an implemental mindset (for reviews, Gollwitzer and Bayer 1999; Gollwitzer, Fujita, and Oettingen 2004).

Empirical evidence has provided support for this theory by probing the contents and patterns of thought characteristic of deliberative and implemental mindsets. In order to facilitate successful goal selection, the deliberative mindset is characterized by both voluntary generation of and selective attention toward outcome (i.e., goal) value—specifically, its desirability and feasibility. Conversely, the implemental mindset generates and attends to information regarding situational specifics (the when, where, and how) for initiating goal-directed behavior (Gollwitzer, Heckhausen, and Steller 1990; Puca and Schmalt 2001; Taylor and Gollwitzer 1995). A second theme of this research has considered information-processing differences between the two mindsets. Relative to the deliberative mindset, the implemental mindset is more susceptible to a number of cognitive biases, including illusory control over the situation (Gollwitzer and Kinney 1989), reduced perceived vulnerability to problems (Taylor and Gollwitzer 1995), stronger attitudes (Henderson, de Liver, and Gollwitzer 2008), and decreased openness to information (Fujita, Gollwitzer, and Oettingen 2007; Heckhausen and Gollwitzer 1987). Overall, the evidence speaks to the evenhanded processing of outcome-relevant information in the deliberative mindset and biased appraisal driving goal-directed action initiation in the implemental mindset.

From both a theoretical and methodological perspective, it is important to note a central mechanism by which mindsets operate. The act of either deliberating over a choice or trying to enact a choice that has been made activates separable cognitive procedures associated with those separate tasks, and it is via this activation that mindset effects can generalize to new situations. The predominant paradigm in this tradition asks participants to first either elaborate upon an unresolved personal problem or plan the implementation of a chosen project (creating a deliberative or implemental mindset, respectively). Subsequently, the participant performs the ostensibly unrelated task to measure the effect of the induced mindset on general cognitive style (e.g., perceived control over a random event; Gollwitzer and Kinney 1989). As such, deliberative and implemental mindsets serve as *procedural primes*, making salient distinct frameworks by which to interpret, assess, and act upon new information.

Similarities between Discrete Emotions and Mindset

Taken together, these two research traditions suggest that the careful cognitive objectivity of sadness closely matches that of a deliberative mindset, whereas the enhanced optimism and control (i.e., bias) of anger is consistent with an implemental mindset. Additionally, the cognitive patterns characteristic of both emotional experience and mindset are not limited in relevance only to their point of origin. Instead, both trigger unique modes of thought (termed *appraisal tendency* and *procedural priming*, respectively) that enable them to generalize to new targets. We draw upon this observation in formulating the *emotion as mindset hypothesis*: the experience of sadness will

prompt deliberative consideration of a goal, and the experience of anger will prompt implemental consideration. If anger indeed engenders the same patterns of *thought* (e.g., biases) as the implemental mindset, it should similarly orient people toward identifying opportunities to enact *goal-directed action* (see Gollwitzer, Heckhausen, and Steller 1990). As we have already discussed, linking critical situations to goal-directed responses constitutes if-then planning, or formation of implementation intentions. The deliberative mindset, conversely, is oriented toward outcomes ("Is this goal worth pursuing?") rather than behaviors ("When/Where/How can I work toward attaining this goal?"). Beyond the formation of plans, an implemental (versus deliberative) mindset should additionally enhance the effectiveness with which existing plans are enacted. As we have described, the implemental mindset is characterized by a general goal-enhancing bias (e.g., enhanced self-confidence). One consequence of such bias is that when an opportunity for planned behavior execution is made available, it is immediately taken. On the other hand, a person in a deliberative mindset might instead reconsider whether this behavior (or even this goal) is in fact the best course of action to take, compromising plan implementation.

EMPIRICAL SUPPORT

With the three studies reported next, our aim was to test this emotion as mindset hypothesis across two goal- and planning-relevant domains. For the first two studies, we drew upon an established measure to assess degree of implemental thought: the formation of plans (Gollwitzer 1990). The first study induces conscious emotion and examines whether anger yields formation of more implementation intentions than sadness. In Study 2, we conceptually replicated the effects of Study 1 but by utilizing a different (nonconscious) emotion manipulation prior to a modified measure of plan formation. In our third study, we examined how anger and sadness influence the execution of behavior as prescribed by pre-existing plans.

Emotion Induction and Plan Formation

Our first study tested the basic notion that the experience of conscious anger and sadness would differentially affect the planning of goals. Specifically, based on our theoretical perspective, we hypothesized that people experiencing anger would form more plans than those experiencing sadness. To test this prediction, participants were recruited to take part in a study ostensibly related to perspective taking. Their first task was to name their most important academic goal, after which they performed a perspective-taking task that served as our emotion manipulation (e.g., Hemenover and Zhang 2004; Smith and Lazarus 1993). In the anger condition, the protagonist was evicted from an apartment by a landlord without cause; in the sadness condition, the protagonist experienced the death of a pet; in the no emotion condition, the protagonist compiled a grocery list and shopped for the items. Next, all participants completed a basic manipulation check, rating their present feelings with respect to four anger-related adjectives (angry, annoyed, frustrated, and irritated), three sadness-related adjectives (sad, gloomy, and down), two

other negative emotions (fearful, nervous), and two positive emotions (happy, content). Subsequently, participants recalled the academic goal they had named earlier and then performed a sentence stem completion task with respect to that goal, which served as a measure of plan formation (Oettingen, Pak, and Schnetter 2001). The task presented them with eight different incomplete sentence stems and asked them first to review each of the stems and then select and complete the four that best matched their thinking about their goal by filling in the corresponding blank lines. Four of the phrases constituted implementation intentions (e.g., "Specifically, … "), whereas the other four related to broader goal consideration (e.g., "All in all, … ").

The results from the manipulation check indicated that the perspective-taking task successfully induced discrete sadness in the sadness condition, discrete anger in the anger condition, and slightly positive affect in the neutral affect condition. Based upon selection of sentence stems, each participant received a score on the planning measure from 0 to 4, with higher scores indicating more implementation intentions formed. Consistent with our hypothesis, participants in the anger condition formed more plans than those in the sadness condition, with plan formation among those in the neutral condition falling between the two emotion conditions. Thus, as predicted, the experience of anger prompted a greater tendency toward implemental thought (i.e., plan formation) than sadness in preparing goal-directed action.

Emotion Priming and Plan Formation

While our first study found evidence for differences in planning between consciously felt emotional states, we conducted a second study on plan formation to extend the breadth of our emotion as mindset hypothesis to include nonconscious emotion. Recent evidence suggests that behavioral findings from conscious manipulations of emotion are replicable using nonconscious means by which to prime them (Winkielman, Berridge, and Wilbarger 2005; Zemack-Rugar, Bettman, and Fitzsimons 2007). This affords the opportunity to explore how the mere concepts of specific emotions can activate cognitive procedures (i.e., serve as procedural primes), as has been independently documented in the domain of mindsets (Gollwitzer, Heckhausen, and Steller 1990).

Participants took part in a study ostensibly related to how people resume thinking about their goals after a distraction. Their first task was to name one specific goal that was currently important to them. They then read a newspaper article that served as our emotion manipulation. We primed discrete sadness and anger using a method that draws upon appraisal theory (Lerner and Keltner 2000; Smith and Ellsworth 1985), emphasizing the cognitive procedures that define the core meaning of the emotion. That is, to nonconsciously prime discrete sadness and anger, participants in both conditions read the same newspaper article about an earthquake that occurred in Peru (adapted from Wegener and Petty 1994) and then were asked a series of different questions related to both the emotional aspects of the article and their own reactions to it. In the anger priming condition, the questions related to injustices that had occurred in the context of the earthquake and

the culpability of specific individuals. In the sadness priming condition, the questions related to the tragic aspects of the earthquake and its unpredictability. Next, all participants were asked to indicate the extent to which the article had made them angry and sad.

Subsequently, participants were asked to recall the goal they had named earlier and then perform a sentence stem completion task with respect to that goal. The task presented them with four different incomplete sentence stems and asked them first to review each of the stems and then select and complete the one that best matched their thinking about their goal by filling in the corresponding blank lines. Two of the stems were formatted such that they explicitly linked situations to behaviors (e.g., "If _____ happens, then I will do _____"), whereas the other two identified only outcomes and the potential value they offered (e.g., "If _____ is achieved, it will _____"). The former were meant to represent the implemental mindset, whereas the latter reflected the deliberative mindset. Thus, all participants chose only one type of structure to represent their conceptualization of the goal.

The results from the manipulation check indicated that our nonconscious emotion induction was successful (i.e., no differences in conscious sadness and anger were observed between emotion conditions). Based upon their selection of sentence stems, participants were each categorized as utilizing either a deliberative or an implemental structure (i.e., forming or not forming an implementation intention). Again, the results for this task supported our emotion as mindset hypothesis: those in the anger-prime condition were more than three times more likely than those in the sadness-prime condition to choose an implementation intention. Importantly, these results suggest that conscious and nonconscious emotions have similar consequences for the planning of goal-directed action. Because participants in the two conditions read the same newspaper article and rated their conscious emotions similarly, the observed difference in degree of implemental thinking must be due solely to the leading questions that followed the article. Thus, our second study suggests that activation of the construct of sadness or anger is sufficient to prompt goal conceptualization in a manner consistent with the deliberative or implemental mindset, respectively.

In sum, these first two studies provide support for the emotion as mindset hypothesis in terms of anger (versus sadness) inducing more preactional implemental thought. Specifically, by forming more plans for how to act on their goals, people made to feel angry showed more behavior characteristic of a postdecisional—but preactional—implemental orientation. Consistent with past theorizing described earlier, we consider the formation of such implementation intentions to reflect a conscious act of will with implications for future behavior: when people later encounter the critical cue specified by their plans, they will execute the associated behavior immediately and without conscious reflection. However, in the studies presented thus far, this claim amounts to little more than idle speculation. We believe anger initiates a general implemental mindset, applicable to both the preactional and actional stages of the postdecisional action phase. Therefore, in the next study, we tested the latter claim: whether conscious emotion (i.e., sadness or anger) would influence the automatic, nonconscious execution of behavioral scripts prescribed by planning.

Plan Execution

Having established in the first two studies that the experience of state anger (versus sadness) makes a person more likely to *form* an implementation intention, we next turn to the question of how emotion influences *acting* upon existing plans. An implemental (versus deliberative) mindset should enhance the effectiveness with which existing plans are enacted. As we have described, the implemental mindset is characterized by a general goal-enhancing bias (e.g., increased self-confidence). One consequence of such bias is that when an opportunity for planned behavior execution is made available, it is immediately taken (i.e., occurs nonconsciously). On the other hand, a person in a deliberative mindset might instead reconsider whether this behavior (or even this goal) is in fact the best course of action to take. This interruption of conscious deliberation hinders plan execution. Thus, as an implemental (versus deliberative) mindset facilitates the efficient execution of planned behavior, and as the experience of anger operates like an implemental mindset, anger (versus sadness) should therefore enhance the beneficial effect of planning by better enabling efficient action initiation. Thus, in an extension of our emotion as mindset hypothesis, we predict that a conscious anger (versus sadness) induction will expedite reaction times in responding to critical trials of a go/no-go task as specified by predetermined planning. We tested this prediction using a go/no-go task consistent with past research (Brandstätter et al., 2001). Participants were instructed to press the "x" key as quickly as possible when numbers—but not letters—were presented. They were assigned to one of six conditions in a 3 (sadness, anger, or neutral affect) × 2 (goal intention or implementation intention) factorial design.

As in the first study, the cover story described the study as an experiment on perspective taking. First, ostensibly to help their performance during a later session of the task, participants were provided with one of two sets of instructions to facilitate their responding to numbers. This constituted the intention manipulation. All participants first said to themselves, "I want to react to numbers as quickly as possible." Then, half of the participants were instructed to say the following phrase to themselves three times: "I will particularly think of the number 3" (goal intention). The other half of the participants repeated this phrase three times: "And if the number 3 appears, then I will press the 'x' key particularly fast" (implementation intention). All participants then performed one of three perspective-taking tasks (emotion manipulations) and then rated their feeling states, both in a manner identical to Study 1. Following the emotion manipulation, the main session of the go/no-go task was presented, lasting seven minutes.

As in Study 1, the manipulation check indicated that our emotion induction procedure successfully elicited differences in experiencing discrete sadness or anger. We then calculated for each participant the mean reaction times to both neutral numbers and the critical number 3. In general, participants responded faster to the critical number 3 relative to the neutral numbers and faster to all numbers in the implementation intention condition relative to those in the goal intention condition. Additionally, these main effects were qualified by an interaction between the two factors such that responses were fastest to the critical numbers by those in the implementation intention condition. This finding provided a replication of previous basic research on implementation intention effects.

To turn to consideration of discrete emotion, we observed the strongest implementation intention effect (i.e., speeded reaction time to the critical number) in the anger condition. That is, it was when the implementation intention was coupled with the optimal frame of mind (i.e., anger) that participants performed best on the reaction time task. On the other hand, participants experiencing anger but with only a goal intention performed much worse. For the sadness and neutral conditions, we observed a weaker implementation intention effect. As such, we interpret these results as evidence that anger facilitates action control in a manner similar to an implemental mindset: by increasing the effectiveness with which preexisting plans are implemented.

In summary, then, across each of the studies presented here, we observed evidence consistent with the idea of emotion as mindset. The data suggest that anger and sadness—in a manner similar to implemental and deliberative mindsets, respectively—have robust but opposite effects on both the conscious (i.e., goal planning, Studies 1 and 2) and the nonconscious (i.e., plan execution, Study 3) aspects of goal pursuit. That is, anger more successfully enabled the preactional task of formulating plans as well as the actional task of readily executing those plans in the interest of attaining a set goal. Interestingly, the results of Study 2 suggest that the mere activation of the emotion concept—its nonconscious priming—sufficed to evoke the corresponding mindset. Thus, we observe effects of consciousness for both action control and emotion manipulation (although the question of nonconscious emotion effects on plan execution remains open for future research). While here we have investigated the independent components of planning and acting, a longitudinal design warrants consideration of how they interact. For example, is a plan *formed* while feeling anger better *executed* under anger as well? Are there conditions under which anger hinders rather than facilitates the conscious planning and automatic execution of behavior? What about nonplanned behavior? These issues hint at the broader theoretical relevance of emotion in action control, considered in the next section.

IMPLICATIONS AND OUTLOOK

Taylor and Gollwitzer (1995) foreshadowed the notion that emotion could be brought to bear on goal pursuit by contending that "intermittent bouts of sadness, frustration, poor mood, loss experiences, or stress may...be a time when people have an opportunity to reflect relatively realistically on their talents, aspirations, decisions, and goals" (225). Across three studies, the present investigation provides evidence in (qualified) support of this notion. In keeping with our emotion as mindset hypothesis, we observed discrete sadness to engender a more deliberative mindset, whereas anger made people predisposed toward an implemental mindset.

What Good Is Sadness?

Each of the studies reported here assessed performance on an implemental measure after an emotion manipulation and found stronger effects under anger than under sadness. Given widespread evidence for a strong effect of implementation

intentions to benefit goal achievement (Brandstätter, Lengfelder, and Gollwitzer 2001; Gollwitzer 1999; Gollwitzer, Fujita, and Oettingen 2004; Gollwitzer and Sheeran 2006; Sheeran, Webb, and Gollwitzer 2005), it may be tempting to adopt the maxim "When in doubt, get angry." However, one must be cautious against assuming that anger is the only emotion of use to the goal pursuer. Rather, our data can only imply that the experience of anger provides a boost (via plan formation and execution) to ongoing goal striving, as the participants in our studies worked toward goals that already had been set.

What, then, is to be made of sadness? Said differently, what is it that our participants in the sadness conditions were doing instead of forming and quickly executing plans for behavior? From the perspective of the mindset model of action phases, the setting of goals is equally important as their implementation (Gollwitzer 1990). Participants in our sadness conditions manifested more deliberative goal considerations, as they completed sentence stems that indicated their thoughts were oriented toward outcome value (Study 2) and the bigger picture of what they wanted to achieve (Study 1). Thus, they were more willing to (re)consider the goal they had chosen rather than how to implement it. Though being less effective for focused goal *striving*, sadness can facilitate effective goal *setting*.

But what constitutes effective goal setting? When determining which goal to pursue, people may consult their expectations of success to inform their decision, as expectations offer a quick and simple summary judgment of whether invested effort is likely to pay off in the form of ultimate goal attainment. Therefore, by definition, high-expectancy goals are those that are judged as more likely to be attained (Bandura 1997; Heckhausen 1991). In order to set high-expectancy goals, Oettingen and colleagues have prescribed the self-regulatory exercise of mentally contrasting a desired, high-expectancy future outcome with the obstacles of reality currently precluding the realization of the future. This procedure activates expectations of success and creates strong commitment to realize future outcomes for which expectations are high (Oettingen 2000, 2012; Oettingen et al. 2009; Oettingen, Pak, and Schnetter 2001; Oettingen and Stephens 2009). Importantly, recent research has found that self-initiated usage of this strategy is more likely following the induction of sadness than following a neutral affect manipulation (Kappes et al. 2011). In tandem with this research, the results from our studies suggest not a value judgment on which emotion is best for goal pursuit but instead that sadness and anger each has an important, distinct purpose in goal pursuit.

To add to this point, our data suggest that sadness is less conducive than anger to direct action initiation. While the deliberative mindset is characteristic of the preactional phase (prior to goal striving), the mindset model of action phases posits that it is also evident in the postactional phase, where people assess the success or failure of their goal striving (Gollwitzer 1990; Gollwitzer and Bayer 1999). Perhaps, then, sadness facilitates the termination of goal striving and the subsequent assessment of whether the chosen course of action was beneficial. As such, sadness may enable disengagement from goals that cannot be attained, allowing for the reallocation of limited resources (e.g., time and energy) toward other goals that are more likely to yield successful attainment (Janoff-Bulman and Brickman 1982). Taken together, these new possibilities offer exciting directions for future research.

Discrete Emotion Theory

The present research finds support for the emotion as mindset hypothesis, situated at the intersection between cognition and action. As such, it fills an important gap in theorizing to date on the downstream consequences of emotional experience. From one perspective, discrete emotion is posited to have a direct effect on action by activating automatic or reflexive scripts for potential behaviors to be taken, or action tendencies (Frijda 1986); the actual course of action that is ultimately taken comes from this subset of potential behaviors. The types of actions that become activated have direct relevance for the emotion-eliciting situation and follow an especially brief time line. To take fear as an example, hearing a startling noise might automatically activate the action tendency to duck or take cover, and this behavior could be subsequently executed quickly and with little to no conscious intent. The speed with which such behavioral responses become activated—and, in turn, implemented—speaks to the functionality of emotion from an evolutionary perspective, facilitating effective and potentially vital actions. At the same time, automated execution of all behavioral inclinations would be problematic. After all, you wouldn't hit the car dealer in the aforementioned example of anger— despite your inclination to do so. Therefore, to understand how emotions function in the present day, we must also understand how they can influence behavior beyond mere activation of action tendencies.

From a very different perspective, emotion may instead be conceptualized as exerting an indirect force on action by providing a system of information or feedback that informs future behavior (Baumeister et al. 2007). This model posits that the experience of emotion compels people to reflect on what actions were responsible for giving rise to the emotion in the first place. A result of such cognitive reflection in response to emotional experience in turn informs deliberative considerations of potential future behaviors. That is, if someone cheats on a test and gets caught, they come to feel regret or remorse. The negativity of this experience underlies the desire to understand where it came from and ensure that it does not occur again in the future. As a result, the person will refrain from cheating in the future in order to avoid a similar future negative emotional outcome. With the studies presented in this chapter, we offer a conceptualization of emotion that lies between these two reflexive-reflective ends of the spectrum. That is, we suggest that emotion may additionally affect the link between cognition and action, as anger and sadness prompt different mindsets that differentially guide subsequent behavior. Finally, our studies implicate both the experience of discrete emotion states (Studies 1 and 3) and the nonconscious priming of them (Study 2) as sufficient to instill the corresponding mindset.

Another future consideration within this line of research is to utilize an emotion elicitor that is directly related to the activated goal. Such a methodological tweak would be helpful in understanding whether our observed consequences of emotion for goal striving extend to a more ecologically valid context. Our current set of studies only explores goals that are unrelated to the emotion elicitor, which is important to address the transferability of emotion-as-mindset to new targets. However, a more naturalistic emotion manipulation could ask participants to name a current goal and then recall an instance related to the goal in which they were made sad

or angry. Evidence for our emotion as mindset hypothesis from such a paradigm would more directly inform how people respond to emotional triggers in the environment associated with their goals.

Discrete Emotions and Motivation

That anger and sadness activate separable processing styles is not a novel suggestion. A growing body of literature speaks to the distinction between anger and sadness as they relate to motivational tendencies. Carver and colleagues (Carver 2004; Carver and White 1994) have identified the association between sadness and the behavioral inhibition system (BIS) and between anger and the behavioral activation system (BAS). As the names imply, the latter energizes behavior and action initiation, and the former dampens this inclination. Recent evidence has pointed to separable neural underpinnings of this effect (Harmon-Jones 2003; Harmon-Jones and Allen 1998; Peterson, Shackman, and Harmon-Jones 2008). Taken together, the conclusion from this work on motivation has differentiated anger from other negative emotions—including sadness—in its connection to approach motivation, heightening rather than reducing the inclination to initiate action (for a review, see Carver and Harmon-Jones 2009). Though mindset theory does not conceptualize its successive stages as avoidance and approach motivation per se, the implications for action control are clear. People in a deliberative mindset by definition have not yet taken action, signifying a behavioral disposition of avoidance or withdrawal with respect to action initiation. Conversely, people in an implemental mindset by definition are in the process of initiating action, which corresponds directly to approach motivation. Drawing upon this framework to understand the motivational (as well as the cognitive) consequences of emotion may lead to novel predictions and future explorations into the relationship between discrete emotions and the self-regulation of goal pursuit.

Finally, the utilization of different emotion manipulations and measures would provide insight into the breadth and applicability of the emotion as mindset hypothesis. For example, the mere order of our experimental protocol could assess the bidirectional relationship between emotion and mindset. We have demonstrated that an emotion manipulation prompts behavior consistent with certain mindsets. However, it would also be possible to follow a protocol consistent with the majority of mindset research (e.g., Fujita, Gollwitzer, and Oettingen 2007; Heckhausen and Gollwitzer 1987; Henderson, de Liver, and Gollwitzer 2008) in which either a deliberative or an implemental mindset is induced and subsequently an attempt is made to induce sadness or anger in a crossed design. Perhaps people would be more responsive to a manipulation of sadness following a deliberative mindset induction and more so to one of anger following an implemental mindset induction. Results such as these would speak to the proposed activation of similar cognitive and motivational systems.

CONCLUSION

In sum, we have presented implementation intentions as action plans that automate efficient, goal-directed responding. The breadth of their effects has been well documented and has prompted the need to understand contextual factors that might

influence how ready people are to generate and use implementation intentions. The research described here identified discrete emotional experience—specifically, that of anger—as one contextual factor that gives rise to the formation and effective execution of implementation intentions. More broadly, in explicating the emotion as mindset hypothesis, we provide an integration of discrete emotion theory and the self-regulation of goal striving. By parsing the realm of negative emotion, sadness and anger were proposed as distinct emotional experiences, each defined by separable cognitive and motivational components, corresponding to the successive stages of the mindset model of action phases: the deliberative and implemental mindsets, respectively. The findings from three studies supported this hypothesis, as anger elicited greater planning for goal-directed behavior and superior plan effectiveness relative to state sadness. This effect should inform future research in continuing to explore the role of emotional experience in action control.

REFERENCES

Aarts, H., A. Dijksterhuis, and C. Midden. 1999. To plan or not to plan? Goal achievement or interrupting the performance of mundane behaviors. *European Journal of Social Psychology* 29:971–979.

Achtziger, A., Peter M. Gollwitzer, and Paschal Sheeran. 2008. Implementation intentions and shielding goal striving from unwanted thoughts and feelings. *Personality and Social Psychology Bulletin* 34:381.

Bagozzi, Richard P., Hans Baumgartner, and Rik Pieters. 1998. Goal-directed emotions. *Cognition and Emotion* 12:1–26.

Bandura, A. 1997. *Self-efficacy: The exercise of control.* New York: Freeman.

Baumeister, Roy F., Kathleen D. Vohs, C. Nathan DeWall, and Liqing Zhang. 2007. How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review* 11:167–203.

Bayer, U. C., and P. M. Gollwitzer. 2007. Boosting scholastic test scores by willpower: The role of implementation intentions. *Self and Identity* 6:1–19.

Bayer, U. C., P. M. Gollwitzer, and A. Achtziger. 2010. Staying on track: Planned goal striving is protected from disruptive internal states. *Journal of Experimental Social Psychology* 46:505–514.

Berkowitz, L., and Eddie Harmon-Jones. 2004. Toward an understanding of the determinants of anger. *Emotion* 4:107–130.

Bless, Herbert, Gerald L. Clore, Norbert Schwarz, Verena Golisano, Christina Rabe, and Marcus Wölk. 1996. Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology* 71:665–679.

Bodenhausen, Galen V., Lori A. Sheppard, and Geoffrey P. Kramer. 1994. Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology. Special Issue: Affect in Social Judgments and Cognition* 24:45–62.

Bower, Gordon H. 1981. Mood and memory. *American Psychologist* 36:129–148.

Brandstätter, V., A. Lengfelder, and Peter M. Gollwitzer. 2001. Implementation intentions and efficient action initiation. *Journal of Personality and Social Psychology* 81:946–960.

Carver, C. S. 2004. Negative affects deriving from the behavioral approach system. *Emotion* 4:3–22.

Carver, C. S, and Eddie Harmon-Jones. 2009. Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin* 135:183–204.

Carver, C. S., and M. F. Scheier. 1990. Origins and functions of positive and negative affect: A control-process view. *Psychological Review* 97:19–35.

Carver, C. S., and Teri L. White. 1994. Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS Scales. *Journal of Personality and Social Psychology* 67:319–333.

Clore, G. L., and J. R. Huntsinger. 2009. How the object of affect guides its impact. *Emotion Review* 1:39–54.

Cohen, A. L., U. C. Bayer, A. Jaudas, and Peter M. Gollwitzer. 2008. Self-regulatory strategy and executive control: Implementation intentions modulate task switching and Simon task performance. *Psychological Research* 72:12–26.

Custers, Ruud, and Henk Aarts. 2005. Positive affect as implicit motivator: On the non-conscious operation of behavioral goals. *Journal of Personality and Social Psychology* 89:129–142.

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

DeSteno, David, Richard E. Petty, Derek D. Rucker, Duane T. Wegener, and Julia Braverman. 2004. Discrete emotions and persuasion: The role of emotion-induced expectancies. *Journal of Personality and Social Psychology* 86:43–56.

DeSteno, David, Richard E. Petty, Duane T. Wegener, and Derek D. Rucker. 2000. Beyond valence in the perception of likelihood: The role of emotion specificity. *Journal of Personality and Social Psychology* 78:397–416.

Frijda, Nico H. 1986. *The emotions*. New York: Cambridge University Press.

Fujita, Kentaro, Peter M. Gollwitzer, and Gabriele Oettingen. 2007. Mindsets and pre-conscious open-mindedness to incidental information. *Journal of Experimental Social Psychology* 43:48–61.

Gawrilow, C., and Peter M. Gollwitzer. 2008. Implementation intentions facilitate response inhibition in children with ADHD. *Cognitive Therapy and Research* 32:261–280.

Gilbert, S., Peter M. Gollwitzer, A. Cohen, P. Burgess, and Gabriele Oettingen. 2009. Separable brain systems supporting cued versus self-initiated realization of delayed intentions. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 35:905–915.

Gollwitzer, Peter M. 1990. Action phases and mind-sets. In *Handbook of motivation and cognition: Foundations of social behavior*, edited by E. T. Higgins and R. M. Sorrentino. New York: Guilford Press.

Gollwitzer, Peter M. 1993. Goal achievement: The role of intentions. *European Review of Social Psychology* 4:141–185.

Gollwitzer, Peter M. 1999. Implementation intentions: Strong effects of simple plans. *American Psychologist* 54:493–503.

Gollwitzer, Peter M. 2012. Mindset theory of action phases. In *Handbook of theories in social psychology*, edited by P. Van Lange, A. W. Kruglanski, and E. T. Higgins. London: Sage.

Gollwitzer, Peter M., and Ute Bayer. 1999. Deliberative versus implemental mindsets in the control of action. In *Dual-process theories in social psychology*, edited by S. Chaiken and Y. Trope. New York: Guilford Press.

Gollwitzer, Peter M., and V. Brandstätter. 1997. Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology* 73:186–199.

Gollwitzer, Peter M., Kentaro Fujita, and Gabriele Oettingen. 2004. Planning and the implementation of goals. In *Handbook of self-regulation: Research, theory, and applications*, edited by R. F. Baumeister and K. D. Vohs. New York: Guilford Press.

Gollwitzer, Peter M., Heinz Heckhausen, and Birgit Steller. 1990. Deliberative and imple-
    mental mind-sets: Cognitive tuning toward congruous thoughts and information.
    Journal of Personality and Social Psychology 59:1119–1127.
Gollwitzer, Peter M., and Ronald F. Kinney. 1989. Effects of deliberative and imple-
    mental mind-sets on illusion of control. *Journal of Personality and Social Psychology*
    56:531–542.
Gollwitzer, Peter M., and G. B. Moskowitz. 1996. Goal effects on action and cognition.
    In *Social psychology: Handbook of basic principles*, edited by E. T. Higgins and A. T.
    Kruglanski, 361–399. New York: Guilford Press.
Gollwitzer, Peter M., and Gabriele Oettingen. 2011. Planning promotes goal striving. In
    Handbook of self-regulation: Research, theory, and applications, edited by K. D. Vohs and
    R. F. Baumeister, 2nd ed., 162–185. New York: Guilford.
Gollwitzer, Peter M., and B. Schaal. 1998. Metacognition in action: The importance of
    implementation intentions. *Personality and Social Psychology Review* 2:124–136.
Gollwitzer, Peter M., and Paschal Sheeran. 2006. Implementation intentions and goal
    achievement: A meta-analysis of effects and processes. *Advances in Experimental Social
    Psychology* 38:69–119.
Gross, J. J. 1998. The emerging field of emotion regulation: An integrative review. *Review
    of General Psychology* 2:271–299.
Gross, J. J. 2007. *Handbook of emotion regulation.* New York: Guilford Press.
Harmon-Jones, Eddie. 2003. Anger and the behavioral approach system. *Personality and
    Individual Differences* 35:995–1005.
Harmon-Jones, Eddie, and John J. B. Allen. 1998. Anger and frontal brain activity: EEG
    asymmetry consistent with approach motivation despite negative affective valence.
    Journal of Personality and Social Psychology 74:1310–1316.
Heckhausen, H. 1991. *Motivation and action.* Berlin: Springer.
Heckhausen, H., and Peter M. Gollwitzer. 1987. Thought contents and cognitive functioning
    in motivational versus volitional states of mind. *Motivation and Emotion* 11:101–120.
Hemenover, Scott H., and Shen Zhang. 2004. Anger, personality, and optimistic stress
    appraisals. *Cognition and Emotion* 18:363–382.
Henderson, Marlone D., Peter M. Gollwitzer, and Gabriele Oettingen. 2007.
    Implementation intentions and disengagement from a failing course of action. *Journal
    of Behavioral Decision Making* 20:81–102.
Henderson, Marlone D., Yael de Liver, and Peter M. Gollwitzer. 2008. The effects of an
    implemental mind-set on attitude strength. *Journal of Personality and Social Psychology*
    94:396–411.
Higgins, E. Tory. 1997. Beyond pleasure and pain. *American Psychologist* 52:1280–1300.
Holland, Rob W., H. Aarts, and D. Langendam. 2006. Breaking and creating habits on the
    working floor: A field experiment on the power of implementation intentions. *Journal
    of Experimental Social Psychology* 42:776–783.
Janoff-Bulman, R., and P. Brickman. 1982. Expectations and what people learn from fail-
    ure. In *Expectations and actions: Expectancy-value models in psychology*, edited by N. T.
    Feather, 207–237. Hillsdale, NJ: Erlbaum.
Kappes, H. B., Gabriele Oettingen, D. Mayer, and Sam J. Maglio. 2011. Sad mood pro-
    motes self-initiated mental contrasting of future and reality. *Emotion* 11:1206–1222.
Keltner, Dacher, Phoebe C. Ellsworth, and Kari Edwards. 1993. Beyond simple pes-
    simism: Effects of sadness and anger on social perception. *Journal of Personality and
    Social Psychology* 64:740–752.

Lazarus, Richard S. 1991. *Emotion and adaptation.* New York: Oxford University Press.

Lengfelder, A., and Peter M. Gollwitzer. 2001. Reflective and reflexive action control in patients with frontal brain lesions. *Neuropsychology* 15:80–100.

Lerner, Jennifer S., and Dacher Keltner. 2000. Beyond valence: Toward a model of emotion-specific influences on judgement and choice. *Cognition and Emotion. Special Issue: Emotion, Cognition, and Decision Making* 14:473–493.

Lerner, Jennifer S., and Dacher Keltner. 2001. Fear, anger, and risk. *Journal of Personality and Social Psychology* 81:146–159.

Lerner, Jennifer S., Deborah A. Small, and George Loewenstein. 2004. Heart strings and purse strings: Carryover effects of emotions on economic decisions. *Psychological Science* 15:337–341.

Loewenstein, George. 1996. Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes* 65:272–292.

Mendoza, Saaid A., Peter M. Gollwitzer, and David M. Amodio. 2010. Reducing the expression of implicit stereotypes: Reflexive control through implementation intentions. *Personality and Social Psychology Bulletin* 36:512–523.

Milne, S., S. Orbell, and Pascal Sheeran. 2002. Combining motivational and volitional interventions to promote exercise participation: Protection motivation theory and implementation intentions. *British Journal of Health Psychology* 7:163–184.

Muraven, M., and R. F. Baumeister. 2000. Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin* 126:247–259.

Nolen-Hoeksema, Susan, Jannay Morrow, and Barbara L. Fredrickson. 1993. Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology* 102:20–28.

Oettingen, Gabriele. 2000. Expectancy effects on behavior depend on self-regulatory thought. *Social Cognition. Special Issue: Social Ignition: The Interplay of Motivation and Social Cognition* 18:101–129.

Oettingen, Gabriele. 2012. Future thought and behavior change. *European Review of Social Psychology* 23:1–63.

Oettingen, Gabriele, and Peter M. Gollwitzer. 2001. Goal setting and goal striving. In *Intraindividual Processes.* Vol. 1 of *Blackwell Handbook in Social Psychology,* edited by A. Tesser and N. Schwarz. Oxford: Blackwell.

Oettingen, Gabriele, G. Hönig, and Peter M. Gollwitzer. 2000. Effective self-regulation of goal attainment. *International Journal of Education Research* 33:705–732.

Oettingen, Gabriele, D. Mayer, A. T. Sevincer, E. J. Stephens, H. J. Pak, and M. Hagenah. 2009. Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin* 35:608–622.

Oettingen, Gabriele, H. Pak, and K. Schnetter. 2001. Self-regulation of goal setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology* 80:736–753.

Oettingen, Gabriele, and E. J. Stephens. 2009. Fantasies and motivationally intelligent goal setting. In *The psychology of goals,* edited by G. B. Moskowitz and H. Grant. New York: Guilford Press.

Orbell, S., S. Hodgkins, and Pascal Sheeran. 1997. Implementation intentions and the theory of planned behavior. *Personality and Social Psychology Bulletin* 23:945–954.

Orbell, S., and Pascal Sheeran. 2000. Motivational and volitional processes in action initiation: A field study of the role of implementation intentions. *Journal of Applied Social Psychology* 30:780–797.

Ortony, Andrew, Gerald L. Clore, and Allan Collins. 1988. *The cognitive structure of emotions*. New York: Cambridge University Press.

Peterson, Carly K., Alexander J. Shackman, and Eddie Harmon-Jones. 2008. The role of asymmetrical frontal cortical activity in aggression. *Psychophysiology* 45:86–92.

Puca, Rosa Maria, and Heinz-Dieter Schmalt. 2001. The influence of the achievement motive on spontaneous thoughts in pre- and postdecisional action phases. *Personality and Social Psychology Bulletin* 27:302–308.

Schwarz, Norbert, and Gerald L. Clore. 1983. Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology* 45:513–523.

Schweiger Gallo, I., A. Keil, K. C. McCulloch, B. Rockstroh, and Peter M. Gollwitzer. 2009. Strategic automation of emotion regulation. *Journal of Personality and Social Psychology* 96:11–31.

Sheeran, Paschal, and S. Orbell. 1999. Implementation intentions and repeated behavior: Augmenting the predictive validity of the theory of planned behavior. *European Journal of Social Psychology* 29:349–369.

Sheeran, Paschal, T. L. Webb, and Peter M. Gollwitzer. 2005. The interplay between goal intentions and implementation intentions. *Personality and Social Psychology Bulletin* 31:87–98.

Shiv, B., George Loewenstein, A. Bechara, H. Damasio, and A. R. Damasio. 2005. Investment behavior and the negative side of emotion. *Psychological Science* 16:435–439.

Smith, Craig A., and Phoebe C. Ellsworth. 1985. Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology* 48:813–838.

Smith, Craig A., and Richard S. Lazarus. 1993. Appraisal components, core relational themes, and the emotions. *Cognition and Emotion* 7:233–269.

Stewart, B. D., and B. K. Payne. 2008. Bringing automatic stereotyping under control: Implementation intentions as efficient means of thought control. *Personality and Social Psychology Bulletin* 34:1332–1345.

Taylor, S. E., and Peter M. Gollwitzer. 1995. Effects of mindset on positive illusions. *Journal of Personality and Social Psychology* 69:213–226.

Tiedens, Larissa Z., and Susan Linton. 2001. Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology* 81:973–988.

Trötschel, R., and Peter M. Gollwitzer. 2007. Implementation intentions and the willful pursuit of prosocial goals in negotiations. *Journal of Experimental Social Psychology* 43:579–598.

Webb, T. L., and Paschal Sheeran. 2003. Can implementation intentions help to overcome ego-depletion? *Journal of Experimental Social Psychology* 39:279–286.

Webb, T. L., and Paschal Sheeran. 2006. Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin* 132:249.

Webb, T. L., and Paschal Sheeran. 2007. How do implementation intentions promote goal attainment? A test of component processes. *Journal of Experimental Social Psychology* 43:295–302.

Wegener, Duane T., and Richard E. Petty. 1994. Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality and Social Psychology* 66:1034–1048.

Winkielman, Piotr, Kent C. Berridge, and Julia L. Wilbarger. 2005. Unconscious affective reactions to masked happy versus angry faces influence consumption behavior and judgments of value. *Personality and Social Psychology Bulletin* 31:121–135.

Zemack-Rugar, Yael, James R. Bettman, and Gavan J. Fitzsimons. 2007. The effects of nonconsciously priming emotion concepts on behavior. *Journal of Personality and Social Psychology* 93:927–939.