CHAPTER 9

Affect Regulation and Affective Forecasting

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In the standard decision-making paradigm, people choose between alternative courses of action to maximize the desirability of experienced outcomes. Outcomes are assumed to be tightly linked to feelings—happiness and sadness, satisfaction and dissatisfaction. The study of affective forecasting, which emerged as a focus of research in the 1990s, was motivated by the recognition that, even when people can accurately predict the outcomes of their decisions, they may not be able to accurately predict the feelings associated with those outcomes (Kahneman & Snell, 1992; for a review, see Wilson & Gilbert, 2003). Indeed, research on affective forecasting has identified a number of systematic errors that people make in predicting their own feelings. For example, people tend to believe that both positive feelings associated with desirable outcomes and negative feelings associated with undesirable outcomes will last longer than they actually do—a *durability bias* in affective forecasting (see Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Errors in affective forecasting complicate decision making because accurately predicting one's feelings is a virtual requirement for effective decision making. If people mispredict how different outcomes will make them feel, they are likely to take actions to secure outcomes that fail to maximize their well-being (Loewenstein, O'Donoghue, & Rabin, 2003).

If the research on affective forecasting complicates an otherwise tidy picture of decision making, the research on emotion regulation complicates it even more, by suggesting that there is an alternative route to happiness. In addition to taking *actions* that produce outcomes that will make them happy, research on affect regulation suggests, people have some ability to manipulate their emotions more directly (e.g., to view the proverbial glass as half full rather than half empty).

On evolutionary grounds, we should expect the potential for such mental (i.e., "internal") regulation of affect to be limited in scope.[1] We have evolved to survive and reproduce, not to feel good, and one function of feeling states is to motivate us to do what we need to do to secure these goals (Rayo & Becker, 2005). This function would be undermined if we had the ability to regulate our own affect at will.[2] Affect also serves important social functions, such as ensuring that we respond in kind to aggression even when it is no longer in our self-interest to do so (Frank, 1988). These functions, too, would be undermined if emotions (or their outward expression) could be regulated at will. Despite these evolved constraints, however, just as most people have some capacity to intentionally direct their own thoughts, most also have some capacity to manipulate their own feelings, even without taking actions that change their objective situation.

Whether people actually use affect regulation strategies that work, however, will depend not only on the effectiveness of different strategies but also on what people believe about the effectiveness of those strategies. As discussed later, the types of mental strategies that people use to regulate their own affect can be classified into two categories: those that involve altering one's appraisal of a situation, and those that involve distraction or suppression of thoughts or feelings. Moreover, the literature suggests that one of these—reappraisal—tends to be more effective than the other and to cause fewer adverse side effects. Naturally, people will tend to rely on the types of strategies that they believe are effective, and to avoid those that they believe are ineffective or counterproductive.[3] Their success in regulating their own affect will then depend on the accuracy of their "metacognitions" about the effectiveness of different mental strategies.[4,5]

Despite the breadth and depth of the literature on affective forecasting and affect regulation (the latter attested to by the existence of this volume), almost no research has addressed the intersection of these two topics (i.e., examined the content or accuracy of people's intuitions about the effectiveness of different affect regulation strategies). The goal of this chapter, therefore, is to provide a review of the very limited literature spanning the intersection between these two lines of research and, perhaps more important, to report results from what may be the first study to examine people's intuitions about the effectiveness of different affect regulation strategies.

CLASSIFICATION OF AFFECT REGULATION STRATEGIES

In classifying different affect regulation strategies, this chapter draws on Gross's process model of affect regulation (Gross, 1998b, 1999, 2002; Gross & Thompson, this volume), which details how specific strategies can be differentiated along the timeline of the unfolding emotional response.[6] A fundamental assertion of this model is that affect regulation strategies differ based on when they will have their primary impact on the emotion-generative process. At the broadest level, a distinction is made between antecedent- and response-focused affect regulation strategies.

Antecedent-focused strategies refer to tactics that are implemented before emotion response tendencies have become fully activated and have thus affected one's behavior and physiological responses. These include (1) situation selection, (2) situation modification, (3) attentional deployment, and (4) cognitive change (commonly known as reappraisal). Response-focused strategies refer to things that people do once an emotion is already under way and the response tendencies (behavioral and physiological) have been generated (commonly known as suppression).[7]

While the distinction between antecedent- and response-focused affect regulation strategies is both natural and useful, it could be argued that neither of the first two strategies included under the heading of antecedent strategies—situation selection and situation modification—should be subsumed under the broader category of affect regulation. Choosing situations that make us happy and modifying our situation to make us happy are the paradigmatic activities of *decision making*. Classifying these tactics under the heading of "affect regulation" blurs the distinction, discussed at the beginning of this chapter, between attempting to enhance one's subjective well-being by changing one's situation and attempting to enhance one's subjective well-being using mental strategies (i.e., in the absence of situational change). Indeed, much of the literature on affective forecasting, which makes little or no reference to the literature on affect regulation, is about the consequences of biased affective forecasts for situation selection and situation modification. "Affect regulation," as the term is used herein, therefore, is reserved for *mental* (internal) rather than behavioral strategies for regulating affect.

Limiting the scope of affect regulation to mental strategies has an important consequence for a review of affect regulation and affective forecasting—it renders the existing body of research to be reviewed almost nonexistent.[8] Not all affective forecasts are relevant to affect regulation—only forecasts about the success of affect regulation. However, as already noted, research and writing about these types of forecasts is limited. Moreover, examining the intersection of affective forecasting and affect regulation also limits the scope of relevant forms of affect regulation to a subset, and probably a small subset, of affect regulation: that which occurs consciously and deliberately. Many if not most of the processes that lead to emotional change in the absence of situational change are *not* conscious and deliberate but transpire in an unconscious, automatic, fashion (see Bargh & Williams, this volume). For example, "defense mechanisms" such as "rationalization," "denial," and "projection" (Freud, 1936/1971) operate automatically and unconsciously almost by necessity, given that they involve an element of self-deception, which is much less effective when it is conscious and deliberate. Only deliberate forms of affect regulation are, however, likely to be influenced by people's intuitions about what strategies work and do not work, so these are the sole focus of this review.[9]

Another issue that arises in the application of Gross's framework concerns the distinction between attention deployment, which Gross classifies as an antecedent-focused strategy, and suppression, which he classifies as a response-focused strategy. In principal, these two strategies can be distinguished: One involves altering the thoughts that give rise to emotions, the other the emotions themselves. In practice, however, the distinction between these two types of strategies seems blurred. For example, if, after committing a gross *faux pas*, one attempts not to think about it, would it be more accurate to say that one is distracting oneself from one's thoughts or one's feelings? Skirting such complications, I classify both of these strategies under the heading of suppression. Ultimately, therefore, I distinguish between two major categories of affect regulation: reappraisal (an antecedent-focused strategy) and suppression.

WHAT IS KNOWN ABOUT THE EFFECTIVENESS OF AFFECT REGULATION STRATEGIES?

Reappraisal

Research on reappraisal—the act of construing a potentially emotional situation in a way that enhances positive or diminishes negative affect—has generally found this to be an effective means of affect regulation (for a review, see Gross, 2002; and for a discussion

of neural underpinnings, see Ochsner & Gross, this volume). For example, diverse research suggests that people who experience adverse outcomes, such as health problems or accidents, commonly discover a "silver lining" to the calamity—often some kind of new meaning from life. One study of women with breast cancer found that over half reported that the experience had caused them to reappraise their lives in a favorable fashion (Taylor, 1983), and somewhat less than half of a sample of accident victims from another study related the belief that God had intentionally (and benevolently!) selected them for victimization (Janoff-Bulman & Wortman, 1977). However, contrary to this optimistic picture, a different study of people paralyzed in auto accidents (Lehman, Wortman, & Williams, 1987) found that three-fourths of accident victims reported being unable to find any meaning in their loss. Moreover, none of this research reports whether people who discovered silver linings in calamities did so deliberately—that is, with the express intent of regulating their affect.

To the extent that people are able to direct their thoughts in such a fashion, it seems to be beneficial. Thus, Taylor (1983, p. 1163) found that women who found positive meaning in their breast cancer exhibited significantly better psychological adjustment, and Affleck, Tennen, Croog, and Levine (1987) found that men who perceived benefits from a heart attack were less likely to have a subsequent attack and exhibited lower morbidity 8 years later. However, most of the research in this vein suffers from the usual problems of assessing causality from correlational data.

Another possible reappraisal strategy involves generating advantageous counterfactuals such as "things could have turned out so much worse" or "there but for the grace of God go I." There is ample research that counterfactuals can have significant effects on emotion and well-being (see, e.g., Roese & Olson, 1995). However, again very little, if any, of the research on counterfactuals has examined whether people are able to deliberately alter their own emotions by invoking advantageous counterfactuals.

Many other forms of reappraisal are possible. For example, people might attempt to mentally "frame" outcomes in a fashion that minimizes misery and maximizes pleasure—taking gains one at a time to fully savor them but lumping losses together to digest them as quickly and efficiently as possible. Thaler and Johnson (1990) refer to such motivated mental accounting as "hedonic editing" but found that people show relatively little tendency to, in fact, mentally segregate or aggregate outcomes in a hedonically advantageous fashion. Or, as the study reported herein suggests, people may attempt to take a long-term perspective on situations that, in the short-run seem dire (e.g., "I might have failed the exam, but I'm sure I can still ace the course"). Clearly, the range of reappraisal strategies that could be used in any situation is limited only by the imagination of the individual.

Research has generally found reappraisal to be an effective strategy for affect regulation. For example, reappraisal has been found to decrease both behavioral and subjective signs of emotion following exposure to aversive stimuli without elevation in physiological responding (Gross, 1998a, 2002). In one study (Gross, 1998a), participants were shown a disgusting film (i.e., the amputation of an arm and the treatment of burn victims) while their experiential, behavioral, and physiological responses were recorded. Those who were told to reappraise (i.e., to adopt a detached and unemotional attitude while watching the film; to think about what they were seeing objectively, in terms of the technical aspects of the events they observed) reported experiencing less disgust and showed fewer behavioral signs of disgust compared to participants who were simply told to watch the film clip. There was no difference between reappraisal and uninstructed conditions in sympathetic activation of the cardiovascular or electrodermal systems.

In addition to the experiential, behavioral, and physiological consequences of reappraisal, several studies have examined the cognitive and social consequences of reappraisal. For example, Richards and Gross (2000, Study 2) examined the impact of reappraisal on cognitive performance during an emotion-eliciting situation. As participants watched a series of negative emotion-inducing slides, they were presented with information about each slide. After seeing all the slides, participants completed two memory tests—a nonverbal and a verbal memory test. Given that reappraisal occurs relatively early in the emotion-generative process and therefore should require few cognitive resources, they predicted that reappraisal would not diminish memory, which it did not; in fact, reappraisal actually enhanced nonverbal memory.

Although not addressing the effect of affect regulation per se, older research by Walter Mischel and colleagues (for a review, see Mischel & Ayduk, 2004) has also found that people are able to engage in reappraisal, and that it is an effective method of regulating behavior. In a paradigmatic study (Mischel & Baker, 1975), 4-year-old children were given a choice between a smaller earlier reward (e.g., a single marshmallow or pretzel) or a larger reward (e.g., two marshmallows or two pretzels) if they could successfully wait, without ringing a bell, for the experimenter to return. Children were either instructed to (1) simply wait until the experimenter returned; (2) cognitively restructure the situation by thinking that the marshmallows were "white, puffy clouds" or the pretzels were "little, brown logs"; or (3) cognitively restructure the situation by thinking that the marshmallows were "yummy and chewy" or the pretzels were "salty and crunchy." As expected, children who reappraised using non-affective "cool" reconstructions (e.g., "white, puffy clouds") waited significantly longer (13 minutes) than children who used affective "hot" reconstructions (e.g., "yummy and chewy"; 5 minutes). Other studies in which children reappraised the treat as if it were a picture (i.e., by "putting a frame around them in your head") (Moore, Mischel, & Zeiss, 1976) found similar results; children were able to wait almost 18 minutes in this condition compared with only 6 minutes in a control condition. Metcalfe and Mischel (1999) have proposed that thinking of the marshmallows or pretzels in a nonaffective manner "cooled" down what otherwise would have been a "hot" affective response, suggesting that reappraisal was effective at regulating affectively driven behavior.

Distraction and Suppression of Thoughts and Feelings

To an individual who is engulfed in immediate, acute fear or panic from situations such as public speaking, snakes, or heights, the use of distraction or suppression of thoughts or feelings may seem to be the fastest antidote. Indeed, several theories of affect control suggest that people can control negative affect by willfully changing the focus of their attention away from negative thoughts (Clark & Isen, 1982; Nolen-Hoeksema, 1993; Zillmann, 1988). However, even though efforts to suppress negative affect may sometimes be successful, considerable research suggests that it can also have perverse effects—prolonging and even intensifying an individual's emotional reactions (Wenzlaff, 1993; Wenzlaff et al., 1988; Wegner, Erber, & Zanakos, 1993). For example, Wenzlaff, Wegner, and Roper (1988) had dysphoric college students, who had ranked their negative thoughts as the primary contributor to their unhappy state, either suppress or not suppress their negative or positive thoughts. They found that compared to those who were not trying to control their thoughts, the dysphoric students who attempted to suppress their negative thoughts in fact failed to do so and instead ended up entertaining more negative thoughts. They observed no parallel deficit in the ability to suppress their positive thoughts.

To account for the failure of thought suppression as a strategy for controlling one's affect (and thoughts), Wegner (1992, 1994, 1997; Wegner & Wenzlaff, 1996, 2000) proposed a theory of "ironic processes" according to which thought suppression involves two mechanisms: (1) an *intentional operating process* that searches for thoughts that will promote the preferred state (i.e., anything that is not the unwanted affect/thought) and (2) an *ironic monitoring process* that searches for mental thoughts that signal the failure to achieve the preferred state (i.e., the unwanted affect/thought). The operating process is an effortful and conscious system, whereas the ironic monitoring system is unconscious and less demanding of mental effort. When the two processes function in concert (achieving successful thought suppression), the ironic monitoring process only exerts a minor influence, subtly alerting the intentional operating system of deviations from the intended goal; this is generally the case when an individual has sufficient attentional resources. However, when the intentional operating process is voluntarily terminated by the individual, or is disrupted by cognitive demands, stress, time pressure, and so on, the ironic monitoring process continues its vigilance for unwanted thoughts, thereby enhancing the mind's sensitivity to the unwanted thought and creating the "ironic effects" of thought suppression.

According to ironic process theory, therefore, the central variable dividing successful control from ironic effects is the availability of attentional resources. Supporting this idea, Wegner et al. (1993) asked participants to reminisce about a happy or sad event. They were then instructed to maintain their happy or sad state, instructed not to maintain their happy or sad state, or given no instructions. In addition, cognitive load was induced for half of the participants by having them hold in mind a nine-digit number. Participants who attempted to control their mood without an imposed cognitive load were successful (e.g., sad participants were able to reduce their sadness), but those who attempted to control their mood while under cognitive load not only failed to control their moods but reported mood changes that were opposite to what they had intended to produce. For example, sad participants who were instructed to not feel sad (i.e., to change their mood to a positive state) under cognitive load self-reported more negative moods than sad participants not under cognitive load. In a second study, Wegner et al. (1993) found that participants attempting to control their mood-related thoughts under cognitive load showed increased accessibility of those thoughts contrary to the direction of the intended control.

The ironic effects of thought suppression are not limited to emotions (e.g., sadness and happiness) but also apply to other visceral states (e.g., substance cravings and pain). Whether their habit involves drinking, eating, drugs, or smoking, individuals with substance abuse problems are highly motivated to mentally control their cravings. However, despite its potential importance, only a few studies have examined the impact of thought suppression as a strategy for dealing with addiction. Salkovskis and Reynolds (1994) found that the efforts of abstaining smokers to suppress cigarette-related thoughts yielded especially high levels of intrusions of exactly those cigarette-related thoughts. Toll, Sobell, Wagner, and Sobell (2001) similarly found a significant relationship between lack of success in quitting smoking and scores on the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994—a measure of people's general ability to suppress unwanted negative thoughts). The correlational nature of the study, however, precluded identification of the specific causal relationship.

With respect to pain, the common wisdom would seem to be that distraction or thought suppression is superior to attending directly to the pain. However, as already alluded to, research has shown that under some conditions attention is more effective

than distraction in reducing pain experience (e.g., Ahles, Blanchard, & Leventhal, 1983; McCaul & Haugtvedt, 1982). For example, Cioffi and Holloway (1993) found that individuals who attempted to suppress pain induced by immersing their hand in cold water experienced more lingering discomfort than did individuals who deliberately monitored their pain (cf. Sullivan, Rouse, Bishop, & Johnston, 1997). Overall, the research on pain suggests that distraction is best when pain is acute, whereas attention (or "sensory monitoring") is best when pain is persistent (for a review, see Cioffi, 1993).[10]

Eliminating the Negative versus Accentuating the Positive

The vast majority of prior research on affect regulation has focused on the mitigation of negative emotions. However, affect regulation can also be applied, at least in principle, to maintaining and/or amplifying positive affective states. For example, the process of being grateful can be a fruitful strategy in eliciting and maintaining positive emotions. Emmons and McCullough (2003) randomly assigned participants to one of three conditions: listing their hassles in life, listing things for which they were thankful, or listing mundane daily activities. Participants did this either weekly for 10 weeks or daily for 21 days. In addition, they kept records of their moods, coping behaviors, health behaviors, and physical symptoms. They found that participants in the gratitude condition exhibited heightened subjective well-being and positive moods relative to those in the control conditions. Other research, however, presents a less optimistic picture. Schooler, Ariely, and Loewenstein (2003) reported two studies both of which suggest that attempts to be happy can backfire. In one laboratory study, subjects listened to a piece of classical music while they either did or did not monitor their own happiness and either did or did not attempt to be happy. Both monitoring happiness and, more important, trying to be happy produced a decline in happiness. In a second field study, Schooler et al. (2003) interviewed people in December 1999 to assess the importance they placed on having a good time during the millennium festivities, then interviewed them again a few days into the new millennium. Those who, by various measures, placed great importance on having a good time in fact reported having enjoyed themselves less than those who took a more relaxed attitude toward the celebration.

WHAT IS KNOWN ABOUT AFFECTIVE FORECASTING?

Every decision, whether large or small, is made based on the belief that it will ultimately make us happier than would an alternative choice. An integral step in the decision process of deciding between choice X versus choice Y is one's ability to predict how one would feel should a particular choice be made—which is known as affective forecasting. Unfortunately, research has documented that people routinely mispredict how much pleasure or displeasure future events will bring, and as a result, they sometimes work to bring about events that do not maximize their happiness (for reviews, see Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003). Specifically, it appears that people are not adept at predicting the intensity and duration of their future emotional reactions. A variety of cognitive biases have been found to explain how and why people are not accurate forecasters of one's future emotional state.

We adopt Wilson and Gilbert's (2003) conception of affective forecasting, which is broken into four components: (1) predictions about the *valence* of one's future feelings,

(2) the *specific emotions* that will be experienced, (3) the *intensity* of the emotions, (4) and their *duration.*

In general, people make accurate predictions about the valence (i.e., positive vs. negative) a future affective experience will elicit, especially if they have had experience in that domain. For example, Wilson, Wheatley, Kurtz, Dunn, and Gilbert (2004) conducted a simulated dating game experiment where participants competed for a hypothetical date and were randomly assigned to win or lose the date. Prior to the experiment, participants were asked to forecast how they would feel if they won and lost the date. After the experiment, participants were asked to rate how they actually felt based on the outcome of the game. Without exception, all the participants forecasted that they would be in a better mood if they won than if they lost, and, perhaps not surprisingly, participants who won were, on average, in a better mood than participants who lost.

People also seem to be relatively accurate in predicting the specific emotions that they will experience (anger, fear, happy, disgust, etc.) in different situations. For example, Robinson and Clore (2001) gave participants a written description of a series of emotion-provoking pictures and asked them to forecast what specific emotions they would experience if they saw the actual pictures. Participants were generally correct about which emotion they would experience when they were presented with the actual pictures. However, people seem to be less accurate when predicting the emotional impact of situations that are likely to evoke mixed emotions, such as graduating from college, than when predicting situations that are more likely to produce more unitary feeling states (Larsen, McGraw, & Cacioppo, 2001).

Research findings are more mixed when it comes to people's accuracy in predicting the immediate intensity of their emotional reactions to events. Some research finds that people tend to overestimate the intensity of their affective reactions to events (Buehler & McFarland, 2001), but other research reaches the opposite conclusion (e.g., Rachman, 1994). This line of research is not well developed, perhaps because researchers, out of concern for subjects' feelings, are reluctant to ask people about their emotional reactions immediately after powerfully emotional events.

Finally, the most consistent finding in the literature on affective forecasting is that people have difficulty anticipating the duration of affective states, and specifically that they tend to overestimate how long both positive and negative feelings will last. The tendency to overestimate one's emotional reactions to ongoing states of affairs (Loewenstein & Frederick, 1997), dubbed the *durability bias* by Gilbert, Pinel, Wilson, Blumberg, and Wheatley (1998) has been found in a variety of populations (college students, professors, vacationers, sports fans, etc.) with a wide range of emotional events (romantic breakups, personal insults, electoral defeats, failures to lose weight, etc.). The bias seems to be "overdetermined" in the sense of being produced by multiple mechanisms.

First, people often incorrectly imagine the specifics of the future event. As several researchers have noted, if there are systematic errors in people's predictions of the objective features of events, these can lead to systematic errors in predictions of the hedonic impact of those events. One such systematic bias that can help explain the durability bias is the failure to take into account the actions one will take to mitigate negative affective states. For example, people predict that becoming paraplegic will make them more miserable than paraplegics report themselves to be, perhaps because they think about all the activities they currently do that they would no longer be able to, but do not think about new activities in which they would engage (Ubel et al., 2001).

Second, people often have incorrect intuitive theories about how future events will make them feel. Although people have frequent affective reactions to persons, places, and things, memory for moment-to-moment affective experience tends to be poor (Robinson & Clore, 2002). Instead of recalling how they actually felt, therefore, people use their intuitive theories about how events make one feel to make a guess as to how they *must have* felt (Ross, 1989). When it comes to *predicting* future feelings, moreover, the information that people have to work with is even more limited; unlike the case of past feelings, which could at least in theory be recalled, for future events, all people have to go on is their intuitive theories (which may be based only in part on past experiences). When predicting future feelings, therefore, incorrect theories are likely to result in prediction errors.

The inadequacy of people's intuitive theories can also help to explain the durability bias. If people lack intuitive theories of adaptation, they are likely to underestimate their own adaptation to positive and negative events. Given that social scientists are only starting to understand the diverse psychological processes that produce psychological adaptation (for reviews, see Frederick & Loewenstein, 1999; Wilson & Gilbert, 2005), it should come as no surprise that ordinary people tend to have an incomplete understanding of adaptive processes, to underpredict their own adaptation to events, and hence to overestimate the duration of their emotional reactions to those events.

Yet a third generic cause of affective forecasting errors has to do with the mismatch between the forecasts, which tend to be conscious, and the processes that shape affect, which tend to be unconscious and automatic. Many of the biases in affective forecasting seem to stem from the conscious brain's underappreciation of the power of unconscious processes (see, e.g., Gilbert et al., 1998, on "immune neglect"). It could be argued, in fact, that much of this research could be cast as a demonstration of the fact that people tend to underestimate the effectiveness of unconscious emotion regulation strategies. However, the fact that these processes are as likely to diminish *positive* as negative affect would seem to argue against including such automatic adaptation processes under the heading of affect regulation. In any case, the focus of the current inquiry is on people's intuitions about conscious strategies rather than unconscious processes of affect regulation.

LAY INTUITIONS ABOUT AFFECT REGULATION

While there is considerable research and writing on affective forecasting and on affect regulation, there is almost no writing about the intersection of these topics, and specifically very little research examining the types of forecasts that are most relevant to affect regulation—those dealing with the effectiveness of different affect regulation strategies.

As an initial attempt to address this gap in the research, 78 students from different public locations on the Carnegie Mellon University campus were recruited to complete a survey that assessed their intuitions and beliefs—affective forecasts—regarding their ability to regulate a variety of different emotions (e.g., shame/indignation, sadness, and disgust) in a variety of contexts (e.g., being unjustly accused, losing a friendship, and encountering a disgusting scene). Forty-seven percent of respondents were female. Ages ranged from 17 to 29, with a mean age of 20, and a standard deviation of 1.8.

The survey asked participants to imagine experiencing the situations portrayed in a series of four scenarios (for text of all the scenarios, see appendix). All scenarios were written in the first person, in what was intended to be vivid, evocative prose. The first scenario, which was intended to engender a mixture of shame and indignation, portrayed a situation in which the respondent had been falsely accused of cheating on a test. The second, which was intended to evoke sadness, described a situation in which the respondent's best friend has suddenly become unfriendly and uncommunicative. The third, which was intended to evoke anger, described a situation in which the respondent's roommate had borrowed his or her loudspeakers without permission and blown them out. The fourth, which was intended to evoke disgust, involved cleaning up the vomit of a party guest.

After each scenario respondents were asked to imagine that "there was nothing you could do about this situation in the short-run, and that you wanted to be in a positive state of mind" (three of the four scenarios continued "for someone you were about to meet"). Respondents were then asked two open-ended questions: (1a) "What types of thoughts or mental strategies would you use in this situation to try to put yourself into a positive state of mind? Please be as specific as possible" and (1b) "Do you think these methods would actually work in this situation?" and then were asked to explain why or why not.

Respondents were then presented with four prespecified affect regulation strategies that had been selected by categorizing open-ended responses to a prior pilot survey involving scenarios similar to those included in the final study. Two of the four strategies involved reappraisal: (1) "Think about the situation from a different perspective," and (2) "Reason about why the objective situation is not so bad." The other two involved distraction and suppression: (3) "Distract myself with other things; try not to the think about the situation," and (4) "Will myself to be calm, cool, and collected."[11] For each of these four strategies, respondents were asked two closed-ended questions: (1) "In this situation, would you use this strategy?" with response options: "might use" and "would probably not use," and (2) "In this situation, would it work?" with response options "probably work, "no effect," and "probably backfire."

After reading the four different scenarios involving negative affect, and answering the questions just described for each, respondents read a single positive scenario which asked them to imagine a situation in which they discovered, unexpectedly, that they had won an academic contest (see Appendix 9.1 for text). They then answered an open-ended question: "Suppose you wanted to enjoy the positive feeling as intensely and long as you possibly could. What types of thoughts or mental strategies would you use to achieve this goal?"

Open-ended responses were initially coded into a large number of categories (about 20), then these were collapsed in a process that ultimately yielded four categories. Each open-ended response was then assigned to one of these four categories or to a residual "other" category. The final categories for the open- and closed-ended responses ended up being the same, partly by design (having the same four strategies represented for both the open-ended and closed-ended responses permits an easy comparison of respondents' spontaneous ideas about how to regulate their own affect and their embracing of ideas that were presented to them), and in part because the four closed ended responses were themselves the product of a prior similar attempt to classify open-ended responses to a pilot survey into a small number of categories.

Examples of "think about the situation from a different perspective" (all taken from responses to Scenario 2, which involved being cold-shouldered by a former friend) included:

- "I would think about the time we spent together before we both became busy and the trust we put in each other. Then I would will myself to imagine that nothing has changed since then and make the phone call."
- "I would think about all the good times we had before to cheer me up."
- "I'd think about all our great memories and how close we once were."
- "Put myself in his shoes. Think of why he may not be talking."

Examples of "reason why the objective situation isn't so bad" (all taken from responses to Scenario 1, which involved being falsely accused of cheating) included:

- "I would try to convince myself that, because I actually was not cheating, I will be able to get out of the situation. If that does not put me into a positive state of mind. I may try to think about other unrelated topics." (This was coded as reasoning rather than distraction because the former was mentioned first.)
- "Knowing I did nothing wrong, I would convince myself that everything would work out in the long run and forget about things."
- "I would look to the future and realize that either I would be found innocent of the charges or that either way life would go on."

Examples of distraction, also taken from responses to Scenario 1, included:

- "I would start singing/whistling my favorite song. I would also start tapping a beat on a book or something."
- "I would think of something else."
- "Think of happy thoughts and not about the test. The situation is irreversible at the moment."

Finally, an example of "will myself to be cool calm and collected" taken from a response to Scenario 4 (which involved a disgust response to vomit) was:

- "I think the only mental strategy that I could try is to will myself to calm down, try to relax and put the situation as much out of mind as possible."

Some open-ended responses were judged not to be *mental* strategies (e.g., when a respondent proposed taking some kind of concrete action to deal with a situation). These are reported as a separate category in the tables.

Tables 9.1a and 9.1b provide summaries of the open- and closed-ended results aggregated across the four negative emotion scenarios. Collapsing respondents' classified open-ended responses to the four scenarios, Table 9.1a reveals that the two reappraisal strategies were spontaneous proposed most frequently (in 65% of cases), whereas distraction and willpower were invoked less frequently (34% of cases). Responses to closed-ended questions, however, provide a different picture. Averaging across all four negative scenarios, willing oneself to be cool, calm, and collected was actually the most commonly embraced strategy (with 68.5% stating that they might use it), whereas all the other strategies were about equally popular (51.2–54.1%) (note that respondents could embrace as many strategies as they liked in the close-ended questions). Moreover, again averaging across all four negative strategies, respondents did not generally have the intuition that exerting willpower would backfire: That strategy

TABLE 9.1a. Spontaneously Proposed Emotion Regulation Strategies (All Scenarios)

Strategy	What strategy would you use?
Think about the situation from a *different perspective*.	34%
Reason about why the objective situation isn't so bad.	31%
Distract myself with other things; try not to think about the situation.	21%
Will myself to be "cool, calm and collected."	13%
Other	2%

was judged to be the *most* likely to work (54.5% said it probably would work), and, by a small margin, *least* likely to backfire (13.2%).

Analysis of the aggregate results points to three major conclusions. First, when it comes to spontaneous ideas about what affect regulation strategies they would use, subjects embraced and reported the highest degree of confidence in the success of those strategies identified in the literature as effective. Second, however, their evaluations of strategies that were presented to them paint a very different picture. In this case, a majority of subjects reported they would use, and believed in the effectiveness of, exactly the strategies that the existing literature suggests are not effective and may even backfire. Third, and related to the second, there was little evidence that subjects were aware of the potential for such "ironic" effects.

Turning to individual scenarios in Tables 9.2–9.5b, perhaps the most important finding is that both spontaneous open-ended responses and closed-ended responses, but especially the latter, reveal that respondents thought that different types of strategies would work in different situations. When it came to Scenario 1 (being falsely

TABLE 9.1b. Individuals' Intuitions and Beliefs Regarding Specific Emotion Regulation Strategies (All Scenarios)

Strategy	In this situation, would you use this strategy?		In this situation, would it work?		
	Might use	Probably not use	Probably work	No effect	Probably backfire
Think about the situation from a *different perspective*.	53.9%	46.1%	39.3%	47.3%	13.3%
Reason about why the objective situation isn't so bad.	54.1%	45.9%	37.5%	39.2%	23.3%
Distract myself with other things; try not to think about the situation.	51.8%	48.2%	39.3%	41.6%	19.0%
Will myself to be "cool, calm, and collected."	68.5%	31.5%	54.5%	32.3%	13.2%

TABLE 9.2a. Spontaneously Proposed Emotion Regulation Strategies (Scenario 1: Falsely Accused of Cheating)

Strategy	What strategy would you use?	Effective?
Think about the situation from a *different perspective*	21%	39%
Reason about why the objective situation isn't so bad	30%	72%
Distract myself with other things; try not to think about the situation	25%	60%
Will myself to be "cool, calm and collected."	21%	62%
Other	3%	
% proposing nonmental strategies (not included in above percentages)	(14%)	

TABLE 9.2b. Individuals' Intuitions and Beliefs Regarding Emotion Regulation Strategies (Scenario: Falsely Accused of Cheating)

	In this situation, would you use this strategy?		In this situation, would it work?		
Strategy	Might use	Probably not use	Probably work	No effect	Probably backfire
Think about the situation from a *different perspective*	63%	37%	30%	51%	19%
Reason about why the objective situation isn't so bad	63%	37%	32%	38%	30%
Distract myself with other things; try not to think about the situation	66%	34%	46%	33%	21%
Will myself to be "cool, calm, and collected."	77%	23%	51%	30%	19%

TABLE 9.3.a. Spontaneously Proposed Emotion Regulation Strategies (Scenario 2: Spurned by an Old Friend)

Strategy	What strategy would you use?	Effective?
Think about the situation from a *different perspective*	63%	74%
Reason about why the objective situation isn't so bad	25%	86%
Distract myself with other things; try not to think about the situation	9%	80%
Will myself to be "cool, calm, and collected."	2%	
Other	2%	
% proposing nonmental strategies (not included in above percentages)	(8%)	

TABLE 9.3b. Individuals' Intuitions and Beliefs Regarding Emotion Regulation Strategies (Scenario 2: Spurned by an Old Friend)

Strategy	In this situation, would you use this strategy?		In this situation, would it work?		
	Might use	Probably not use	Probably work	No effect	Probably backfire
Think about the situation from a *different perspective.*	78%	22%	70%	26%	4%
Reason about why the objective situation isn't so bad.	71%	29%	51%	36%	13%
Distract myself with other things; try not to think about the situation.	35%	65%	32%	50%	18%
Will myself to be "cool, calm, and collected."	66%	34%	51%	37%	12%

accused of cheating), respondents spontaneously thought that they would be most likely to reason about why the situation was not so bad. When it came to closed-ended responses, however, willing oneself to be cool, calm, and collected was embraced most frequently (by 77% of respondents) and was also most commonly seen as effective (by 51% of subjects).

For Scenario 2 (being spurned by an old friend), thinking about the situation from a different perspective was the most common spontaneously mentioned emotion regulation strategy (63%), the most widely embraced among the closed-ended responses (by 78% of respondents), and was most commonly seen as effective (by 70% of subjects).

For Scenario 3 (learning that their roommate had blown out their speakers), reasoning about why the situation was not so bad was again cited most commonly in open-ended responses (by 45% of respondents), but distraction and willing oneself to be cool, calm, and collected were far more popular when it came to closed-ended responses (and were also more likely to be seen as effective).

TABLE 9.4a. Spontaneously Proposed Emotion Regulation Strategies (Scenario 3: Roommate Blows Out One's Loudspeakers)

Strategy	What strategy would you use?	Effective?
Think about the situation from a *different perspective.*	14%	71%
Reason about why the objective situation isn't so bad.	45%	70%
Distract myself with other things; try not to think about the situation.	29%	87%
Will myself to be "cool, calm, and collected."	10%	60%
Other	2%	
% proposing nonmental strategies (not included in above percentages)	(19%)	

TABLE 9.4.b. Individuals' Intuitions and Beliefs Regarding Emotion Regulation Strategies (Scenario 3: Roommate Blows Out One's Loudspeakers)

Strategy	In this situation, would you use this strategy?		In this situation, would it work?		
	Might use	Probably not use	Probably work	No effect	Probably backfire
Think about the situation from a *different perspective.*	37%	63%	26%	61%	13%
Reason about why the objective situation isn't so bad.	39%	61%	31%	45%	24%
Distract myself with other things; try not to think about the situation.	57%	43%	49%	39%	12%
Will myself to be "cool, calm, and collected."	62%	38%	59%	29%	12%

For Scenario 4 (dealing with vomit at a party), respondents spontaneously thought that they would think about the situation from a different perspective, but, when confronted by the closed-ended responses, they were by far most likely to embrace will-power as the strategy that they would use and that they thought would probably work.

In sum, although responses to open-ended (spontaneous) questions revealed that reappraisal strategies were fairly consistently seen as the most likely to be used and most effective methods of affect regulation, responses to the closed-ended questions showed much greater variation across scenarios. With only four scenarios, it is difficult to discern a pattern in terms of what strategies are applied in what situations, but it is worth noting that scenarios differed on a number of dimensions, including what emotions they evoked, the likely intensity of those emotions, and the need for immediate action. Any of these differences, or others that are not immediately obvious, could be responsible for the differences in emotion strategies endorsed in the different scenarios. It is possible, for example, that suppression strategies were more likely to be evoked for Sce-

TABLE 9.5.a. Spontaneously Proposed Emotion Regulation Strategies (Scenario 4: Vomit at a Party)

Strategy	What strategy would you use?	Effective?
Think about the situation from a *different perspective.*	37%	67%
Reason about why the objective situation isn't so bad.	25%	67%
Distract myself with other things; try not to think about the situation.	20%	80%
Will myself to be "cool, calm, and collected."	18%	78%
Other	—	
% proposing nonmental strategies (not included in above percentages)	(20%)	

TABLE 9.5b. Individuals' Intuitions and Beliefs Regarding Emotion Regulation Strategies (Scenario 4: Vomit at a Party)

Strategy	In this situation, would you use this strategy?		In this situation, would it work?		
	Might use	Probably not use	Probably work	No effect	Probably backfire
Think about the situation from a *different perspective*.	38%	62%	31%	52%	17
Reason about why the objective situation isn't so bad.	43%	57%	36%	38%	26
Distract myself with other things; try not to think about the situation.	49%	51%	31%	44%	25%
Will myself to be "cool, calm, and collected."	69%	31%	58%	33%	9%

narios 1, 3, and 4 because these situations, more than the situation described in Scenario 2, called for immediate emotional calm, or it is possible that subjects believe that suppression is not effective when it comes to sadness. This is clearly a ripe area for future research.

Turning to the positive scenario, in which respondents were asked to imagine that they had won an academic competition and to propose how they might increase the intensity and duration of positive feelings, it turned out that respondents' ideas could be neatly coded into three categories (see Table 9.6).

The most popular type of strategy (endorsed by 37% of subjects) was, interestingly, the same as the most commonly spontaneously mentioned strategy for dealing with negative emotion—namely, thinking about the situation from a positive perspective. Of course, the specifics of how people planned to change their perspective were quite different for this positive scenario than they were for the negative scenarios. Examples include: "I would just remind myself of how we put in one-sixth of the effort the other teams put into their presentations, and yet we still won even after messing up so badly," and "I would have to remember, what made that feeling so good—it wasn't the actual

TABLE 9.6. Spontaneously Proposed Emotion Regulation Strategies (Scenario 5: Winning a Contest)

Strategy	What strategy would you use?	Effective?
Concentrate and savor the moment.	28%	94%
Think about the situation from a *positive perspective*.	38%	100%
Just enjoy, don't try anything	30%	95%
Other	4%	
% proposing nonmental strategies (not included in above percentages)	4%	

moment, but the hard work and months of dedication to the cause, that in this case produced a desirable result."

The second most popular strategy, *concentrate and savor the moment*, was endorsed by 27% of subjects. It can be viewed as the mirror image of the "distraction" tactic. A representative example of a response classified under this heading is: "I would recall the win, the doubts, and even the competition moments over and over in my mind and with my teammates."

Finally, despite being asked to propose mental strategies to increase the intensity and duration of their positive feelings, a surprising number of subjects (29%) rejected the premise of the question and asserted that not trying to enjoy the event was the best way to enjoy it (e.g., "Just enjoy; don't try anything"; "Enjoy the moment. Don't think about how to keep the feeling"; and "I would just be excited and not really need any mental strategy"). We did not observe any responses to the negative scenarios that rejected the premise of the question—that affect regulation strategies could potentially help to mitigate negative emotion—suggesting that accentuating the positive is seen as more problematic than minimizing the negative.

CONCLUSIONS

In recent years, researchers have rediscovered the importance of interactions between "heart" and "mind" that occupied so much of the attention of earlier philosophers and students of human psychology. The power of emotions and motivation to sway information processing is well documented, as is the complex interplay of affect and cognition in the determination of behavior. In both of these areas, people's metacognitions play an important role. Thus, for example, to the extent that one realizes that one's cognitions or behavior are being distorted by emotions, one might attempt to debias oneself or to avoid taking action in the "heat of the moment." Counting to 10 before one speaks words of anger, or waiting until the following day to respond to a hurtful email message, are commonly advocated strategies that are only likely to be implemented by individuals who are aware of the impact of emotions on their judgments and behavior.

The situation is analogous when it comes to emotion regulation. Paralleling the large literature addressing emotional influences on cognition and behavior, there is also a large literature on cognitive influences on emotion, including the extensive literature on cognitive theories of emotion, affective consequences of causal attributions, and many other lines of research. Beyond the fact that cognitions can influence emotions, as discussed in these literatures, research on affect regulation suggests that we also have some ability to regulate our emotions by intentionally directing our own cognitions. As already emphasized, however, whether we do so effectively will depend on the extent and accuracy of metacognitions about what types of affect regulation strategies do and do not work.

Given the vast amount of experience that most people inevitably amass when it comes to affect regulation, one might anticipate that people would naturally learn over time what works and what does not. Indeed, given extensive opportunities for learning from experience, where intuitions and research findings diverge one might be tempted to surmise that it is the research findings that are offbase. However, there are many reasons why experience may lead to less than acute insight (see Einhorn, 1980; Wilson, Meyers, & Gilbert, 2001).

First, a look at the specific strategies that people think would work may hint at the explanation. People generally tend to embrace fairly simplistic causal theories (Nisbett & Ross, 1980). If they recognize that being aware of, or thinking about, certain facts causes them to feel bad, it seems natural that they would believe that distracting themselves from those facts would alleviate those bad feelings.

Second, there is a strong tendency for recall to be guided by prior beliefs (Ross, 1989), which tends to impede learning from experience. When people believe something, they tend to reconstruct their memories to fit with their beliefs. For example, people who believe that small eyes on the Draw a Person test are correlated with paranoia, tend to see such a relationship even when a negative relationship is built into the data (Chapman & Chapman, 1982). Likewise, people who go on weight-reduction programs often report that the programs are helpful, even when they have no measured effect. People also seem to be, in effect, "super-Bayesians"—treating data that support their prior beliefs as supportive but finding fault with data that contradict those beliefs (Lord, Lepper, & Ross, 1979). All these factors will tend to impeded learning from experience.

Third, the feedback that people get into the success of their affect-regulation strategies is probably noisier than one might expect. Emotions change for a variety of reasons, most of them probably unrelated to attempts at regulation. Discerning the signal from the noise in such a situation is an extremely difficult inferential problem.

Finally, people might not be aware of what actually works because it never occurs to them to try the methods identified as successful in the psychology research. Thus, for example, the author had been, prior to doing research on memory for pain, unaware of the literature showing that focusing on pain can actually mitigate it; he assumed that distraction was the only possible, if seemingly ineffective, strategy for dealing with pain. Since reading an article that detailed the beneficial effects of focusing on pain, however, he has been using such a strategy with some success.

The study just presented is at best an initial step toward addressing people's intuitive understanding of affect regulation and the effect of such understanding on what strategies are actually employed. Limitations include the lack of validation data that participants actually had (or agreed they would have for) the particular emotion each scenario targeted. Perhaps even more problematical, there is no validation that subjects would actually employ the strategies that they report embracing. In any survey of this type, in which participants are asked what they "would" do, there is a substantial risk that what is really being probed are people's intuitive theories of what "should" work rather than what they would actually do in a situation. The focus of the survey is also extremely narrow, on mental, and generally very short-term, strategies of affect regulation.

Clearly, a huge void remains to be filled when it comes to systematic research on the interrelated topics of affect regulation and affective forecasting. If thoughts of this void fill you with dismay, but you have no intention of doing research on the topic, it may be more advantageous to reappraise the situation, rather than attempt to suppress your gloomy thoughts.

APPENDIX 9.1

Survey Instructions: As you read the following four scenarios in this survey, please imagine that you are experiencing this situation. Afterward, please answer the questions. Thank you in advance for participating.

Scenario 1: Shame/Indignation

You scan your test one last time just as the teacher calls time. There are more empty spaces than you would like—especially problem #2. You can remember watching the teacher explain this in class, but you can't quite remember the specifics. You walk down to the crowd of students in the front piling up their tests—your eyes never leave your test.

Then, just as you reach the pile of tests, you suddenly remember the formula. You run back to the front row of seats and hastily jot down the answer. With some relief, you stand back and attempt to return your paper to the pile, when your teacher snatches the test from your hands.

He accuses you of cheating! He claims you had seen someone's answer in the pile of tests and copied that down. Now, you are getting zero. You try to explain, but the teacher isn't listening. The teacher marks a zero on your test right in front of your face, and announces loudly for the stragglers to hear that he does not tolerate cheating in his class. You again deny the accusation when he claims he has been watching you all test period and saw your wandering eyes. You cannot remember looking at anything except the rows and rows of numbers and the clock throughout this whole stressful test, yet he demands to know who you were sitting next to. With each time he cuts you off, you find your fists clenching tighter, but still you try to talk, ask a question, say anything to be heard out. But, this time he turns his back on you and walks out with your test in his hand saying that he is going to find your academic advisor and the dean.

The other students stare at you; you hear a couple start to snicker. No one will listen even though you didn't do anything wrong!

Scenario 2: Sadness

He had been your best friend for years. When you first met him, you were surprised how easily you could talk to him. You could talk about anything, even very personal subjects, and all you ever got from him was understanding. He was willing to do whatever you wanted, even what others thought was crazy—like walk to your favorite pizza place at 2 AM when it was raining outside.

But now you never see him. When you call him, he's just running out or in the middle of something. He says he'll call you back, and you'll do something together, definitely. Only he does not call back. You know he is busy. You are busy too. When he does call, it seems to always be just before a huge test or project. The only way you manage to get updates about his life are through common friends. You find it upsetting that you found out that he broke up with his girlfriend from a friend of a friend of the girlfriend or that his grandfather had just passed away from the other outside channels. You thought you were his best friend and you should be there to talk to him about this stuff—just like you would have liked to talk to him about your mother having had a heart attack recently. But, you're too busy and he's too busy. So, when you call him on the phone, you wonder if this will be the last time.

Scenario 3: Anger

Where are your loudspeakers? You look over to your roommate's desk. There they are, like usual. She broke her speakers about 3 months ago, and ever since you're the one who is speakerless. Annoyed, you amble over, unknot all the wires around your speakers, reach behind her desk at an awkward angle to unplug your speakers, and then pick up your heavy speakers and carry them across the room back to your desk. You usually have to do this about three times a week. And, that is only because the other times you want your speakers, you find it is less of a hassle to just use your headphones instead. But, right now, you want to watch a movie with a friend, so you retrieve your speakers knowing full well it will be back on her desk by tomorrow.

Three months ago, it wasn't an issue. She just broke her speakers and asked to borrow your speakers to watch a movie. But soon after, she was borrowing them for longer and no longer asking. When you talked to her about it, she said she had talked to her dad about it, and she was getting new ones. Only 2 months went by and the only new speakers she has were yours. When you

asked again, she said she had ordered new ones, but instead of shipping them to school she sent them home. But, it's OK because her dad was mailing them. Two weeks later, she asked to borrow them again. You're sure that the only reason she asked was because you were using them at that exact moment. When you asked what happened to hers, she said her dad wasn't going to mail them because it would be cheaper for her to bring it back when she went home for spring break. Spring break was still another 2 weeks away.

Sighing, you plug in your speakers to watch the movie. Instead, you hear static and a clicking sound. Now, your speakers are broken as well.

Scenario 4: Disgust

The party was in full swing 2 hours ago. Now, all that is left of it are empty beer cans, puddles of puke, and the smell of sweat. You search around the trashed home. The smell is disgusting. But tomorrow it will be worse if you don't clean it out of your carpets tonight. You grab some paper towels to start cleaning a puddle of vomit, but the smell is so awful you keep gagging.

Then, you hear someone in the bathroom. Apparently, not all the party crashers are gone yet. You locate the person in the bathroom. He is hunched over the toilet. As soon as you enter, you want to run out again. The smell is 50 times worse in here, and your stomach churns violently. You feel the upchuck reaction in your throat. As you approach the person, he pukes and most of it misses the toilet. You grab a paper towel so that he can clean off the vomit from his clothes.

But, when he turns to faee you, you feel yourself about to vomit. The vomit is all over him. In the brown mess, you can see chucks of undigested food. Now, vomit is in the back of your throat. You can taste the acrid, sour taste in the back of your mouth. Now, it is you who needs some paper towels to clean off your clothes and feet.

Scenario 5: Joy

It was competition day. Six months ago, teams all over the state had begun preparing for this day. Now, you were sitting on the floor of a massive gymnasium with the other teams, parents, judges and spectators awaiting the result for your division's competition.

You and your team had awoken this morning early with anxious excitement. Though your team had 6 months to put together the best solution, your team had dawdled and run into problems until 1 month earlier, when suddenly things clicked and your team began to function like a team. You all brainstormed for hours around a table and rethought your entire solution. Then, things that took everyone 6 months to finish, you all managed in less than 1 month. Last week, you had found time to develop a little machine that makes bubbles, just to add effect to your presentation. And by yesterday, your runthroughs had become almost flawless.

But, this morning, the actual competition did not run as smoothly. One team member was too nervous; she rushed through her part almost incomprehensibly. Your bubble machine had stopped working. And, the faces of the judges looked set in stone.

Then, one team member made a small joke, and the judges cracked a small smile. That had an almost magical effect. The team calmed down, and you found some time to make some adjustments to the bubble machine. The judges were laughing at your well-timed jokes. The presentation was running smoothly again.

So, now on the gym floor, you and your team had some hope of placing third of second. You had 13 competitors and several that you had seen were good. No one dared to think they could get first and get to go to the World Finals Competition.

The announcement for your division began. In third place—you felt your chest tighten—the school to the left of you was announced. In second place—again your chest tightened, and you saw your teammates look up hopefully—but now a team in the back was called to collect their medals. As first place was announced, you were barely listening. You thought your entire team looked crushed. But suddenly, you heard your school's name and felt a tug from your grinning teammates. You heard the crowd cheer for you and with a thrill went up to accept your medal.

NOTES

1. It is possible that some forms of affect regulation may serve important adaptive functions. For example, in many situations, the anticipation of negative emotions such as guilt, remorse, or sadness serves the function of deterring undesirable behaviors. However, once the behavior has been done, the emotional punishment may no longer serve much of a useful function and may, in fact, be debilitating. In such cases, affect regulation may actually promote the effective functioning of the individual.

2. There is, however, some question of whether people would actually desire disembodied pleasures that are not accompanied by action and "real" experience. See, for example, Nozick's (1974) discussion of an "experience machine."

3. Other factors, such as the ease of use, may also influence the decision to use different strategies; these could potentially be subsumed as dimensions of effectiveness.

4. People's intuitive theories about psychological processes often have as big an influence on their behavior as the processes themselves, as illustrated by the vastly different effects of alcohol and marijuana on driving. Although both drugs impair driving and judgment, alcohol makes one feel more competent and aggressive, which encourages one to drive fast, while marijuana makes one feel less competent and causes one to drive more slowly (Kalant, Corrigall, Hall, & Smart, 1999). As a result, alcohol is a much larger contributor to accidents and fatalities, even after controlling for differences in use of the two drugs.

5. It should be acknowledged, however, that people could be *implicitly* aware of what works though unable to articulate their knowledge. To the extent that this is the case, studying people's conscious intuitions is unlikely to be fruitful.

6. For a review of other process models of emotion regulation see Carver and Scheier's (1982, 1990) control theory model, where affect is used as feedback regarding an individual's progress toward controlling one's goals. In addition, see Larsen's (2000) model in which he proposes that people have a setpoint for how they typically desire to feel and affect is regulated only when there is a discrepancy between their current state and their setpoint.

7. It is important to note that the type of suppression typically addressed in the emotion regulation literature is *expressive* suppression (e.g., Butler et al., 2003; Gross, 1998a; Gross & Levenson, 1993, 1997; Richards & Gross, 1999), rather than suppression of subjective feelings.

8. Limiting the definition of affect regulation in this fashion also tends to limit the focus of inquiry to *short-term* strategies that can be implemented in the midst of an affect-inducing experience.

9. It is possible that before rationalizing an act of unethical behavior one's brain might engage in some form of implicit, unconscious, affective forecast to the effect that the rationalization will make one feel better. However, it seems more likely that rationalization tends to be a more reflexive reaction to the immediate feeling of guilt or shame.

10. In addition to the experiential, behavioral, and physiological consequences of suppressing emotions, several studies have examined the cognitive and social consequences of *expressive* suppression (e.g., Richards & Gross, 1999, 2000; Butler et al., 2003). Most of these have obtained results parallel to those focusing on thought and emotion suppression; although expressive suppression is often possible, it appears to be an ineffective, and indeed possibly counterproductive, means of inhibiting the emotions themselves.

11. Not that strategies 3 and 4 could be interpreted as antecedent- and emotion-focused forms of suppression.

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