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Does Emotion Regulation Help or Hurt Self-Regulation?

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One of the most far-ranging insights in modern psychology is that people have the capacity to actively take charge of their own behavior. Although people sometimes passively or impulsively let things happen, this is far from inevitable. Even in the face of mounting situational pressures, people can stick to their own grounds and act in accordance with their personal beliefs, goals, or moral principles. This remarkable ability allows for higher-order processes such as the self to guide behavior and is therefore central to self-regulation (Baumeister, Schmeichel, & Vohs, in press; Carver & Scheier, 1999). At the same time, the capacity for active control is a vital aspect of emotion regulation, the task of managing one's emotional life (Gross & Thompson, 2007; Koole, 2008a).

Over the past two decades, the study of self-regulation and the study of emotion regulation have each inspired a wealth of empirical and theoretical work (for recent reviews, see Baumeister et al., in press; Koole, 2008a; for comprehensive overviews, see Gross, 2007; Baumeister & Vohs, 2004). Nevertheless, the interface between self-regulation and emotion regulation has so far received little attention. How emotion regulation relates to self-regulation is less than straightforward, given that prevailing ideas about this matter at least superficially contradict each other. Whereas some theorists have proposed that emotion regulation interferes with self-regulation (e.g., Tice, Bratslavsky, & Baumeister, 2001), others have assumed that emotion regulation facilitates self-regulation (e.g., Koole & Kuhl, 2007). Assuming that each of these ideas has at least a kernel of truth, the role of emotion regulation in self-regulation seems complex and in need of further theoretical analysis.

In the present chapter, I take a closer look at the role of emotion regulation in self-regulation. In the following paragraphs, I begin considering by previous work showing that emotion regulation may interfere with self-regulation by side-tracking people's self-regulatory priorities or by competing for self-regulation resources. After this, I discuss recent work demonstrating that some forms of emotion regulation can facilitate effective self-

regulation. Finally, I consider how these different functions of emotion regulation in self-regulation can be incorporated in a theoretical model of emotion regulation.

Emotion Regulation Can Side-Track Self-Regulation

The terms “self-regulation” and “emotion regulation” have been defined in numerous ways, so it is useful to state explicitly how these terms are used in the present chapter. Broadly considered, the term self-regulation denotes the set of psychological processes through which people bring their thoughts, feelings, and behavior in line with abstract standards, goals, or values (Baumeister, Heatherton, & Tice, 1993; Carver & Scheier, 1999). However, this definition does not distinguish between emotion regulation and self-regulation, which would render any discussion about their mutual relation meaningless. In the present chapter, I therefore use the term self-regulation in a more narrow sense, to include only cognitive and behavioral forms of self-regulation.

Emotion regulation refers to the set of processes whereby people manage their own emotional states (Koole, 2008a). Although the term “emotion regulation” is sometimes reserved for the regulation of specific, subjectively experienced emotions such as anger or fear, I use the term more liberally, to apply to the regulation of any emotionally charged state, including specific emotions such as anger or sadness, global moods such as depression and euphoria, general stress responses, and rapid affective reactions that may or not be consciously experienced. I acknowledge that regulating each of these emotional states may well involve some different psychological processes (see e.g., Forgas, 2001). Nevertheless, all emotional states involve “core affect” (Russell, 2003) and as such their regulation is likely to have important aspects in common. In the present context, these common aspects of regulating various emotion-laden states are more important than their potential differences.

A widespread assumption about emotion regulation is that it is directed towards maximizing pleasure and minimizing pain. In other words, emotion regulation is traditionally believed to be hedonistically oriented. As we shall see later on, not all forms of emotion

regulation are in fact characterized by a hedonistic orientation (Erber, 1996; Koole & Kuhl, 2007; Rothermund, Voss, & Wentura, in press). Nevertheless, there is evidence that emotion regulation often operates according to hedonistic principles (e.g., Boden & Baumeister, 1997; Roese & Olson, 2007). Hedonistic forms of emotion regulation are developmentally primary (Kopp, 1989) and remain a robust tendency throughout adulthood (Roese & Olson, 2007). Accordingly, it makes sense to start by asking how hedonistic emotion regulation influences self-regulation.

Perhaps the most basic difference between self-regulation and hedonistic emotion regulation relates to their different time perspectives. Self-regulation is inherently future-oriented, and thus involves a time perspective that extends well beyond the individual's present state. Indeed, self-regulatory efforts are typically made in the service of goals that people pursue over the course of several weeks, months, years, or even decades (Little, 1993). In the short run, self-regulation is costly because it consumes energy and attentional resources (Muraven & Baumeister, 2000) and because it often leads people to forego immediate rewards in favor of rewards that will be received in a more or less distant future (Martin, 1999). By contrast, hedonistic emotion regulation is oriented towards the immediate present, because people's emotional dynamics unfold directly in real time. Moreover, in as far as it is successful, hedonistic emotion regulation is instantly rewarding to people, by promoting more hedonically agreeable emotional states.

Given these profound differences in time perspective, hedonistic emotion regulation may easily run into conflict with self-regulation. More specifically, hedonistic emotion regulation and self-regulation conflict whenever long-term goals require people to forsake an immediate pleasure, such as foregoing high-calorie foods or refraining from illicit sex. This type of conflict has been extensively studied in *delay of gratification* research (for a review, see Metcalfe & Mischel, 1999). In this classic line of research, participants are offered the choice between a small reward that they can enjoy right away (e.g., a tasty snack) versus a

large reward that they can collect after waiting for an unspecified amount of time (e.g., two tasty snacks). The amount of time that participants are able to wait for the larger reward indexes their ability to delay immediate gratification. A major conclusion from this work is that delay of gratification is facilitated by taking a “cool” approach, by cognitively representing the objective than the emotional aspects of tempting stimuli. Such cool processing has been found to stifle the emotional impact of a stimulus (Gross, 1998). Coolly approaching temptations is thus likely to inhibit hedonistic emotion regulation.

To the extent that hedonistic emotion regulation conflicts with self-regulation, any factor that shifts people’s priorities towards emotion regulation may impair self-regulation. For instance, when people are experiencing acute emotional distress, they may care less about their long-term goals and be more inclined to give in to momentary, immediately gratifying urges. Evidence for such a sidetracking process was recently found by Tice, Bratslavsky, and Baumeister (2001). In a series of experiments, individuals who experienced emotional distress were found fail self-regulation more frequently than individuals who experienced no such distress. For instance, following a negative mood induction, participants were more likely to eat fattening foods and procrastinated more in preparing for an upcoming test. Importantly, the undermining effects of emotional distress on self-regulation were eliminated when participants were made to believe that their moods were artificially “frozen” by ingesting a pill that was given to them by the experimenters. Emotional distress thus undermined self-regulation only when participants were motivated to engage in emotion regulation, consistent with the idea that this undermining effect was due to shifting priorities towards hedonistic concerns.

Emotion Regulation Can Deplete Self-Regulatory Resources

Emotion regulation is not invariably directed at obtaining immediate gratification or avoiding emotional distress. For instance, upon meeting someone who has suffered a tragic loss, it is highly inappropriate to crack jokes and display a cheerful mood. Thus, in this type

of situation, most people presumably try to avoid any displays and even the experience of positive emotion. In fact, many social situations offer prescriptions concerning the most appropriate ways of emotional responding (Erber & Erber, 2000). Although socially prescribed emotions may come natural to people, this will not always be the case.

Accordingly, it seems plausible that the social context frequently requires people to modify their spontaneous emotional reactions to events.

According to Erber's (1996) social constraints model, the social context exerts a powerful influence on emotion regulation. Indeed, socially normative forms of emotion regulation may overrule people's hedonic concerns, leading people to inhibit positive emotions or tolerate negative emotions. For instance, Erber, Wegner, and Therriault (1996) reasoned that neutral moods are most appropriate in interacting with strangers, because it is uncertain whether such interactions will be positive or negative. Accordingly, people who expect to interact with strangers are likely to down-regulate their current moods, regardless of whether this mood is positive or negative. This reasoning was experimentally confirmed in a number of studies. Because anticipated social interaction is a ubiquitous aspect of everyday life, emotion regulation may often be normatively rather than hedonistically oriented.

Normative emotion regulation resembles self-regulation in many respects. Indeed, normative emotion regulation may be regarded as a particular form of self-regulation (Erber & Erber, 2000). The basic connection between emotion regulation and self-regulation has been corroborated by recent neuro-imaging studies (for a review, see Ochsner & Gross, 2005). In this work, researchers have examined dynamic patterns of brain activations when people were either instructed to maintain or inhibit their emotions while viewing emotion-eliciting stimuli. As it turns out, these emotion regulation instructions activate some of the same brain regions that are involved in effortful self-regulation, including distinct regions of the prefrontal cortex and anterior cingulate cortex (Davidson, Putnam, & Larson, 2000; Ochsner et al., 2002; Tracey et al., 2002). Because emotion regulation was manipulated via

explicit instruction in these studies, they likely involved normative emotion regulation. Thus, there appears to exist a common neurological basis for normative emotion regulation and other types of self-regulation.

Ironically, normative emotion regulation may interfere with self-regulation precisely because of the strong similarities between the two types of regulation. This is because normative emotion regulation and self-regulation are likely to compete for the same kinds of psychological resources. For instance, people who are preoccupied with controlling their emotions display poorer performance for other regulatory activities that are carried out during emotion regulation, such as monitoring ongoing social interactions (Richards & Gross, 2000). Thus, normative emotion regulation and self-regulation may compete for attentional resources. The two types of regulation may also compete for energy resources. Recently, research has found growing support for an energy model of self-regulation (for reviews, see Gaillot & Baumeister, 2007; Muraven & Baumeister, 2000), which suggests that self-regulation relies on a limited energy source that becomes depleted with use. Consistent with the model, people are more prone to fail at self-regulation after performing an initial act of self-regulation (Muraven & Baumeister, 2000). Thus, if normative emotion regulation is a form of self-regulation, then performing an act of self-regulation may impair subsequent attempts at normative emotion regulation and vice versa.

In a direct test of the regulatory depletion model, Schmeichel (2007, Study 3) found that performing a memory updating task, which presumably requires self-regulation, led participants to become worse at inhibiting their emotional expressions in response to an emotion-eliciting film clip. A follow-up experiment found support for the reverse sequence, such that participants who had exaggerated their emotional responses to a film clip, which presumably requires emotion regulation, led to poorer performance on a working memory test (Schmeichel, 2007, Study 4). Again, both aforementioned experiments manipulated emotion regulation via explicit instruction, so that they presumably involved normative emotion

regulation (Erber & Erber, 2000). Consequently, there are grounds to believe that normative emotion regulation and self-regulation are drawing upon similar energy resources. The implication is that normative emotion regulation has a competitive relationship with behavioral self-regulation. The more individuals devote their energies to normative emotion regulation, the less energy will remain for self-regulating their behavior. Conversely, the more individuals devote their energies to behavioral self-regulation, the less energy will remain for normative emotion regulation.

As an aside, the resource-demanding nature of self-regulation may sometimes, rather paradoxically, facilitate emotion regulation. This is because emotion processing, much like emotion regulation, takes up cognitive resources, such as attention and working memory capacity (Siemer, 2005). Providing people with a cognitively demanding task can thus take their mind off their currently experienced emotions (Erber & Tesser, 1992). Recent studies indicate that tasks which load working memory capacity are particularly effective in clearing the mind of negative feelings (Van Dillen & Koole, 2007) and in reducing the activation of emotional brain circuits (e.g., the amygdalae; Van Dillen, Heslenfeld, & Koole, 2007). Because working memory is implicated in many forms of self-regulation (Jostmann & Koole, 2006; Schmeichel, 2007), this work suggests the provocative idea that self-regulation may facilitate emotion regulation primarily when people's self-regulatory efforts are not directly targeted at their emotions.

Can Emotion Regulation Facilitate Self-Regulation?

So far, the evidence that we have covered indicates that emotion regulation undermines self-regulation. However, there is more to say about the impact of emotion regulation on self-regulation. As it turns out, some theorists have proposed the opposite notion, namely, that emotion regulation facilitates self-regulation. To appreciate this theoretical argument, it is useful to take a step back and consider the more fundamental relation between emotion and cognition. Emotion and cognition have long been regarded as

separate and antagonistic entities, at least in Western culture. From this traditional perspective, emotions are largely sources of bias and irrationality, by hijacking people's minds (Goleman, 1995) and compelling people to surrender to their immediate impulses and lower animal instincts. By contrast, cognition has traditionally been regarded as a more sophisticated psychological function, which allows people to perform highly complex symbolic transformation on environmental inputs, and leading people to transcend the here and now by behaving in line with more abstract goals and principles.

Recent advances in cognitive psychology and in cognitive-affective neuroscience have challenged traditional views of emotion and cognition. Emotional circuits are widely distributed across the brain (Duncan & Barrett, 2007). Consequently, the architecture of the brain does not support a strict separation between emotion and cognition. Rather, cognitive and emotional circuits are continually interacting. For instance, the amygdalae, one of the most widely documented centers of the emotional brain (LeDoux, 1995), have extensive connections with the sensory cortex, which presumably leads to greater sensory processing of emotion-laden stimuli (Duncan & Barrett, 2007). Behavioral studies indicate that the emotional modulation of cognition extends to self-regulatory functions. For instance, positive emotion helps to improve self-regulation after people's energy levels have been depleted by an initial act of self-regulation (Tice, Baumeister, Schmeuli, & Muraven, 2007). In a related vein, decreases in negative emotion promote insight into the self's emotional preferences (Baumann, Kaschel, & Kuhl, 2005; Baumann & Kuhl, 2003).

How emotion modulates self-regulatory functioning is the central focus of *personality systems interactions theory* (PSI theory; Kuhl, 2000; Kuhl & Koole, 2004), which offers a broad analysis of human motivation and personality processes. PSI theory assumes that dynamic changes in positive and negative emotion, whether subjectively experienced or not, are instrumental in activating and deactivating specific self-regulatory functions. For instance, maintaining an intention in working memory is facilitated by decreases in positive affect,

whereas increases in positive affect facilitate the behavioral implementation of intentions (Kuhl & Kazén, 1999; Kazén & Kuhl, 2005). Flexible self-regulation of intentional action must therefore be closely coordinated with the dynamics of positive emotion. Notably, no single emotional state invariably supports self-regulation. Chronically elevated levels of positive emotion, though hedonically rewarding, are likely to promote impulsivity rather than self-regulation, given that low positive emotion is required to maintain intentions in working memory (Kuhl & Kazén, 1999). Conversely, chronically low levels of positive emotion, though characteristic of a “cool” state of mind (cf. Metcalfe & Mischel, 1999), are likely to promote indecision rather than self-regulation, given that positive emotion is needed to implement intended actions (Kuhl & Kazén, 1999). Emotional *changes*, rather than any emotional state in particular, are assumed to underlie successful self-regulation (Kuhl, 2000; Koole & Kuhl, 2007).

The emotional changes that are needed for effective self-regulation may be induced either from the outside, through supportive social relationships, or by the person him- or herself. In the latter case, emotion regulation is recruited in the service of the person’s broader self-regulatory functioning. Emotion regulation in this sense is aimed at coordinating between the person’s emotion states and the regulatory demands of the situation. More generally, PSI theory assumes that this form of emotion regulation helps to maintain a global balance among the person’s motivational, cognitive, and emotional functions, and thus to preserve the overall integrity of the person’s psychological system. Accordingly, I refer to this as system-oriented or systemic emotion regulation. PSI theory proposes that systemic emotion regulation should be a powerful facilitator of successful self-regulation. Indeed, self-regulation may succeed only to the extent that people either possess well-developed competencies at systemic emotion regulation or adequate external emotional support (Koole & Kuhl, 2007).

How may people regulate their emotions in a system-oriented manner? One important way in which this can be accomplished is through *counter-regulation* (Rothermund, Voss, &

Wentura, in press). According to the counter-regulation principle, people allocate attention to information that is opposite in valence to emotional states that are currently activated by the situation. Because counter-regulation is closely attuned to situational changes, it is likely to promote dynamic emotional changes. Moreover, by short-circuiting whatever emotional response has become momentarily activated, counter-regulation helps people maintain “emotional homeostasis” (Forgas & Ciarocchi, 2002) and prevents people from becoming locked into particular emotional states (Rothermund et al., in press). Counter-regulation is therefore likely to promote the emotional flexibility that, according to PSI theory (Kuhl, 2000), is vital to effective self-regulation.

Empirical Evidence for Counter-Regulation

Though the foregoing arguments seem reasonable, it remains to be seen if people actually engage in systemic forms of emotion regulation such as counter-regulation. Relevant to this question, several recent studies have found evidence for a normative pattern of counter-regulation among psychologically healthy individuals (e.g., Forgas & Ciarocchi, 2002; Rothermund, 2003; Rothermund et al., in press). These findings provide important preliminary evidence for counter-regulation processes. However, if counter-regulation indeed supports flexible self-regulation, the pattern should be especially apparent among individuals who display high levels of self-regulatory efficiency. My associates and I have recently tested this line of reasoning across a series of studies.

To assess individual differences in self-regulatory efficiency, we used the demand-related subscale of the Action Control Scale (ACS90; Kuhl, 1994a). The ACS90 is a well-validated measure that predicts self-regulatory success across a wide variety of domains, including work, health behavior, academic performance, and sports (for overviews, see Diefendorff, Hall, Lord, & Streat, 2000; Kuhl & Beckmann, 1994). Illustrative items are presented in Table 1. Scores on the action control scale are summed to create a continuous measure of individual differences in self-regulatory efficiency. Nevertheless, for the sake of

convenience, individuals with high scores on the scale are often contrasted with individuals with high scores on the scale. Individuals with relatively high scores on the action control scale are usually referred to as “action-oriented” individuals, whereas individuals with low scores on the scale are referred to as “state-oriented” individuals.

Our key hypothesis was that action-oriented individuals would be more prone to display counter-regulation than state-oriented individuals. Note that counter-regulation is not a single emotional response, but a rather pattern of emotional responding to different situational demands. We therefore manipulated level of demand in our experiments, for instance, by leading participants to visualize a demanding versus an accepting interaction partner (e.g., Koole & Jostmann, 2004) or inducing high versus low cognitive load during the experiment (Jostmann & Koole, 2007). Demanding conditions, particularly when they are sustained over time, can give rise to emotional distress, such as tension (Koole & Jostmann, 2004), excessive arousal (Heckhausen & Strang, 1988), listlessness (Kazén, Kaschel, & Kuhl, in press) and reduced subjective well-being (Baumann et al., 2005). We therefore predicted that action-oriented individuals would counter-regulate the emotional impact of demanding conditions, such that they would display more positive emotional responses under high rather than low demand. State-oriented individuals were not predicted to show this counter-regulation pattern, but were rather expected to display emotional responses that were congruent with the situation.

One of the first studies on action orientation and counter-regulation examined dynamic fluctuations in mood (Koole & Jostmann, 2004, Study 1). In the high demand condition, participants were told they had to solve a set of arithmetic sums later in the experiment for a monetary reward, a manipulation that should induce a prospective memory load (Goschke & Kuhl, 1993). Participants in the low demand condition were told that they would receive the same reward, but no mention was made of an upcoming task. All participants reported their mood states prior to, immediately after the demand manipulation,

and 5 minutes later. As expected, action-oriented participants displayed evidence of counter-regulation, such that they experienced a significant decrease in tense moods over the course of the experiment, but only after they had visualized a demanding interaction partner. State-oriented participants displayed no evidence of counter-regulation, but did experience a significant drop in tension upon hearing about the unexpected reward. The latter finding was not a priori predicted, but nevertheless fits with earlier findings that state-oriented individuals are highly receptive to external emotional support (Koole, Kuhl, Jostmann, & Vohs, 2005).

Additional work examined whether action orientation predicts counter-regulation of implicit affective processes. In one study designed to address this issue (Koole & Jostmann, Study 2), we assessed the impact of action orientation and manipulated demand in a so-called affective Simon task (De Houwer & Eelen, 1998), a task that measures unintentional interference of affective stimuli. The results again revealed counter-regulation among action-oriented individuals, who displayed significantly less interference of negative affect under high demanding than under low demanding conditions. State-oriented individuals displayed the reverse pattern. Subsequently, the association between action orientation and counter-regulation has been replicated across various other measures of implicit affective processing. For instance, high demanding conditions lead action-oriented individuals to become faster in recognizing happy faces among angry crowds (Koole & Jostmann, 2004, Study 3), and to inhibit negative affect in an affective priming task (Koole & Fockenberg, 2008), effects that are reversed under low demanding conditions or among state-oriented individuals. Action-oriented individuals can even counter-regulate the impact of subliminally presented affective stimuli (Jostmann, Koole, Van der Wulp, & Fockenberg, 2005; Koole & Van den Berg, 2005, Study 4).

Taken together, there is growing evidence that counter-regulation is more prevalent among action-oriented individuals than among their state-oriented counterparts. Action-oriented individuals also appear to be highly efficient at counter-regulation, given that they

display counter-regulation across both explicit and implicit levels of affective processing. Efficiency of counter-regulation seems highly adaptive, given that counter-regulation is assumed to support self-regulation. Counter-regulation therefore has to be effective even when individuals' focal attention is occupied by other self-regulatory activities. Thus, counter-regulation will function more effectively to the degree that it requires a minimal amount of conscious supervision.

Two lines of evidence more directly support the link between counter-regulation and self-regulation. First, there are indications that the self participates in the unfolding of counter-regulation processes. For instance, counter-regulation is mediated by an affirmed sense of the self (as indicated by faster self-evaluations) among action-oriented individuals (Koole & Jostmann, 2004, Study 3). Moreover, subliminally priming the self triggers counter-regulation among action-oriented individuals (Koole & Coenen, 2007). To the extent that the self is involved in counter-regulation, it seems likely that counter-regulation is closely coordinated with the executive functions of the self. Second, action-oriented individuals display improved self-regulation under highly demanding conditions, the same conditions that promote counter-regulation among these individuals. For instance, demanding conditions lead action-oriented individuals to display less Stroop interference (Jostmann & Koole, 2007), more efficient use of working memory (Jostmann & Koole, 2006), and speedier initiation of difficult intentions (Kazén et al., in press).

Theoretical Outlook:

A Control Systems Model of Emotion Regulation

Traditional wisdom has emphasized the fundamental antagonism between self-regulation and emotion regulation. From this perspective, self-regulation operates much like a faithful servant, which helps people to “do the right thing” in a dutiful, dispassionate manner. Emotion regulation, by contrast, has been portrayed as a much more frivolous character, which leads people to indulge in immediate pleasures, and to avoid painful experiences that

could be conducive to long-term well-being.

In the present chapter, I have rendered a more complex, but hopefully more realistic picture of the interface between self-regulation and emotion regulation. Specifically, I have reviewed three basic ways in which emotion regulation relates to self-regulation. First, emotion regulation can sidetrack self-regulation, by overriding long-term considerations in favor of more immediate hedonic concerns (Tice et al., 2001). I have referred to this process as hedonistic emotion regulation. Second, emotion regulation can deplete self-regulatory resources, and thus interfere with people's subsequent efforts at self-regulation (Schmeichel, 2007). Because this type of emotion regulation typically relies on explicit norms, I have labeled this normative emotion regulation. Third and last, emotion regulation can facilitate self-regulation, by coordinating people's emotional states with the regulatory demands of the situation (Koole & Kuhl, 2007). Because the latter type of emotion regulation helps to maintain the overall balance of the psychological system, I have named this systemic emotion regulation.

Distinguishing between hedonistic, normative, and systemic emotion regulation thus helps to illuminate the relation between self-regulation and emotion regulation. The distinction is also central to a recent process model of emotion regulation, the *control systems model* (Koole, 2008b). In keeping with the present discussion, the control systems model assumes that there are three major functions of emotion regulation, which correspond to hedonistic, normative, and systemic emotion regulation. The control systems model further posits that that "form follows function", such that hedonistic, normative, and systemic emotion regulation are mediated by qualitatively different psychological processes. A brief characterization of the processes associated with hedonistic, normative, and systemic emotion regulation is provided in Table 2.

According to the control systems model, hedonistic emotion regulation is based on elementary cognitive processes, and makes only minimal reference to contextual constraints.

Because hedonistic emotion regulation focuses primarily on internal emotional processes, it is closely intertwined with basic need systems (e.g., Baumeister & Leary, 1995) and autonomous body systems (Niedenthal, 2007). Normative emotion regulation is assumed to depend on verbal-linguistic processing, which derives from its orientation towards on explicit goals and standards. Because normative emotion regulation depends to a large degree on conscious resources, it can focus on no more than a few goals at a time. Finally, systemic emotion regulation is assumed to rely on parallel-distributed information processing, which are capable of integrating vast amounts of information at speeds that are far greater than sequential information processing (McClelland et al., 1986; see Kuhl, 2000, on the application to emotion regulation). These parallel-processing abilities allow systemic emotion regulation to keep in touch many different subsystems that represent people's goals, motives, and other self-aspects, and to integrate the inputs of these different subsystems rapidly and efficiently.

The control systems model draws together various theoretical perspectives, including theories in motivation science, personality psychology, social cognition, and embodied cognition. Moreover, the model introduces a functional approach to emotion regulation, by connecting the functions of emotion regulation (why people engage in emotion regulation) with the process of emotion regulation (how people engage in emotion regulation). This functional approach complements contemporary process models of emotion regulation (e.g., Gross & Thompson, 2007), which have sought to understand emotion regulation by linking it to emotion generation processes. As emotion theorists have long acknowledged (Frijda, 1986), emotions only acquire their full psychological significance when they are considered in the context of people's actions. Any complete account of emotion regulation must therefore address the close interdependence between emotion regulation and self-regulation.

The interdependence between emotion regulation and self-regulation turns out to be very close indeed. Although at times, self-regulation and emotion regulation may be at odds with each other, the conflict between them is far from inevitable. In many cases, self-

regulation and emotion regulation overlap so much that they can hardly be separated, either empirically or conceptually (Erber & Erber, 2000). Even in situations when the distinction between self-regulation and emotion regulation is meaningful, emotion regulation often operates in the service of self-regulation, leading people's actions and emotions to function in unison. As such, it may be the successful coordination between self-regulation and emotion regulation that allows people to fully realize their capacity for active control.

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Table 1. Illustrative Items of the Action Control Scale (ACS90; Kuhl, 1994)

When I know I must finish something soon:

- A. I have to push myself to get started
- B. I find it easy to get it over and done with*

When I don't have anything in particular to do and I am getting bored:

- A. I have trouble getting up enough energy to do anything at all
- B. I quickly find something to do*

When I have to solve a difficult problem:

- A. I usually don't have a problem getting started on it*
- B. I have trouble sorting out things in my head so that I can get down to working on the problem

When I have a boring assignment:

- A. I usually don't have a problem getting through it*
- B. I sometimes just can't get moving on it

When I have to make up my mind about what I am going to do when I get some unexpected free time:

- A. It takes me a long time to decide what I should do during this free time
- B. I can usually decide on something to do without having to think it over very much*

Note. Action-oriented responses are marked with an asterisk.

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Table 2. Hypothesized Processes Associated with Hedonistic, Normative, and Systemic Emotion Regulation.

	<i>Hedonistic Emotion Regulation</i>	<i>Normative Emotion Regulation</i>	<i>Systemic Emotion Regulation</i>
<i>Prime directive</i>	Maintain positive hedonic balance (maximize pleasure, minimize pain)	Maintain emotions with reference to social norms or explicit goals	Maintain global coherence and flexibility of personality system
<i>Cognitive process</i>	Elementary, low-inferential processing; e.g., associative learning	Logical-linguistic reasoning, sequential processing	Parallel-distributed processing; largely implicit but partly explicable
<i>Relevant situational trigger</i>	Default strategy; low willingness or ability to engage in other types of regulation	Strong social or personal norms regarding appropriate emotional responding	Support of personal autonomy, long-term global focus
<i>Motivational orientation</i>	Basic physical and psychological needs	Single goal/small set of goals at a time	Multiple goals, needs, motives, self-aspects simultaneously
<i>Embodiment</i>	Close links with autonomous body functions	Limited access to bodily functions	Access to bodily functions
<i>Relevant individual differences</i>	Repression (Weinberger et al., 1979); avoidant attachment style (Mikulincer, Shaver, & Pereg, 2003)	Chronic suppression (Gross & John, 2003);	Action orientation (Kuhl, 1994b); secure attachment style (Mikulincer et al., 2003)
<i>Prototypical emotion regulation strategies</i>	Automatic attentional avoidance (Langens & Mörth, 2003); stress-induced eating (Green & Wing, 1994)	Expressive suppression (Gross, 1998); cognitive reappraisal (Gross, 1998)	Attentional counter-regulation (Rothermund et al., in press); mindfulness meditation (Cahn & Polich, 2006)