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Emotional Intelligence

A Process Model of Emotion Representation and Regulation

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For the better part of the 20th century, a fairly narrow view of intelligence prevailed. This view held that human intelligence consisted of a limited set of cognitive capacities. Indeed, for all intents and purposes, “intelligence” was what intelligence tests such as the Wechsler Adult Intelligence Scale—Revised (WAIS-R) or the Stanford–Binet Test measured. These tests involve the manipulation of neutral objects (words, numbers, puzzles, blocks) in contexts that are designed to hold motivational and emotional factors constant.

Cognition, characterized by flexible deployment of knowledge, clearly plays a crucial role in adaptive success. However, an exclusively cognitive view of intelligence misses the important adaptive functions served by other psychological features responsible for our success. In an attempt to broaden traditional conceptions of intelligence, a number of researchers have focused on the role played by emotion in adaptive responding to environmental demands (see, e.g., Salovey & Mayer, 1980).

Emotions such as anger, sadness, and disgust represent “best guesses” as to what an individual in a certain general class of situation should do (Tooby & Cosmides, 1990). Emotions prepare an individual to make rapid motor responses (Frijda, 1986), and help to sculpt adaptive social functioning by tailoring cognitive style (Clore, 1994) and flexibly scripting complex social behavior (Averill, 1980). Mounting neuropsychological evidence sug-

gests that impaired emotion systems leave an individual unprepared for dealing with complex social situations (Damasio, 1994).

Importantly, however, although emotions *may* contribute to adaptive behavior, they do not *always* do so. Optimal emotional responding results when individuals shape their emotions by regulating how these emotions are experienced or expressed. Such a process involves two major elements: accurately tracking one's ongoing emotional state, and knowing when and how to intervene to shape the emotion trajectory as needed.

In this chapter, we consider the place of emotional processes in intelligent behavior, a domain now known as the study of emotional intelligence. Our goal is not to provide a general review of the emotional intelligence area, but rather to suggest a more focused treatment that is rooted in the processes associated with emotion generation and modulation. Our general thesis is that emotional intelligence requires that individuals appreciate (1) how they are responding emotionally and (2) how they can shape the emotion as it unfolds. Emotions can be generated and regulated in better or worse ways, and how individuals go about doing this shapes their adaptive success.

THE TRADITIONAL VIEW OF EMOTIONAL INTELLIGENCE

Emotional intelligence refers to an interrelated set of abilities that allow an individual to recognize, use, and regulate emotion in an efficient and productive manner, thereby allowing effective dealings with the environment. Because emotionally intelligent individuals are more socially effective, definitions of the concept in the popular press (see, e.g., Bar-On, 1997; Goleman, 1995) have included personal attributes more generally related to effective personal and social functioning (for a review, see Mayer, Salovey, & Caruso, 2000). More scientific treatments have defined emotional intelligence in terms of mental abilities rather than in terms of broad social competencies. In their groundbreaking work, Mayer, Salovey, and colleagues have defined emotional intelligence to include four major elements (Mayer & Salovey, 1997; Mayer et al., 2000; Salovey & Mayer, 1990). These elements include emotion perception, emotion assimilation, emotion understanding, and emotion regulation.

First, the emotionally intelligent person can accurately identify emotion. Such identification takes place in three domains. These include his/her own emotional experiences (i.e., differentiating between discrete emotional experiences like anger, sadness, and fear); the emotional experiences of others (i.e., discerning the experience of others by reading facial expressions or listening to language use or intonation); and the emotional signal value at-

tributed to objects (e.g., identifying the emotional experience evoked by artwork or music).

Second, not only does the emotionally intelligent person perceive emotion correctly, he/she also uses emotion to help shape judgment and behavior. Emotion may direct attention to important information in the environment (Mandler, 1984), thereby influencing information processing (see, e.g., Christianson, 1992; Forgas, 2000; Niedenthal & Kitayama, 1994), guiding judgment about past or current events (Clore & Parrott, 1991; Schwarz, 1990; Schwarz & Clore, 1983, 1996), and facilitating decision making about future events (although work on affective forecasting indicates that people generally are not terribly accurate in predicting how they will feel in response to a future event; Gilbert & Wilson, 2000).

Third, the emotionally intelligent person has a rich emotion knowledge base. This knowledge includes the abstract cause of the experience; the meaning of the situation to the individual and his/her immediate goals, bodily sensations, and expressive modes (i.e., display rules for expression); how the emotion functions interpersonally; and sequences of action to take to enhance or reduce the experience (i.e., plans of emotion management) (Mesquita & Fridja, 1992; Shweder, 1993). Such an emotion database makes it possible for the individual to function effectively in a variety of social contexts.

Fourth, the emotionally intelligent person engages in efficient emotion regulation in both self and others. He/she is able to reflectively monitor both positive emotion (see Fredrickson, 1998, for the use of positive emotions in broadening and building) and negative emotion (see Parrot, 1993, for the functional utility of negative emotions) in both self and others. This monitoring makes it possible for the individual to strategically manage emotion in self and others to produce the desired outcome in a given situation.

As it is currently articulated, the traditional view of emotional intelligence seems to make two assumptions: First, one's own or another's emotions are seen as fixed entities about which correct and incorrect judgments can be made (Mayer, Caruso, & Salovey, 1999). Presumably, the accurate detection of an emotional response in another person can be indexed by comparing an individual's response to that which the target reports or that which is consensually agreed upon (see, e.g., Mayer et al., 1999; Mayer & Geher, 1996). Second, emotional intelligence is seen as a static set of abilities, ranging from reading emotion expressions in another person's face to altering one's own emotional responses (Mayer et al., 1999). No particular ability is privileged above the others, and emotional intelligence is treated as though it were a global trait, even though its components might seem to involve quite divergent processes.

By way of contrast, we see emotions as fluid, emergent phenomena

that result from the interplay of implicit and explicit processes (see, e.g., Izard, 1993; Lane, Nadel, Allen, & Kaszniak, 2000; see also K. N. Ochsner & L. Feldman Barrett, Chapter 2, this volume). This means that there is no one target for correct or incorrect evaluation, either in self or others.¹ Rather than referring to a static, graded capacity based on a fixed set of abilities, we view emotional intelligence as a set of related processes that allow an individual to successfully deploy mental representations in the generation and regulation of the emotional response as it unfolds over time.

EMOTIONAL INTELLIGENCE: A REVISED VIEW

We begin with the premise that an emotional response is an emergent phenomenon and that the processes that produce and modify its trajectory are at the root of emotional intelligence. Based on a distillation of major points of convergence among emotion researchers (see Gross, 1998a), we view emotion as originating with the evaluation of external or internal emotion cues. Emotions arise automatically via implicit processing, such as when we recoil fearfully from a snake (LeDoux, 1996), or they may also require considerable meaning analysis, such as when we grow angry after receiving an insult (Lazarus, 1991). In either case, the evaluations can be associated with behavioral, experiential, and physiological emotional response tendencies that facilitate responding to perceived challenges and opportunities. But this is not the end of the story: individuals can modulate these response tendencies, thereby modifying the resulting emotional responses.

From this perspective, emotions can be considered modes with anticipated or probable trajectories (involving an automatic set of responses) that may be modified by an executive mode of functioning that is—at least initially—deliberate and flexible. The automatic responses to a class of objects may be due to temperamental differences or to overlearned responses involving both subcortical and cortical brain centers; this aspect of the emotional response feels reflex-like. Because there is often continuity between our automatic emotional responses and our varying life circumstances, these automatically executed responses serve us well much of the time. When a response does not match the circumstance, however, we intervene by deliberately deploying emotion knowledge with varying degrees of flexibility and efficiency to modify either our experience or our expression of emotion. Both automatic responses and deliberate control processes contribute to individual differences in the ability to optimally function in a varying social context and therefore in our view constitute central components of emotional intelligence.

A process conception of emotion suggests a number of points at which individuals might differ in terms of emotion generation and emotion regu-

lation. We believe two of these deserve special consideration due to their central role in generating meaningful individual differences in emotional intelligence. The first has to do with how emotions are represented. If an individual is not aware of an emotional response or represents it in poorly differentiated terms, it seems unlikely that the emotion will be employed (or regulated) to full advantage. The second point at which we believe meaningful individual differences in emotional intelligence might arise has to do with how and when emotions are regulated. It is not enough to simply know which emotions one is experiencing. One also needs to be able to flexibly regulate emotions in appropriate ways so as to maximize the degree to which they are tailored to the particular situation. In the following subsections, we focus on these two critical processes, emotion differentiation and emotion regulation.

Emotion Differentiation

An emerging literature suggests that there are individual differences in emotional complexity (Carstensen, Pasupathi, & Mayr, in press; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990; Lane & Schwartz, 1987; Lane et al., 1996; Larsen & Cutler, 1996). Although happiness, fear, sadness, hostility, guilt, surprise, and interest are considered discrete either for psychobiological (see, e.g., Ekman, 1992; Izard, 1977) or social (see, e.g., Stein & Trabasso, 1992) reasons, evidence suggests that there is great variability in the representation of emotional experiences as discrete. The tendency to generate discrete emotional responses ranges along a continuum, with those who report global mood states at one end and those who report highly differentiated responses at the other.

Emotion differentiation has most often been studied using experience-sampling methodology (Carstensen et al., in press; Feldman, 1995a; Feldman Barrett, 1998a, 1998b; Larsen & Cutler, 1996). In the experience-sampling studies to be discussed here, individuals provided ratings of their emotional experience at randomly sampled times throughout the day for some period of time. An analysis of the resulting correlation matrix provides a clue to the degree of discreteness in the individual's emotional response. Emotions should be experienced separately from one another for some proportion of the time to support the claim that they are discrete and experientially separate from one another. Such a pattern of experience would produce moderate-to-small correlations between similarly valenced emotional experiences (e.g., sadness, anxiety, and anger; relaxation, happiness, and enthusiasm), with the result that emotion labels like *happy* or *sad* are being used to represent distinct and specific emotional experiences. Large correlations between such states would indicate that the different unpleasant states or the different pleasant states are not meaningfully differen-

tiated from one another. At any given moment different negative states such as anger, sadness, and fear are not discriminated from one another, nor are different positive states such as happiness, relaxation, and enthusiasm. The result is that emotion labels like *happy* and *sad* are being used as proxy indicators of general pleasantness or unpleasantness.

Recent evidence from several experience-sampling studies indicates that there are stable individual differences in how people go about the process of applying emotion knowledge to affective feeling, leading to differences in emotional differentiation and presumably to differences in emotional intelligence (Feldman, 1995a; Feldman Barrett, 1998a). Some individuals use discrete emotion labels to name their feelings in a distinct and specific fashion, as evidenced by smaller correlations between like-valenced states and by more distinctiveness in their use of emotion labels across time. Others use emotion labels as proxies for general affective feelings (“I feel good” or “I feel bad”) rather than to denote distinct experiences, as evidenced by large positive correlations between self-reports of similarly valenced emotional states across time. Such a strong degree of co-occurrence between discrete emotional states indicates that these individuals do not meaningfully separate those emotions in conscious experience and calls into question whether the subjective emotional states are indeed distinct for these individuals. These individuals seem to represent their emotional experiences in an undifferentiated fashion along a single pleasant–unpleasant dimension, because their use of discrete terms conveys no unique information about the particular state itself.

It might be argued that there is a distinction between the conscious labeling of emotional experience and the biological responses that underlie that experience. From this perspective, emotion differentiation in self-report may say little about variations in emotional responses per se because subjective experience represents only the translation of biological phenomena into consciousness. We would argue, however, that in the absence of objective criteria to reference emotional experience, studies of that experience must be based on self-reports that are, of necessity, consciously given. Studying conscious reports of experience is not distinct from studying true emotion, because the same representations of emotion knowledge are likely used in the emotion generation process whether or not the person is aware of having done so (see Ochsner & Feldman Barrett, Chapter 2, this volume). From this perspective, individual differences in how people consciously represent their affective experience using emotion language might have something to tell us more generally about how individuals experience emotion with different levels of granularity, and such differences should have important implications for their emotional lives.

Understanding the concomitants of individual differences in emotion differentiation help us to identify and understand the processes that might

be important to emotional intelligence. We identify three different processes associated with emotion generation that might influence emotion differentiation specifically, and emotional intelligence more generally: (1) the availability of emotion knowledge, (2) the accessibility of such knowledge or motivation to use it in the generation of discrete emotional experience, and (3) the cognitive resources to use the knowledge in any given instance.

Availability of Emotion Knowledge

Emotion differentiation does not seem to be related to the availability of general semantic knowledge about emotion, but rather seems to be determined by the deployment of such knowledge. Mental representations of emotion begin with two primary dimensions stored in semantic memory: valence and activation (Feldman Barrett & Fossum, 1999; Russell, 1980; Russell & Feldman Barrett, 1999; Russell, Yik, & Feldman Barrett, 1999).² Valence refers to the hedonic quality or pleasantness of an affective experience, and activation refers to the subjective sense of arousal associated with an affective experience. These two semantic components are often represented a circumplex configuration with discrete emotion terms arrayed around the circumference of a circular structure anchored by valence and arousal dimensions (Remington, Fabrigar, & Visser, 2000; Russell, 1980). Emotion terms are thought to array in a circumplex format because valence and activation feelings are a component of each emotion representation (Russell & Feldman Barrett, 1999). This mental representation is essentially nomothetic. It has been identified in participants of different ages (Russell & Ridgeway, 1983; Russell & Bullock, 1985), from different cultures (see, e.g., Russell, 1983, 1991; Russell, Lewicka, & Niit, 1989), and in different groups of emotion terms (see, e.g., Block, 1957; Bush, 1973; Feldman, 1995b; Russell, 1980).

Although individuals share the same mental representation at this general level, they are thought to differentially weigh the semantic components to arrive at judgments of their own emotion states. This differential weighting produces two psychological characteristics associated with whether or not individuals label their own emotional experiences as distinct entities. Valence focus is defined as the extent to which individuals incorporate pleasantness or unpleasantness into their conscious affective experience. Arousal focus is defined as the extent to which individuals incorporate subjective experiences of arousal into a conscious affective experience. Individuals who are predominantly valence focused, that is, who give more weight to the pleasantness or unpleasantness of their emotional experiences, tend to differentiate distinct emotional experiences less frequently than do those lower in valence focus. In contrast, those who weigh valence and arousal semantic components more equally, that is, who are moderate in valence

focus while high in arousal focus, are more likely to label discrete emotional states as distinct experiences. Affective focus is computed by empirically comparing the semantic structure of emotion language to idiographically derived *P*-correlation matrices between affect ratings over time. It is possible that emotion differentiation may be related to other types of complexity in emotion representations, but thus far the evidence suggests that fine-grained emotional experiences, and perhaps emotional intelligence more generally, are more related to how people use what they know about emotion, rather than differences in what they know per se.

Accessibility and Motivation

Affective focus, as a proxy indicator of emotion differentiation, is related to two sets of personality characteristics that are, in turn, likely related to either the accessibility of emotion knowledge or motivation to construct discrete emotional experiences.

Individuals who are disproportionately focused on the valence of their experience describe themselves as higher on personality characteristics associated with motivational relevance and situational responsivity than do those who are lower in valence focus (Feldman Barrett, 1999). Motivational relevance is determined by the extent to which a situation touches upon a personal goal or concern; that is, it reflects the self-relevance or importance of the situation to the self. Judging a stimulus as self-relevant is a necessary first step in having a valenced emotional response. The stronger the motivational relevance, the more intense the emotional experience that results (Smith & Pope, 1992). Individuals who are high in valence focus are likely to judge many situations and cues as self-relevant, with the result that they more frequently generate intense valenced responses. Consistent with this evidence, individuals who are higher in valence focus also experience most interpersonal situations as having implications for their personal well-being and are highly reactive to changing situational cues, especially when those cues were negative (Feldman Barrett, 1999).

Individuals who focus more on the subjective experience of activation associated with their emotional experiences when labeling those experiences, thereby communicating more differentiated emotional responses, describe themselves as more introspective and sensitive to their internal state than do those who report undifferentiated emotional responses (Feldman Barrett, 1999). The significant relationship between arousal focus and reports of internal awareness does not necessarily indicate that high arousal focus individuals are more accurate in perceiving their bodily sensations, however. Subjective feelings of arousal are not illusions, but their relationship to actual neurophysiological substrates is complex and poorly understood (for a discussion, see Blascovich, 1992). In general, people tend to be

inaccurate perceivers of their own interoceptive cues (Katkin, 1985; Katkin, Blascovich, & Goldband, 1981; Pennebaker, 1982; Zillmann, 1983). If the use of arousal-based semantic knowledge to label emotional experiences is related to the accurate detection of bodily cues (called interoceptive sensitivity), then this would indicate that accurate detection of physiological information is related to discrete emotional responding. If, however, arousal focus is not related to accurate perceptions of bodily activation, then arousal focus might be related to response bias (i.e., the tendency to report somatic activity regardless of whether a bodily cue is present or not), which in turn would suggest that accurate perceptions of the body are not important to the experience of discrete emotional experiences. Pilot evidence suggests that arousal focus may indeed be related to interoceptive sensitivity (Feldman Barrett & Blascovich, 1994). The number of correct detections on a heartbeat detection task (hits plus correct rejections) displayed a curvilinear relationship to arousal focus, indicating that individuals who incorporated subjective perceptions of arousal into their emotional experience were doing so based on more accurate perceptions of at least one bodily signal.

Resource Allocation

There is some indirect evidence that emotion differentiation may be related to allocation of resources during the emotion-generative process. When mental representations associated with discrete emotion knowledge are applied in a top-down manner to construct a conscious representation of emotional experience, this cognitive work probably takes place via the executive functions of working memory (for a discussion of this topic, see Baddeley, 1986; Lane, in press; LeDoux, 2000).³ Working memory is a multicomponential system that mediates the processing and storage of internal representations. Working memory is implicated in tasks that require the storage and manipulation of internal symbolic cues, inhibition of prepotent but contextually inappropriate responses, and utilization of information from multiple sources (Gabrieli, Singh, Stebbins, & Goetz, 1996). The executive functions of working memory are thought to have limited resources, so that when the capacity is taken up with one processing task there are fewer resources left to deal with additional input. If working memory is involved in the conscious construction of discrete emotional experiences, then it should be the case that when working memory is taxed people will show less emotional differentiation and more valence focus in their emotional experience. To test this hypothesis, 38 participants made ratings of their emotional experiences and stressful life events over a 60-day period (Feldman Barrett & Aronson, 1998). It was predicted—and found—that on days that were more stressful, individuals showed larger valence focus (and less differentiation in their emotional experiences at a given mo-

ment) than on days that were less stressful. Thus, the coping resources required to deal with contextual demands may influence the degree of emotion differentiation displayed at particular moments. Note that this decrease in differentiation occurred at exactly the times when emotional specificity would seem most important, because specificity in emotional responding should have informational value to facilitate coping.

Moreover, individual differences in working memory capacity may influence the degree to which individuals differentiate their conscious emotional experience. Individual differences in working memory capacity account for variability in a range of intellectual abilities (e.g., reasoning, Kyllonen & Christal, 1990; problem solving, Carpenter, Just, & Shell, 1990; reading comprehension, Daneman & Carpenter, 1980) and may be related to individual differences in emotion differentiation specifically or emotional intelligence more broadly. Emotion generation, when it involves top-down or deliberative invocation of complex emotion representations, requires that an individual be able to multitask (that is, construct his/her subjective experience at the same time as performing other ongoing social or instrumental daily functions). Thus, individuals with greater working memory capacity may well have greater resources to generate discrete emotional experiences when under cognitive load than will individuals with smaller working memory capacity.

Summary

Together, the findings thus far suggest that one aspect of emotional intelligence, namely, the tendency to report distinct emotional experiences, may be related to a number of processes associated with the generation of discrete emotional responses. Individuals who communicate discrete emotional responses do not have a greater store of general emotion knowledge available, but they do seem to differ from those who report more global emotional states on a number of variables related to the accessibility of and motivation to use discrete emotion knowledge. Individuals with more differentiated emotional lives consider themselves moderate in motivational relevance (i.e., not every situation is goal relevant) and highly introspective, are moderately responsive to changing environmental circumstances, and may be more accurate in detecting interoceptive cues. It may also be the case that they have greater resources, in the form of working memory capacity, with which to construct discrete emotional experiences while continuing to multitask and process other aspects of an experience.

Emotion Regulation

Important as emotion differentiation is, it only takes one so far. One also must be able to skillfully employ this emotion knowledge about what one is

feeling so as to effectively regulate which emotions one has and how these emotions are experienced or expressed (Gross, 1998b). Indeed, we will argue that individual differences in emotion regulation constitute a second critical ingredient in emotional intelligence. But before we can address individual differences in emotion regulation, we need to have a better grasp on what people are doing when they try to regulate their emotions.

To begin to characterize emotion regulation as it occurs in everyday life, we (Gross & Richards, 2000) asked undergraduates to describe a recent occasion on which they tried to alter their emotions. Respondents had little difficulty with this task, and all were able to describe such an episode. Two representative responses are given below:

“On Saturday, I got some really bad news that a friend—my roommate’s mother—had died. So, I was really sad about that. I was kind of depressed all day, but then that night I went to a party, and so I guess I just tried to get in a party mood. You know, instead of being depressed and everything. I guess every time I would think about something sad, I would just try my hardest to . . . get my mind off of it. I think that was what I need[ed] most, which was to try and get my mind off it—that if I was talking with people and dancing and having fun, then I’d kind of forget about what was happening. And then if I started to feel a little bit down, I would try to, I don’t know, just like, get myself more into talking to friends or whatever. So mostly by distracting myself.”

“We had a paper that was given back in my class and my roommate actually is in that class also. And we got very conflicting grades. He got a very bad grade, and I got a very good grade. So he was angry. Of course actually I didn’t work very hard on this paper, so I got a really good grade and I was surprised. My roommate actually did some work and didn’t get a good grade, so he was very, very down about it. So I kind of had to cover my emotions. Instead of acting happy and surprised, I actually kind of lied to him when I said what I got on my paper because we did kind of similar work. So I had to kind of cover up—I was very happy inside, but at the same time, I didn’t want [that] to show up [to] my roommate because he’s my friend too. So I kind of put on my depressed face and you know, my academic sad face and said, ‘Oh well, I didn’t do well either.’ I guess I was trying to [change] my expressions on my face more than anything.”

As the first example suggests, emotion regulation may (and often does) involve down-regulating negative emotions. However, as the second example suggests, emotion regulation encompasses more than down-regulating negative emotions (Gross, 1999b). Individuals report that they attempt to

initiate, increase, maintain, and decrease both negative and positive emotions (Parrott, 1993). It also is important to note that emotion regulation involves more than altering emotion experience (e.g., trying not to feel bad), and might also include attempts to influence expressive behavior and physiological responding. Furthermore, although our method (which consisted of asking subjects to recall episodes of emotion regulation) ensured that the examples of emotion regulation given above are conscious, it is easy to imagine emotion regulation that occurs without conscious awareness. For example, individuals might hide their disappointment at an unattractive present (Cole, 1986) or turn their attention away from potentially upsetting material (Boden & Baumeister, 1997).

Emotion Regulatory Processes

One way to organize the potentially overwhelming number of emotion regulatory processes is to use the model of emotion generation described above and to identify five major points in the emotion-generative process at which individuals might intervene to influence the course of the emotion trajectory. These five points of flexibility (described below) seem likely candidates for sources of individual differences in emotionally intelligent behavior (for a more extended discussion, see Gross, 1998b).

The first is *situation selection*, which refers to approaching or avoiding certain people, places, or objects in order to influence one's emotions. Once selected, a situation may be tailored so as to modify its emotional impact. This constitutes *situation modification*. Importantly, situations differ in terms of how much they may be modified, but few situations indeed permit no latitude for situation modification whatsoever. Situations also vary in complexity, and *attentional deployment* may be used to select which aspect of a situation a person focuses on. This scheme calls to mind external situations; however, we mean to include internal "situations" as well, in which case attentional deployment may be used to select and modify imagined situations. Even after a situation has been selected, modified, and selectively attended to, it still is possible to alter its emotional impact. *Cognitive change* refers to selecting which of the many possible meanings will be attached to a given situation. It is this meaning that gives rise to emotional response tendencies, including behavioral, experiential, and physiological tendencies. Finally, *response modulation* refers to influencing these response tendencies once they have been elicited, for example, inhibiting ongoing expressive behavior.

To illustrate these distinctions, let's take the example of a couple planning an evening out (Gross, 1999a). Before they go out, one partner, aware of her shyness, vetoes several possible ways of spending the evening (e.g., a large party and a football game) because these settings would engender

negative emotions. They decide to have dinner at a restaurant that is usually quiet. They are seated near a boisterous group who have been drinking for some time. Knowing that sitting this close to a loud group would frustrate their plans for a quiet conversation, they ask to be reseated. Once reseated, they relax into dinner and conversation. Each partner chooses to attend to one thought or another and pursue one topic or another, in part due to the desire to experience certain emotions and not others. Toward the end of the evening, one partner remarks how rare it is for them to have such a nice evening out. Although this comment can be read either as a compliment or a criticism, the other partner interprets it as a compliment and responds in kind, saying how much fun it had been to have a nice evening out. The first partner makes the criticism explicit: They really haven't been going out enough. Although hurt by this comment, the recipient does not want to spoil the happy evening and does not express the hurt.

In terms of the example above, *situation selection* refers to choosing how to spend the evening so as to maximize pleasant feelings. Then, a bit later in the evening, *situation modification* refers to asking for a different table at the restaurant. *Attentional deployment* refers to how the couple actively select which avenues of discussion they will pursue and which they will drop, in part on the basis of their anticipated emotional impact. In our example above, *cognitive change* refers to how one person construes the meaning of an event, such as comment about how rarely the couple has such nice evenings out. *Response modulation* is illustrated here by one partner hiding hurt feelings toward the end of the evening.

Divergent Consequences of Different Forms of Emotion Regulation

This process analysis of emotion regulation makes it clear that *what* an individual is trying to achieve (e.g., a calm expression during a heated discussion) should not be confused with *how* an individual goes about achieving that goal. This is because that one goal may be achieved in a number of quite different ways, such as by cognitively reevaluating the situation or by simply biting one's lip. How might this distinction between the *what* and the *how* of emotion regulation matter? We believe such a process conception may help resolve the apparent tension between two broad literatures relevant to the down-regulation of negative emotion. These two literatures seem to reach diametrically opposed conclusions about the implications of emotion regulation for well-being (Gross, 1998a).

On the one hand, it seems clear that emotion regulation is necessary for psychological well-being. Indeed, clinical scientists since Freud (1926/1959) have emphasized that the way affective impulses are managed is of central importance to mental health. Although this traditionally has been the province of psychodynamic researchers, proponents of other theoretical

persuasions also have emphasized that psychological health requires that emotional impulses be regulated properly (Barlow, 1991; Beck, Rush, Shaw, & Emery, 1979; Seligman, 1991). Gross and Muñoz (1995) integrated these perspectives, arguing that the capacity to flexibly down-regulate one's negative emotions should be considered an integral part of mental health.

On the other hand, a second literature casts emotion regulation in an altogether different light. This literature is concerned with physical health and has its roots in the psychosomatic medicine tradition. In this context, the notion that emotion regulation has deleterious consequences has become a cornerstone of the entire psychosomatic enterprise (Alexander & French, 1946). Venerable hypotheses such as those linking extreme anger expression or inhibition with hypertension and coronary heart disease are still being pursued vigorously (see, e.g., Smith, 1992). In addition, new hypotheses have emerged that suggest that emotion inhibition may exacerbate minor ailments and compromise immune functioning (Pennebaker, 1990; Pennebaker, Kiecolt-Glaser, & Glaser, 1988), and that inexpressiveness may accelerate cancer progression (Fawzy et al., 1993; Gross, 1989; Spiegel, 1992; Spiegel, Bloom, Kraemer, & Gottheil, 1989). Together, these hypotheses suggest that emotion down-regulation (at least of negative emotions) may be bad for one's physical health.

If one were to confuse the what and the how of emotion regulation, one might summarize these literatures by saying that emotion down-regulation is good for one's psychological health but bad for one's physical health. While this conclusion is possible, we do not believe that this is the most useful way to relate these two literatures. Instead, we believe that the process conception of emotion regulation described above may be used to distinguish between "antecedent-focused" emotion regulation (e.g., situation selection, situation modification, attentional deployment, and cognitive change) and "response-focused" emotion regulation (response modulation). Antecedent-focused forms of emotion regulation principally concern whether or not emotion response tendencies *are triggered* (psychological health literature), whereas response-focused strategies concern how emotion response tendencies *are modulated once they have been triggered* (physical health literature). Manipulating the input to the system—antecedent-focused emotion regulation—may be good for one's long-term psychological health. By contrast, manipulating the output of the emotion system—response-focused emotion regulation—may have deleterious consequences for certain aspects of physical health.

However suggestive, these literatures on the longer-term consequences of different forms of emotion regulation cannot conclusively establish differences among antecedent- and response-focused forms of emotion regulation. In everyday life, the boundaries between antecedent- and response-

focused forms of regulation, as well as the distinctions between psychological and physical health, become blurred. For example, in T. W. Smith's (1992) transactional model, certain individuals create more anger-eliciting situations, to which they then respond with larger cardiovascular responses, thereby increasing their likelihood of cardiovascular disease.

What is needed, therefore, is a more direct test of the differential effects of various forms of emotion regulation. We have focused on the acute consequences of two theoretically derived forms of emotion down-regulation. Specifically, we have contrasted one form of antecedent-focused emotion regulation, which we have termed reappraisal (construing a potentially emotion-eliciting situation in nonemotional terms), with one form of response-focused emotion regulation, which we have termed expressive suppression (inhibiting ongoing emotion-expressive behavior). These studies have provided additional evidence that different forms of emotion regulation have clearly divergent consequences, at least in the short term.

Thus, in a series of studies (Gross & Levenson, 1993, 1997), we have demonstrated that expressive suppression decreases emotion-expressive behavior, decreases positive emotion experience but has no effect on negative emotion experience, and produces a mixed pattern of physiological responses, including decreased somatic activity and heart rate but increased signs of sympathetic activation of the electrodermal and cardiovascular systems. By contrast, reappraisal decreases both behavior and negative emotion experience, and produces no increases in autonomic responding (Gross, 1998a). More recently, we have shown that suppression decreases memory for information presented during the suppression period, whereas reappraisal has no such effect, either in the laboratory or in the field (Richards & Gross, 1999, 2000).

These results clearly indicate that although these two forms of emotion regulation both may be employed in the service of down-regulating emotions, their short-term consequences diverge quite markedly. Reappraisal effectively decreases both negative emotion experience and expression, and does so without apparent physiological or cognitive cost. Suppression, by contrast, has no impact on negative emotion experience, and has both physiological and cognitive costs. Although there is much that we still don't know about emotion regulation and its consequences, we believe that the evidence suggests that different forms of emotion regulation have different consequences.

Individual Differences in Emotion Regulation

Our process analysis of emotion generation and regulation suggests two broad points at which individual differences might have a substantial bearing on emotion regulation. The first has to do with emotion representation,

which provides accurate and timely information regarding which emotion is likely, or already underway, and specifies precise details concerning the nature and intensity of that emotion. The second concerns emotion regulation more directly and has to do with how a given emotion is best handled within a given context.

One of the important determinants of the intelligent management of emotions is the degree to which one has differentiated emotion experience. The wealth of specific information contained in discrete emotion concepts should make emotion regulation easier, more efficient, and more effective. As a result, individuals who use emotion labels to name their feelings in a distinct and specific fashion should possess a larger repertoire of experience- and expression-related regulation strategies, thereby producing a more flexible behavioral repertoire to deal with the emotional event or the object(s) which generated the emotion. This relationship between emotion differentiation and regulation may be particularly potent for emotional experiences that have strong informational, or "signal," value (i.e., negative or intense emotional experiences). Preliminary evidence from a recent experience-sampling study (Feldman Barrett, Gross, Conner, & Benvenuto, 2000) has provided support for the hypothesis that emotion differentiation is related to emotion regulation practices. Differentiation of negative emotional experiences is associated with a larger repertoire of emotion regulation strategies, particularly for those who experience their emotions intensely.

Whether we are considering the short-term or long-term consequences of emotion regulation, it seems clear that the costs and benefits of different forms of emotion regulation may vary markedly (at least for emotion down-regulation). This suggests that in a given context there may be more and less optimal ways of regulating emotions. That is, some forms of emotion regulation produce better results with less costs than do other forms of emotion regulation. On the basis of these findings, it seems reasonable to suggest that a second important part of emotional intelligence is knowing *how* to regulate emotions when that is necessary, and we might imagine that individuals would choose to invoke different emotion regulatory processes in order to achieve a given goal. From this perspective, emotional intelligence might refer to the match of a regulatory process to a situation, as well as the range of emotion regulatory processes at an individual's disposal and the flexibility with which he/she employs these strategies.

Summary

Emotions are often helpful, but they are not always so. Emotion regulation refers to individuals' attempts to influence which emotions they have and how they experience and express these emotions. As is the case with any regulated system, a prerequisite for effective regulation is accurate and

timely knowledge about the target of regulation—in this case, emotion. Thus, one important element of successful regulation would seem to be emotion differentiation, which provides information essential to determining when emotion regulation may be necessary. Yet differentiated emotion knowledge is not all there is to intelligent emotion regulation. Different forms of emotion regulation have very different consequences, and a second major aspect of emotional intelligence seems likely to be knowing how to flexibly regulate emotions in a way that is well matched to the demands of a particular situation.

FUTURE RESEARCH ON EMOTIONAL INTELLIGENCE

Classical conceptions of intelligence have prioritized a relatively narrow set of mental capacities. In the past few decades, there have been moves in a number of quarters to expand the traditional conception of intelligence (see, e.g., Gardner, 1983). One of the most important avenues of much-needed expansion has been the effort to consider individual differences in the skill with which individuals conduct their emotional lives. Emotional intelligence, which has come to be the umbrella term for such differences, now includes a broad range of attributes, from monitoring emotions in others to appreciating cultural norms regarding the emotional meaning of shared symbols. In this chapter, we have used a process conception of emotion generation and regulation to focus on two critical aspects of emotional intelligence—emotion differentiation and emotion regulation—arguing that individual differences in each of these processes have important implications for adaptive success. Important questions remain, however. In the following subsections, we touch upon three of the more pressing issues awaiting further exploration.

Intervening versus Leaving Well Enough Alone

Under certain circumstances, applying emotion knowledge in a top-down, conscious fashion so as to elaborate an emotion into a fully differentiated experience may be taxing, particularly if working memory resources are in short supply. A person who withholds the application of discrete labeling may be able to postpone a more reflective examination of an emotional response to a time or a place in which they would be more equipped to deal with the consequences. Thus, knowing when not to employ emotion knowledge may be a critical aspect of emotionally intelligent behavior. Similarly, emotionally intelligent people should know when *not* to regulate emotions. Evolution's "best guess" as to how a taxing situation should be handled certainly can be improved upon in many

situations, but there are many other circumstances in which the emotion trajectory is best left alone. For example, there may be occasions when it is more adaptive to experience or express a negative emotion than to try to regulate it away (e.g., in therapy; see Parrott, 1993). More generally, it seems likely that the very act of monitoring and regulating emotion may direct precious cognitive resources away from the environment or other pressing tasks. To this extent, there is a price to be paid whenever emotions are elaborated or regulated, and emotional intelligence may consist in large measure of knowing when to leave well enough alone and when to intervene.

Optimizing versus Satisficing

According to Mayer and Salovey (1997), emotional intelligence is a real intelligence only if there are correct emotional responses. The question of evaluating the accuracy of one's own emotional response is difficult because, unlike in simpler, nonsocial tasks, negotiating complex social contexts has no clear set of "right" answers. There certainly are better and worse responses, but there may be a range of responses that are better than worse. Indeed, it may well be that emotions are designed to "satisfice," that is, to serve as adequate (although by no means perfect) solutions to a broad class of important challenges or opportunities (Simon, 1967). Although emotions may not be the optimal ("correct") solution to a given adaptive problem, they can be produced quickly, with a modest outlay of resources, and it frequently is better to have a timely and adequate solution than a better solution that is delivered at some later point.

One way to evaluate the quality of an emotional response (in emotion generation or emotion regulation) might be determined by whether or not the emotion facilitates behavior, thereby allowing an individual to effectively meet his/her goals. This view would be silent on whether or not those goals are socially productive in the first place, however. Consider this example: A young man who prides himself on being an independent, rational person is angry at his partner for being emotionally unavailable to him. Rather than directly discuss his feeling with his partner, he ends up being late for a series of business dinners that are very important to her career. As a result, his partner yells at him. An argument ensues in which the couple exchange accusations and harsh words.

We might assume that the young man is not displaying emotionally intelligent behavior. He did not approach his partner in an open manner to discuss his concerns. Indeed, in psychodynamic terms this would be considered an example of passive-aggressive behavior (i.e., aggression toward the other is expressed indirectly and ineffectively through passivity). However, consider the young man's goals: He wants to let his partner know that he is

angry, yet he does not want to violate his sense of himself as an independent person who, being rational, is not verbally aggressive toward others unless provoked. Rather than acknowledge and take responsibility for his feelings, the young man engages in a behavior that angers his partner, thereby motivating her to initiate the argument. In the end, the young man is able to regulate his emotion in such a way as to have his goals met (to express anger in a way that does not challenge his self-concept), even though his behavior does not enhance his social life. Although the young man in our example may not be demonstrating social intelligence, his response is emotionally intelligent in that it has allowed him to effectively meet his goals.

Thus, from our perspective, emotional intelligence need not imply “good” (i.e., socially sanctioned) goals. The quality of the chosen goal is related more to social competence and social intelligence than to emotional intelligence per se. One may be positively evil and yet be emotionally intelligent in the sense that one knows how to manage one’s emotions so as to further one’s (wicked) ends. Thus, we believe that individual differences in emotion differentiation and regulation are important even though there are no correct or absolute answers to questions as to how and when to best experience, express, and regulate emotions in order to appropriately balance short-term versus longer-term goals.

Flexibility versus Efficiency

There seems to be an inevitable trade-off between efficiency and flexibility in the processes involved with emotional intelligence. Skills related to emotional intelligence that are very routinized (e.g., the automatic deployment of emotion knowledge or antecedent emotion regulation like situation selection) may be very efficient, but they may not leave the person able to calibrate to new situational demands (i.e., you need to know and have control over *when* to deploy what you know about emotion). Indeed, one of the central tensions in successful adaptation is the tension between the need for stable patterns of behavior and the need for openness and flexibility. If an individual inhabits a world that changes little in its interpersonal emotional demands, that individual may function very well using highly conserved and routinized emotion regulation procedures. Years of experience have finely tuned ways of regulating emotions, and these stable patterns have become so overlearned that little cognitive resources are necessary. However, that apparently highly adaptive set of procedures may be very maladaptive indeed when a dramatic change in the social world occurs. Since most of us live in a world with fluctuating and competing demands, some degree of flexibility is necessary in our emotional lives to leave us well adapted to our social environment.

NOTES

1. From this perspective, the accuracy of one's own emotional response to a given situation, person, or inanimate object is more difficult, because there are no straightforward criteria for validating a subjective experience in the self. There are normative object-emotion relationships that are anchored in an individual's own learning history, but these may be somewhat idiosyncratic to the person. There are also normative relationships anchored in the cultural context, but to say that an intelligent response must conform to these sounds more prescriptive than we might like.
2. Other models for parsing affective space exist. For example, the negative activation/positive activation (NA/PA) model focuses on two dimensions that are derived from rotating the valence and arousal dimensions in factor analyses of self-reported affect (Watson & Tellegen, 1985). The NA and PA dimensions do not appear in semantic analyses of emotion words, however. Moreover, recent evidence from four experience-sampling studies suggests that variations in the valence and arousal components determine when the NA/PA configuration appears and when it does not; thus, the NA/PA model can be considered a special case of the circumplex model (Feldman Barrett, 1999).
3. There is evidence for this claim from recent cognitive neuroscience investigations of subjective emotional experience (for a discussion, see Lane, in press).

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