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Beyond Emotion Regulation:

Emotion Utilization and Adaptive Functioning

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Abstract

Recent research indicates that emotionality, emotion information processing, emotion knowledge, and discrete emotion experiences may influence and interact with emotion utilization, that is, the effective use of the inherently adaptive and motivational functions of emotions. Strategies individuals learn for emotion modulation and emotion utilization become stabilized in emerging affective-cognitive structures, or emotion schemas. In these emotion schemas, the feeling/motivational component of emotion and perceptual and cognitive processes interact dynamically and continually. The concepts and techniques that promote emotion knowledge, emotion regulation, and emotion utilization have proved effective in promoting favorable behavioral outcomes in both emotion-based and cognitive-behavioral interventions. In this paper, we suggest that current conceptualizations of emotion regulation need to be extended to take these interactions into account.

We propose that current conceptualizations of emotion regulation that are concerned primarily with attenuating, amplifying, or sustaining emotion arousal have proved insufficient (see Cole, Martin, & Dennis, 2004). They can be extended by inclusion of the concept of emotion utilization—the use of techniques and strategies that harness the energy of emotion arousal in constructive thought and action.

The Conceptual Model

We see emotions as having an inherently motivational component, emotion feelings as continually influencing cognition and action, and emotion utilization as being the key to adaptive functioning (Izard, 2007). Our recent research has focused on ways to foster emotion utilization, particularly in children who are at risk or suffer from psychopathology (Izard et al., in press; Stark, Schnoebelen, Simpson, Hargrave, & Glenn, 2007).

Emotion Utilization

Emotion utilization is formally defined as adaptive cognition and action motivated by emotion experience (Izard, 1971; cf. Mayer & Salovey, 1997). Emotion utilization is conceptually different from direct attempts to regulate emotion or emotion-related behavior (cf. Eisenberg & Spinrad, 2004) in that emotion utilization involves spontaneous as well as planned constructive actions and creative endeavors. Efforts directed toward emotion regulation may facilitate emotion utilization, but they are not necessary for harnessing the inherently adaptive functions of emotions in constructive thought and action. For example, the adaptive functions of anger and sadness are self-assertion and social support-seeking, respectively. Given adequate emotion knowledge, or understanding of emotion, and a

supportive social context, a child can learn to utilize the energy and motivation in anger arousal for positive self-assertion rather than for yelling or hitting. Similarly, an adolescent can learn to utilize the energy and motivation in sadness to reach out for social support from peers or family rather than withdrawing from the situation that is causing the sadness.

Characteristics of Emotions and a Distinction between Types

Although experts in emotion theory generally do not agree on a single definition of the term *emotion*, they agree that emotions have motivational and regulatory functions (Izard, 2006). There is also substantial agreement on the existence of two kinds of emotions: basic emotions and more complex emotional phenomena (e.g., emotion schemas) that often involve higher-order cognition (Izard, 2007; Izard & King, in press). The distinction between basic emotions and emotion schemas is a critical one. The basic emotions that are prominent in infancy and early childhood and the more complex emotion schemas that emerge in later development sometimes require quite different regulatory techniques and strategies.

Basic emotions—A basic emotion (e.g., interest, joy, sadness, anger) is a set of neural, bodily/expressive, and feeling/motivational components generated rapidly, automatically, and nonconsciously when an ecologically meaningful stimulus is sensed or perceived (Izard, 2007). This sensation or perception is influenced by the individual's ongoing affective-cognitive processes. The resulting basic emotion preempts consciousness and tends to drive a rather narrowly focused stereotypical response strategy to achieve an adaptive advantage (Öhman & Mineka, 2001; Panksepp, 2007; Tomkins, 1962, 1963). A classic example is the automatic initiation of protective behavior when one perceives the approach of a looming object or a viper in the pathway.

The stereotypical basic-emotion response system changes with development and social learning. Increasingly throughout infancy and toddlerhood, it can be more readily modified or inhibited by cognitive activity, such as by additional information processing that activates a new emotion that regulates the former emotion (Cunningham et al., 2004; Izard, Hembree, & Huebner, 1987). The regulation of basic positive emotions of interest and joy often requires little more than effective nurturing and ample opportunities for the infant or toddler to engage in play and other constructive activities. However, regulation of both high intensities of these emotions (hilarity and extreme excitement which may be associated with externalizing problems [Rydel, Berlin, & Bohlin, 2003]) and their expression may require focused efforts (e.g., abrupt attention-shifting, slow deep breathing) to facilitate calming (cf. Kochanska, Murray, & Harlan, 2000).

The regulation of basic negative emotions during infancy and the toddler years often requires emotion-specific techniques and strategies. For example, sadness yields to social support, particularly if administered by the primary caregiver, and to comforting by self-stimulation (Braungart-Rieker & Stifter, 1996). Providing young children with adequate nurturance, social support, and opportunities to engage in playful activities offers them a strong basis for the development of emotion regulation. These conditions also facilitate the learning of social skills that may reflect emotion utilization in specific situations. For example, in conflict situations characterized by elevated anger arousal, use of socially skilled techniques in negotiation would reflect emotion utilization. Taken together, these processes provide a buffer against the later development of psychological disorders.

Emotion schemas—An activated emotion schema is a dynamic and continual interaction among any discrete emotion feeling (e.g., joy, sadness), appraisals, previously learned emotion-related cognitive content, and ongoing perceptual-cognitive processes (Izard, 1977,

in press; cf. Ellsworth & Scherer, 2003; M. D. Lewis, 2000, 2005; Tomkins, 1962). After early development, emotion schemas, not basic emotions per se, constitute by far the most prominent source of human motivation. Because the activation and content of emotion schemas of older children and adults typically involve complex appraisals, images, and thoughts (Roseman, 2004; Scherer, Dan, & Flykt, 2006), perceptual and cognitive processes become major tools in their regulation.

The adaptiveness of an emotion schema depends largely on the quality of its cognitive component—the appraisals, images, thoughts, and beliefs that interact with the emotion feeling. For example, the greater a child's accuracy in appraising an emotion-eliciting event and in recognizing his or her own emotions and those of others, the more likely it is that the child's resultant emotion schema will foster the regulation and utilization of the feeling/motivational component of emotion arousal. The cognitive component of a new emotion schema is constructed from a combination of perceptual input related to the current eliciting event and similar emotion schemas already in memory. At a more global level, the interplay of early attachment processes and emotion experiences influence the development of the emotion schemas that characterize the internal working models of the self in relation to others (cf. Pietromonaco & Barrett, 2000). Emotion schemas influence what is attended to and how it is processed, and errors in information processing can be made.

Emotion information processing and emotion schemas—Children continually process internal and external emotion cues, including many that are ambiguous or unclear. Emotion information processing, or the acquisition of emotion knowledge, includes appraisal and attributional processes that activate emotions (cf. Crick & Dodge, 1994; Lemerise & Arsenio, 2000). Over time, as young children process emotion information and use it to confirm and disconfirm predictions of others' behaviors, emotion knowledge accumulates. Emotion knowledge includes the understanding of the expressive signals, labels, and functions of emotions. High-quality emotion knowledge and its role in emotion regulation derive in large measure from emotion information processing that is high in accuracy and relatively free of biases (e.g., anger perception bias; cf. Rogosch, Cicchetti, & Aber, 1995). Emotion information processing and emotionality (one's more characteristic patterns of experiencing and responding to emotion stimuli) influence each other reciprocally. The resultant processes play critical roles in the development of emotion schemas, emotion regulation, and emotion utilization.

The dynamic interplay of maladaptive emotion information processing (e.g., erroneous interpretation of a peer's expressive behavior), emotion schemas, and emotion regulation is a key factor in the development of psychopathology. As infants' and young children's cognitive capacities develop, they form emotion schemas associating significant others, trust, and felt care. Unfortunately, some children develop emotion schemas with a core belief that one is unlovable, which places these children at risk for depression. When excluded from a game during recess, for example, a child with an unlovability schema may misinterpret the incident as "rejection" and be flooded with negative cognitions and sadness or anger. If the youngster doesn't have adequate emotion-regulation strategies, the unpleasant affect may persist and become overwhelming, triggering a depressive episode. The adaptiveness of an emotion schema also depends on the kind of behavior it typically motivates. In the aforementioned case of the child prone to depression, the likely behavior of withdrawal may be maladaptive, removing the immediate source of negative emotion but reinforcing the child's sense of being "rejectible."

Emotion schemas may endure in consciousness as proactive agents—

Although basic negative emotions typically occur in brief episodes, both positive and negative emotion schemas may last for long periods of time. The feeling component in

emotion schemas can drive cognitive and action processes in the absence of prominent facial or vocal expressions that might signal their presence. The capacity for long-term emotion schemas increases as a function of cognitive development. In conjunction with the child's early temperament, emotion schemas may become organized as traits of personality. Long-term negative emotion schemas or emotion traits may dominate mental processes in conditions like depression and anxiety. Accordingly, these emotion schemas are referred to as core negative schemas (Luby, Mrakotsky, Heffelfinger, Brown, & Spitznagel, 2004; Stark, Hargrave, et al., in press). In depression, the core negative schemas are (1) I am unlovable; (2) I am worthless' and (3) I am helpless (J. Beck, 1995).

Helping the child learn to translate broad constructs like worthlessness and helplessness into discrete emotion schemas (e.g., sadness, anger, or shame schemas) that have more readily identifiable causes and effects will likely increase the child's ability to understand and manage the affective component of depression. The child's ability to label emotions, which facilitates the transition from basic emotions to more readily manageable emotion schemas, develops rather slowly (Izard, 1971). Past research has not sufficiently taken into account the possibility that emotion schemas can exist in children's consciousness and affect their cognition and action even when they do not clearly express or talk about them. Unlabeled and unarticulated emotions frequently occur in toddlers and preschool children, especially those who suffer economic disadvantage and its co-factors (Izard et al., in press).

Teaching the child to link cognitive techniques of emotion regulation to the emotion feeling/motivational component of emotion schemas should facilitate the constructive emotion-thought-action sequences of the child's emotion utilization. The resulting emotion utilization, though not explicitly conceived or intended as emotion regulation, may constitute its ultimate and most significant form in that it enhances the development of adaptive behavior and the prevention of psychopathology (Izard, 2002; Izard et al., in press).

When a child already has an emotional disorder such as depression, it is necessary to help the child use cognitive restructuring strategies to deactivate dysfunctional emotion schemas and build new, more adaptive emotion schemas that produce constructive feeling-thought-action sequences. However, the emotion-thought-action sequences interact with each other and the environment in a reciprocal fashion. Thus, it is desirable to modify the cognitive component by helping the child alter the actions and environmental experiences that contributed to the development of the child's dysfunctional emotion schemas.

Emotion Utilization as a Goal for Preventive Interventions

The Emotions Course (Izard, 2001) for preschool children and the ACTION treatment for depression in adolescents (Stark et al., 2007; discussed below) are examples of preventive intervention programs that have incorporated the principles outlined above. A goal of the Emotions Course intervention is to help young children develop/learn emotion schemas that are based on effective connections among the emotions, cognition, and action systems (Izard et al., in press). Thus, the Emotions Course facilitates the acquisition of techniques and strategies for both the regulation and the utilization of emotion motivation.

A Theoretically Coherent Emotion-Based Intervention for Young Children

In developing and validating the Emotions Course for young children, emotion knowledge was conceived as the understanding of the expressions, feeling states, and functions of emotion. Effective emotion regulation was viewed as sufficient modulation of emotion feelings and related expressions and actions to facilitate emotion utilization (Izard et al., in press).

Figure 1 depicts the key hypotheses in our conceptual model: (1) an emotion-based intervention increases emotion knowledge, which in turn increases emotion regulation, and (2) the intervention-induced increase in emotion competence (the integration of emotion knowledge and emotion regulation) mediates the effect of the intervention on social competence. We assume that the increase in social competence reflects an increase in emotion utilization.

The hypotheses in our model have been confirmed in research with the Emotions Course in a Head Start population (Izard et al., in press) and in other translational research. In the Emotions Course intervention, emotion knowledge is increased by puppet play, games involving identifying and labeling emotion expressions, talk about emotion feelings, and interactive reading of emotion storybooks. Emotion regulation is increased with techniques like Hold Tight, in which the teacher instructs a child whose anger is running out of control to hug himself/herself firmly and take three deep breaths, to use words (rather than aggressive behavior) to negotiate and help set things right with others, and to play fair (Izard, 2001). We assumed that the increased social competence in Head Start children reflected increases not only in emotion regulation but also in emotion utilization. Cognitive development, sex of child, and socioeconomic risk factors moderated the effects of the Emotions Course intervention (Izard et al., in press).

Emotion Knowledge, Regulation, and Utilization in the Treatment of Depressed Youth

Similarly, in the ACTION program cited above, affective education was used as a means of helping depressed 9- to 13-year-old girls gain an understanding of the relationship among emotions, cognitions, and behavior. This understanding served as a cue to use emotion-regulation strategies that enable the child to modulate her unpleasant mood so that she could employ additional strategies for enhancing mood, changing core beliefs or emotion schemas, and solving problems (Stark, Hargrave et al., in press). The ACTION program is designed to first help the child develop strategies to modulate negative emotion arousal (Stark, Hargrave, et al., in press). This modulation of negative emotions prepares the child to acquire emotion knowledge and social skills and develop adaptive emotion schemas and emotion utilization strategies such as problem solving and cognitive restructuring. Problem solving helps the child manage stress, and the cognitive restructuring strategies help the child to make more accurate appraisals and change the cognitive component of emotion schemas. An overall effect is an increase in the experience of positive emotion and a higher probability that the child can use modulated emotion motivation to restructure the cognitive component of emotion schemas and ultimately the child's core beliefs (Stark, Hargrave, et al., in press).

The ACTION program consists of both child- and parent-training components that have been described in detail elsewhere (e.g., Stark, Hargrave, et al., in press). The program is based on the belief that effective emotion regulation involves sufficient modulation of depressed and irritable mood and its attendant underactivation to enable emotion utilization. Activities completed within the meetings and as homework help the girls to become more aware of their personal experiences and the links among their emotions, thoughts, and behaviors.

Through such activities, for example, participants learn to be "thought judges," evaluating the validity of their negative thoughts or emotion schemas by asking themselves two questions: (1) What is another way of looking at the situation? (2) What is the evidence for what I am feeling? Participants also learn to evaluate the degree of controllability of their negative situation. If the situation is real but cannot be changed, they are encouraged to adopt a coping strategy that utilizes the underlying emotion and helps them manage their reaction to the situation. If their emotion schema is realistic and reflects a situation that can

be changed, then the participants are encouraged to use problem solving. To this end, participants are taught a five-step problem-solving procedure for dealing with the situation and increasing emotion utilization, thereby reducing distress and the accompanying emotional upset. Over time, the therapist helps the girls apply problem solving to promote desirable changes in their lives. By the middle of treatment, the participants typically are proficient at using coping and problem-solving skills, and this enables them to focus on identifying and changing negative emotion schemas.

The parent-training component of the program has two broad objectives: (1) to create a positive family environment that encourages adaptive behavior, the development of emotion regulation and problem-solving skills, and healthy core beliefs; and (2) to help parents acquire and use the same skills that their children are learning. To create the positive family environment, parents are taught (1) the use of positive behavior-management strategies rather than punitive strategies; (2) family problem solving; (3) communication skills; (4) conflict-resolution skills; and (5) insight into how their behavior affects their child's emotion schemas.

Processes and Strategies in Emotion Regulation and Utilization

Emotion regulation involves two types of processes and strategies, and each one may influence emotion utilization. First, emotionality influences emotion information processing, emotion regulation, and emotion-related behavior. Second, the cumulative emotion knowledge that results from emotion information processing and socioemotional learning serves as a continuous source of emotion-regulatory strategies. Moreover, maladaptive emotion information processing distorts emotion knowledge and degrades emotion regulation and utilization.

Emotionality and Emotion Regulation and Utilization

Positive emotionality and negative emotionality reflect the frequency and intensity with which one experiences and responds to emotions. Like the related constructs of temperament and personality, emotionality plays a critical role in emotion regulation and helps account for individual differences in regulatory processes and emotion utilization. Several theorists suggest that negative emotionality may interfere with the development of effective emotion regulation (Kochanska & Coy, 2002). Indeed, as early as 10 months of age, negative emotionality predicts individual factors or composite indexes of temperament that relate to self-regulation (Belsky, Friedman, & Hsieh, 2001; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002). The relationship between negative emotionality and emotion regulation is likely bi-directional. That is, negative emotionality may overtax emotion-regulatory ability, interfering with the development of the self-regulation characteristic of emotion utilization; conversely, effective emotion regulation may inhibit the manifestation of temperamental tendencies to react with negative emotions. Even though emotionality and emotion regulation may influence each other reciprocally, emotion regulation independently predicts adaptive social behavior that reflects emotion utilization (Eisenberg et al., 1997).

The potentially deleterious effects of negative emotionality on behavior are often moderated, in part, by regulatory abilities. Infants, for example, who were high in negative emotionality and low in attentional persistence at 5 months of age were the most defiant during laboratory tasks (e.g., cleaning up) at 30 months (Stifter, Spinrad, & Braungart-Rieker, 1999). In studies predicting social and behavioral outcomes, important interactions existed between children's negative emotionality and their regulatory abilities (Eisenberg et al., 1997), suggesting poor emotion utilization.

Positive emotionality operates as a regulator of negative emotions (for a review, see Tugade & Fredrickson, 2002). Positive emotions help the central nervous system (CNS) recover from physiological arousal due to negative emotions. Individuals who are either predisposed to experience positive emotions or able to induce positive emotions in themselves (via imagery or other techniques) may be able to regulate negative emotions more effectively than others.

In treatment for youngsters experiencing psychological disorders, the promotion of positive affect may provide a foundation for the acquisition of other emotion-regulation techniques. For depressed or anxious children, for example, this approach may help their hyperaroused CNS to recover. The experience of positive affect and the resultant improvement in the CNS functioning may enable the child to use emotion-utilization strategies such as cognitive restructuring and problem solving. Clinically, this appears to be the case as the classic progression of treatment (Beck et al., 1979; Stark, Reynolds, & Kaslow, 1987) is to utilize behavioral strategies to help motivate the child and improve his or her mood before implementing cognitive restructuring strategies to facilitate emotion utilization.

Emotion Knowledge Facilitates Emotion Regulation and Utilization

Free of undue bias, emotion information processing can lead to accurate emotion knowledge, which contributes to emotion utilization indexed by appropriate interpersonal interactions, the development of adaptive social behavior, and academic competence (Denham et al., 2003; Izard et al., 2001; Trentacosta & Izard, 2007). In a study of peer acceptance in middle childhood, emotion knowledge predicted the development of social skills, and in turn, level of social skills predicted peer acceptance (Mostow, Izard, Fine, & Trentacosta, 2002). We infer that these positive behavioral outcomes resulted in part from effective emotion information processing and accurate emotion knowledge that promoted emotion regulation and utilization. These findings suggest that fostering the development of emotion knowledge increases children's ability to regulate and utilize emotion motivation in social interactions where interpersonal communication and adaptive behavior depend on accurate detection and interpretation of emotion signals in the expressive behavior of face, voice, and body. This conclusion has now received strong support from research in neuroscience that may have identified some of the neural infrastructure of emotion utilization (Lieberman et al., 2007).

Researchers have translated the basic research findings described above into validated emotion-based and cognitive-behavioral preventive interventions that increase emotion knowledge, the ability to regulate negative emotions, and emotion utilization as reflected in increases in positive social behavior and decreases in the frequency of precursors of psychopathology (Denham & Burton, 2003; Domotrovitch, Cortez, & Greenberg, 2007; Izard et al., in press). Efforts to enhance emotion knowledge as a means of facilitating emotion regulation and utilization is a common component of socioemotional as well as cognitive-behavioral interventions for a wide variety of childhood behavior problems and disorders.

Negatively Biased Emotion Information Processing and Emotion Regulation and Utilization

Whereas positively biased information processing may prove adaptive in some circumstances (e.g., Pollak, Cicchetti, Hornung, & Reed, 2000), negatively biased processing may lead to intense negative emotions and vigorous emotion-related reactivity, making the task of emotion regulation and utilization more difficult. Furthermore, maladaptive emotion information processing suggests a history of emotion experience that contributes to problems in self-regulation. Factors that adversely bias children's emotion information processing and increase the risk of psychopathology include negative

emotionality (Schultz, Izard, & Bear, 2004), harsh or chaotic home environments (Schultz, Izard, & Ackerman, 2000), and exposure to physical abuse (Pollak et al., 2000).

Children who show a bias toward labeling others' emotion cues as "angry" engage in more aggressive behavior (Fine, Trentacosta, Izard, Mostow, & Campbell, 2004), suggesting the absence of emotion utilization. The path to this negative outcome begins with the impact that inaccurate or ineffective information processing has on emotion regulation and emotion utilization. For example, these children frequently misperceive or mislabel signals or events in social interactions (e.g., being accidentally bumped into) as anger cues. Their inappropriate behavioral responses to false anger cues may make emotion regulation more difficult, fueling a continual cycle of anger misperception and emotional and behavioral dysregulation. However, it should be noted that in the case of abused children, an anger perception "bias" may help in the detection of hostile intent and reflect adaptive behavior in an extremely harsh social context (Rogosh, Cicchetti, & Aber, 1995; Pollak et al., 2000).

Although emotion information processing, emotion knowledge, and emotion regulation and utilization are considered key aspects of early development and each makes significant contributions to social competence and school adjustment (Trentacosta & Izard, 2007), very little research has directly examined these constructs in conjunction. Using a randomized cluster design, a recent trial of the Emotion Course in Head Start showed that a composite index of children's emotion competence mediated the effects of the intervention in increasing emotion utilization as reflected in increased adaptive social behavior and decreased precursors of psychopathology (Izard et al., in press).

Concluding Remarks

Developmental psychologists in general and intervention researchers in particular have not given sufficient attention to the identification of the causal processes in adaptive and maladaptive behavior change. Few studies have pointed clearly to specific mediators and moderators of growth in normal and abnormal cognition and conduct. Studies guided by conceptualizations of emotions as key motivational systems in human development and behavior and conceptualizations of emotion utilization as an increase in adaptive behavior and a decrease in maladaptive behavior should help with the sorely needed catch-up. Toward this end, we first need more studies that test hypotheses about the relations among emotion information processing, emotion knowledge, emotionality, emotion regulation, emotion utilization, and the development of behavioral outcomes. Second, there is a need for studies specifically concerned with the processes involved in emotion utilization (conceptualized in terms of constructive thought and action stemming from modulated emotion experiences) and its relations to emotion regulation and social competence. Third, and perhaps most important, we need preventive-intervention research that focuses on the causal processes in behavior change and that clearly identifies the relevant mediators and moderators of behavioral outcomes. We propose that one fruitful approach would be to facilitate and evaluate outcomes that reflect emotion utilization.

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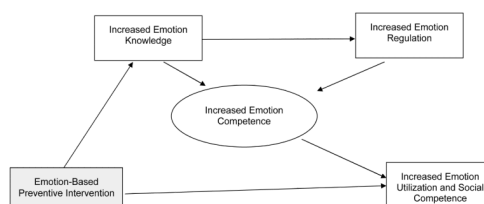


Figure 1. An Emotion-Based Preventive Intervention Increased Children’s Emotion Knowledge Which in Turn Mediated an Increase in Emotion Regulation. Emotion Competence (An Aggregate Index of Emotion Regulation and Emotion Knowledge) Mediated an Increase in Social Competence Reflecting Increased Emotion Utilization, (Izard, et al., in press).