The Role of Emotion Theory and Research in Child Therapy Development

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A burgeoning of research on emotion has identified the importance of emotionally competent functioning to children's psychosocial adaptation. As a consequence of this basic research, we argue that prevention and treatment programs for youth would benefit from direct consideration of the role of emotion when designing developmentally appropriate programs. The rationale for including a greater focus on emotion in youth prevention and treatment programs is drawn from the affective neuroscience and clinical psychology literatures. Preliminary data from prevention and treatment programs that have a strong emotion focus are promising. Future work needs to examine how emotion-related processes are related to psychopathology in youth, develop developmentally sensitive programs that are influenced by basic research on emotions, evaluate the relative effectiveness of prevention and treatment programs, and assess the potential long-term impact of emotion-focused and emotion-informed programs.

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Much recent enthusiasm has been generated for what some refer to as an "emotion revolution" in the field of clinical psychology (e.g., Barlow, Allen, & Choate, 2004; Samoilov & Goldfried, 2000; Southam-Gerow & Kendall, 2002), although as Samoilov and Goldfried (2000) noted, the revolution has been a long time in the making. After remarkable advances in the behavioral and cognitive sciences that occurred in the early and mid-twentieth century (see Barlow et al., 2004), the field has taken on the challenge of integrating emotion and clinical science (e.g., Bradley, 1990, 2000; Cicchetti, 1984; Cicchetti, Ackerman, & Izard, 1995; Luthar, Burack, Cicchetti, & Weisz, 1997; Sroufe & Rutter, 1984). The fruits of this work have been impressive: Developments in basic research on emotion have yielded a plethora of findings on the relevance of constructs like emotion regulation, emotion understanding, and emotional intelligence (Cole, Martin, & Dennis, 2004; Denham, Zoller, & Couchoud, 1994; Keenan, 2000; Southam-Gerow & Kendall, 2002; Zeman & Garber, 1996). Emotion research has run the gamut from survey research on emotion understanding and regulation (e.g., Silk, Steinberg, & Morris, 2003; Southam-Gerow & Kendall, 2000; Suveg & Zeman, 2004; Zeman, Shipman, & Suveg, 2002) to implementation of observational paradigms (e.g., Calkins, Gill, Johnson, & Smith, 1999; Cole, Teti, & Zahn-Waxler, 2003; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005) to psychophysiological research (e.g., Calkins & Keane, 2004; Davidson, Jackson, & Kalin, 2000). In short, the field of developmental and clinical child and adolescent psychology has witnessed intense interest in emotion in the past dozen or so years.

Despite the escalation of research on basic emotion processes, only recently have emotion theory and research been applied to treatment and prevention efforts with children and adolescents (e.g., Denham & Burton, 1996; Greenberg & Kusché, 2006; Izard & Bear, 1999; Suveg, Kendall, Comer, & Robin, 2006). These research efforts are consistent with the call from the National Advisory Mental Health Council's Behavioral Science Workgroup (2000) to use basic research to inform the development of prevention and treatment programs. This article argues for an application of findings from emotion science to the development and testing of psychological prevention programs and treatments for children and adolescents with mental health disorders. Given that conceptualizations of "emotion" and its related constructs vary widely, we first provide an overview of some of the major perspectives and articulate our viewpoint. We next provide a historical and theoretical perspective on the relevance of emotion science for clinical child and adolescent psychology by illustratively reviewing the affective neuroscience and clinical literatures. We then describe several prevention and treatment programs that have been influenced by research on basic emotion processes and conclude by offering future directions for this emergent research area.

DEFINING EMOTION AND RELATED CONCEPTS

Despite compelling evidence for the role of emotions and emotion regulation in the development of child psychopathology, interventions have traditionally focused on the cognitive and behavioral aspects of functioning, without highlighting emotional functioning (Izard, 2002; Southam-Gerow & Kendall, 2002). The first step to understanding the role of emotion in developmental psychopathology and its implications for intervention is to establish a working definition of emotion. Conceptualizing emotion has presented a challenge to the field and the scope of the present discussion does not permit thorough examination of this wealth of work, although excellent reviews are available (e.g., Ekman & Davidson, 1994; Frijda, 1986; Izard, Kagan, & Zajonc, 1985; Lewis & Haviland, 1993; Plutchik, 1980).

Working definitions of emotion have evolved from considerations of the *structure* of emotion to the *function* of emotion as adaptive and motivational (Campos, Campos, & Barrett, 1989; Campos, Frankel, & Camras, 2004; Izard, 1977, 1993; Levenson, 1994). Along these lines, Campos et al. (1989) offered a working definition of emotion as "processes of establishing, maintaining, or disrupting the relations between the person and the internal or external environment" on matters important to the individual (p. 395). Campos et al. view emotions as serving an important social function, providing information to the individual about social events or conditions that need to be acted upon. The functionalist account views emotions as motivating a person to adapt to the environment (cf. Frijda, 1986), a conceptualization closely aligned with a psychoevolutionary view that emotions have evolved to organize physiological systems and to facilitate an adaptive response to important events (e.g., Darwin, 1965/1872; Ekman, 1992; Gray, 1990; Izard, 1977). Elaborating on the theory of emotions as "adaptive" motivational states, Izard's (1977) differential emotions theory suggests that emotion is associated with a unique "action tendency" or behavioral response pattern. An "action tendency" can effectively short-circuit more laborious cognitive processes (reason, problem solving) to efficiently organize behavior when faced with challenging situations (cf. Gray, 1990).

Emotion regulation is believed to underlie emotionally competent functioning. A somewhat thorny construct to define, recent efforts have attempted clarification (e.g., Calkins, 1994; Campos et al., 1989; Cole et al., 2004; Cole, Michel, & Teti, 1994; Kopp, 1989; Thompson, 1994; see special edition of *Child Development*, volume 75, 2004). From some perspectives, emotion regulation is viewed as a dialectical construct, involving both emotion as a *behavior regulator* and emotion as a *regulated phenomenon* (e.g., Campos et al., 1989; Cole et al., 1994, 2004; Kopp, 1989). Emotion regulation involves the "dynamic ordering and adjusting" (Cole et al., 1994, p. 83) of emotional behavior, in contrast to *control* (i.e., restraint of emotional processes). In other words, emotion regulation is not necessarily stopping or suppressing emotion, but may involve exaggerating emotional arousal and/or expression depending on the environmental context. Along these lines, emotion dysregulation is not necessarily the lack of regulation, but instead regulation that is "operating in a dysfunctional manner" (Cole et al., 1994, p. 80). Viewed this way, emotion regulation can be viewed as an integral process in socio-emotional competence and mental health (e.g., Gross & John, 2003; Hubbard & Coie, 1994;

Linehan, 1993; Stifter, Spinrad, & Braungart-Rieker, 1999; Thompson & Calkins, 1996). Research supports this tenet and finds a positive relationship between emotional competence and social skills (Eisenberg & Fabes, 1992; Hubbard & Coie, 1994) and an inverse relationship between emotion regulation and symptoms of psychopathology (Casey, 1996; Suveg & Zeman, 2004; Zeman et al., 2002).

Although we discuss emotion as a solitary construct, emotional competence is made up of a variety of independent, yet related skills (e.g., emotion understanding, emotion regulation, emotion expressiveness). Furthermore, emotional development is closely intertwined with a child's social and cognitive development. In fact, some researchers have employed terms such as "socio-emotional competence" and "affective social competence" to represent this construct—denoting the integration of a child's emotions and emotion-related processes and his or her social functioning (e.g., Eisenberg et al., 1999; Halberstadt, Denham, & Dunsmore, 2001; Hubbard & Dearing, 2004). Theoretical models have been developed to reflect the integration of various domains of functioning. For example, Halberstadt et al. (2001) proposed a theoretical model for affective social competence that integrates three components: (a) sending affective messages, (b) receiving affective messages, and (c) experiencing affect. The awareness and identification of affect (emotion understanding) and emotion regulation are essential skills within each component of the model. Along similar lines, Saarni (1999) proposed a model in which eight skills are considered critical for emotional competence, including awareness of one's own emotions, the ability to discern the emotion of others, and the capacity for adaptively coping with emotions and difficult situations. Saarni's model emphasizes the importance of cognitive and social moderators of emotional competence.

Other theoretical perspectives contribute to an understanding of socio-emotional competence. For example, social information processing (SIP; e.g., Crick & Dodge, 1994) has been applied with regard to socio-emotional development; aggressive children tend to attribute malicious intent to provocations, even when the actions are benign or ambiguous (cf. Schultz, Izard, & Ackerman, 2000). Although emotion might be considered a kind of energy or motivating force at each step of SIP (i.e., social perception, appraisal, goal clarification, response generation, response selection, and behavioral enactment), several researchers have called for more explicit attention to the role of emotion in the SIP model and SIP-based interventions (Bierman, 2004; Izard, 2002). Because noncognitive processes can contribute to emotion, interventions that exclusively focus on cognitive processes and social problem solving may be insufficient (Izard, 2002).

Finally, researchers have emphasized the role of temperament in the development of socio-emotional competence (e.g., Sanson, Hemphil, & Smart, 2004). Rothbart and Derryberry (1981) consider temperament as biologically based individual differences in both reactivity (i.e., general excitability) and self-regulation (i.e., the modulation of reactivity). Although genetically based, an individual's developing temperament is influenced by environmental factors and must be considered in context. Rothbart, Ahadi, and Evans (2000) also discuss the concept of effortful control, which they posit is one component of temperament and refers to the child's purposeful regulation of attention and behavior. How do temperament and effortful control relate to socio-emotional competence? Literature indicates that in response to emotion-evoking situations, children with behavioral problems have greater physiological reactivity and emotional arousal in comparison with peers (for a review, see Hubbard & Dearing, 2004). When reactivity is high initially, it may be more difficult to regulate. Furthermore, if reactivity is high and uncomfortable in a social situation, an individual may be more likely to focus on reducing his or her own arousal rather than the interpersonal nature of the interaction. In turn, this may lead to strained social relationships. This notion is consistent with that of researchers who have emphasized that temperament has a pervasive influence on the selection of controlled coping responses (e.g., Compas, Connor-Smith, & Jaser, 2004). With respect to effortful control specifically, research has linked the ability to use attention to various components of adaptive socio-emotional functioning (Eisenberg et al., 2003; Kochanska, 1997; Rothbart, Ahadi, & Hershey, 1994; Spinrad et al., 2006). The findings support the notion that interventions might best be individually tailored to temperamental differences.

In short, the working definition of emotion and emotion regulation applied herein, consistent with the work of biosocial and constructivist theorists, emphasizes a few guiding principles. First, emotion has a strong

neurophysiological basis rooted in evolutionary processes. Second, emotions point to the "concerns" of the organism, some nonconscious and evolutionary in origin. Third, emotion expression and regulation involve considerable variation resulting from social and cultural experiences. Fourth, context is greatly important to understanding and studying emotion and emotion regulation. Finally, the perspective held within this article is not inconsistent with that of developmentalists who view emotion processes as primary-motivating individuals and organizing cognition and action (Campos et al., 1989; Izard & Ackerman, 2000; Saarni, 1999).

FINDINGS FROM THE AFFECTIVE NEUROSCIENCE LITERATURE

Research from affective neuroscience provides support for the notion that prevention and treatment programs might benefit from greater attention to emotions. Specifically, neuroscientists studying the biological bases for emotion have identified parts of the brain that they believe underlie affective responding (e.g., ventromedial prefrontal cortex, dorsolateral prefrontal cortex, orbitofrontal cortex, amygdala, hippocampus, anterior cingulated cortex; for a brief review, see Davidson, 2000). At one time, researchers doubted that the neural circuitry underlying emotion could be modified. However, Davidson (1994, 2000), among others, has discussed the concept of plasticity—the notion that these circuits can be modified through environmental and other influences (see also Nelson, 1999; Panksepp, Knutson, & Pruitt, 1998).

Research with both animals and humans provides support for the plasticity of the neural circuitry underlying emotion (e.g., see Francis & Meaney, 1999; Meaney, Aitken, van Berkel, Bhatnagar, & Sapolsky, 1988; Schafe, Nadel, Sullivan, Harris, & LeDoux, 1999). Animal studies suggest that some behaviors (e.g., maternal grooming-licking behavior) are associated with chemical changes in brain areas associated with emotion (e.g., hippocampus, prefrontal cortex), and which "result in decreased responsivity to stress later in life" (Davidson et al., 2000, p. 900), suggesting important health-related consequences for emotional experiences. Studies with humans have also supported the notion that the emotion-related neural circuitry may be malleable. In a study of adults with obsessive–compulsive disorder, Baxter, Schwartz, Bergman, and Szuba (1992) reported change in brain chemistry in patients receiving either behavior therapy or pharmacotherapy. Although the study did not specifically focus on emotion-related brain chemistry, the finding suggests that non-medication therapy can have an impact on brain function.

Other research has more clearly supported the notion of neural plasticity with regard to human emotional functioning. One study (Finman, Davidson, Colton, Straus, & Kagan, 1989) involved children assessed at age 3 for the behavioral and electrophysiological correlates of behavioral inhibition (BI). Children were exposed to a variety of lab tasks designed to examine this trait, and patterns of cortical asymmetry were identified. Nine years later, the children were brought back into the laboratory and developmentally appropriate stressful laboratory tasks were administered (Rickman, 1997; as cited in Davidson & Rickman, 1999). Ten years after the initial assessment, electroencephalography data were collected. Although findings were consistent with previous research that identified a relation between inhibited behavior and increased right frontal activation and approach behavior and left frontal activation, the correlation between BI at ages 3 and 9 was not significant. This study further found a lack of correlation between brain asymmetry at ages 3 and 10, and asymmetry at age 3 did not predict BI at age 9. Other research supports this discontinuity in BI from infancy to early childhood (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Kagan, Reznick, & Snidman, 1987). Although there are various possible explanations for these findings, the discontinuities that were reported may provide evidence for neural plasticity with implications for the development of psychopathology.

Collectively, findings from affective neuroscience research have potential clinical implications—interventions that teach children skills to promote emotional competence have the potential to impact neural circuitry underlying emotional responding. Indeed, a recent study found that neurocognitive pathways mediated the outcomes of an emotion-focused prevention program for children (Riggs, Greenberg, Kusche, & Pentz, 2006).

FINDINGS FROM THE CLINICAL PSYCHOLOGY LITERATURE

A body of research is emerging that attempts to clarify how emotion-related processes are related to psychological problems—a critical challenge that has clear implications for treatment development and prevention efforts (e.g., Southam-Gerow & Kendall, 2002). The emerging research ranges from studies that demonstrate that emotion regulation

and emotion-related regulatory processes are prospectively related to indices of adjustment in normal populations to similar studies using samples of children with diagnosed psychopathology. In this next section, we illustratively (not exhaustively) describe this basic research that has been conducted with youth exhibiting a range of psychopathology, including eating disorders, disruptive behavior disorders, mood disorders, and anxiety disorders.

In two studies of adolescent females with bulimia, Sim and Zeman (2004, 2005) reported that females with bulimia were distinct from nondisordered and depressed youth across several aspects of emotion functioning. For example, adolescent females with bulimia were less likely to express their feelings compared to depressed and nondisordered females (Sim & Zeman, 2004). Furthermore, females with bulimia were not as able to identify their own internal states, suggesting that they may have difficulty discerning physiological changes associated with emotional experience. Sim and Zeman (2005) also reported that the relationship between body dissatisfaction and bulimic symptoms was partially mediated by negative emotion, poor emotional awareness, and nonconstructive coping with emotions. These findings suggest that clinical interventions for females with bulimia may benefit from a focus on improving emotion recognition skills and building an emotion regulation repertoire.

Several studies indicate that youth with disruptive behavior problems exhibit emotion-related deficits. For example, Casey (1996) found that children with attention deficit/hyperactivity disorder (ADHD) exhibit more facial expressions and greater change of facial expression during joint play tasks compared to both nondisordered children and children with oppositional defiant disorder (ODD) or major depressive disorder (MDD) whereas children with ODD or MDD exhibited fewer expressions compared to nondisordered children. The findings suggest emotion regulation problems for both children with ADHD (under-regulation) and MDD (over-regulation). Walcott and Landau (2004) reported that boys with ADHD (compared to non-ADHD controls) showed deficits in the ability to hide ("mask") feelings when instructed to do so during a frustrating competition task. In another study, boys referred for aggressive behavior problems endorsed more anger, fewer adaptive emotion regulation strategies, and more aggressive responses in response to vignettes involving peer provocation (de Castro, Merk, Koops, Veerman, & Bosch, 2005). Overall, these studies suggest that emotion-related problems in youth with disruptive behavior disorders, although consistently found, are varied. More research with youth with externalizing problems is needed to guide treatment development.

Several studies examined emotion processes in youth experiencing depressive symptoms, depressive disorders, or bipolar disorder. Ladouceur et al. (2005) provided evidence that stimuli that provoked negative emotions lessened the emotional processing capacity of children with MDD and comorbid anxiety, suggesting that youth could be taught to engage in strategies that will enhance attentional control in emotional situations. Garber, Braafladt, and Weiss (1995) found deficits in dysphoric school-age children's understanding of emotion regulation and coping, with dysphoric boys and girls reporting significantly fewer emotion regulation strategies compared to nondysphoric youth. Girls also reported significantly fewer problem-solving strategies in affiliative situations whereas boys reported more negative strategies (e.g., yelling, thinking self is dumb) across all situations.

Studying a sample of schoolchildren, Zeman, Shipman, and Penza-Clyve (2001) found that both inhibition of sadness and dysregulated expression of sadness were related to parent-reported anxious/depressed symptoms on the Child Behavior Checklist as well as child-reported depressive symptoms on the Children's Depression Inventory. Furthermore, Zeman et al. (2002) found that the inhibition of anger and dysregulated expression of anger, and the inability to identify emotional states, predicted internalizing symptoms (aggregate scores of child-reported depression and anxiety). It can reasonably be argued that without an awareness of one's emotional state, it is unlikely that a child will implement successful strategies to manage the emotional experience. In the case of negative mood states, repeated unsuccessful attempts to manage the emotion may contribute to the development of a disorder. Results also highlighted that in addition to sadness dysregulation, the lack of constructive ways to cope with emotion (i.e., anger) may contribute to the emotional distress of depressed youth. Finally, Rucklidge (2006) provided evidence for anger regulation deficits in a comparative study of adolescents with and without bipolar disorder (BD). BD adolescents were more likely to experience anger (physiological arousal), appraise a

situation as provocative, ruminate about the anger-provoking situation, and react impulsively with verbal and physical aggression when provoked than adolescents without BD.

Taken together, children with some form of depressive symptoms or disorder exhibit a wide range of emotion-related difficulties (e.g., in the domains of emotion understanding, expression, and regulation) that potentially contribute to the onset or maintenance of their symptoms. Given that not all youth exhibiting depressive symptoms or a disorder likely evidence all of these deficits, interventions will first need to assess areas of difficulty and then idiosyncratically target the domains that are in need of improvement. Teaching adaptive ways of regulating anger is likely to be an important component of intervention for these youth.

Several studies have focused on emotion processes in children with anxiety disorders. In one of the early studies, Southam-Gerow and Kendall (2000) found that compared to a nonreferred sample of children without anxiety disorders, anxiety-disordered (AD; generalized anxiety disorder, separation anxiety disorder, or social phobia) youth exhibited less understanding of emotion regulation (e.g., hiding feelings, changing feelings) but equivalent understanding of the cues of emotion and multiple emotions. In a study by Suveg and Zeman (2004), children completed self-report measures that assessed the intensity of emotional experience, emotional self-efficacy, and stylized ways of managing sadness, anger, and worry situations. Parents also reported on their children's ability to manage emotional experiences. Results indicated that AD children (a) experienced anger and worry more intensely and (b) perceived themselves as less able to successfully manage emotionally provocative situations than the nonclinical children. When particular patterns of emotion management were examined, AD children exhibited (a) more dysregulated management (i.e., culturally inappropriate emotional expression) and (b) less adaptive coping across anger, sadness, and worry than did nonclinical youth. Mothers of AD children also perceived their children as significantly more inflexible, labile, and emotionally negative than did mothers of non-AD children.

Finally, a study by Simonian, Beidel, Turner, Berkes, and Long (2001) examined the ability of children diagnosed with social phobia to identify facial expressions. The ability to recognize facial expressions is a component of emotion understanding and is necessary for interacting in socially competent ways. Social interactions of children who are not adept at reading nonverbal forms of communication are likely to be awkward for all participants—interactions that may then be subsequently avoided because of the anticipated discomfort associated with them. Children in the study by Simonian et al. were shown pictures of individuals expressing different emotions and were required to choose which emotion the person was displaying. Children also rated their own anxiety both before and after administration of the facial recognition task. Results indicated that the socially phobic children made significantly more errors identifying positive, negative, and ambiguous facial expressions. Socially phobic children also indicated more anxiety after completing the task than did the control group. Further analyses indicated that group status (as opposed to anxiety ratings) accounted for the greatest amount of variance, suggesting that socially phobic children evidence emotion-related skills deficits that contribute to their interpersonal difficulties.

Collectively, the results highlight the important role of emotion-related processes to understanding the development and expression of psychopathology in youth. Of particular note, the studies underscore that emotion-related deficits identified in youth with psychopathology were not specific to the "target" emotion of the disorder. For example, children with depression were found to have difficulties with anger regulation, not just sadness. Similarly, children with anxiety disorders had difficulty regulating anger and sadness, in addition to anxiety. These findings are consistent with the presence of comprehensive emotion-related deficits that require treatment attention.

EMOTION-INFORMED CLINICAL THEORY AND TREATMENT DEVELOPMENT

This body of neuroscientific and clinical research has served as an impetus for clinical scientists to consider the role of emotion and emotion regulation in the development of psychological interventions. Emotion has been involved in theory and practice since the beginnings of clinical science, but behavioral and then cognitive–behavioral scientists have focused more on observable phenomena and cognition than emotion per se. Emotion in some early behavioral and cognitive–behavioral accounts was a disruptive force, an interrupter of optimal cognitive and behavioral functioning (particularly true of early

information-processing accounts). Some integrative approaches, however (Greenberg, 2004; Greenberg & Safran, 1987), have emphasized emotion. Emotion-focused therapy (EFT) with adults concentrates on the importance of the *meaning* of emotional experience, with the understanding that some of the experience is "preconceptual" (nonconscious). These meanings become organized into "emotion schemes" that serve as the basis for future emotional experiences. Because some of the schemes are based on negative learning experiences, they are linked to maladaptive behavior. EFT focuses on increasing a client's awareness of emotions, including maladaptive emotion schemes. Therapists assist the client in activating emotion schemes and works with him or her to experience and process the emotions and historical basis for them. The goal is to help the client achieve a more adaptive and integrated understanding of his or her emotional experience.

Although behavioral and cognitive–behavioral therapy (CBT) approaches have not generally focused explicitly on emotion, many such approaches are designed to reduce emotional arousal, particularly negative emotional arousal (Samoilov & Goldfried, 2000). Most recently, the field has seen a surge of efforts to develop and/or adapt treatments to incorporate findings and theory from emotion science into CBT approaches. For example, Barlow et al. (2004) outlined a unified treatment for emotional disorders, an approach directly linked to findings from emotion science and theory. Drawing on the emotion regulation literature, Barlow et al. (2004) suggest that emotional disorders ranging from panic, generalized anxiety, and depression may be effectively treated using a "unified" treatment. The treatment model applies three core CBT strategies that have been adapted with attention to findings from emotion research. The first, cognitive reappraisal, resembles the traditional CBT-cognitive strategy, but an emphasis is placed on *antecedent* reappraisal (i.e., focusing on appraisal *before* negative affect is aroused). This emphasis draws on emotion research by Gross (1998), among others. The second strategy, prevention of emotional avoidance, involves an "updating" of exposure therapy such that emotional experience can become a focus for the exposure tasks. The third strategy involves modifying emotion action tendencies, through (a) preventing action tendencies associated with negative emotions (e.g., preventing avoidance associated with fear and anxiety), and (b) facilitating action tendencies associated with positive emotional experience (e.g., behavioral activation). The client creates positive emotional experiences through actions to "crowd out" negative emotional experiences. In short, Barlow and colleague (2004) unified treatment represents a CBT approach with direct application of emotion theory.

Underlying each theory is the notion that emotion processes, whether directly or indirectly, contribute to treatment outcome. Generally, when an emotion is elicited, a corresponding schema for that emotion is activated. The schema includes information about the emotion (including the situation itself) and the action tendencies that are associated with the emotion (Barrett, 1998). For instance, the general action tendency associated with fear is escape whereas the action tendency associated with interest is approach. Although emotions are adaptive, in persons with psychopathology, emotion schemas may be distorted, which, in turn, may lead to maladaptive responding. To modify the distorted schema, the schema must be activated and information incompatible with the schema must be presented for new memories to form (Foa & Kozak, 1991; "emotional processing"). The notion that emotional processing is important to treatment outcome is supported by treatment researchers from various theoretical backgrounds.

SPECIFIC APPLICATIONS OF EMOTION THEORY TO YOUTH PREVENTION/TREATMENT PROGRAMS

In the past decade, applications of emotion theory have also been infused into child-focused prevention and treatment programs. With respect to prevention, Promoting Alternative Thinking Strategies (PATHS), conducted in classroom settings with significant teacher involvement, promotes emotional competence in school-age children. PATHS acknowledges biological and environmental influences and the curriculum emphasizes teaching emotion-relevant skills. For instance, consistent with frontal lobe involvement in emotional development, PATHS promotes "vertical control" (higher-order processing and regulation of emotion and actions by frontal lobes) and "horizontal" communication (asymmetry of information processing in the two halves of the neocortex; Greenberg & Kusche, 2002). To promote vertical control, children are taught to use self-control strategies such as self-talk, theoretically increasing neuronal interconnections between the frontal lobes and the limbic system for

the development of self-control. To encourage horizontal communication, children are taught to verbally identify and label emotions, theoretically improving hemispheric and neural integration, thereby facilitating emotional recognition and subsequent regulation and behavioral control. For example, the "Feeling Face" cards include a drawing of each emotion (assumed to be recognized through the right hemisphere) and a printed label (assumed to be recognized through the left hemisphere).

Empirical evaluations of PATHS are promising (Greenberg, Kusche, Cook, & Quamma, 1995; Kam, Greenberg, & Kusché, 2004). For example, Greenberg et al. (1995) reported that children (regular classes and special education classes) demonstrated improvements in several emotion-related skills (e.g., fluency of emotion words, ability to discuss own emotional experience, knowledge of display rules) following the intervention. The positive effects of the intervention were also evident in behavioral indices of functioning (e.g., self-control, utilization of problem solving during stressful interpersonal situations). Using growth-curve analyses, another evaluation of the PATHS program with special-needs children (Kam et al., 2004) found that in comparison to the control group, teachers' ratings of externalizing behavior decreased over time and ratings of internalizing behavior increased at a much slower rate. The positive effects of the program were maintained two years after the intervention.

Izard, Trentacosta, King, and Mostow (2004) developed and evaluated a preventive intervention called the Emotions Course (EC) for children attending Head Start. Using several tools to facilitate the presentation and learning of emotion skills (e.g., puppets, vignettes), EC targeted children's emotion knowledge and ability to modulate negative emotional experiences. The EC consisted of 22 sessions that covered the emotions of happiness, sadness, anger, and fear. Teachers, who were randomly assigned to treatment or control classrooms, were trained and taught a pilot version of the EC. Teacher consultation was provided twice during the academic year. Pre–post assessments examined emotion labeling, emotion recognition, receptive emotion vocabulary, and teacher ratings. After the program, children showed an increase in the majority of emotion knowledge domains and improvement in emotion regulation. However, regression analyses examining the predictive relationship between the intervention and teacher-rated social and academic performance were not significant.

A final prevention illustration was reported by Denham and Burton (1996)—a socio-emotional prevention program for at-risk preschoolers. This classroom-based, teacher-led program was designed to improve teacher–child relationships, while improving children's emotion understanding, emotion regulation, and interpersonal problem-solving abilities. Denham and Burton modeled the emotion understanding/labeling feature after the PATHS curriculum. With respect to interpersonal problem solving, the authors used features of the problem-solving approach described by Spivack and Shure (1982). For example, children were encouraged to generate and evaluate multiple options in an effort to resolve a conflict. Rather than applying the program in a strict manner, components of the intervention were selected for each child and teachers were encouraged to integrate personal information they knew about the child into the treatment activities. The intervention was implemented four days a week for 32 weeks.

Assessments conducted before and after the program included teacher report and behavioral observation. Using regression analyses, results indicated a significant relation between the intervention and teacher-rated social competence, productive involvement with peers and peer skill, and ability to regulate negative affect. Similar to the PATHS curriculum, children with the lowest initial ratings improved the most on several measures.

Echoing Samoilov and Goldfried's (2000) assertion that the integration of emotion into cognitive–behavioral theory and therapy represents a key challenge for the field, Southam-Gerow and Kendall (2002) reviewed developmental and clinical literatures that underscore the importance of emotion understanding, emotion regulation, and emotion-relevant temperament constructs (e.g., emotional intensity) for interventions with children and adolescents.

Consistent with this call, Suveg et al. (2006) developed and examined the effectiveness of an emotion-focused cognitive–behavioral treatment (ECBT) for children with anxiety disorders. The treatment is empirically based, implementing intervention features that basic research identified as deficits in anxious children's functioning (e.g., Southam-Gerow & Kendall, 2000; Suveg & Zeman, 2004). Employing a multiple-baseline design, six children (ages 7–13) diagnosed with an anxiety disorder were assigned to start the 16-session ECBT treatment at

zero, two, or three weeks following their baseline evaluation. This evaluation assessed psychopathology, emotion-related skills, and overall functioning. The treatment included all of the empirically supported components of Kendall's (1994) CBT program for anxious youth (e.g., guided relaxation, cognitive reframing, use of exposure tasks; see Kendall & Hedtke, 2006) but also included content to specifically address, more in depth, emotion understanding and emotion regulation skills. At posttreatment, the majority of children demonstrated improvements in emotion-related skills and, in addition, showed reduced anxious symptomatology and improved overall functioning. It is not yet clear whether the benefits in emotion-related skills found in ECBT would also be found with CBT, and comparison studies are needed to determine whether ECBT or CBT may be more beneficial for children with certain characteristics (e.g., ECBT may be more beneficial for children who evidence significant deficits in emotion understanding and emotion regulation).

Recently, Kovacs et al. (2006) reported on a contextual emotion-regulation therapy (CERT) for youth ages 7–12 years. CERT consisted of 30 sessions over a 10-month period and was divided into four phases of decreasing intensity (i.e., treatment begins with one to two sessions per week and tapers to one session/month). A developmentally informed program, CERT places emotion regulation in an interpersonal context and thus requires that one caregiver participate in the child's treatment. Focus is placed on identifying maladaptive responses to dysphoria and contextual factors that might maintain the responses. Youth are taught information and a variety of skills, matched to the child's developmental level, including psychoeducational information about emotional development, emotion recognition skills, and problem-solving skills. The treatment is individualized by considering the child's history and integrating it into the treatment, and the newly presented skills are tailored to meet the child's individual preferences and needs. Therapists used a variety of behavioral, cognitive, and interpersonal strategies.

Assessments gathered before, after, and at 6- and 12-month follow-up included a diagnostic interview and self-reports. Parents reported on their own psychopathology and were referred for treatment as needed. Results indicated an improvement in diagnostic status and symptomatology at posttreatment and the improvements were maintained at the follow-ups.

FUTURE DIRECTIONS

Drawing from multiple literature, we highlighted ways in which the basic study of emotion has contributed to our understanding of psychopathology in youth. Consistent with this empirical basis, we hold that emotion deserves a prominent role in the development of prevention and treatment programs for youth. Preliminary studies are promising, yet challenges remain. Research needs to continue to examine how emotion-related processes are related to psychopathology in youth, although the work is a bit more developed with some disorders (e.g., anxiety) than others (e.g., oppositional defiant disorder). Identifying how emotion-related processes go awry in children with psychopathology will help intervention researchers develop more targeted, and potentially more effective, programs. Given that "emotion" is a multifaceted construct with behavioral and physiological indicators, multimethod assessments are crucial.

Second, when designing prevention and treatment programs, it is necessary to design programs that are not simply downward extensions of adult programs, but rather, are developmentally focused. Kendall, Lerner, and Craighead (1984) described the "developmental uniformity myth" in which children are seen as a homogenous group who will benefit from the same intervention. Treatment researchers have argued for the importance of attending to a child's developmental level when designing and implementing treatment programs (e.g., Barrett, 2000; Kingery et al., 2006; Silverman & Ollendick, 1999). With respect to emotional development in particular, children of similar ages can manifest wide variability in terms of emotion skill acquisition. Thus, programs will need to first assess skill acquisition and apply the prevention and treatment components accordingly.

Of the prevention and treatment programs that have been designed and evaluated, even preliminarily, there have been no head-to-head examinations of relative efficacy. For example, in the case of ECBT, the treatment was beneficial in promoting emotion-related skills in anxious children, decreasing anxious symptomatology, and improving overall functioning (including social functioning), yet it remains unknown whether or not CBT also leads to improvements in emotion-related skills. The Kovacs et al. (2006) report of CERT highlighted "the importance of parental involvement in treatment and offers one way to facilitate it." Although it seems intuitive

that parental involvement in child interventions would result in greater improvement than child-only interventions, it remains to be empirically evaluated. A recent review of treatments for anxiety in youth revealed that family-focused treatments are highly varied, target diverse themes, and are not always superior to interventions that include parents less intensely (Barmish & Kendall, 2005). Once initial effectiveness is established, emotion-focused programs need to be compared to other programs to determine relative efficacy, and the degree to which interventions are more effective for specific types of children. Systematically evaluating which programs work better for which children is not only consistent with empirically based medicine, but also the need to address the rising cost of health care—studying relative efficacy is good science with practical implications.

What are the mechanisms of the intervention effects? This issue warrants attention in general (e.g., Kaufman, Rohde, Seeley, Clarke, & Stice, 2005; Kazdin & Nock, 2003) and because it may facilitate the transportability of empirically supported interventions into practice (Kendall & Beidas, 2006). Indeed, some have argued that rather than testing new interventions, effort should be spent designing and implementing studies that tell us how and why treatments work and that facilitate theory building (Kazdin, 2006). The benefits of studying change mechanisms are not limited to theory building; the identification of these mechanisms will also guide intervention developers toward more efficient interventions (e.g., decreasing the need for "extraneous" components) and reducing costs. For example, Barlow et al. (2004) suggested that streamlined interventions of the future might target underlying syndromes (e.g., "negative affect syndrome"). Treatments that integrate emotion-relevant research should be alert to evaluate the degree to which these components have added value (i.e., improved outcome) using appropriate research designs (e.g., Kendall, Holmbeck, & Verduin, 2004; Kraemer, Wilson, Fairburn, & Agras, 2002). For example, treatment researchers will need to ensure that the components included in each treatment package are clearly articulated and operationalized to ensure distinctiveness from one another.

Although the data to date are promising, the long-term benefits of such programs have yet to be established. Some evaluations demonstrated that an emotion-focused program not only improved children's emotion-related skills, but also resulted in improved social competence. Research needs to continue to examine the range of outcomes, and to examine whether such positive effects last over time and whether other domains of functioning are positively impacted. In the big picture, it is important to determine whether children who receive emotion-related programs are less likely to demonstrate psychopathology as adolescents and adults than children who do not receive such programs.

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