

THE RELATIONSHIP BETWEEN DISPOSITIONAL MINDFULNESS AND EMOTION  
REGULATION IN CHILDREN

by

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of the requirements for the degree of Doctor of Philosophy, The City University of New York

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## Abstract

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Emotional competence is a core component of school success for all children, and the ability to regulate one's emotions is an important skill in developing emotional competence. Dispositional mindfulness may be an underlying cognitive orientation that allows children to be successful at regulating their emotions, because it involves both attention and cognitive components that influence how individuals perceive and react to their emotions. Mindfulness has been shown to have a robust relationship with emotional functioning in adults and is being incorporated into many treatment approaches for a variety of physical and psychological difficulties. The purpose of the present study was to examine the relationship between dispositional mindfulness and emotion regulation in children in grades 5-7. Ninety-one students completed self-reports of dispositional mindfulness and emotion regulation and completed a performance assessment of emotional awareness. In addition, one parent for each child completed a parent report of the child's emotion regulation. Path analysis demonstrated that dispositional mindfulness predicted emotion regulation, both through the child's self-report and the parent's assessment of the child's emotion regulation abilities. Emotion regulation as assessed by the parent report also predicted a child's level of emotional awareness and sophistication of emotional understanding. Identifying

the factors that help children become successful regulators of their emotions may inform the ways in which school psychologists and teachers support the emotional development of the students they serve.

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## Chapter 1: Introduction

The current study seeks to examine the role of dispositional mindfulness in successful emotion regulation in children. Specifically, it is hypothesized that dispositional mindfulness is a core underlying mental process that will be positively correlated with emotion regulation in children. Further, it is hypothesized that emotion regulation will predict deeper levels of emotional awareness.

Mindfulness can be defined as,

...nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, and sensation that arises in the attentional field is acknowledged and accepted as is. In a state of mindfulness, thoughts and feelings are observed as events in the mind, without over-identifying with them in an automatic, habitual pattern of reactivity (Bishop, et al., 2004, p. 232).

Mindfulness is thus a mental process that directs the use of attention and cognition. This type of directed attention and cognition can allow individuals to manage their emotions through a functional approach to the thoughts, feelings, and physiological responses that comprise emotional reactions.

Emotion regulation can be defined as "...the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994, pp. 27-28). Successful emotion regulation processes are those that allow an individual to experience the emotion, but to continue to function successfully toward the attainment of his or her goals. Emotion regulation depends on the successful management of attentional and cognitive resources.

Emotional awareness refers to the ability to identify and describe one's own emotions and those of other people. It differs between individuals and reflects an individual's past experiences with and understanding of external and internal emotional information (Bajgar, Ciarrochi, Lane, & Deane, 2005).

Emotional competence, including emotion regulation and emotional awareness, plays a critical role in facilitating many aspects of children's mental and physical well-being, including positive mental health, a personal sense of well-being, active citizenship and leadership, and development of healthy social relationships (Elias, Zins, Weissberg, Frey, et al., 1997; Schutte, Malouff, Simunek, McKenley, et al., 2002). In past years, there has been increasing interest in the emotional components of school success for children. Many emotions are experienced in school, and emotions are linked to learning in a variety of ways. Emotions can serve diverse functions including directing an individual's attention toward central concerns in the immediate environment, identifying discrepancies between one's progress and expected rate of progress or goal orientation, habituating an individual to stressors through repeated exposure or through cognitive reappraisal, facilitating regulation of the social environment, and aiding in the selection of satisfying emotional environments (Cole, Martin, & Dennis, 2004; Diamond & Aspinwall, 2003a). The intensity, valence, and specific emotion all provide important information to the individual about his or her relationship to the environment, compelling attention to important characteristics about the nature of the situation and the individual's goals within the situation, and preparing the individual to react in ways to achieve these goals.

While emotions are ubiquitous and functional to human survival, powerful emotions have the power to disorganize or disrupt multiple psychological processes (Diamond & Aspinwall, 2003b). The inability to effectively regulate emotions may result in either an under-control or an

over-control of emotions (Hessler & Katz, 2007). Difficulties in modulating emotional experiences may result in an individual's becoming easily overwhelmed by feelings (Mennin, Heinber, Turk, & Fresco, 2002). Conversely, frequent or automatic attempts to control or suppress emotional experiences or their expression may inhibit full emotional processing (Mennin, Heinber, Turk, & Fresco, 2002). Effective emotion regulation strategies, therefore, are those that allow an individual to experience the full range of an emotional experience without becoming overwhelmed by it. Successful emotion regulation does not eliminate emotions, but rather allows them to be fully brought into awareness and understood. Emotional regulation, therefore, should allow individuals access to the information about themselves and their environment that emotions provide and enhance emotional awareness.

Emotion regulation abilities have been linked with a number of social, academic, and emotional outcomes, including social skills, sociometric status, academic achievement, behavioral regulation, and personal adjustment (e.g., Elias, et al., 1997). Attention and cognition are the primary processes by which individuals regulate their emotions. Attention control is the selection aspect of information processing (Ochsner & Gross, 2007). Adaptive attention control is essential to the regulation of an emotional state, as the choice of attentional focus determines what information from the individual and the environment will be processed. Cognitive abilities play a significant role in emotion regulation because they determine how an individual appraises emotion-inducing situations, and plans, executes, and evaluates goal-relevant strategies. In the context of emotion regulation, cognitive abilities are essential in constructing expectations about an up-coming situation, selecting alternative explanations for situations, making different judgments about emotional information, and flexibly adapting goals to the available

circumstances (Ochsner & Gross, 2007). Mindfulness is one mental process that may direct attention and cognition in ways that may be particularly beneficial for emotion regulation.

Bishop, et al. (2004) created a two-component model of mindfulness, incorporating both self-regulation of attention and orientation to experience. The first component involves the self-regulation of attention so that it is maintained on immediate experience, allowing for increased recognition of mental events in the present moment. The second component of mindfulness is a cognitive orientation to experience that emphasizes openness and acceptance of whatever is being experienced in the present moment. It is an active “allowing” of thoughts, feelings, and sensations achieved by adopting an attitude of curiosity and acceptance. Mindfulness may allow for better emotion regulation because of its dual components of attention regulation and a cognitive focus on adopting a “nonstriving” or accepting attitude (Hamilton, Kitzman, & Guyotte, 2006).

Although research on mindfulness in adults is robust, little research has been published looking at mindfulness in children (Semple, Lee, & Miller, 2006). While many authors have advocated the utility and feasibility of using a mindfulness-based approach with children to promote overall well-being and positive psychological functioning (Greco, Blackledge, Coyne, & Ehrenreich, 2005; Hayes & Greco, 2008; Semple et al., 2006; Wagner, Rathus, & Miller, 2006;), no published studies have examined the relationship between mindfulness, emotion regulation, and emotional awareness in children.

The purpose of this study is to examine the relationship between mindfulness, emotion regulation, and emotional awareness in children. The primary hypothesis of this study is that children who exhibit greater dispositional mindfulness will be better able to regulate their emotions, which in turn, potentiates greater depth of awareness of these emotions. Preliminary

research has identified a relationship between mindfulness and emotion regulation in adults as well as between types of emotion regulation skills and emotional awareness, but these relationships have never been investigated in children. Understanding whether mindfulness sets the stage for emotion regulation in children and whether this can lead to more in-depth awareness of emotional information could provide useful information about ways to help children become more adept at managing their emotions.

In the current study, 91 children in grades 5-7, self-reported on their mindfulness skills, emotion regulation, and completed a performance assessment of emotional awareness. In addition one parent of each child reported on the child's emotion regulation. Using these data, a path model was created and analyzed using path correlation coefficients. The analysis demonstrated that self-reported mindfulness predicts emotion regulation skills in children, as measured both by the child's self-report as well as the parent's assessment of his or her child's emotion regulation. In addition, the parent's assessment of the child's emotion regulation in turn predicted the child's emotional awareness. There was also a significant indirect effect of mindfulness on emotional awareness through the parent's assessment of emotional awareness, giving further support for the proposed model.

The results of this study suggest that dispositional mindfulness is associated with greater perceived control over emotions as well as with the emotion regulation behavior, and that emotion regulation may serve as a mediator between mindfulness and emotional awareness in children. These findings can be regarded as a valuable first step in elucidating the relationship between mindfulness and emotional functioning in children. Because much of school success is based on a child's social and emotional competence, these findings may be useful in helping teachers and school psychologists develop this type of competence in the children with whom

they work. Additional research is necessary to further our understanding of the construct of mindfulness in children within a developmental framework and to explore ways of measuring the construct in meaningful and reliable ways.

## **Chapter 2: Review of the Literature**

This chapter presents a review of the literature on emotion regulation, with a particular focus on children. The importance of emotional competence in children is discussed, especially as it relates to school functioning. Next, a historical review of the role of emotions is presented, followed by an introduction to the current “functional” view of emotion as it is used in this study. Then, a rationale and review of the process of emotion regulation is outlined, with an emphasis on the role of emotion regulation within a functional model of emotions. Elements of emotion regulation are further discussed including an understanding of what leads to individual differences in emotion regulation, how emotion regulation develops, and the attentional and cognitive functions that lead to successful emotion regulation. Mindfulness is then presented as a cognitive mode that establishes the ideal attentional and cognitive orientation for successful emotion regulation to occur. The general term “mindfulness” is used throughout the paper to refer to the cognitive mode that is being defined. The term “dispositional mindfulness” is used to refer to individual differences in mindfulness that are inherent to individuals, and are not a result of specific training in mindfulness. The roots of mindfulness in psychology are reviewed and an overview of the research findings on mindfulness in adults is offered. Mindfulness is further defined and the links with emotion regulation are explored, through the processes of attention and cognition. Finally, the research on mindfulness in children is reviewed, and a rationale for the current study is offered.

### **The Importance of Emotional Competence in Children**

Emotional competence plays a critical role in facilitating many aspects of children’s mental and physical well-being, including positive mental health, a personal sense of well-being, active citizenship and leadership, and development of healthy social relationships (Elias, et al.,

1997; Schutte, et al., 2002). Adelman and Taylor (2000) argue that emotional learning is a critical element of all school curricula because it helps children to navigate the social and emotional contexts of the classroom. Emotions can have a positive or negative impact on learning through their influence on social relationships with peers and adults, as well as through such factors as children's engagement, motivation, and attention for learning tasks. For example, students who are more self-aware and confident about their learning abilities tend to try harder and persevere in learning tasks (Zins, Bloodworth, Weissberg, & Walberg, 2004). Students high in social and emotional competence can also be better self-motivators and can set goals, manage their stress, and organize themselves more successfully toward the attainment of these goals (Zins et al., 2004). In addition, emotional competence decreases the likelihood of negative mental health problems in children including psychopathology, drug use, and violence (Weissberg, Kumpfer, & Seligman, 2003). Substantial numbers of children currently experience these types of mental health problems and engage in risky behaviors. The Surgeon General's report (1999) indicated that approximately 20% of children and adolescents experience the symptoms of a mental disorder during the course of a year and many more experience periods of temporary or prolonged emotional distress.

In past years, there has been increasing interest in the emotional components of school success for children. Many emotions are experienced in school, and emotions are linked to learning in a variety of ways. A series of studies by Pekrun, Goetz, Titz, and Perry (2002) examined high school and college students' experience of emotions in school. These students reported frequent, yet highly varied experiences of emotions in the academic setting. Overall, anxiety was the emotion reported as most often experienced in school, accounting for 15-25% of reported emotions. In addition to anxiety, the emotions of hope, pride, relief, anger, boredom,

and shame were the most often reported emotions by students in these studies. Different emotions were found to correlate with different elements of learning processes. Positive emotions such as enjoyment, hope, and pride showed a positive correlation with students' interest, intrinsic and extrinsic motivation for learning, and self-reported academic effort. Negative emotions such as boredom and hopelessness correlated negatively with these motivation variables. Positive emotions also predicted students' high academic achievement in a variety of ways, and negative emotions predicted low achievement.

Programs that are designed to enhance children's social and emotional competencies have been shown to result in a number of positive school outcomes. While it can be difficult to generalize results across different types of Social Emotional Learning (SEL) programs, Najaka, Gottfredson, and Wilson's (2001) meta-analysis of 165 published studies of school-based prevention programs concluded that SEL programs resulted in improved outcomes in the form of decreasing dropouts and nonattendance. A report published by the U.S. Department of Health and Human Services (2002) reviewing school-based prevention programs grounded in SEL competencies reported that these programs led to positive academic outcomes including improved grades and standardized test scores, increased graduation rates, and improvements in reading, writing, and math skills. Clearly, understanding emotions and the ways in which children can successfully manage their emotions is of significant importance for ensuring healthy development and academic success among children.

### **Understanding What Emotions Are**

Emotions are ubiquitous, but our perspective on their utility has varied widely throughout the history of philosophy and psychology. Aristotle (384-322 B.C.) discussed the nature of emotions in general, as well as the nature and condition of specific emotions, notably anger, in

*Rhetoric* as well as in his *Nicomachean Ethics*, presenting them as both central and essential to a successful life, as well as important in the ethical analysis of human behavior. During the time of the Roman Empire, the Stoic philosophers assumed a contrasting view, casting emotions as “conceptual errors” (Solomon, 2004, p. 5) created when individuals make misguided judgments about the world and their place in it, which inevitably leads to frustration and misery.

Throughout the Middle Ages in Europe, the study of emotion was dominated by the central Christian philosophy of the time, and emotions were seen as linked with desires and ultimately, therefore, with sin. Descartes (1596-1650), often considered the “father of modern philosophy,” considered emotion a “passion” as distinguished from “clear cognition” and considered emotions as essential to wisdom, but also as having the capacity to render judgment “confused and obscure” (p. 6). In the 18<sup>th</sup> century, rationalist Enlightenment thinkers held that emotions were pernicious, disorganizing forces in human experience, interfering with the individual’s capacity for rational thought and behavior. Kant (1724-1804), for example, dismissed “the inclinations” (emotions, moods, and desires), as, at best irrelevant and, at worse, intrusive and disruptive. At the same time, Hume (1711-1776) challenged Enlightenment thinking about the inferiority of emotion, but concluded that there are “good” emotions and “bad” emotions, depending on their ethical content (Solomon, 2004).

At the beginning of the 20<sup>th</sup> century in America and England, an emphasis grew on the physiology of emotions through the works of philosophers such as William James and John Dewey. The subsequent split between philosophy and psychology as separate disciplines resulted in “emotion” being subsumed under the area of “psychology” and taken, for the most part, out of the discussion of ethical reasoning. In Europe at this same time, however, philosophers such as Scheler, Heidegger, Ricoeur, and Sartre were developing ways of thinking that placed emotions

at the core of human existence. Heidegger, for example, described emotions as an individual's way of being "tuned in" to the world around him. The later part of the 20<sup>th</sup> century, however, saw the emergence of behavioral psychology, with its emphasis on the study of observable phenomenon in psychology. Behavioral psychologists generally viewed emotions as irrelevant or possibly dangerous. In *Walden Two*, B.F. Skinner (1948) wrote, "We all know that emotions are useless and bad for our peace of mind and our blood pressure" (Solomon, 2004).

More recently, both the social constructionists and the evolutionary schools of psychology have proposed a more functional view of emotions. Namely, "...emotions serve clearly specified functions, prioritizing and organizing ongoing behaviours in ways that optimize the individual's adjustment to the demands of the physical and social environment" (Keltner & Gross, 1999, 468). These schools of contemporary psychological thought differ, however, on their view of the nature of emotion. Evolutionary psychologists view emotions as biologically-based, genetically encoded information engineered to meet the demands of survival in the social and physical environment as experienced throughout human evolution. Social constructionist psychologists see emotions as culturally-defined adaptations to different social, structural, and moral-ideological forces within a given society. In both cases, however, emotions are viewed as serving a function for individuals and for society (Keltner & Gross, 1999).

Emotions can serve diverse functions including directing an individual's attention toward central concerns in the immediate environment, identifying discrepancies between one's progress and expected rate of progress or goal orientation, habituating an individual to stressors through repeated exposure or through cognitive reappraisal, facilitating regulation of the social environment, and aiding in the selection of satisfying emotional environments (Cole, et al.,

2004; Diamond & Aspinwall, 2003b). In all of these cases, emotions serve as information for the individual about his status in relationship to his environment.

Specific emotions are triggered when a person detects “signals” in the environment indicating that a situation exists that is relevant to his or her goal orientation (Cosmides & Tooby, 2000). Emotions serve the individual by coordinating an emotion-specific “response packet” to manage the perceived situation. Different emotions signal a different type of situation. For example, sadness may signal to the individual that a loss has occurred, while anger may signal that an individual’s goal strivings may be thwarted. These specific emotions create a physiological and mental state that is optimal for dealing with whatever situation is perceived. In addition, emotions can order and shift cognitive and behavioral hierarchies to reflect shifting priorities in the environment. Or, subjective emotional experiences can trigger a reevaluation of goals and behaviors to realign the individual with his environment or to take action to affect the environment in the service of his or her goals. In addition, emotions provide associative structures in memory that can provide access to additional experiences and outcomes for dealing with future situations that may be similar (Levenson, 1999).

From this viewpoint, the intensity, valence, and specificity of emotions all provide important information to the individual about his or her relationship to the environment, compelling attention to important characteristics about the nature of the situation and the individual’s goals within the situation, and preparing the individual to react in ways to achieve these goals. The intensity of emotion prioritizes the individual’s response tendencies in any given situation, while the valence provides information about whether approach or avoidance behavior is more adaptive in response to the situation. The subjective feeling state provides information about the interface between the situation and the individual’s goals (Weston & Blagov, 2007).

From a functional viewpoint, emotions are not to be avoided or dismissed, but should be attended to, as important sources of useful information. Any actions that attenuate emotional responses before all of their important information has been gleaned would be considered dysfunctional for an individual.

### **Definition of “Emotion”**

A functional account of emotions, therefore, assumes that emotions serve an adaptive purpose and contribute to helping the individual solve survival-relevant issues such as forming attachments, maintaining cooperative social relationships, and avoiding physical threats (Keltner & Gross, 1999). There remains disagreement, however, about what an emotion *is*. While details in specific models vary, shared assumptions have converged on a general understanding of emotions as “biologically-endowed processes that permit quick appraisals of situations and equally quick preparedness to act to sustain favorable conditions and deal with unfavorable conditions” (Cole, et al., 2004, p. 319).

Gross and Thompson (2007), have proposed a Modal Model of emotions that is used in much of the current research on emotion. They define emotion as “...a person-situation transaction that compels attention, has particular meaning to an individual, and gives rise to a coordinated yet flexible multi-system response to the ongoing person-situation transaction” (p. 5). In this model, a situation first occurs, which can be either external or internal to the individual. An example of an external situation would be an individual getting cut off by another car while driving. An internal situation might be a cognition in the form of a desire to win the lottery and a mental representation of what it would mean to win the lottery. The situation is attended to by the individual and gives rise to appraisals of the situation along many dimensions

including its valence and goal relevance. It is these appraisals that evoke emotional responses in the experiential, behavioral, and neurobiological response systems.

Gross and Thompson's model (2007) encompasses three core features of interest. First, emotions occur when an individual pays attention to a situation and sees it as potentially relevant to his or her goals. That is, emotions are context-dependent and are not evoked in situations that are unrelated to what a person hopes to achieve. Second, emotions involve correlated reactions in the domains of subjective experience, behavior, and central and peripheral physiology. An emotion includes a feeling (subjective experience) and also an impulse to act in a certain way and not act in other ways. These feelings and action impulses are accompanied by physiological responses in the body. Third, while emotions possess an imperative quality or "control precedence" (Frijda, 1986 as cited in Gross & Thompson, 2007) that can impose itself on our awareness, the multifaceted changes that accompany them are malleable rather than fixed. They are better viewed as response tendencies, rather than as imperative patterns of responding. Because they are response *tendencies*, they are able to be changed or modified, according to the needs of the individual. The change or modification of an emotion is referred to as emotion regulation.

### **Why Regulate Emotions?**

While emotions are ubiquitous and functional to human survival, powerful emotions have the power to disorganize or disrupt multiple psychological processes (Diamond & Aspinwall, 2003a). Much of our language to describe emotional experiences reflects this possibility: we "lost it" when we got angry; we can become "paralyzed by fear," "blinded by love," or "consumed by jealousy" (Schutz & Davis, 2000). Unregulated strong emotions can keep us from focusing on daily tasks or may result in socially-undesirable behaviors such as emotional

outbursts (Moses & Barlow, 2006). Gross (1998) suggests that problems with emotion regulation are implicated in over half of the Axis I and all of the Axis II diagnoses in the DSM-IV including mood and anxiety disorders and personality disorders, such as Borderline Personality Disorder.

The inability to effectively regulate emotions may result in either an under-control or an over-control of emotions (Hessler & Katz, 2007). Difficulties in modulating emotional experiences, may result in an individual's becoming easily overwhelmed by feelings (Mennin, Heinber, Turk, & Fresco, 2002). Conversely, frequent or automatic attempts to control or suppress emotional experiences or their expression may inhibit full emotional processing (Mennin, et al., 2002). Effective emotion regulation strategies, therefore, are those that allow an individual to experience the full range of an emotional experience without becoming overwhelmed by it. Having access to a full range of emotional experiences, therefore, facilitates a deeper level of emotional awareness.

### **The Process of Emotion Regulation**

From a functional view of emotions, "good" emotion regulation strategies should be those that allow the emotion to be "held" and processed, allowing the individual to extract the information provided by an emotion-inducing situation, thereby facilitating goal-directed behavior that promotes overall well-being. In contrast, emotion regulation strategies that do not process or use the information in a helpful way would be considered dysfunctional. These strategies may prevent the development of tolerance for emotions and may lead to amplification of emotional distress due to the generation of secondary emotions (Phillips & Power, 2007).

Emotion regulation, therefore, does not refer to the elimination of emotion, but rather to the suite of controls that permit adaptive functioning in the presence of emotions such as anxiety, shame, anger, distress, and even intense excitement (Lewis, Lamm, Segalowitz, Stieben, et al.,

2006). This “suite of controls” allows for the modulation of emotional experiences in a way that helps the individual attain desired affective states and adaptive outcomes within the situation (Lopes, Salovey, Cote, & Beers, 2005). In order to be effective, emotion regulation facilitates “...access to the range of emotions, flexible modulation of intensity, duration, and transitions between emotions, acquisition and use of cultural display rules, and the ability to reflect the complexity and value of one’s own emotions in a self-supporting manner.” (Cole, Michel & Teti, 1994, p. 73).

Researchers have defined emotion regulation differently. Some have conceptualized emotion regulation as context dependent, requiring emotion regulation to be assessed within a specific context (Diamond & Aspinwall, 2003a). Others have conceptualized emotion regulation as a global tendency to use certain strategies over others - people, they suggest, have an emotion regulation “style.” (Calkins & Dedmon, 2004). Many researchers have conceptualized emotion regulation as a two-part process. The emotions are activated and then they are regulated. Others have argued that emotional experiences cannot be separated from regulation and comprise parts of the same process (Campos, Frankel, & Camras, 2004).

There has also been disagreement about whether emotion regulation includes either voluntary, effortful processes undertaken by the individual or involuntary, reactive and largely unconscious processes, or both (Eisenberg, Champion, & Ma, 2004). Also, researchers have questioned whether it is useful to consider only processes internal to the individual or also behavioral and transactional processes between the individual and the environment (Diamond & Aspinwall, 2003a).

Questions have also been raised regarding whether emotion regulation involves only the inhibition of emotional reactions or whether it also includes the maintenance and enhancement of

emotions in some situation. A related question is also whether only negative emotions are regulated or whether positive emotions are also subject to regulation (Batum & Yagmurlu, 2007).

Researchers have also conceptualized the purpose of emotion regulation differently. Some have suggested that the main goal of emotion regulation is the maximization of positive emotions and the minimization of negative emotion (hedonic). In this view negative emotional experiences are thought to prompt efforts at mood repair by addressing the source of the negative feelings. Positive emotion states are thought to prompt efforts at mood maintenance by avoiding information that might compromise one's positive mood (Diamond & Aspinwall, 2003a). There is some evidence refuting this viewpoint, however. Research has demonstrated that when people are feeling good and also have an important goal to achieve, they will seek out potentially useful information relevant to their goal, even when the information has the potential to have a negative impact on their mood (Aspinwall, 1998). In some situations, then, goal attainment seems to take precedence over maintaining a positive mood state (Aspinwall, 1998; Diamond & Aspinwall, 2003b).

Within Gross's Modal Model, emotion regulation is seen as separate from, though a closely related process to, the emotional response itself. "Emotion regulation involves changes in...the latency, rise time, duration and offset of responses in behavioral, experiential or physiological domains. Emotion regulation may dampen, intensify, or simply maintain emotion, depending on an individual's goals." (Gross & Thompson, 2007, p.8). Several core features of emotion regulation emerge from this definition. First, both positive and negative emotions may be regulated. Second, emotion regulation can occur on a continuum from conscious, effortful, and controlled regulation to unconscious, effortless, and automatic regulation. Third, no form of

emotion regulation is de facto good or bad. Whether a specific type and target of emotion regulation is adaptive or non-adaptive can only be understood within the larger context of the situation and the individual (Phillips & Powers, 2007).

The Modal Model of emotions conceptualizes emotion generation as a sequential process, thereby creating distinct points at which emotion regulation can occur. Emotion regulation can occur at the situation, attention, appraisal, or response stages. Emotion regulation strategies that occur during the first three stages are referred to as “antecedent-focused” because they are deployed before appraisals give rise to full-blown emotions. Emotion regulation strategies that occur after responses are generated are called “response-focused” (Gross & Thompson, 2007).

At the situation stage, the first emotion regulation approach is *situation selection*. It involves taking actions to increase the likelihood of ending up in a situation that gives rise to positive emotions and conversely taking actions to decrease the likelihood of ending up in a situation that is likely to provoke a negative emotional response. Emotion regulation may also occur at the situation stage through *situation modification*, or changing an existing situation to alter its emotional impact (Gross & Thompson, 2007).

At the attention stage, emotion regulation takes the form of *attentional deployment*. This refers to processes that alters the way a person directs his or her attention within a given situation in order to influence the emotions experienced. Concentration draws attention to the emotional features of a situation, while distraction focuses attention on different aspects of the situation to influence a feature’s emotional impact (Gross & Thompson, 2007).

During the appraisal phase of emotion generation, emotion regulation involves *cognitive change*. This involves changing how we think about a situation or about our capacity to respond to and manage the demands it imposes in order to alter the situation’s emotional relevance. At

the response stage, after response tendencies have been generated, emotions can be regulated through *response modulation*. These emotion regulation approaches include attempts at influencing physiological, experiential, or behavior responding as directly as possible (Gross & Thompson, 2007).

### **Emotional Awareness**

A fundamental assumption of theory, research, and clinical practice in psychology has been that it is helpful to process and work through negative emotions, rather than avoid or suppress them. Successful emotion regulation does not eliminate emotions, but rather allows them to be processed. The major approaches to psychotherapy, including the traditional psychoanalytic approaches as well as cognitive-behavioral approaches all emphasize the identification and confrontation of negative emotions as a central feature of treatment for many types of psychological disturbance and the ability to express and analyze one's emotions has been associated with both physical and mental health benefits (Kross, Ayduk, & Mischel, 2006).

Definitions of emotional intelligence also commonly include the ability to recognize and understand emotional experiences. Salovey and Mayer, who first used the term "emotional intelligence" in 1990, define emotional intelligence as,

the ability to perceive accurately, appraise and express emotions; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (Mayers & Salovey, as cited in Pellitteri, 2006, p. 32).

More recently, Goleman's (1995) and Bar-On's (2000) models of emotional intelligence both include emotional awareness as a central component (Pellitteri, 2006).

Emotion awareness, therefore, reflects individuals' access to information about themselves and their environment that emotions provide. Stanton, Parsa, and Austenfeld (2002) reported that active emotional processing in college students, defined as attempting to acknowledge and understand emotions, was associated with positive psychological adjustment including greater hope, instrumentality, and self-esteem and lower levels of neuroticism, trait anxiety, and depressive symptoms. They posited that emotional processing may direct one's attention to discrepancies between an individual's goal and his or her current state of progress toward that goal and help to motivate action. Emotional processing may also aid habituation to a stressor, either through repeated exposure or by encouraging understanding and cognitive reappraisal (Stanton, et al.). For example, through active attempts to acknowledge and understand emotions, an individual might conclude that the situation is not as negative as it was originally perceived, might acknowledge that painful emotions eventually subside, and that some advantages might be gleaned from even an adverse situation. The emotional awareness gained through active emotional processing may also allow individuals to more accurately communicate emotional distress to others and receive more social support. Emotion regulation is therefore most successful when it allows the individual to continue to work toward the attainment of his or her goals, while allowing the emotion-based information to be held and processed so that greater emotional awareness is attained.

### **Individual Differences in Emotion Regulation**

Salovey, Mayer, Goldman, Turvey, and Palfai (1995) suggest that individual differences in emotion regulation may be due in part to individuals' abilities to process information related to emotional experiences. They postulate that individuals differ in their tendency to attend to

their emotions and to discriminate clearly among them, as well as in their ability to regulate them (John & Gross, 2007).

An individual's efforts to regulate his or her emotions may also be related to beliefs about the malleability of emotions. For example, those who hold *entity beliefs* view attributes as fixed and impossible to control. Individuals who hold *incremental beliefs* view attributes as malleable and controllable. These beliefs should have a strong influence on an individual's emotion regulation efforts. If emotions are fixed and cannot be changed, there is little to be gained by expending effort or energy on implementing emotion regulation strategies. Conversely, if emotions are changeable and can be controlled, emotion regulation strategies serve an important purpose (John & Gross, 2007).

Emotion regulation is also related to an individual's goals in a given situation. If the goal is immediate distress reduction, then "good" strategies have been identified as seeking social support, emotional disengagement, writing about the event in the form of a story, and physical exercise. If the goal is to achieve higher levels of the positive aspects of well being (subjective feelings of energy, strength, enjoyment, and engagement) as well as decreased distress, different strategies such as positive reappraisal (a focus on the "silver lining" in a distressing situation), problem-focused coping, creating positive events, enlisting social support, and distraction may work more efficaciously (Shiota, 2006). In the Shiota study, 148 adults self-reported their experience of positive and negative events and their use of a variety of emotion regulation strategies in response to those events, every day for a week. They also reported on their overall experience of positive and negative emotions and overall well-being on the Positive and Negative Activation Schedule (PANAS). The findings suggested that different emotion regulation strategies had different effects (Shiota, 2006). Positive reappraisal and creating

positive events were most clearly and consistently associated with enhanced well-being. Seeking social support was related to reduced negative emotion activation, but not increased positive emotion activation. Problem-focused coping was not related to either positive or negative activation. Distraction was associated with lower levels of reported well-being.

### **Positive Correlates of Emotion Regulation**

Emotion regulation abilities have been linked with a number of social, academic, and emotional outcomes. In a longitudinal study, Caspi (2000) found that 3-year-olds classified by their parents as emotionally under-controlled showed lower social competence in late childhood and adolescence and even into adulthood, as reflected in school attendance and achievement, psychiatric history, and the reports of significant others. Emotional competence can also influence school success through such factors as children's engagement, motivation, and attention for learning tasks. For example, students who are more self-aware and confident about their learning abilities tend to try harder and persevere in learning tasks (Zins, Bloodworth, Weissberg, & Walbert, 2004). Students high in emotional competence can also be better self-motivators and can set goals, manage their stress, and organize themselves more successfully toward the attainment of these goals (Zins et al., 2004). In a study with 122 children, assessed at preschool and then again during kindergarten, Howse, Calkins, Anastopoulos, Keane, and Shelton (2003) found that parent ratings of children's ability to manage their emotions during preschool predicted their performance on an academic achievement test in kindergarten. Trentacosta and Izard (2007) asked parents and teachers to assess children's emotional competence in kindergarten and found that emotion regulation in kindergarten predicted academic achievement in first grade, as measured on a standardized achievement test through its effect on attention, measured by teacher ratings of children's attention in the classroom. That is,

children who can manage their emotions succeed academically because emotion regulation predicts attention to tasks in the classroom.

In a study of the relationship of emotion regulation and social functioning among 76 undergraduate students, Lopes, et al. (2005) found a number of significant relationships. Individuals who were high in emotion regulation abilities as measured on the performance-based Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) viewed themselves and were viewed by their peers as more interpersonally sensitive and pro-social. High emotion regulation performance was also associated with a higher proportion of positive peer nominations relative to negative peer nominations. They proposed that emotion regulation can facilitate social interactions through several mechanisms: it can facilitate positive expectations for social interactions, influence the overall tone of social encounters, inform the use of pro-social strategies, and allow emotionally-charged encounters to be mediated effectively.

In a study of adolescent emotion regulation, Phillips and Powers (2007) examined the emotion regulation strategies of 225 adolescents (mean age of 15) with a self-report measure of emotion regulation across two dimensions: internal-external and functional-dysfunctional. They found that self-report of internal dysfunctional emotion regulation strategies was associated with higher levels of internalizing emotional symptoms, as reported by their parents. In addition, adolescents who self-reported more use of external-dysfunctional emotion regulation strategies were reported by their parents as having more conduct problems. Adolescents reporting more use of both types of dysfunctional regulation strategies also had more self-reported psychosomatic health problems and lower reported quality of life. In contrast, functional emotion regulation strategies were associated with a number of positive outcomes. Higher use of internal-functional emotion regulation was associated with fewer emotional and behaviors problems overall, as rated

by parents. Use of external-functional emotion regulation strategies was correlated with parent report of fewer peer problems and greater pro-social behavior.

Salters-Pedneault, Roemer, Tull, Ricker, and Mennin (2006) found that difficulties with emotion regulation were associated with higher levels of chronic worry. Among a sample of 325 undergraduate students, those who self-reported high levels of worry on the Penn State Worry Questionnaire (PSWQ) self-reported concurrent difficulties with emotion regulation in general and in specific areas of acceptance of emotions, ability to engage in goal-directed behavior when upset, impulse control, access to strategies for regulation, and clarity of emotions on the Difficulties in Emotion Regulation Scale (DERS).

### **The Development of Emotion Regulation in Children**

How do children acquire the knowledge and skills necessary for successful emotion regulation? Emotion regulation is an important aspect of healthy social and emotional functioning for children and appears to follow a developmental trajectory (Stegge, Terwogt, Reijntjes, & van Tijen, 2004). Infants generally seem to rely on caregivers to regulate their emotions through soothing behaviors (e.g., rocking). In infants as young as six months, social referencing - the process of looking to someone else for information about how to respond to a stimulus - can be observed (Saarni, Mumme, & Campos, 1998).

Mangelsdorf, et al. (1995) found that emotion regulation strategies vary as a function of age. At 6 months, gaze aversion is the primary means of regulating emotional arousal. 12-month-olds engage in more self-soothing behaviors (thumb-sucking, hair twirling) than do 18-month-old infants. And both 12 and 18-month-old infants use more behavioral avoidance and distancing strategies than younger infants. By 24 months of age, self-distraction was the most commonly

observed regulation strategy in negative affect situations. The time between 24 and 48 months marks a decline in the use of an external locus of regulation to a predominantly internal locus.

In a review of research findings in preschool age children, Denham (1998) reported that from the ages of 2 to 5 years, developmental advances in language, motor, social, and cognitive development contribute to the appearance of more diverse and successful methods of self-regulation. At this age, parents are still instrumental in guiding and supporting children's efforts at emotion regulation, helping them redeploy attention through distraction, modeling cognitive reappraisal of emotion-inducing situations, and modeling emotion language. Cognitive development results in children at this age demonstrating a more sophisticated understanding of the number and variety of emotions and coping responses, and a greater awareness of the need for emotion regulation. The predominant strategies for emotion regulation used at this stage are self-distraction, adjusting goals within a situation, and problem-solving strategies (doing something to fix the situation).

A series of studies by Stegge et al. (2004), asking children at different ages to describe what emotion regulation strategy they would use in a given situation and why, illuminates some of the developmental differences that exist at different ages. At ages 4 and 6, children assume a one-to-one correspondence between different components of the emotion process: a sad event causes sad thoughts, a sad expression, and a sad feeling state and problematic functioning (you can't play). The emotion regulation approach for children at this age then, is to avoid the negative stimulus, expel negative thoughts and/or think of something fun, and stop expressing the negative emotion. By age 10, children no longer assume these one-to-one relationships between different components of the emotional experience. Children at this age are able to express an understanding that emotional processes are regulated by cognition: being confronted

by something sad, thinking about something sad, or expressing a negative emotion may indeed trigger negative feelings at first, but a situation can be considered from different perspectives. As older children have a better understanding of the mind as an interpretative device, they can compare the effect of different interpretations of one and the same situation on the prevailing mood state. As a result, 10-year-olds suggest the use of mental manipulation to regulate a negative feeling, in comparison to the situational and behavioral responses suggested by 4 and 6-year-olds. And while both 6- and 10-year-olds frequently suggest distraction as a successful emotion regulation strategy, 10-year-olds cite distractions effect on mental processes, whereas 6-year-olds cite its situational effects. The ability to consider different perspectives also allows 10-year-olds to consider the value of approach strategies in comparison to avoidance strategies. Whereas 4 and 6-year-olds express a strong preference for keeping away from an aversive situation, 10-year-olds can express an appreciation for the paying attention and staying in contact with negative feelings or a negative situation.

### **Components of Successful Emotion Regulation**

Children differ in their ability to regulate their emotions. Some children cry easily, are quick to lash out in anger, or seem to change emotions quickly and frequently. At an extreme, poor emotion regulation is associated with clinical diagnoses of externalizing disorders in children, including attention deficit hyperactivity disorder (ADHD) and disruptive behavior disorders of oppositional defiant disorder (ODD) and conduct disorder (CD) (Mullin & Hinshaw, 2007). Eisenberg, et al. (2000) reported that lower levels of attention regulation within a delay-of-gratification task designed to provoke frustration predicted levels of externalizing problem behaviors of children in school. Other children never seem to get very upset or excited about anything, seem to have a constricted affect, or rarely show how they are feeling. Most children

fall somewhere between these two extremes of under-controlled emotions and over-controlled emotion, and well-regulated children are those that can respond flexibly to varying demands with a wide variety of responses (Eisenberg, Hofer, & Vaughan, 2007). What accounts for differences in children's abilities to regulate their emotions? Many researchers posit neurobiologically-based temperamental differences in arousal and reactivity (Blair, 2002; Ochsner & Gross, 2007; Rothbart & Sheese, 2007). Emotion regulation also appears to be linked to developmental stages (Blair, 2002; Calkins & Hill, 2007), and learning achieved through socialization influences of caregivers and peers (Calkins & Hill, 2007; Mesquita & Albert, 2007; Thompson & Meyer, 2007).

### **Cognitive Processes Involved in Emotion Regulation**

Whether attributed to innate characteristics of the individual or to developmental and socialization processes, most research on the underlying components of emotion regulation have focused on the areas of attention and cognition (Fox & Calkins, 2003). Attention and cognition are the primary processes by which individuals regulate their emotions, and correspond to the processes of emotion generation reflected in Gross's Modal Model.

**Attention.** The development of attentional processes begins to emerge in infancy and continues to develop throughout the preschool and school years. Attentional skills include both the ability to sustain focus and to shift attention, enabling us to focus on goal-relevant information and ignore goal-irrelevant information. This is an important component of emotion regulation as it allows the child to selectively attend to elements of his or her environment and to his or her internal state to process emotion-based information and to use attention as a means to regulate emotional arousal (Fox & Calkins, 2007).

Attention control can be thought of as the selection aspect of information processing (Ochsner & Gross, 2007). Adaptive attention control is essential to the regulation of emotional state, as the choice of attentional focus determines what information from the individual and the environment will be processed. Use of attention control strategies is an important component of successful emotion regulation, because it allows the child to titrate his or her level of emotional arousal and focus attention on positive aspects of a situation or on possible coping strategies, as well as on processing emotion-based information. Distraction, or the deliberate focusing of attention away from an emotion and its causes onto pleasant or neutral stimuli can be a successful tool for emotion regulation, particularly when the goal is reducing the current level of negative emotion that is being experienced. Studies have shown that distraction can reduce angry mood (Rustings & Nolen-Hoeksema, 1997), anxiety (Catanzaro & Mearns, 1990; Thayer, Newman, & McClain, 1994), temporarily reduce sadness in depressed individuals (Lyubomirsky & Nolen-Hoeksema, 1993, 1994; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991), and reduce the impact of everyday, distressing events for a nonclinical sample (Shiota, 2006).

Preliminary research has identified some relationships between attention regulation and various emotion-regulation outcomes in children. For example, Ravers, Blackburn, Bancroft, and Torp (1999) examined the relationship between emotion regulation, attention, and social competence in a sample of 52 low-income preschoolers. The preschoolers who spontaneously used attention regulation strategies to modulate frustration during a delay-of-gratification task were more successful at managing the delay and were rated by their teachers as more socially-competent and by their peers as more popular than those who used fewer successful attention regulation strategies. A study by Eisenberg et al. (1993) with 103 preschool age children found

that children's attentional control, as rated by teachers was negatively correlated with the children's emotional intensity and negative affectivity, as rated by parents and teachers. That is, children with lower attentional control were seen by their parents and teachers as experiencing higher levels of emotional intensity and negative affect.

Attention control, however, can also be associated with emotion dysregulation when attention interferes with successful emotion processing. Dysregulation can occur when important emotion signals (both internal and external) are deliberately ignored or denied, preventing the processing of emotion information. Individuals who are high in this type of "experiential avoidance" of emotions, relying on control tactics such as suppression, avoidance, and distraction to control unwanted emotion, have higher levels of emotional distress, higher levels of anxiety and depression, and experience more negative cognitions in emotion-arousing situations (Campbell-Sills, Barlow, Brown, & Hoffman, 2006). Internal denial and suppression of unpleasant emotions and thoughts, as well as destructive behaviors such as substance abuse or disordered eating can all be considered forms of distraction that represent emotion dysregulation that result in an individual experiencing serious impairment in his or her mental health (Kristeller, Baer, & Quillian-Wolever, 2006; Sher & Grekin, 2007). In addition, while distraction has been shown to be effective in the short-term at reducing the experience of negative emotions, there is evidence to suggest that this can result in an exacerbation of negative emotions in the long run (Campbell-Sills, et al. 2006).

For example, Campbell-Sills et al. (2006) conducted a study comparing the outcomes when adults diagnosed with anxiety or mood disorders were instructed to either accept or suppress their thoughts while watching an emotion-provoking movie clip. In this study, suppression did not reduce the subjective distress reported by subjects watching the film and the

suppression group reported higher negative affect after a two-minute recovery period at the conclusion of the film than did the acceptance group. Levitt, Brown, Orsillo, and Barlow (2004) reported similar findings in their study of 60 adults with panic disorder. While undergoing a procedure designed to include hyperventilation, the individuals who were instructed to suppress their anxious feelings during the induction reported higher levels of subjective distress and less willingness to participate in a second induction than did the patients who were instructed to accept their anxious feelings or than the control group, who were given no instructions regarding response to their feelings.

Conversely, emotion dysregulation can take the form of over-processing of or hyper-focus on emotions in the form of rumination, obsessions, and compulsive behaviors. This can exaggerate some elements of an emotion-inducing situation over others, as in the experience of a panic state (Brown & Ryan, 2004). Rumination has been linked to a number of negative outcomes including the exacerbation of anxiety, longer and more severe depressive symptoms (Just & Alloy, 1997; Nolen-Hoeksema, 1993), and worsening of depressed mood in depressed individuals (Lyubomirsky & Nolen-Hoeksema, 1993, 1994; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991), and worsening of anger (Rustings & Nolen-Hoeksema (1998). For example, in a series of experiments by Rustings and Nolen-Hoeksema (1998), study participants completed an exercise designed to induce anger. Afterwards, some of the subjects participated in an activity designed to encourage them to ruminate on their anger, while the others participated in an activity designed to distract them from their anger, and others were given no instructions (control). Participants who ruminated following the anger induction showed an increase in their reported feelings of anger in comparison to the distraction group and the control group, who showed a decrease in anger.

Clearly, attention serves an important function in helping individuals regulate their emotions. Research suggests that distraction and suppression of emotions and emotion-related stimuli may be helpful in the short-term, but can have detrimental effects in the long-term. Theoretically, this under-attention to emotional information can result in a lack of processing of emotion-based information, which may be functionally important to the individual. Likewise, over-attention to emotional information can be detrimental when it results in a ruminative focus on the emotion state. Functional attention, therefore, would seem to be attention that allows for the processing of emotion-based information without inducing a hyper-focus on it.

**Cognitive Abilities.** A second underlying component of emotion regulation is cognitive abilities, which play a significant role in how an individual appraises emotion-inducing situations, and plans, executes, and evaluates goal-relevant strategies. The cognitive components of emotion regulation are essential in constructing expectations about an up-coming situation, selecting alternative explanations for situations, making different judgments about emotional information, and flexibly adapting goals to the available circumstances (Ochsner & Gross, 2007).

In emotion regulation, cognitions can be utilized to change how we view a situation, in order to alter its emotional significance (Gross & Thompson, 2007). Cognitive appraisal processes have a significant effect on both emotion generation and emotion regulation. In an example of a student taking a test, the initial emotion generation will depend on the student's initial appraisal of the situation (Is the test a threat or a challenge?), the task relevance (Is a good grade on this test essential for college admission or not very important?), and the student's efficacy (Am I prepared and do I have the capacity to do well?) Any different combination of these appraisals would create a different emotional experience for the student. Cognitive emotion regulation, in the form of *reappraisals* therefore, can address either the understanding of the

situation, the task relevance, or the individual's efficacy within the situation. (Schutz & Davis, 2000).

Research in this area has focused on the use of cognitive reappraisal to downgrade negative emotions. A number of laboratory studies have demonstrated that instructing participants to reappraise negatively valenced films as they watch results in decreased negative emotion experience (Dandoy & Goldstein, 1990). Gross (1998) demonstrated that for college students, instructions to reappraise the content of a disgust-inducing film reduced the amount of negative emotion the students experienced while viewing the film. Other studies have focused on the dispositional tendency to use cognitive reappraisal over other emotion regulation approaches. In a series of three studies, Gross and John (2003) found that individuals who self-reported more use of cognitive reappraisal strategies on the Emotion Regulation Questionnaire in comparison to those who self-reported more suppression of emotions reported more positive and less negative emotions, more fulfilling friendships, fewer symptoms of depression, and greater self-esteem and life satisfaction. Shiota (2006) found that, in a sample of 148 undergraduate student, those who self-reported a dispositional tendency to use cognitive reappraisal through daily use of a Coping Diary of emotion-provoking events and their responses to them had higher levels of energy, enjoyment, and engagement than other emotion regulation strategies including problem-focused coping, seeking social support, and distraction. The use of cognitive strategies appears to have a strong effect on the regulation of emotions.

Attention and cognition are both processes that can be used to modulate emotional experiences. While not emotion regulation strategies per se, they represent the core mental processes that allow successful emotion regulation to occur in the service of individual goals. Further research is needed to clarify how these processes can be utilized most effectively in the

service of emotion regulation. Mindfulness is one mental process that may direct attention and cognition in ways that may be particularly beneficial for emotion regulation.

### **History of Mindfulness in Cognitive Psychology**

Mindfulness has its origins in Buddhist and other contemplative spiritual traditions. Within these traditions, there is an emphasis on an attitude of nonattachment, meditation to develop enhanced self-awareness, and focus on the present moment (Christian-Meyer, 1988). By the late 1950s and throughout the 1960s, meditation based in Zen Buddhism became more noticeable in the writings of major psychotherapists. For example, Jung (1961) made use of meditative symbols in his writing and many psychotherapists showed interest in meditative techniques as useful in facilitating access to the unconscious (Smith, 1986). Mindfulness was viewed as consistent with psychotherapy due to its emphasis on present-centered awareness, spontaneity, and acceptance (Smith, 1986). Interest in mindfulness has continued to grow through the present time and has been incorporated into cognitive-behavior psychology in a number of ways and has been called the “third wave” of cognitive-behavioral psychology (Hayes, 2004).

The “first wave” of behaviorism in psychology had its formal beginnings in the 1950s (Spiegler & Guevremont, 1993) and focused on understanding and changing observable behaviors through the use of learning principles such as those of operant condition developed by Skinner (1953) and those of classical conditioning by Wolpe (1958). Individuals actions were understood as a function of the learning created through associations and contingencies applied to behaviors.

By the late 1960s, behaviorists increasingly recognized the role of thoughts and feelings, and the complex interactions between the environment and one’s own internal processes in

determining behavior, creating a “second wave” of thinking within behavioral psychology. Bandura’s introduction of social learning theory proposed that the environment, an individual’s behaviors and his cognitions interact continuously to shape an individual’s experience, and people’s perceptions and expectations have a powerful influence on their understanding and behavior in all situations. Thus all behavior must be understood as the result of interacting internal and external influences (Thorpe & Olsen, 1997).

The “third wave” of behavioral psychology began in the 1990s with the development of an understanding of the role of awareness and acceptance in emotional experiences (Hayes, 2004). It placed the emphasis on understanding behaviors through their context and functions, not just their content. Behaviors, feelings, and cognitions are not “right” or “wrong” but rather occur within a context and serve a particular function for an individual. Within this “third wave” of approaches to understanding human behaviors and experiences, mindfulness is the type of attention that is used to focus on the form, context, and functions of present-moment internal experiences, and the individual’s relationship to those experiences. For example, focusing mindful attention on the internal experience of sweaty palms and a racing heart (form) may signal to an individual that he or she is in a situation that is inducing a physiological fear response. Attending to the context of the fear response may help the individual identify the internal and external trigger for the response (context) and the reason why the response is being triggered within the given context (function). This approach utilizes a functional view of emotion (described above) allowing emotional information to be processed, leading to enhanced emotional awareness (Baer & Krieyemeyer, 2006).

Mindfulness has been incorporated into a number of psychological treatment approaches. Notably, Mindfulness-Based Stress Reduction (MBSR) is a group treatment program developed

by John Kabat-Zinn for patients with chronic medical conditions (Kabat-Zinn, 1990). Mindfulness-Based Cognitive Therapy (MBCT) was developed by Teasdale, Segal, and Williams (1995) as an approach for preventing the relapse of major depressive episodes. Additional types of approaches including Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), Dialectical Behavior Therapy for individuals with Borderline Personality Disorder (DBT; Linehan, 1993), and Relapse Prevention for use in averting relapse in substance abusers (RP, Marlatt & Gordon, 1985) use mindfulness approaches as part of a more comprehensive treatment approach to psychological disorders. All of these treatment approaches use mindfulness as a technique that can be learned primarily through specific types of meditation and cognitive approaches such as developing an attitude of acceptance and openness to experiences. Interventions incorporating mindfulness focus primarily on developing these skills in individuals, targeting the specific difficulties they are experiencing.

### **Research on Mindfulness**

A review of the clinical literature reveals that mindfulness-based approaches such as those described above have been cited as effective for preventing depressive relapse (Fennell, 2004; Ma & Teasdale, 2004; Mason & Hargreaves, 2001; Ramel, Goldin, Carmona, & McQuaid, 2004; Segal, Williams, & Teasdale, 2003), treating anxiety disorders (Frewen, Evans, Maraj, Dozois, & Partridge, 2006; Miller, Fletcher, & Kabat-Zinn, 1995; Orsillo, Roemer, & Barlow, 2003; Roemer & Orsillo, 2002; Tacon, McComb, Caldera, & Randolph, 2003), substance abuse (Alterman, Koppenhaver, Mulholland, Ladden, & Baime, 2004; Breslin, Zack, & McMMain, 2002; Marlatt, 2002;), eating disorders (Kristeller & Hallett, 1999), and borderline personality disorder (Linehan, 1993; Robins, 2002). In addition, mindfulness-based approaches have been applied to enhancing stress reduction in clinical and nonclinical populations and with individuals suffering

from a variety of health-related disorders (Astin, 1997; Bedard et al.; Carlson, Speca, Patel, & Goodey, 2003; Carlson, Ursuliak, Goodey, Angen, & Speca, 2001; Chang et al, 2004; Kabat-Zinn, Lipworth, Burney, & Sellers, 1987; Ong, Shapiro, & Manber, 2007; Roth & Robbins, 2004; Shapiro, Schwartz, & Bonner, 1998; Speca, Carlson, Goodey, & Angen, 2000; Tacon, Caldera, & Ronaghan, 2004; Williams, Kolar, Reger, & Pearson, 2001). Mindfulness-based approaches have also been used in the management of chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985; Reibel, Greeson, Brainard, & Rosenzweig, 2001; Sagula & Rice, 2004; Suraway & Silver, 2005; Zautra, et al., 2008).

Grossman, Niemann, Schmidt, and Walach (2004) conducted a meta-analysis of 20 studies examining the effects of MBSR on a variety of health-related conditions. Conditions included fibromyalgia, cancer, coronary artery disease, depression, chronic pain, anxiety, obesity and binge eating disorders. While 64 such studies were located, only 20 of them met criteria for acceptable quality and relevance. All were controlled or observational studies that used a mindfulness-based intervention with mindfulness defined as (a) Moment-to-moment awareness to be cultivated with a nonjudgmental attitude, (b) teaching of formal meditation techniques, and (c) stressing the importance of daily and systematic practice. All were group courses, ranging from 6 to 12 weeks in length and utilized standardized and validated outcome scales. Mean effect sizes for studies examining mental health outcomes were 0.50 (0.43-0.56, 95%-CI) and for physical health outcomes were 0.42 (0.34-0.50, 95%-CI) on participants' self-report measures of physical and mental well-being, health-related quality of life, and levels of perceived stress. The authors concluded that this outcome represented a consistent and relatively strong effect size, which supports the use of mindfulness-based interventions for a broad range of chronic mental

and physical disorders. Effect sizes were consistent across both controlled and observational studies.

Recent interest in mindfulness has begun to take a broader approach to its definition, viewing it as a “quality of consciousness” (Brown & Ryan, 2003) or as an “alternative cognitive mode” (Teasdale, 1999) that is present to a greater or lesser degree in all individuals and can be enhanced by training in certain process areas. According to Brown and Ryan (2003),

Recognizing that everyone has the capacity to attend and to be aware, we nonetheless assume (a) that individuals differ in their propensity or willingness to be aware and to sustain attention to what is occurring in the present and (b) that this mindful capacity varies within persons, because it can be sharpened or dulled by a variety of factors. (p. 822)

### **Defining Mindfulness**

Although interest in mindfulness as a construct has increased significantly within the past 15 years, research has been impeded by a lack of a clear operational definition. Within clinical psychology, the most often cited definition is that given by Kabat-Zinn (1993), who defines it as “Paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (p. 4). In an attempt to introduce “...greater precision and specificity...” to the understanding of the construct, Bishop, et al. (2004) expanded on this definition and created a two-component model of mindfulness, incorporating both self-regulation of attention and orientation to experience.

The first component involves the self-regulation of attention so that it is maintained on immediate experience, allowing for increased recognition of mental events in the present moment. This type of focus requires both sustained attention for current experiences and flexible

switching of attention among the various thoughts, feelings, and sensations that comprise an experience in any given moment in time. This type of attention also emphasizes a non-elaboration of thoughts, feelings, and sensations as they arise. Mindful attention focuses on the direct experiencing of events in the mind and body without getting caught up in elaborated thought streams *about* the experience, its origins, its association, its implications, etc. Experiences are seen *as is* without being filtered through beliefs, assumptions, expectations, and desires (Bishop, et al., 2004). For example, if a child is waving to another child on the playground and the other child does not wave back, a direct experience of the event would be a description of the events, “Mike didn’t wave back when I waved at him,” whereas a filtered description might include elaborative processing of the event such as, “Mike should have waved back at me because I know he saw me wave at him. He must be angry at me and doesn’t want to be my friend any more.”

The second component of mindfulness is a cognitive orientation to experience that emphasizes openness and acceptance of whatever is being experienced in the present moment. It is an active “allowing” of thoughts, feelings, and sensations by adopting an attitude of curiosity and acceptance. This “investigational awareness” (p. 234) involves observing the flow of experience in the present moment, leading to a greater understanding of the nature of thoughts and feelings that are occurring (Bishop et al., 2004).

While Bishop et al. (2004) define mindfulness as more of a process variable with an emphasis on the skills that can develop with practice, creating a “state” of mindfulness rather than on mindfulness as a trait variable, they acknowledge that mindfulness is not limited to meditation. They acknowledge the possibility of mindfulness-based psychotherapy to enhance the general capacity to evoke and utilize mindfulness to gain insight and generate alternative

responses across a variety of situation. Brown and Ryan (2003) endorse many facets of this definition, but argue that because awareness and attention to present events and experiences are given features of all human organisms, the intra-individual variations in mindfulness reflect mindfulness as more of a trait variable than a state variable. In a series of studies with adults, Brown and Ryan demonstrated that individuals who had no training in mindfulness showed different ranges of scores on a self-report measure of trait mindfulness. Further, self-reported levels of trait mindfulness were predictive of awareness of and receptiveness to inner experiences, attention to emotional states, and levels of neuroticism, depression, and angry hostility.

### **Mindfulness and Emotion Regulation**

Mindfulness may allow for better emotion regulation because of its dual components of attention regulation and a cognitive focus on adopting a “nonstriving” or accepting attitude (Hamilton et al., 2006). In mindfulness, the emphasis is on maintaining attention to the present moment experience. This can have an effect on the information processing patterns of emotional information, allowing for greater processing and understanding of emotional information (Hamilton et al.). In terms of emotion regulation, present-focused attention results in an individual remaining in contact with the immediate emotional experience. Greater attention to present moment experiences in emotion-eliciting situations has been hypothesized to be associated with changes in emotion processing and in metacognitive processes as they relate to emotions (Bishop, 2000). Metacognition about emotion refers to an individual’s beliefs about the nature and meaning of emotion. Mindfulness may allow for closer attention to emotions, leading to a heightened ability to differentiate between emotion states and to tolerate negative emotions, as well as allowing people to make appropriate decisions about their regulation (Hamilton et al.).

The first component of mindfulness, maintenance of attention on the immediate experience of the present moment without elaboration is central to successful emotion regulation (Teasdale, 1999). In mindful attention to an emotion, the emotion is held in awareness before a response is generated. This process is sometimes referred to as *deautomization* - the disconnection of a perception, thought, or feeling from the cognitive, affective, or behavioral response that it automatically triggers (Martin, 1997). This type of self-directed attention can result in sustained exposure to sensations, thoughts, and emotions, and may allow emotions to be regulated more effectively (Baer, 2003).

Regulation of emotions is also cultivated through the second component of mindfulness: a cognitive orientation toward emotional experiences that emphasized openness and acceptance. The active allowing and accepting of emotions prevents the tendency to either over-engage with or to avoid negative emotions, which can exacerbate their impact. This is often called *decentering* (Martin, 1997) and involves an inhibition of the metacognitive process of elaboration or avoidance. In more traditional cognitive-behavioral therapeutic approaches, once affective cognitive experiences are brought to active attention the focus is on altering the *content* of negative patterns of thinking that contributes to the maintenance of uncomfortable emotions. Dysfunctional cognitions are actively challenged and refuted. In a mindfulness approach, affective experiences are brought to awareness and then tolerated and accepted. In addition, thoughts and feelings are seen as distinct from reality- feeling afraid does not mean that danger is imminent and thinking, "I am a failure" does not make it true (Greco, et al.; Hooker & Fodor, 2008). The acceptance serves to inhibit the engagement or over-avoidance that creates habitual patterns of response that, in turn, leads to ongoing emotional dysfunction (Orsillo, Roemer, Learner, & Tull, 2004). Once the emotions have been labeled as tolerable and acceptable, the

individual can look at the thoughts, feelings, and body sensations, within the context they are being experienced and generate response alternatives for the *situation*, rather than primarily responding to the *emotion*.

For example, mindful attention to the disappointment of a low test grade would entail noticing in an observing way the thoughts that are present (e.g., “I thought I did better” or “I’m not very smart.”), the body sensations (e.g., flushed cheeks, aching stomach, wetness in the tear ducts) and the feelings (sadness, anger at the teacher, shame). Each observation is noted without giving any evaluative valence to the experience and attention is on the event itself. A response to the *emotion* might involve either distraction, suppression, or rumination on the feeling. In a response utilizing distraction, the child would hastily put the test away in his desk, and immediately start talking to the child next to him about the afternoon’s soccer game, as a way to remove attention from the uncomfortable feeling. Attention is on anything but the present moment experience that is provoking bad feelings. While this may make the child feel better in the present, research has shown that feelings may return or become worse at a distal point in time (Campbell-Sills, et al., 2006). In a ruminative response, the child would begin to remember all the other times he failed tests; worry about what his mother, teacher, and the other kids will think of him for being so stupid; and imagine that he is going to fail the grade and be held back next year. Attention is on the global experience and the past, present, and future significance and meaning of the event, but not the present moment experience itself. The *emotion* again becomes the focus of the response and grows in significance and its ability to create discomfort. Mindfulness, in creating a situation in which the emotion is understood and tolerable, may allow for a more *situation*-based response, such as engaging in help-seeking behavior or problem-solving ways to help the situation. In the above example, mindful attention would allow the

feelings of embarrassment and sadness to be tolerable, thereby allowing the child to accept the bad test grade as information about his current performance, and allow him to make the decision to share the grade with his parents and ask for help on the next test.

Another example of a situation that many children experience and struggle with in school is social relationships. Many children are faced with the need to negotiate feelings of disappointment or anger within peer relationships. For example, when a child is rejected by a friend on the playground, the child must first be able to use attention to his feelings in the present moment to be able to develop self-awareness of the feeling as “sadness” before jumping immediately to a response. Next, when the child uses a cognitive orientation to the feeling as acceptable and functional, he can create “space” around it to consider the situation and response alternatives. If it’s not wrong or “bad” to feel sad, the feeling doesn’t have to be immediately changed or responded to. Instead, it can be used as information for learning and making choices. The child may become aware of a number of feelings and cognitions related to the experience that help him understand the context (On the playground I want to play with blocks, but my friend always likes to swing on the swings), form (When he doesn’t want to play, I get a sick feeling in my stomach and I feel as if no one likes me and that makes me scared), and function (I don’t like to feel left out and having friends who will play with me is important to me). This more thorough functional analysis of the emotional response may create space in which more responses to the situation can be considered. A previously automatic response of withdrawing to the corner to cry might be considered along with the alternative of trying to communicate to the friend about the impact of her actions, rethinking the value of the friendship and finding someone else to play with, or acknowledging that asking to play after the game had already started might have been the reason for the rejection.

Mindfulness, therefore, is a specific quality of consciousness that can enhance emotion regulation and emotional awareness.

### **Proposed Mechanisms of the Effect of Mindfulness on Emotion Regulation**

Many researchers have proposed theories as to the mechanisms through which mindfulness achieves enhanced emotion regulation. Linehan (1993) and Kabat-Zinn (1992) have suggested that one mechanism of mindfulness that leads to symptom reduction and behavior change is exposure. Sustained, nonjudgmental observations of negative affective experiences such as anxiety may be akin to exposure, which should encourage the extinction of emotional reactivity, fear response, and avoidance behaviors that have previously been elicited by these feelings.

Linehan (1993), Kabat-Zinn, et al. (1992), Kristeller and Hallett (1991, as cited in Baer, 2003), and Teasdale (1999) suggest that the mechanism of action may be cognitive and metacognitive change. Prolonged observation and re-labeling of negative affective experiences as “just thoughts” encourages an understanding that they are not always accurate reflections of reality. As such, they can be responded to differently. In addition, mindfulness may interfere with ruminative patterns of thinking that characterize anxious and depressed states, by establishing competing metacognitive strategies. For example, mindful awareness of present moment experiences such as breathing or internal body sensations may redirect attention away from maladaptive thought patterns.

Others have suggested that mindfulness may work by promoting a range of coping skills that reflect improved self-management (Baer, 2003). This may include closer awareness of triggers that contribute to negative affective experiences, increased ability to reflect on the

consequences of one's actions through "decentering" from emotions (as described above), and an improved ability to sustain attention that may contribute to deeper problem-solving capabilities.

Finally, Hayes (2002), Kabat-Zinn, et al. (1992), and Baer (2003) have posited that it is the focus on acceptance in mindfulness that creates therapeutic change by preventing the over-engagement or avoidance of negative affective experiences that contribute to the possible heightening and maintenance of these states. By teaching individuals to identify their emotional reactions as temporary and subjective, they can be more easily tolerated and withstood without further exacerbation. For example, an individual who experiences panic attacks may become preoccupied with avoiding future attacks. This can create a range of maladaptive behaviors such as avoidance of important activities and excessive anxious vigilance toward bodily states. If the individual were able to accept the occurrence of occasional panic attacks as time-limited and not-dangerous, the attacks would become unpleasant, but brief experiences to be tolerated, rather than over-whelming and terrifying experiences to be avoided. Thus, their impact on the individual's life would be significantly reduced.

### **Research on the Links Between Mindfulness and Emotion Regulation**

Preliminary research on the links between mindfulness and emotion regulation suggest that the relationship is robust. Many psychological disorders are theorized to involve significant issues with emotion dysregulation, including depression (e.g., Brown, Barlow, & Roemer, 2008), anxiety (e.g., Mennin, et al., 2002), substance abuse (e.g., Sayette, 2004), eating disorders (e.g., Sims & Zeman, 2006), and the majority of personality disorders (e.g., Linehan, Bohus, & Lynch, 2007). As reported above, treatment programs based on mindfulness or utilizing elements of mindfulness have reported success in alleviating symptoms and improving quality of life in patients suffering from these disorders. In the majority of studies, however, outcomes have not

examined the mechanisms of change associated with these positive outcomes. Newer studies are beginning to examine whether changes in mindfulness are responsible for the positive outcomes. In a study by Chambers, Lo, and Allen (2007), 20 adults participated in a 10-day intensive mindfulness meditation program designed to increase the participants' ability to bring a quality of mindfulness to everyday life. In comparison to waitlist controls, the participants demonstrated increased mindfulness as measured on the self-report Mindful Attention and Awareness Scale (MAAS) from pre-intervention immediately prior to the commencement of the program and then again 7 to 10 days after the conclusion of the program. Further, these changes in mindfulness were predictive of decreases in depressive symptoms, reflective rumination, and overall negative affect. In a study by Kumar, Feldman, and Hayes (2008), 33 adults who self-referred for depression participated in 12-24 group sessions of a group mindfulness-based cognitive therapy for depression. From pretreatment to post-treatment, mindfulness increased significantly as measured by the Cognitive and Affective Mindfulness Measure (CAMM) self-report scale, and those increases were predictive of reductions in experiential avoidance, rumination, and depressive symptoms on self-report measures. Nykliecek and Kuijpers (2008) reported that changes in mindfulness mediated the effect of a treatment on levels of perceived stress and overall quality of life in adults self-referred for significant psychological distress.

Studies of dispositional mindfulness, the inherent quality of mindfulness that an individual brings to his or her experiences without specific training, are also examining the relationship between mindfulness and mental health outcomes. Zvolensky et al. (2006) examined dispositional mindfulness in a community sample of 170 adults. They found that the levels of dispositional mindfulness that individuals self-reported on the Mindfulness Attention and Awareness Scale (MAAS) predicted their self-reported global health, and the perceived impact

of their health on the physical and mental aspects of their life functioning. In additional studies, dispositional mindfulness has been found to be associated with lower levels of negative affectivity (McKee, Zvolensky, Solomon, Bernstein, & Leen-Feldner, 2007), and as mediating the relationship between anxiety sensitivity and panic-related symptoms (Vujanovic, Zvolensky, Bernstein, Feldner, & McLeish, 2007).

Studies of dispositional mindfulness are also directly examining the relationship between mindfulness and facets of emotional functioning. In an ethnically-diverse undergraduate population ( $n = 111$ ), Hayes and Feldman (2004) found that dispositional mindfulness as self-reported on the Cognitive Affective Mindfulness Scale (CAMS) was associated with self-reported positive aspects of emotion regulation including more clarity of feelings and self-efficacy to repair negative mood. It was also negatively correlated with unhealthy emotion regulation strategies including experiential avoidance, thought suppression, rumination, and avoidance. Mindfulness was also associated with less depression and anxiety and with higher levels of overall self-reported well being. Brown and Ryan (2003) examined the relationship between dispositional mindfulness and a number of other mental health variables in a sample of undergraduates and adults ( $n = 1492$ ). They found that self-reported dispositional mindfulness on the Mindful Attention and Awareness Scale (MAAS) was positively correlated with self-reported emotional intelligence, attention to emotions, clarity of emotional states, and mood repair. Dispositional mindfulness was also negatively correlated with depression, neuroticism, angry hostility, and somatization.

Laboratory studies are also examining the effects of mindfulness on emotion regulation and processing. Creswell, Way, Eisenberg, and Lieberman (2007) linked self-reported mindfulness with enhanced activation of the prefrontal cortex and deactivation in the amygdala

during an affect labeling task, suggesting more active regulation and less emotion induction in response to the emotion words. Arch and Craske (2006) compared the effects of mindful breathing, unfocused attention, and worry on emotion regulation during an emotion-induction activity. Undergraduate participants underwent a 15-minute activity in which they were instructed in either a mindfulness-based focused breathing activity, a generalized worrying condition, or unfocused attention in which the participants were instructed to “think about whatever comes to mind.” Following this induction, the participants were shown a series of slides of positive, neutral, and negative affect inducing content. In comparison to the other two groups, the group that had participated in the mindfulness activity showed more positive responses to the neutral slides and had the least emotional volatility across slide types. In addition, the mindfulness group displayed greater willingness to continue viewing the negatively valenced slides, than did the unfocused attention group, and a trend was found in the same direction for comparison with the worry group. This was interpreted to suggest that mindfulness resulted in an increased tolerance and willingness to stay in contact with negative stimuli. In a study by Broderick (2005), participants underwent a sad mood induction and then were instructed in either rumination on the sad mood, distraction from the sad mood, or mindful meditation through focused breathing. Participants in the mindfulness mediation condition reported significantly less negative mood afterwards than did the participants in either of the other conditions.

Overall, intervention studies, self-report studies of dispositional mindfulness, and laboratory studies using mindfulness in different conditions suggest that mindfulness is linked to aspects of emotion functioning and emotion regulation in adults.

### **Mindfulness and Children**

Although research on mindfulness in adults is robust, little research has been published looking at mindfulness in children (Semple, Lee, & Miller, 2006). A 1973 study by Linden (as cited in Semple et al.) reported that an 18-week meditation training program reflecting some elements of present-day mindfulness training successfully reduced test anxiety in a group of third grade students. Mindfulness training has also been found to result in significant improvements in academic performance in college students (Fiebert & Mead, 1981; Hall, 1999, as cited in Semple et al). Twenty students from an introductory psychology course were randomly assigned to an experimental or a control group. The experimental group was taught and encouraged to practice meditation techniques while studying and before an exam. Although there was no difference in the amount of time spent studying between the experimental and the control group, the meditation group performed better on examinations during the experimental period.

In a published study of mindfulness training in elementary age students, a randomized controlled trial of a 12-week program adapted from the MBCT protocol, found significant reductions in attention problems as measured by the attention subscale of the Child Behavior Checklist, Parent Report Form in a group of 25 children from a volunteer community sample, ages 9-12. In addition to these statistically significant findings, consistent trends were also found toward fewer symptoms of anxiety and depression for participants who completed the program. Sixty-one percent of parents also reported a reduction in conduct and anger management problems in their children. (Semple, Lee, & Miller, 2004).

Napoli, Krech, and Holley (2005) conducted an experimental study of 194 first through third grade students, half of which was randomly assigned to participate in a 12-session mindfulness training program while the other half was randomly assigned to a control group. At the end of the program, the group that had participated in the mindfulness program was

significantly different on measures of attention and anxiety, including the ADD-H Comprehensive Teacher Rating Scale, the Test Anxiety Scale, and the Test of Everyday Attention for Children. Compared to pretest scores, the mindfulness group showed significant improvements in attention and anxiety at post-test. Students in the mindfulness group showed increases in selective attention, and a reduction in test anxiety and teachers' ratings of ADHD behaviors in comparison to the controls.

More recently, Saltzman and Goldin (2008) conducted a 7-week long Mindfulness Based Stress Reduction program with students in grades 4 through 6. In comparison to wait list controls, the children in the MBSR program showed decreased negative reactivity to threat scenarios, increased attentional control, and improvements in self-judgment and self-compassion.

Finally, Biegel, Brown, Shapiro, and Schubert (2009) used an 8-week MBSR program with 14-18-year-old psychiatric outpatients with primarily mood and anxiety-based disorders. Compared to randomly assigned controls who continued treatment-as-usual (TAU), subjects in the mindfulness group showed significant pre- to post-test changes in self-reported anxiety, depressive and somatization symptoms, and improved self-esteem and sleep quality.

A pilot study conducted by the researcher prior to this study found some specific relationships between mindfulness and emotional competence in children in grades 4-6. Two schools participated in a classroom-based mindfulness intervention program, teaching mindfulness skills to students. In the first school, 11 fifth grade students received 12 mindfulness lessons, while in the second school, 45 fourth through sixth grade students participated in 8-10 mindfulness lessons. While neither group demonstrated a statistically significant overall increase in mindfulness skills as measured by self-report on the Child Acceptance and Mindfulness Measure (CAMM), increases in mindfulness skills were associated with some aspects of

emotional competence as measured by the Bar-On Emotional Quotient Inventory: Youth Version (Bar-On-EQI:YV). Specifically, changes in mindfulness were significantly and positively correlated with changes on the Interpersonal and Adaptability Scales of the Bar-On-EQI:YV and approached significance for changes on the Stress Management and overall Emotional Intelligence Scale. Increases in mindfulness showed a positive relationship with the ability to make and maintain satisfying interpersonal relationships (Interpersonal Scale) and the ability to adapt flexibly and effectively to change (Adaptability Scale).

Preliminary evidence from research work with children suggests that mindfulness may play a role in some aspects of children's emotional competence.

### **Rationale for Study**

As presented in earlier sections of this review, researchers have established that healthy emotional development is essential to school success for children (e.g., Adelman & Taylor, 2000). Further, it has been shown that part of this healthy emotional development includes successful regulation of emotions (e.g., Diamond & Aspinwall, 2003b). Within a functional view of emotions, successful emotion regulation is that which allows the individual full access to the emotional information available to him or her, while not allowing the individual to become overwhelmed by the emotion (e.g., Lewis, et al., 2006). An exploration of the underlying components of emotion regulation has identified both cognitive and attentional processes as essential to emotion regulation (e.g., Gross & Thompson, 2007). It has further been established that mindfulness involves cognitive and attentional process that may be ideally suited to successful emotion regulation (e.g., Hamilton, et al., 2006), and that mindfulness is related to emotion processes in adults (e.g., Hayes & Feldman, 2004). While many authors have advocated the utility and feasibility of using a mindfulness-based approach with children to promote overall

well-being and positive psychological functioning in children (Greco, et al., 2005; Greco & Hayes, 2008; Semple, et al., 2006; Wagner, et al., 2006), no published studies have examined the relationship between mindfulness, emotion regulation in children, and emotional awareness in school-age children. Understanding whether mindfulness sets the stage for emotion regulation in children and whether this can lead to more in-depth awareness of emotional information could provide useful information about ways to help children become more adept at managing their emotions which in turn, may contribute to more successful school outcomes.

### **Research Hypotheses**

The purpose of the study is to examine the relationship between mindfulness, emotion regulation, and emotional awareness in children in grades 5 through 7. Preliminary research has identified a relationship between mindfulness and emotion regulation in adults (see above) as well as between types of emotion regulation skills and emotional awareness (see above), but these relationships have never been investigated in children. Higher levels of dispositional mindfulness should result in more successful regulation of emotions. Successful emotion regulation should, in turn, result in greater depth of awareness of emotions.

*Hypothesis 1:* Levels of dispositional mindfulness as measured by self-report on the Child Acceptance and Mindfulness Measure (CAMM) and Cognitive and Affective Mindfulness Scale-Revised, Study Adaptation for Children (CAMS-R:SAC) will predict levels of abilities in emotion regulation, as measured by parent report on the Emotion Regulation Checklist for Parents (ERC) and by child self-report on the How I Feel (HIF),

*Hypothesis 2:* Emotion regulation abilities as measured by the ERC and HIF will predict levels of emotional awareness on the Levels of Emotional Awareness Scale for Children (LEAS-C)

### Chapter 3: Methodology

This chapter describes the participants, measures, and procedures used to gather data related to the hypotheses of this study.

#### Participants

Ninety-one students in grades 5-7 along with one parent or guardian took part in this study. A sample of this size slightly exceeds the number of subjects necessary to detect a medium effect at the .05 level for this type of study (Cohen, 1988). Students in fifth through seventh grades were recruited from 3 separate schools. Participation rates were 13% in School 1, 15% in School 2, and 23% in School 3. Mean overall participation was 18% across the three schools. See Table 1 for the participation rates by school. Detailed information about the students' background characteristics (gender, age, special education status, English language learner status) as well as family characteristics (family living arrangement, parent marital status, parent levels of educational attainment) is provided in Table 2.

The participants ranged in age from 10 to 13 years ( $M = 11.42$ ,  $SD = .75$ ) and included 10 students in 5<sup>th</sup> grade (11%), 66 students in 6<sup>th</sup> grade (73%), and 15 students in 7<sup>th</sup> grade (17%). The mean grade of the students was 6.1, with a standard deviation of .52. The participants included 50 females (55%) and 41 males (45%). In the sample, 4 parents (4%) identified their children as African-American, 2 as Asian/Pacific Islander (2%), 77 as Caucasian (86%), and 6 as Multiracial or Other (7%). Parents were asked to identify whether their child received special education services. Seventy-one responded that their child did not receive special education services (78%), while 18 responded affirmatively (20%). Two parents omitted this question from their responses. Parents were also asked to identify if their child was an English Language

Learner (i.e. English was not the child's first language). Seventy-three children were not ELL (80%), while 15 were ELL (17%). Three parents did not respond to this question.

Table 1

*Recruitment and Participation Numbers and Rates by School*

| School 1                                     | <i>N</i> | % Rate |
|--|----------|--------|
| Invitations extended to participate in study | 174      | 100    |
| Parent information completed                 | 28       | 16     |
| Student information completed                | 23       | 13     |
| School 2                                     |          |        |
| Invitations extended to participate in study | 61       | 100    |
| Parent information completed                 | 10       | 16     |
| Student information completed                | 9        | 15     |
| School 3                                     |          |        |
| Invitations extended to participate in study | 262      | 100    |
| Parent information completed                 | 60       | 23     |
| Student information completed                | 59       | 23     |
| Total  |          |        |
| Invitations extended to participate in study | 497      | 100    |
| Parent information completed                 | 98       | 20     |
| Student information completed                | 91       | 18     |

Note. The rows entitled “Invited to participate” refer to the number of families who received initial letters of invitation to the study. In School 1 and 2, this included parents of all students in grades 5-7. In school 3, this includes 6<sup>th</sup> grade students, only. The rows entitled, “Parent information completed” refer to the number of parents who completed the parent questionnaires as well as signed consent for the child to participate. The rows entitled, “Student information completed” refer to the number of students who completed a sufficient portion of the student forms to be included in the final data analysis.

Table 2

*Summary of the Demographic Characteristics of the Study Participants*


---

|                        | Frequency | Percent of Total Sample |
|------------------------|-----------|-------------------------|
| <b>Gender</b>          |           |                         |
| Male                   | 41        | 45                      |
| Female                 | 50        | 55                      |
| <b>Age</b>             |           |                         |
| 10                     | 4         | 4                       |
| 11                     | 55        | 60                      |
| 12                     | 22        | 24                      |
| 13                     | 10        | 11                      |
| <b>Grade</b>           |           |                         |
| 5                      | 10        | 11                      |
| 6                      | 66        | 73                      |
| 7                      | 15        | 17                      |
| <b>Child's Race</b>    |           |                         |
| African-American       | 4         | 4                       |
| Asian/Pacific Islander | 2         | 2                       |
| Caucasian              | 77        | 85                      |
| Multiracial/Other      | 6         | 7                       |
| No response            | 2         | 2                       |

---

Table 2 (continued)

*Summary of the Demographic Characteristics of the Study Participants*


---

|  | Frequency | Percent of Total Sample |
|--|-----------|-------------------------|
| Receiving Special Education Services                               |           |                         |
| No   | 71        | 78                      |
| Yes  | 15        | 20                      |
| No response  | 2         | 2                       |
| English Language Learner (i.e., English is not the first language) |           |                         |
| No   | 73        | 80                      |
| Yes  | 15        | 17                      |
| No response  | 3         | 3                       |
| Child's Living Situation   |           |                         |
| Living with both parents   | 69        | 76                      |
| Living with mother only  | 7         | 8                       |
| Living with father only  | 3         | 3                       |
| Living sometimes with mother,<br>sometimes with father             | 11        | 12                      |
| Living with guardian or foster<br>parent                           | 1         | 1                       |
| Parent's Marital Status  |           |                         |
| Single   | 4         | 4                       |
| Married  | 76        | 84                      |
| Separated, widowed, divorced                                       | 11        | 12                      |

---

Table 2 (continued)

*Summary of the Demographic Characteristics of the Study Participants*

|                                      | Frequency | Percent of Total Sample |
|--------------------------------------|-----------|-------------------------|
| Maternal education level             |           |                         |
| Less than high school                | 0         | 0                       |
| Some high school                     | 0         | 0                       |
| High school graduate                 | 4         | 4                       |
| Some college or specialized training | 10        | 11                      |
| College or university graduate       | 34        | 37                      |
| Graduate degree                      | 41        | 45                      |
| No response                          | 2         | 2                       |
| Paternal education level             |           |                         |
| Less than high school                | 0         | 0                       |
| Some high school                     | 2         | 2                       |
| High school graduate                 | 4         | 4                       |
| Some college or specialized training | 12        | 13                      |
| College or university graduate       | 34        | 37                      |
| Graduate degree                      | 35        | 39                      |
| No response                          | 4         | 4                       |

---

Note. Information summarized in this table was provided by parents on the Background Information Form.

**School 1.** Data were collected from School 1 in May 2009. School 1 is a K-8 university-affiliated laboratory school which serves an economically, culturally, and ethnically diverse student body in a large urban area. During the 2008-2009 school year, there were 487 students enrolled in the school. Among the student body, 18% are African-American, 8% are Asian/Pacific Islander, 40% are Caucasian, 12% are Latino, 2% are Middle Eastern, and 20% consider themselves to be Multi-ethnic. The average class size consists of 14 students, and there are about 56 students per grade. Approximately half of the student body are children of a nearby university's faculty and professional staff, with the balance coming from the larger community by lottery. All of the student in grades 5 through 7 ( $N=174$ ) and their parents were invited to participate. Of these, 28 parents agreed to participate and gave permission for their child to participate as well. Of these 28, 23 students completed the data collection phase. Among the remaining 5, 2 students chose not to participate and 3 were absent on the day of data collection.

**School 2.** Research data were collected at School 2 in January 2010. School 2 is a small independent school for students with learning disabilities in a large urban area. All information reported about the school was obtained from the school's website. The website is not reported, in order to maintain confidentiality for the school and its study participants. The school serves students in grades 1 through 8, who display average or above average cognitive abilities along with specific learning disabilities in the verbal, nonverbal, or attentional domains. The school does not make available demographic information about their student body. The school enrolls approximately 15 to 25 students at each grade level. For this study, all 61 students in grades 5 through 7 were invited to participate. Of this number, 10 parents agreed to participate and gave

permission for their child to participate as well. Of these 10, 9 students completed the data collection portion of the study. One student chose not to participate.

**School 3.** Research data were collected in School 3 in January 2010. School 3 is a suburban public middle school enrolling 855 students in grades 6 through 8. A 2007 description of the demographics of the school (provided in the state's publicly accessible "Report Card") reports that 97% of the students are Caucasian, 1% are African-American, 1% are Latino or Hispanic, and 1% are Asian/Pacific Islander. Five percent of students are eligible for free or reduced cost lunch, and the average class size is 20-24. For this study, all 262 students in grade 6 were invited to participate. Of these, 60 parents signed consent for their children and completed the parent portion of the data collection. Of these, 59 students completed the student portion of the data collection, with one student absent on the day of data collection. Recruitment and participation rates across the 3 schools are shown in Table 1.

### **Instruments**

All data from parents and children were identified only by ID number, in order to maintain confidentiality of the information provided. The parent battery consisted of 2 questionnaires, which took approximately 5-10 minutes to complete. The student battery consisted of 5 instruments and took approximately 30-45 minutes to complete. Test administration for the students was conducted by the researcher. Parents completed their questionnaires independently, according to the researchers written instructions. Test administration and scoring were conducted in accordance with test developers' instructions. A description of each instrument used to measure each variable of the study follows.

**Background Information Form** (Appendix A). A two-page demographic questionnaire was created for the purposes of this study. It is a parent-report instrument that surveys a number

of background characteristics of the sample. Parents provided information about students' age, grade, ethnicity, special education services, and English language learner status. In addition, parents were asked to report on their living arrangements, marital status, and level of educational attainment. These questions provide a general indication of the study participants' social strata.

**Child Acceptance and Mindfulness Measure** (Appendix B). Children completed the Child Acceptance and Mindfulness Measure (CAMM, Greco & Baer, 2005), a 25-item self-report measure of mindfulness that assesses the degree to which children and adolescents observe internal experiences, act with awareness, and accept internal experiences without judging them. Items reflecting observations of internal experiences include, "I notice when my feelings begin to change" and "I notice my thoughts as they come and go." The dimension of acting with awareness is assessed through items including, "At school, I walk to class without noticing what I am doing." (reverse scored) and "When I'm eating, I notice the way it feels to chew my food." The third dimension of acceptance includes items such as, "I tell myself I shouldn't be feeling the way I'm feeling" (reverse scored), and "I think some feelings are bad and I shouldn't have them" (reverse scored). Respondents indicate on a 5-point scale the degree to which a statement reflects their experience (0 = never true; 4 = always true). After reverse scoring some items, the individual items are summed to generate a total Acceptance-Mindfulness score ranging from 0 - 100, with higher scores indicating higher levels of acceptance and mindfulness. For the purposes of this study, the final score was calculated as an average across the individual items (with a range of scores from 0 to 4), to take into account missing data points on individual questionnaires. Subjects' protocols were included only if they completed at least 90% of the items on each measure.

This measure was selected because it is currently the only available measure of mindfulness in children. The measure shows a solid conceptual match with accepted mindfulness measures for adults (Coyne, Cheron, & Ehrenreich 2008). A description of test development has not been published by the test creators, though the measure is described by a reviewer as “...address[ing] the core aspects of attention, awareness, and acceptance that complement the current trends of defining mindfulness.” (Coyne et al., 2008). The CAMM authors (Greco & Baer, 2006) report that the measure was evaluated with a sample of 606 middle school students. This sample is described as having a mean age of 12.8 years, 81% Caucasian, with 52% of the sample girls and 48% boys (Greco & Baer, 2006). Empirical analysis of this sample indicates that it shows good internal consistency with Cronbach’s alpha of .84. Additional studies demonstrated that it shows good divergent validity, correlating negatively with the Avoidance and Fusion Questionnaire for Youth ( $r = -.47$ ) and measures of cognitive suppression (White Bear Suppression Inventory ( $r = -.36$ )) (Coyne et al.), two constructs which are theoretically inconsistent with mindfulness.

**Cognitive and Affective Mindfulness Scale-Revised, Study Adaptation for Children** (CAMS-R:SAC, Appendix C). Children also completed an adapted version of the Cognitive Affective Mindfulness Scale-Revised (CAMS-R; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007), a 12-item self-report measure of dispositional mindfulness for adults. The CAMS-R items assess mindfulness as it relates specifically to thoughts and feelings rather than to general experiences. Thus, it represents a more narrow focus than the CAMM. Respondents indicated on a 4-point Likert scale the degree to which each of the statements applied to themselves (1 = Rarely/Not at All; 4 = Almost Always). Items include, “I am preoccupied by the future” and “I can tolerate emotional pain.” It yields a total Mindfulness score, which can range

from 12 to 48, which was converted into an item-average score for this study. Higher scores on the CAMS-R represent higher levels of dispositional mindfulness.

The CAMS-R was designed to identify a single mindfulness factor based on the four hypothesized underlying components of mindfulness: attention, present-focus, awareness, and acceptance. Structural equation modeling was used for the first phase of item selection. This item pool was then explored within a sample of 548 college students. Confirmatory factor analysis was then used with this data set to narrow the item pool further. The final 12-item version based on this analysis demonstrated minimally acceptable levels of internal consistency (Cronbach's alphas = .71 and .77 for two separate samples). Additional studies assessed the CAMS-R criterion validity with other measures of mindfulness. The CAMS-R was strongly positively correlated with two other adult self-report measures of mindfulness, the Freiburg Mindfulness Inventory ( $r = .66$ ) and the Mindful Attention Awareness Scale ( $r = .51$ ). The CAMS-R also demonstrated evidence of convergent validity, showing positive correlations with measures of clarity of feelings (Trait Meta-Mood Scale- Clarity of Feeling subscale;  $r = .53$ ), mood repair (Trait Meta-Mood Scale- Mood Repair subscale;  $r = .34$ ), and cognitive flexibility (Cognitive Flexibility Scale;  $r = .46$ ). The CAMS-R also demonstrated evidence of discriminant validity when compared to constructs that are theoretically antithetical to mindfulness. Higher scores on the CAMS-R were negatively correlated with measures of experiential avoidance (Acceptance and Action Questionnaire;  $r = -.52$ ), thought suppression (White Bear Suppression Inventory;  $r = -.47$ ), rumination (Response Style Questionnaire;  $r = -.30$ ), and worry (Penn State Worry Questionnaire;  $r = -.46$ ) (Feldman, et al., 2007).

The CAMS-R represents a good theoretical match for the current study, with its specific focus on mindfulness as it applies to internal cognitive and affective experiences. However, the

measure was designed for use with adults. Thus, it was necessary to adapt the language of the questions for use with children. The adaptation was conducted by two fifth grade teachers, who each have 5 or more years of teaching experience with students in 3<sup>rd</sup> through 7<sup>th</sup> grades. One teacher also has a background in mindfulness and helped to develop the mindfulness curriculum used in the researcher's pilot study (described above). The teachers first met with the researcher to review the adult CAMS-R. Each item was read and then discussed for content. The teachers were instructed to write alternate versions of each item that would maintain the content, but would be at a 3<sup>rd</sup> grade reading level, in order to be accessible to all students in the study sample. The teachers then each separately created new versions of each of the survey questions. The researcher then met with the teachers together. Each alternative wording was discussed and a final version was agreed upon, based on the criterion of (1) content match and (2) third grade reading level.

**How I Feel** (Appendix D). Children completed the How I Feel scale (HIF; Walden, Harris, & Catron, 2003), a 30-item self-report measure of emotion arousal and emotion control for elementary school-age children, which assesses a child's emotional experiences over the past three months. Respondents indicate on a 5-point Likert scale the degree to which an item is true for them in the past three months, with scale anchors at 1 (not at all true of me) and 5 (very true of me). Items were first developed and refined by a panel of experts, and the items were then assessed using exploratory factor analysis on a sample of 406 students, ages 8-13. The factor analysis yielded a 3-factor structure, and thus the scale has three subscales assessing Positive Emotions, Negative Emotions, and Emotion Control. Confirmatory factory analysis upheld this factor structure.

For the current study, an average score along the Emotion Control subscale was used, which assesses a child's ability to control the frequency and intensity of both positive and negative emotions when they occur. This subscale includes 10 items including, "I was in control of how often I felt scared" and "When I was mad, I could control or change how mad I felt." Cronbach's alphas assessing internal consistency ranged from .84-.86 for the Emotion Control subscale. The final subscale score is reported as an average of the 10 items on the scale.

Temporal stability for this subscale was moderate over two 6-month periods with a sample of 120 students, ages 8-12, with correlations over time ranging from .32 to .48. The authors report that this level of stability is consistent with other similar measures of children's emotional functioning, but do not provide specific comparable findings. Though statistically moderate, this level of reliability is considered noteworthy, according to the authors, given the amount of social and emotional development children undergo during this time period, though again no evidence for this assertion is provided (Walden, et al., 2003). Good convergent validity was reported with correlations between the HIF and the Coping Scale ( $r = .26$ ) for coping with mad emotions and  $r = .37$  for coping with sad and coping with combined negative emotions).

**Emotion Regulation Checklist** (Appendix E). Parents completed the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1995), a 24-item adult-report measure of children's self-regulation, assessing elements of affect lability, emotional intensity, flexibility, and situational appropriateness. Parents indicated their assessment of their child on a 4-point Likert scale indicating how frequently behaviors occur (1 = almost always to 4 = never), related to the child's emotionality and regulation. The measure yields a Total score as well as two subscales. The Emotion Regulation subscale consists of 8 items that assess aspects of emotion understanding and empathy, and includes items such as, "displays appropriate negative affect in

response to hostile, aggressive, or intrusive play” and “is a cheerful child.” The Lability/Negativity subscale consists of 15 items that assess aspects such as angry reactivity, emotional intensity, and dysregulated positive emotions and includes items such as “exhibits wide mood swings” and “is easily frustrated.” The subscales were created through a principal-components factor analysis with a varimax rotation on a sample of 513 children, ages 6-12. For the purposes of this study, the Total score was used, as it represents the most robust assessment of a child’s emotion regulation abilities. The score is reported as an average of scores over the 24 items.

Internal consistencies, assessed through Cronbach’s alpha are reported as .96 for the Lability/Negativity subscale, .83 for the Emotion Regulation subscale, and .89 for the composite score across all items (Shields & Cicchetti, 1998). Evidence of convergent validity has been established using correlations with observers’ ratings of children’s regulatory abilities ( $r = .23$ ) and the proportion of expressed positive ( $r = .77$ ) and negative ( $r = -.55$ ) affects (Shields & Cicchetti, 1997). Evidence of validity is also provided in a study of children who had been maltreated by a caregiver. Maltreated children were significantly more likely to receive scores showing dysregulated emotional responding on both scales of the ERC than were children in the nonmaltreated group ( $F(1, 215) = 9.70, p < .016$ ) (Shields & Cicchetti, 1998).

**Levels of Emotional Awareness Scale for Children** (Appendix F). Children also completed the Levels of Emotional Awareness Scale for Children (LEAS-C; Bajgar, Ciarrochi, Lane, & Deane, 2005), a performance-based assessment of an elementary-age child’s depth of emotional understanding. The child is presented with a series of twelve emotionally evocative interpersonal scenarios and for each, responds in writing to the questions, “How would you feel?” and “How would the other person feel?” Each scenario is designed to elicit one of four types of emotions (happiness, anger, sadness, or fear). The child’s responses are scored on a five-

step rubric according to detailed scoring guidelines. Scoring is based on the degree of emotional complexity reflected in the response, rather than an accurate identification of the target emotion. The scale yields scores for Self-Awareness, Other-Awareness, and Total-Awareness, reflecting the complexity and depth of the child's thinking about emotions in the self and in others. For this study, an average across the Total scores was used, which is derived from combining the Self and Other-Awareness scores.

The LEAS-C was developed by the authors as a downward extension of the LEAS, an adult measure of emotional awareness. The authors report the adult measure correlates positively with measures of emotion recognition and categorization and correlates negatively with measures of mood congruent bias (the tendency to allow current mood states to affect judgment in different situations). In a small study with 51 children, ages 10-12, examining the measure's psychometric properties, the LEAS-C demonstrated strong inter-rater reliability (Pearson's correlation coefficients ranged from .86 to .93). Internal consistency was fair, with Cronbach's alpha's ranging from .64 to .71. Preliminary evidence for validity was established by demonstrating the measure's correlation to The Emotion Comprehension and Emotion Expression Scales (Bajgar, et al., 2005). The LEAS-C was normed on a group of 702 students, with an age range of 9-13 years, though its utility is severely limited because the characteristics of the norming sample are not provided beyond gender and age.

For this study, the participants' responses were scored by the researcher and one additional scorer, an advanced Ph.D. student in school psychology, who has experiences with scoring other rubric-based scales of emotional functioning. Both scorers read the scoring manual and then met to discuss the scoring rubric. Together, the scorers went through the practice items provided in the manual and discussed how and why they would be given a particular score.

When both scorers had mastered the scoring rubric in the practice materials, they independently scored the participants responses. After 20 protocols had been scored, the scorers met to review the scores and to identify discrepancies. Discrepancies affecting the total score were discussed and resolved. This procedure was repeated until all protocols had been scored. Overall interrater reliability for the total scores on the LEAS-C was .99.

### **Procedures**

The university IRB granted approval for all procedures described and utilized in this study. Initial recruitment contact was made by an informational mailing to parents. In schools 1 and 2 at the request of school personnel, packets were mailed directly to parents through the U.S. postal service, while in school 3, informational packets were sent home with students from school. The informational packet included a letter describing the purpose of the study and requirements for participation (Appendix G), as well as a Consent Form (Appendix H), and a Summary of Instructions for participation (Appendix I). School 2 also provided a letter of support for the research, which was included in the packets mailed to parents of students in that school. In addition, the packet contained one copy of the Background Information Form soliciting demographic information about the participant and 2 copies of the Emotion Regulation Checklist for Parents (ERC). Parents who wished to participate were instructed to return to the researcher the signed consent form, the Background Information Form, and one or two copies of the Emotion Regulation Checklist (completed independently by 1 or 2 parents/guardians) in the included self-addressed, stamped envelope. In all 3 schools, school personnel sent an e-mail to parents reminding them of the deadline for enrolling in the study. In school 1, the e-mail reminder was sent by the Coordinator of Research, in school 2, it was sent by the School

Psychologist, and in school 3, it was sent by the 6<sup>th</sup> grade homeroom teacher who was coordinating the study within the school.

In all, 98 parents enrolled in the study and returned the completed data forms to the examiner. In each school, after the parent deadline to enroll in the study had passed, dates for the data collection with students were established. Students whose parents had enrolled them in the study then met in groups with the researcher. In schools 1 and 2, there were small groups of 2-5 students within the same grade. In school 3, there were 3 groups each containing 18-22 students. Students were given a folder containing 2 self-report measures of mindfulness (CAMS-R:SAC, CAMM) one self-report measure of emotion regulation (HIF), and performance assessment task of emotional awareness (LEAS-C). The measures are described in detail above. The researcher provided information to students about the study and their rights as study participants.

Participants were told that they were being asked to participate in a study of how students experience their emotions. They were told they could choose for themselves whether or not to participate and that they could withdraw from the study at any time with no penalty. In addition, they were told that they could choose to answer only those questions they felt comfortable answering and ask questions at any time about the questionnaires or the study as a whole and the researcher would answer it for them. They were assured that all answers given were confidential and identifiable only by code number and that no one besides the researcher and her adviser would have access to the students' responses. Students were then asked to sign the Student Assent Form (Appendix J) if they wanted to participate in the study. Students who declined to participate returned to their normal school activities. Of the 98 students whose parents had signed consent, 91 gave assent and completed the student portion of the data collection.

The measures were then administered in the following order to the students: CAMM, HIF, CAMS-R:SAC, LEAS-C. For each measure, the directions were read aloud to the students by the researcher, and the Likert scale was explained. The researcher then read the first item to the students, repeated the Likert scale ratings, provided the students with an opportunity to ask questions, and then instructed them to provide a response. Students then completed the rest of the measure at their own pace. Once all of the students had completed one measure, the researcher introduced the next measure and followed the same procedure. This was repeated until all of the measures were completed.

All data from parents and children were identified only by ID number, in order to maintain confidentiality of the information provided. The coded questionnaires were kept in a locked file cabinet in the researcher's home. Students were given a \$10 gift card to a bookstore for their participation.

## Chapter 4: Results

Descriptive statistics (means, standard deviations, ranges) were calculated and reported for all measures. Estimates of internal consistency reliability were then calculated for all measures used in the study. In addition, inter-rater agreement was calculated and reported for the LEAS-C. Correlations were computed between the parent measure of emotion regulation (ERC) and the student self-report of emotion regulation (HIF) to determine whether they could be combined into a single emotion regulation construct.

The study hypotheses propose a 3-step model for the relationship between mindfulness, emotion regulation, and emotional awareness. Therefore, the hypothesis-testing component of the data analysis consisted of a path analysis of the relationship among the 3 variables. Because a recursive model is proposed, only unidirectional correlations were considered and reported. Path coefficients were computed for each step in the model to assess the strength of the hypothesized relationships in the model. In addition, the indirect effect of mindfulness (the first step in the path model) on emotional awareness (the final step in the path model) was computed to further assess the strength of the proposed model.

### Descriptive Statistics

Descriptive statistics (means, standard deviations, ranges) for the five study measures are summarized in Table 3.

**Mindfulness measures.** On the CAMS-R:SAC, students self-reported their levels of mindfulness toward internal affective and cognitive experiences on a scale of 1 to 4. The mean score on the measure for the study participants was 2.71. This mean score indicates that in general, study participants saw themselves as slightly above the scale median (2.5) on

mindfulness, rating themselves closer to a rating of “Often” mindful, than to “Sometimes” mindful for a variety of cognitive and affective experiences.

On the CAMM, students self-reported their levels of general mindfulness on a Likert scale ranging from 0 to 4. The mean score for the study participants was 2.15. This score is below the median score of the measure (2.50) and suggests that overall students ranked themselves as slightly better than “Sometime” mindful on the behaviors of this measure.

**Emotion regulation measures.** On the HIF, students self-reported their perceived degree of control over their emotional experiences on a scale of 1 to 5 for both positive and negative emotions. The mean score on the measure for the study participants was 2.90. This score is close to equivalent to the scale median (3.0) for emotion regulation. Overall, students saw themselves in the middle range of emotion regulation abilities.

On the ERC, parents reported on their child’s ability to regulate his or her emotions on a scale of 1 to 4. The mean score on this measure for study participants was 3.38. This mean score indicates that in general, study participants rated their children well above the scale median (2.5) for emotion regulation. Overall, parents saw their children as strong emotion regulators for the behaviors assessed on this scale.

**Emotional awareness measure.** On the LEAS-C, students provided written responses to emotional evocative scenarios, which were then scored for sophistication of emotional awareness on a scale of 0 to 5. The students earned a mean score of 2.98 on this measure. According to the limited normative information provided with the scale, this places students within the 30<sup>th</sup> to 40<sup>th</sup> percentile for emotional awareness in comparison to the normative sample (Bajgar, Deane, & Lane, 2005).

Table 3

*Means, Standard Deviation, and Ranges for the Study Measures*

| Study Measures   | <i>M</i> | <i>SD</i> | Range       |
|--|----------|-----------|-------------|
| <i>Mindfulness:</i>  |          |           |             |
| Cognitive Affective Mindfulness Scale-<br>Revised, Study Adaptation (CAMS-R:SAC,<br>adapted from Feldman et al., 2007) | 2.71     | .43       | 1.58 - 3.58 |
| Child Acceptance and Mindfulness Measure<br>(CAMM, Greco & Baer, 2005)   | 2.15     | .33       | 1.16 - 3.04 |
| <i>Emotion Regulation</i>  |          |           |             |
| How I Feel<br>(HIF; Walden, Harris, & Catron, 2003)  | 2.90     | .87       | 1.00 - 4.80 |
| Emotion Regulation Checklist<br>(ERC; Shields & Cicchetti, 1995)   | 3.38     | .39       | 1.96 - 3.96 |
| <i>Emotional Awareness</i>   |          |           |             |
| Levels of Emotional Awareness for Children<br>(LEAS-C; Bajgar, Ciarrochi, Lane, & Deane, 2005)                         | 2.98     | .44       | 1.25 – 4.08 |

Note. Different measures had a different possible range of scores. Possible responses on the CAMS-R:SAC and the ERC ranged from 1 to 4, on the CAMM from 0 to 4, on the HIF from 1 to 5, and on the LEAS from 0 to 5.

## Preliminary Analyses

**Reliability.** Estimates of internal consistency reliability ( $N = 91$ ) were calculated for all study measures. Values of .70 or greater are considered acceptable for the early stages of research, values of .80 and above are considered adequate for basic research, and values above .90 are considered good for both research and clinical purposes (Streiner, 2003). In addition, inter-rater reliability was assessed for the performance measure of emotional awareness by computing the intraclass correlation coefficient. Reliability estimates are provided in Table 4. The two measures of emotion regulation demonstrated adequate internal consistency ( $r = .89$  for HIF and for ERC). Internal consistency was acceptable for the measure of emotional awareness (LEAS-C,  $r = .75$ ). In addition, inter-rater reliability on this measure was good ( $ICC = .99$ ). Internal reliability approached acceptability for the CAMS-R:SAC ( $r = .65$ ), but not for the CAMM ( $r = .39$ ) in this study population.

Because the full scale CAMM did not demonstrate acceptable internal consistency reliability within this study population, it suggests that too much measurement error may be present to accept individual's scores as a reliable estimate of the construct, in this case, their dispositional mindfulness. The authors of this measure have recently created a revised version of the CAMM. This revised version is a 10-item measure, utilizing 9 items from the original CAMM along with 1 new item. In order to consider whether this revised version of the scale might be useful for the current study, internal consistency reliability was computed on the nine items that had been maintained from the current CAMM. While this did yield a more acceptable Cronbach's alpha of .63, the revised item pool still does not demonstrate solid reliability. While this is now comparable to the internal consistency reliability for the other measure of mindfulness, the CAMS-R:SAC, the CAMM was dropped from further analysis in this study and

the CAMS-R:SAC was retained as the primary measure of mindfulness for a number of reasons. First, in addition to low internal consistency, the authors have not yet published any additional data about the CAMM-Revised, so it is impossible to determine any statistical properties of the revised scale. Finally, the CAMS-R:SAC represents a more focused view of mindfulness and one that is more consistent with the construct as it is utilized in the current study. Therefore, only the individual scores on the CAMS-R:SAC were used to test the study's hypotheses.

Table 4

*Internal Consistency Reliability Estimates for all Study Measures*

| Instrument | Internal Consistency ( <i>r</i> )      |
|------------|--|
|            | Intra Class Correlation ( <i>ICC</i> ) |
| CAMM       | <i>r</i> = .39                         |
| CAMS-R:SAC | <i>r</i> = .65                         |
| HIF        | <i>r</i> = .89                         |
| ERC        | <i>r</i> = .89                         |
| LEAS-C     | <i>r</i> = .75                         |
|            | <i>ICC</i> = .99                       |

Note. CAMM = Child Acceptance and Mindfulness Measure, CAMS-R:SAC = Cognitive and Affective Mindfulness Scale for Children-Revise, Study Adaptation for Children, HIF = How I Feel, ERC = Emotion Regulation Questionnaire, LEAS-C = Levels of Emotional Awareness Scale for Children.

### **Correlations Between Measures of the Same Construct.**

Correlations between all of the study measures are presented in Table 5.

**Mindfulness measures.** Because one of the mindfulness measures was eliminated from further analysis because of poor internal consistency reliability, the CAMS-R:SAC functioned as the sole measure of mindfulness for the purposes of hypothesis testing.

**Emotion regulation measures.** Both the student and the parent provided a rating of the student's emotion regulation abilities. The student measure (HIF) asked students to report on how much they felt "in control" of their emotions. Overall, the students in the study population rated themselves as in the middle range for feeling "in control." The parent assessment of the student's emotion regulation (ERC) asks parents to rate the child on his or her tendency to act in ways indicating good control of emotionally-driven behaviors. Within the population of the current study, these two measures demonstrated low, nonsignificant correlation with each other ( $r = .07, p < .50$ ). This is not an usual occurrence; a meta-analysis by Achenbach, McConaughy, and Howell (1987) found that the average correlation between children's self-reports of a construct and other informants' reports on the same construct was .22. Further, these correlations tended to be lower for internalizing issues than for externalizing behaviors. While their meta-analysis did not include any studies on emotion regulation specifically, it contained studies on internal constructs such as depression, anxiety, temperament, anger, and self-control. Achenbach et al. (1987) cite a number of possible reasons for the lack of correlation and caution that "the question of reliability should be separated from the question of correlations between different informants" (p. 226). In this study, the construct of emotion regulation is conceptualized differently across the two measures. On the student self-report, the emotion regulation subscale of the HIF address questions of efficacy for controlling emotions. The parent measure (ERC)

samples observable behaviors associated with emotion regulation. Because of the lack of correlation, the two measures were not combined into a single emotion regulation category, but were maintained as separate measures within the model.

Table 5

*Intercorrelations Among Measures of Student's Mindfulness, Parent Ratings of Student's Emotion Regulation, Children's Self-Report of Emotion Regulation, and Student's Emotional Awareness*

| Variable   | CAMS-R:SAC | ERC-P | HIF  | LEAS |
|------------|------------|-------|------|------|
| CAMS-R:SAC | --         |       |      |      |
| ERC-P      | .28**      | --    |      |      |
| HIF        | .44***     | .07   | --   |      |
| LEAS       | -.02       | .27** | -.00 | --   |

\*\* indicates significance at the  $p < .01$  level

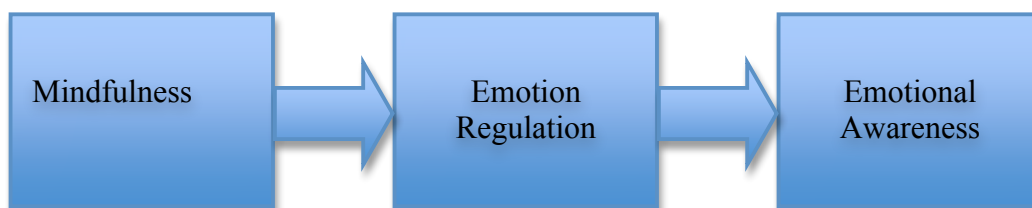
\*\*\*indicates significance at the  $p < .001$  level

Note. Correlation coefficients corrected for attenuation are presented in Appendix K.

## Primary Analyses

The hypotheses of this study propose a three-step model in which mindfulness predicts emotion regulation, which in turn, predicts emotional awareness. Dispositional mindfulness creates an attentional and cognitive orientation to internal affective experiences that allow them to be managed more effectively. Therefore, it is hypothesized that higher scores on measures of mindfulness will predict higher scores on both child and parent reports of a child's emotion regulation abilities. This type of emotion regulation, in turn, should predict higher levels of emotional awareness because more successful emotion regulation should allow emotional information to be processed more thoroughly. The general model is depicted in Figure 1.

*Figure 1.* Hypothesized relationship between mindfulness, emotion regulation, and emotional awareness



Based on the data collected in this study, a path model was created reflecting the variable to be considered to test the study's hypotheses. The construct of emotion regulation was separated into the child's assessment of his or her emotion regulation abilities and the parent's assessment of the child's emotion regulation abilities, because of an inadequate correlation between the two measures of this construct. The path model is depicted in Figure 2.

The path model depicted in Figure 2 is a recursive model in which relationships are considered to be unidirectional from left to right. The path model was estimated using multiple regression modeling to estimate the standardized path coefficients linking each presumptive "causal" variable in the model to those presumed to be affected by them. Path coefficients in the form of Beta weights ( $\beta$ ) were computed from the correlations between the measures presented in Table 5. Specifically, a series of three ordinary least squares regression models were created in SPSS 15, corresponding to each of the three endogenous variables in the model. The first of these three equations predicts parent ratings of the child's emotion regulation, from the one exogenous variable in the model, child mindfulness. The second ordinary least squares regression model predicts the child's self-assessment of emotion regulation from this same exogenous predictor. The third ordinary least squares regression model uses the two mediator variables, emotion regulation as assessed by the parent and emotion regulation as self-assessed by the child, to predict the emotional awareness of the child. In this model, the effect of child mindfulness on the emotional awareness of the child is hypothesized to be completely mediated by the emotion regulation variables.

Figure 2. Path model: Mindfulness, emotion regulation, and emotional awareness

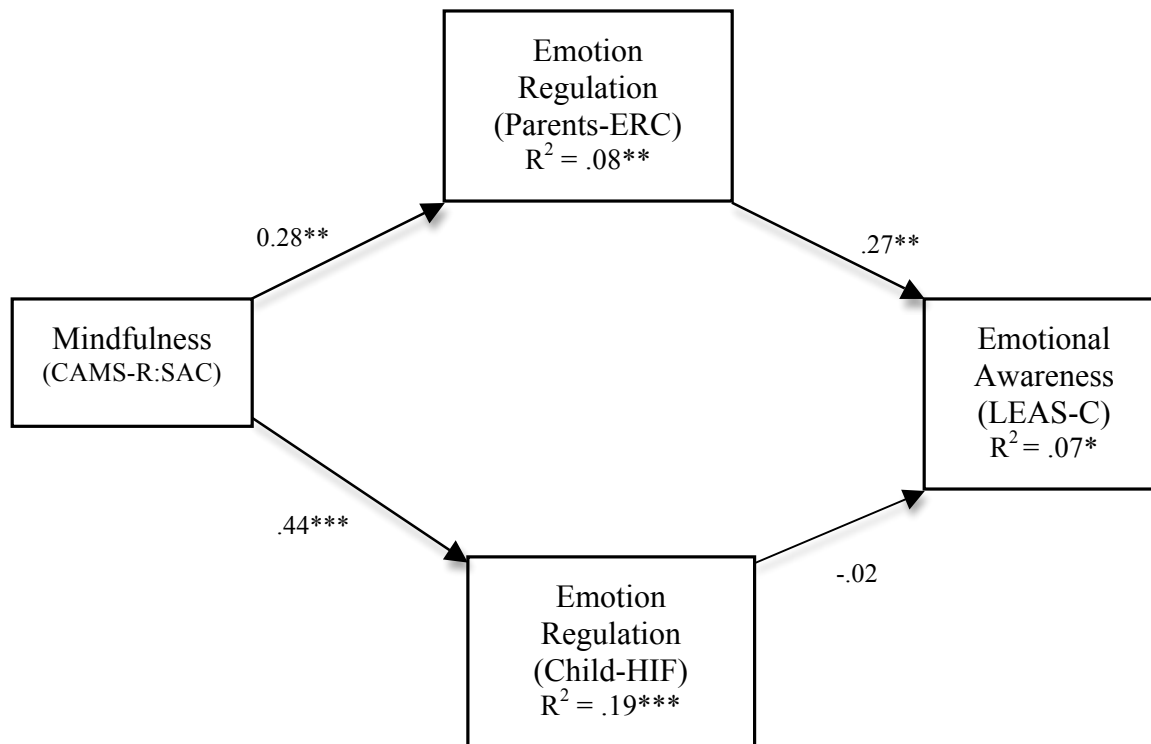


Figure 2. Path model for the proposed relationship among mindfulness, emotion regulation, and emotional awareness. Path coefficients reported along the arrows are unidirectional, as indicated by the arrow's direction.  $R^2$  values describing the amount of variance accounted for by the predictor variable, as well as their significance levels are reported in the respective boxes.

- \* indicates significance at the  $p < .05$  level
- \*\* indicates significance at the  $p < .01$  level
- \*\*\* indicates significance at the  $p < .001$  level

**Hypothesis 1.** Levels of dispositional mindfulness as measured by self-report on the Child Acceptance and Mindfulness Measure (CAMM) and Cognitive and Affective Mindfulness Scale-Revised, Study Adaptation for Children (CAMS-R:SAC) will predict abilities in emotion regulation, as measured by parent report on the Emotion Regulation Checklist for Parents (ERC) and by child self-report on the How I Feel (HIF).

As seen in the path diagram, child mindfulness as measured by the CAMS-R:SAC is hypothesized to have a direct effect on the child's emotion regulation abilities as assessed by parent report. The path coefficient corresponding to this effect is positive and statistically significant ( $\beta = .28, p < .01$ ). Children with higher self-reports of dispositional mindfulness were rated by their parents as significantly higher in emotion regulation skills, than those children who self-reported less dispositional mindfulness.

Likewise, children's dispositional mindfulness (CAMS-R:SAC) is hypothesized to have a direct effect on children's emotion regulation abilities as reported through the child's self-report (HIF). The path coefficient corresponding to the hypothesized effect is positive and statistically significant ( $\beta = .44, p < .001$ ). Children with higher self-reports of dispositional mindfulness self-reported significantly higher skills in emotion regulation than those children who self-reported less dispositional mindfulness. Mindfulness significantly predicts emotion regulation abilities as measured by both parent report and child self-report and hypothesis 1 is supported.

**Hypothesis 2.** Emotion regulation abilities as measured by the ERC and HIF will predict levels of emotional awareness on the Levels of Emotional Awareness Scale for Children (LEAS-C).

Emotion regulation is hypothesized to have a direct effect on the child's emotional awareness as measured by a the child's score on a performance measure assessing sophistication of emotional thinking within different scenarios. The path coefficient assessing the relationship between the parent's report of his or her child's emotion regulation is positively and significantly related to the child's emotional awareness ( $\beta = .27, p < .01$ ). Children whose parents assessed them as better at regulating their emotions displayed more emotional awareness than those children whose parents rated them as lower in emotion regulation.

Finally, the child's self-report of their emotion regulation skills was hypothesized to affect his or her levels of emotional awareness on the same performance-based measure. The path coefficient assessing this relationship is not significant ( $\beta = -.00, p < .99$ ). Children's self-report of emotion regulation abilities did not predict their emotional awareness.

The path coefficients within the model fully support 1 out of 2 of the study's hypotheses. Hypothesis 1 is fully supported by the current data. Mindfulness predicts children's emotion regulation abilities, both as measured by parent report and as measured by child self-report. The second hypothesis is partially supported by the data. While emotion regulation as assessed by the parent does predict children's emotional awareness, the student's self-assessment of their emotion regulation does not predict their emotional awareness.

**Indirect effects.** As predicted within the model, mindfulness on the CAMS-R:SAC does not directly predict student's emotional awareness on the LEAS-C ( $r = -.02, p < .90$ ). However, it is important to consider the indirect effect of mindfulness on emotional awareness as mediated by emotion regulation. There are two indirect effects inherent to the path model. The first of these indirect effects corresponds to the path from child mindfulness to emotional awareness via its impact on the child's emotion regulation abilities as assessed through parents report. The

second corresponds to the path from child mindfulness to emotional awareness via the influence of mindfulness on the child's emotion regulation abilities as assessed through the child's self-report. In order to evaluate the statistical significance of these two indirect effects, MacKinnon's program, PRODCLIN, was employed. This is considered a robust evaluation of indirect effects, especially with smaller sample sizes (MacKinnon, Lockwood, & Williams, 2004 as cited in Mallinckrodt, Abraham, Wei, & Russell, 2006). This program computes a 95% confidence interval for the indirect effects, and confidence intervals that do not include the value of zero are considered to uphold a statistically significant indirect effect.

The .95 confidence interval for the indirect effect of child mindfulness on emotional awareness as mediated by emotion regulation as assessed by parent report has a lower bound of .013 and an upper bound of .172. This indicates a positive and statistically significant indirect effect at the .05 level. The 95% confidence interval for the indirect effect of child mindfulness on emotional awareness as mediated by emotional regulation as assessed by the child's self-report has a lower bound of -.104 and an upper bound of .082. The inclusion of zero in this confidence interval suggests that this indirect effect is not statistically significant at the .05 level. As predicted by the model, mindfulness does not have a direct correlation with emotional awareness, but does have an indirect effect on emotional awareness through its effect on the child's emotion regulation abilities as assessed by the parent, though not as assessed by the child.

## Chapter 5: Discussion

The primary goal of this dissertation study was to examine the relationship between mindfulness, emotion regulation, and emotional awareness in children in grades 5-7. The results of the study are discussed below, along with the implications of this study's findings for school psychologists, limitations of the study, and directions for future research.

### Overview and Interpretation of Findings

**Mindfulness and emotion regulation.** This study proposed a model in which mindfulness represents a particular attentional and cognitive orientation that allows successful emotion regulation to occur. This type of functional emotion regulation, in turn, allows for more successful processing of emotional information resulting in a greater depth of emotional awareness. The first hypothesis examined the relationship between mindfulness and emotion regulation. As predicted, in this study, children with greater levels of self-reported mindfulness to internal affective and cognitive experiences showed greater levels of emotion regulation in two ways. First, levels of mindfulness predicted the students' own perceptions of their ability to control their emotions. Mindfulness is a cognitive orientation involving both attentional and cognitive components incorporating present-moment attention and acceptance of internal experiences. The findings of this study suggest that this type of mindful orientation to internal experiences is associated with children feeling a greater sense of personal control over their emotional responses. Second, despite the fact that children's self-reported perceived emotion regulation abilities were not correlated with parent reports of the child's emotion regulation abilities, mindfulness also independently predicted parents' perceptions of their children's emotion regulation abilities. Children who self-reported more mindfulness were perceived by their parents as acting in ways that demonstrated more control over their emotions. Mindfulness,

therefore, not only predicts children's self-perceived emotion regulation, but also their external behavior in managing their emotions.

**Emotion regulation and emotional awareness.** Next, this study examined the relationship between emotion regulation and emotional awareness in children. Children's assessments of their emotion regulation did not predict their emotional awareness. That is, greater perceived efficacy for controlling emotional responses was not associated with a stronger ability to identify and describe the emotional content of different hypothetical scenarios. However, parent's ratings of his or her child's ability to regulate emotions was predictive of the levels of emotional awareness children demonstrated. Children who were seen by their parents as having more control over their emotional responses showed a greater depth of emotional awareness in their written responses to hypothetical scenarios. Perceived ability to control emotions was not associated with greater emotional awareness, but the ability to act with greater control was associated with greater emotional awareness. This finding suggests that within this population, the parents may have been more accurate reporters of the children's actual emotion regulation abilities than the children. The children may have over-estimated their perceived emotion regulation abilities, because their perceptions of their emotion regulation abilities did not correspond to actual abilities in describing emotional information on a performance task. In this case, the parents' assessments of emotion regulation behavior may more accurately describe the children's skills in emotion regulation. This may be related to the age of students in the study. Older children may theoretically be more accurate reporters of their internal experiences than younger children because of developmental issues in metacognitive self-reflection.

Analyses of both the direct and indirect effects within this study suggest that emotion regulation acts as a moderator variable between mindfulness and emotional awareness. While

mindfulness did not directly predict emotional awareness, mindfulness does predict emotional awareness through its effect on children's behavior in regulating their emotions, as perceived by their parents. Greater mindfulness is associated with greater perceived control over emotions and with greater emotion regulation behavior, and emotion regulation behavior is, in turn, predictive of a greater ability to perceive and report on emotional information. Considering the lack of research into mindfulness in children, these findings can be regarded as a valuable first step in elucidating the relationship between mindfulness and emotional functioning in children.

The findings of this study represent a downward extension of the literature on mindfulness in adults. There is a growing body of research that supports a relationship between mindfulness and emotion regulation processes in adults (e.g., Brown & Ryan, 2003). The results of this study are comparable with the results of research with adults, which has demonstrated a relationship between dispositional mindfulness and clarity of feelings and self-efficacy to repair positive mood in adults (Hayes & Feldman, 2004), and between dispositional mindfulness and attention to emotions, clarity of emotional states, and mood repair (Brown & Ryan, 2003). The current study gives preliminary support for the notion that mindfulness may have a similar or comparable relationship to emotion regulation in children as it does in adults.

At the same time, this study represents an advance in our understanding of successful emotion regulation in children. While much is known about adaptive versus maladaptive types of emotion regulation strategies, and the implications of successful and unsuccessful emotion regulation, there is little research examining the underlying components that make children successful at managing their emotions. While researchers have posited that neurologically-based temperamental differences (e.g., Blair, 2002) as well as socialization processes (e.g., Calkins & Hill, 2007) have an effect on emotion regulation development, little research has been published

examining the effects of specific underlying processes on emotion regulation. This research gives initial support for the idea that mindfulness as a dispositional trait involving specific attentional and cognitive tendencies may provide a foundation for emotion regulation.

In addition, examining the relationships between mindfulness, emotion regulation, and emotional awareness in a nonclinical population allows for an understanding of the normative processes at work in children's development of emotional competence. Clinical samples examine the relationships among variables after something has "gone wrong" and the individual is no longer functioning in a satisfactory way. Results from clinical samples can illuminate the relationship between variables such as mindfulness and emotion regulation in the context of dysfunction. Examining the relationship in a nonclinical sample also provides for a greater understanding of the processes when things are "going right." While both types of research are obviously important, research in nonclinical populations can be especially useful for developing programs to enhance and optimize positive functioning and to prevent problems from developing in the future.

### **Implications**

School psychologists have long understood the need for children to have the ability to regulate their emotions in order to be successful in school (e.g., Elias, Zins, Weissberg, Frey, et al., 1997). Children need to be able to navigate the social and emotional contexts of the classroom, and emotions can have a positive or negative impact on learning through their influence on social relationships with peers and adults, as well as through such factors as children's engagement, motivation, and attention for learning tasks. School psychologists are often called upon to help facilitate this at the individual, classroom, or school wide level. In order to do this, school psychologists need to understand the ways in which children can become

successful at regulating their emotions. Understanding the components of mindfulness and the relationship of mindfulness to emotion regulation can help school psychologists develop this understanding.

Mindfulness is fully compatible with many components of cognitive and behavioral therapy as it is already practiced with children, with its emphasis on functional analysis, skill building, attunement to internal experiences including physical sensations and self-talk, and on behavioral change as the outcome of interest. In mindfulness, however, the target of intervention is not the content of thoughts, feelings, and body sensations, but on the individual's reaction to them. Specifically, mindfulness encourages individuals to acknowledge and accept internal experiences for what they are – just private experiences, not literal truths. Both of these approaches can be valuable for children and one does not preclude the other. Mindfulness may offer an advantage over traditional cognitive behavioral approaches, however, when changing the content that leads to emotional distress is unrealistic, for example when a child has lost a parent and is grieving.

Good emotion regulation involves the ability to harness emotions and emotional information in adaptive ways that allow individuals to learn from emotions as well as to function well in their presence. The current research supports the idea that mindfulness may provide a platform for individuals to respond adaptively to their emotions. While the current study is limited to an examination of the relationship between dispositional mindfulness and emotion regulation, many researchers have suggested the possibility of teaching mindfulness skills to children.

The Surgeon General's conference on children's mental health in 1999 reported that schools are the nation's primary mental health care provider for children, and 70% of the

children receiving mental health care receive it through their school (Rogers, Murrell, Adams, & Wilson, 2008). School psychologists are therefore often the primary or only mental health care provider that a psychologically-distressed child may have. The findings of this study may encourage school psychologists to explore the use of mindfulness in their work with children. Individual children who are struggling with emotion dysregulation might benefit from learning mindfulness skills to bring to their emotional lives. In addition, school psychologists might explore the use of mindfulness skills in developing curriculum to teach emotional competence in classrooms and within schools.

In addition, there are many ways in which mindfulness might be incorporated into a school. Mindfulness could be incorporated into an existing mental health-based programs or a more general health and wellness curriculum in a school. If mindfulness is associated with successful emotion regulation, then enhancing mindfulness through curricular initiatives could be seen as a way to build skills to assist children in navigating life's challenges to prevent future psychological difficulties.

Mindfulness may also have applications to various mental health programs such as bullying prevention programs. Mindfulness may be used to help children who might have the potential to become bullies to manage emotions in more productive ways that do not lead to the victimization of others. In addition, mindfulness may allow children who are victims of bullying to manage their emotions in order to respond more effectively to bullying behavior from others. In addition, mindfulness might serve as a useful component in substance abuse prevention programs for children. Substance use is often characterized as the result of a desire to escape unpleasant emotions. Mindfulness may allow negative emotions to be tolerated more effectively, so that children can make more functional choices.

Mindfulness-based practices could also be incorporated throughout the school day in various ways. Teachers help children navigate an array of emotions throughout the day. As such, they are the likely the most important school-based support for developing mindfulness skills. Teachers could be taught to lead their classes in brief mindfulness-enhancing activities such as focused breathing exercises, cognitive activities practicing the difference between describing an experience and judging an experience, or in identifying the cognitive, affective, and physical sensations that accompany an emotion. Teachers can also help students handle emotions mindfully. When emotions arise, teachers can encourage students to “turn inward” to identify the various components of the emotional experience, then help them to describe it accurately and to label it as acceptable and temporary.

### **Limitations of the Study**

There are several significant limitations of the current study. The first limitation involves the difficulty in capturing the construct of mindfulness in children at the current time. The relatively low internal consistency reliability of both of the mindfulness measures used in this study highlights the difficulty in accurately capturing this internal construct in children. This difficulty is the result of a number of converging factors. First, disagreements exist in the adult research literature about how to define mindfulness and about what specific qualities to include as part of the construct of mindfulness. As a result, there has been a proliferation of measures purporting to capture the construct, all of which represent somewhat different orientations to the construct. For example, Brown and Ryan (2003) created the Mindful Attention and Awareness Scale, with mindfulness defined as a unidimensional construct, while Baer’s (2006) Kentucky Inventory of Mindfulness Skills uses a definition of mindfulness that is multidimensional. The adult measure selected for adaptation in this study, the Cognitive and Affective Mindfulness

Scale-Revised (CAMS-R) represents the best theoretical match for the current study, but is by no means the only theoretical approach. The CAMS-R considers mindfulness a unidimensional construct, but mindfulness may be more multidimensional in children. In a review of the status of efforts to develop approaches to assessing mindfulness, Coyne, Cheron, and Ehrenreich (2008) describe it as “young and developing” (p. 41). Clearly, much more work needs to be done so that research on mindfulness is clear regarding what they are measuring and the best means of capturing the construct in children.

Second, the version of the CAMS-R used in this study is an adult scale adapted for use with children. While the adaptation may have face validity, its actual reliability and validity with children is unknown. Conclusions that are based on measures with unsatisfactory reliability indices and relatively unexplored psychometric properties must be interpreted with caution.

An additional limitation of the study involves the characteristics of the sample. This particular sample is heavily weighted toward Caucasian students, from intact nuclear families, with highly educated parents. This is an important limitation in considering the generalizability of these findings. A sample that was more diverse along ethnic and socioeconomic variables might have yielded different results. In addition, a larger sample might also have allowed for the possibility of examining differences in the patterns of mindfulness along age, grade, gender, ethnic, and socioeconomic dimensions. Explorations of differences in the relationship between mindfulness and emotion regulation based on age, for example, would be helpful in beginning to understand the developmental nature of mindfulness. Differences in this relationship along gender lines or along ethnic lines might suggest that differing beliefs about emotions might affect the strength of the relationship between mindfulness and perceived emotion regulation. For example, traditional gender roles suggest that girls are more comfortable with emotions than

boys. Increased contact with emotions through mindfulness might lead boys to feel less in control of their emotional lives, thereby indicating a less positive relationship between mindfulness and perceived emotion regulation in boys than in girls.

Finally, the current study explores only the correlational relationship between the variable of mindfulness, emotion regulation, and emotional awareness. Therefore, the results cannot definitively speak to the causal directionality of the model. Does mindfulness represent an underlying construct that allows students to be more successful at regulating their emotions which, in turn leads to more emotional awareness? Or is the reverse true: that greater emotional awareness allows students to regulate their emotions more successfully, which in turn creates greater mindfulness? Only experimental manipulation of the variables or longitudinal research could address this question.

### **Future Research**

While the findings of the current study are an interesting first look at the relationship between mindfulness and emotional functioning, much work remains. The current limitations in defining and assessing the construct of mindfulness, especially in children, represents a significant challenge in researching the role of mindfulness in emotion regulation and other processes. Therefore, research must continue to further define the parameters of mindfulness and its essential components. Additionally, mindfulness in children must be examined within a developmental context in which attention, language, and cognitive abilities are seen as emerging and changing. It cannot be assumed that mindfulness in children will have the same manifestations as mindfulness in adults. At what age can children demonstrate mindfulness? And inasmuch as self-reporting on mindfulness involves a metacognitive ability to observe the presence or absence of the attentional and cognitive components, special care must be taken to

elucidate and account for the limitations children face in their developmental ability to do this. At what age can children be reliable reporters of their own mindfulness?

In addition, to increase the generalizability of the findings, future research should examine the relationships among mindfulness, emotion regulation, and emotional awareness within a more representative sample of students from diverse ethnic and socioeconomic backgrounds. Research can also examine differences in these relationships between boys and girls as well as across different ages.

Future research might also address the effectiveness of teaching mindfulness to children as a means to enhance their emotion regulation abilities. A single, small intervention study has suggested that teaching mindfulness can reduce anxiety in children (Semple, Reid, & Miller, 2005) and a number of intervention studies have upheld the efficacy of mindfulness for the treatment of a number of psychological disorders in adults. Little work has been done, however, in examining the positive psychological effects of teaching mindfulness to enhance emotional functioning in the absence of clinical problems. Indeed, the true advantage of understanding the role of mindfulness in emotional functioning in children may be in the potential to use mindfulness in programs to promote and enhance emotional development in children in positive ways.

## **Conclusion**

Research on mindfulness in adults has proliferated during the past fifteen years. Although work on mindfulness in children is still at the very beginning stages, several core elements of mindfulness suggest that it will have a lasting impact on the ways in which we as school psychologists understand and help children. First, mindfulness represents a compatible extension of current cognitive behavioral approaches for working with children, which have proven

efficacy. As such, mindfulness can be readily incorporated into existing practices. Second, mindfulness emphasizes enhancing positive emotional functioning, and serves as an excellent example of the National Association of School Psychologists' call for work on "prevention as an intervention." Finally, mindfulness as a treatment approach addresses the underlying factor of emotion dysregulation, rather than just targeting the symptoms. Although our current diagnostic system uses a categorical approach to identifying disorders, interest is growing in a transdiagnostic approach (Kring & Sloan, 2010) to psychological distress, which emphasizes identifying and addressing the underlying mechanisms and core disturbances across diagnostic categories. Mindfulness and its relationship to emotion regulation may prove to be an important component of this approach.

## Appendix A

## Background Information Form

Please answer the following demographic questions to help with this study. Check off **one** response to each question below. ***This information is for research purposes only.***

What is your relationship to this child? \_\_\_\_\_

How old is your child?

- 9 years old
- 10 years old
- 11 years old
- 12 years old
- 13 years old

What grade is your child in?

- 5th grade
- 6th grade
- 7th grade

Who does the child live with?

- Both parents
- Only his or her mother
- Only his or her father
- His or her mother and stepfather
- His or her father and stepmother
- Sometimes with his or her mother and sometimes with his or her father
- Other relatives
- Guardian or foster parent who is not a relative
- Other

What is your marital status? (please pick one):

- single
- married
- separated
- divorced
- widowed

How would you best describe your child's ethnicity?

- African American
- Asian/Pacific Islander
- Caribbean-American
- Caucasian
- Latino
- Multiracial
- Other\_\_\_\_\_

Is your child an English Language Learner (i.e., English is not his or her first language)?

- Yes
- No

Does your child receive special education services?

- Yes
- No

What is the highest level of education completed by the child's mother?

- Less than 8th grade
- Some high school
- High school graduate
- Some college or specialized training
- College or university graduate
- Graduate degree

What is the highest level of education completed by the child's father?

- Less than 8th grade
- Some high school
- High school graduate
- Some college or specialized training
- College or university graduate
- Graduate degree

## Appendix B

## Child Acceptance and Mindfulness Measure (CAMM)

Instructions: “We want to know more about what you think, how you feel, and what you do. Read each sentence. Then circle the number that tells how often the sentence is true for you.”

0 = Never true  
 1 = Rarely true  
 2 = Sometimes true  
 3 = Often true  
 4 = Always true

|   |          |          |          |          |          |
|---|----------|----------|----------|----------|----------|
| <b>I notice small changes in my body, like when my breathing slows down or speeds up.....</b> | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I get upset with myself for having feelings that don't make sense.....</b>                 | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I pay attention to my muscles and notice when they feel tight or relaxed.....</b>          | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>At school, I walk from class to class without noticing what I'm doing.....</b>             | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I do things without thinking about what I'm doing.....</b>                                 | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I pay close attention to my thoughts.....</b>  | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I try only to think about things that make me feel happy.....</b>                          | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I keep myself busy so I don't notice my thoughts and feelings.....</b>                     | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>When I'm doing something, I focus only on what I'm doing and nothing else.....</b>         | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I tell myself I shouldn't feel the way I am feeling.....</b>                               | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>When something good happens, I can't stop thinking about it.....</b>                       | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |

|  |          |          |          |          |
|--|----------|----------|----------|----------|
| <b>When I take a shower or bath, I notice how the water feels on my skin.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I notice my thoughts as they come and go.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>When I'm eating, I notice the way it feels to chew my food.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I push away thoughts that I don't like.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>It's hard for me to pay attention to only one thing at a time.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I think about things that have happened in the past instead of thinking about things that are happening right now.....0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I get upset with myself for having certain thoughts.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I do many things at once.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I think about the future.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I think that some of my feelings are bad and that I shouldn't have them.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I notice when my feelings begin to change.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I pay close attention to whatever is happening right now.....0</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I notice how things around me smell.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I stop myself from having thoughts I don't like.....0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |

## Appendix C

Cognitive and Affective Mindfulness Scale-Revised,  
Study Adaptation for Children (CAMS-R:SAC)

**Different people have different ways of handling their feelings and emotions. How do you handle your feelings and emotions? As you read the following questions, think about whether it's something you always, sometimes, often or never do yourself. For each situation described below, rate how you generally respond, using a scale of 1 for hardly ever and 4 for almost always.**

1 = Hardly ever/Not at all  
2 = Sometimes  
3 = Often  
4 = Almost Always

|  |          |          |          |          |
|--|----------|----------|----------|----------|
| <b>It's easy for me to concentrate on all kinds of activities.....</b>               | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I think too much about what is going to happen in the future. ....</b>            | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I am okay when sad or hurtful things happen.....</b>                              | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I understand that I can't change everything in life that I don't like.....</b>    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I am good at describing exactly how I'm feeling, right as I'm feeling it.....</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I become distracted pretty easily when I'm trying to concentrate.....</b>         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I think too much about things that have already happened in the past.....</b>     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I am good at knowing how I'm feeling and thinking.....</b>                        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I often notice what I'm thinking about, but I don't react.....</b>                | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>I feel okay about my own ways of thinking and feeling.....</b>                    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |

**I can think about what's happening right here and now,  
without worrying about the past or the future..... 1 2 3 4**

**I can think about one thing for a very long time,  
without getting distracted..... 1 2 3 4**

Appendix D

How I Feel (HIF)

Instructions: “People experience their emotions differently. Think about how you have felt in the past three months. The circle the number the best represents how you much each statement describes you during the last three months.”

1 = not at all true of me  
 2 = a little true of me  
 3 = somewhat true of me  
 4 = pretty true of me  
 5 = very true of me

During the last three months...

|   |          |          |          |          |          |
|---|----------|----------|----------|----------|----------|
| <b>I was happy very often.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt sad, my sad feelings were very strong.....</b>             | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was in control of how often I felt mad.....</b>                      | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was excited almost all of the time.....</b>                          | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt scared, my scared feelings were very powerful.....</b>     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt happy, I could control or change how happy I felt.....</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was sad very often.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt mad, my mad feelings were very strong.....</b>             | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was in control of how often I felt excited.....</b>                  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was scared almost all of the time.....</b>                           | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt happy, my happy feelings were very powerful.....</b>       | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt sad, I could control or change how sad I felt.....</b>     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |

|   |          |          |          |          |          |
|---|----------|----------|----------|----------|----------|
| <b>I was mad very often.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt excited, my excited feelings were very strong.....</b>         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was in control of how often I felt scared.....</b>                       | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was happy almost all of the time.....</b>                                | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt sad, my sad feelings were very powerful.....</b>               | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt mad, I could control or change how mad I felt.....</b>         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was excited very often.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt scared, my scared feeling were very strong.....</b>            | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was in control of how often I felt happy.....</b>                        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was sad almost all of the time.....</b>                                  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt mad, my mad feelings were very powerful.....</b>               | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt excited, I could control or change how excited I felt.....</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was scared very often.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt happy, my happy feelings were very strong.....</b>             | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was in control of how often I felt sad.....</b>                          | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>I was mad almost all of the time.....</b>                                  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt excited, my excited feelings were very powerful.....</b>       | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>when I felt scared, I could control or change how scared I felt.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |

## Appendix E

## Emotion Regulation Checklist (ERC)

Instructions: "Children have a variety of emotional styles and habits. Please rate each statement for how much it describes *your* child."

1 = Never  
2 = Sometimes  
3 = Often  
4 = Almost always

My child...

|  |          |          |          |          |
|--|----------|----------|----------|----------|
| <b>is a cheerful child.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>exhibits wide mood swings (child's emotional state is difficult to anticipate because s/he moves quickly from positive to negative moods).....</b>                    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>responds positively to neutral or friendly overtures by adults.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>transitions well from one activity to another; does not become anxious, angry, distressed or overly excited when moving from one activity to another.....</b>         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>can recover quickly from episodes of upset or distress (for example, does not pout or remain sullen, anxious, or sad after an emotionally distressing event).....</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is easily frustrated.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>responds positively to neutral or friendly overtures by peers.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is prone to angry outbursts/ tantrums easily.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is able to delay gratification.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>takes pleasure in the distress of others (for example, laughs when another person gets hurt or punished; enjoys teasing others).....</b>                              | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |

|   |          |          |          |          |
|---|----------|----------|----------|----------|
| <b>Can modulate excitement in emotionally arousing situations (for example, does not get ‘carried away’ in high-energy play situations, or overly excited in inappropriate contexts).....</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>Is whiny or clingy with adults.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>Is prone to disruptive outbursts of energy and exuberance.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>responds angrily to limit-setting by adults.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>can say when s/he is feeling sad, angry or mad, fearful or afraid.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>seems sad or listless.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is overly exuberant when attempting to engage others in play.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>displays flat affect.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>responds negatively to neutral or friendly overtures by peers (for example, may speak in an angry tone of voice or response fearfully).....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is impulsive.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>is empathic towards others; shows concern when others are upset or distressed.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>displays exuberance that others find intrusive or disruptive.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>displays appropriate negative emotions (anger, fear, frustration, distress) in response to hostile, aggressive, or intrusive acts by peers.....</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>Displays negative emotions when attempting to engage others in play.....</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |

## Appendix F

## Levels of Emotional Awareness Scale for Children (LEAS-C)

Directions: Over the next few pages, different situations are described. Each situation involves two people- yourself and another person. Please describe how you would feel in these situations. Please describe how you think the other person would feel. You must use the word “feel” in your answer. It doesn’t matter if your answer is short or long. It doesn’t matter if the words are spelled correctly. There is no right or wrong answer. Just remember to write about how you and the other person would feel.

1. You are running in an important race with a friend and you have been practicing together for a while. As you get close to the finish line, you twist your ankle, fall to the ground, and can’t continue. Your friend goes on to win the race. How would you feel? How would your friend feel?
2. You and your mom are coming home at night. As you turn onto your block, you see fire trucks parked near your home. How would you feel? How would your mom feel?
3. You and a friend decide to save your allowances and buy something special together. A few days later, your friend tells you that he has changed his mind and has spent his money. How would you feel? How would your friend feel?
4. Someone who has said mean things about you in the past comes up to you and says something really nice. How would you feel? How would the other person feel?
5. Your dad tells you that the family dog has been run over by a car and the vet has to put the dog to sleep. How would you feel? How would your dad feel?
6. You and a whole lot of other kids are running around at lunchtime. You and another kid crash into each other and you both fall down hard to the ground. How would you feel? How would the other kid feel?
7. The dentist tells you that you have some problems with your teeth that need to be fixed immediately. The dentist makes an appointment for you to come back the next day. How would you feel? How would the dentist feel?
8. Your teacher tells you that your work is not acceptable and must improve. How would you feel? How would your teacher feel?
9. You have become very good friends with the new kid in class. You hang around together a lot and feel you know each other really well. One day she invites you over to her house. You discover that her family is really rich and that your friend has everything that you have ever wanted. She tells you that she kept this a secret because she thought kids would only be interested in her for her money. How would you feel? How would your friend feel?

10. The teams are chosen and most of the players have been picked. There are two kids left over and you are one of them. But they only need one more player. How would you feel? How would the other kid feel?

11. Your friend is sharing some chips with you and some other kids. You notice he is giving more chips to the other kids than to you. How would you feel? How would your friend feel?

12. Your best friend comes over to see you after being away for several weeks. How would you feel? How would your friend feel?

## Appendix G

## Informational Letter to Parents

My name is Elizabeth McLaughlin and I am student in the School Psychology Ph.D. Program at The Graduate Center of the City University of New York (CUNY), and Principal Investigator of this project, entitled “Mindfulness and Emotion Regulation in Children.” This is a dissertation study of emotional competence in children, ages 10-13. I would like permission to ask your child to fill out three short questionnaires and one brief writing assignment, about the ways he or she understands and relates to emotions. All together, your child will be asked to spend 45-60 minutes completing these forms. This will take place in school and will not interfere with any academic learning time. In addition, I would like you to fill out the enclosed 2-page questionnaire about your child, related to his or her skills in managing different feelings, and a brief questionnaire about your family background. This should take approximately 10-15 minutes in total.

Please do not put your name on any of the forms, other than the consent form. Children will also be instructed not to put their names on any of the information they will be completing. Neither you nor your child’s name will be associated with the information that you provide to me. All information gathered will be kept strictly confidential, and will be stored in a locked file cabinet, to which only my doctoral advisor and I will have access. No personnel at The School at Columbia University will have access to any of the information that is gathered about you or your child. At any time, you or your child can refuse to answer any of the questions or withdraw from the study with no penalty.

If you choose to participate, please return the attached Consent Form, the Demographic Questionnaire and the Emotion Regulation Checklist in the enclosed, addressed and stamped envelope. Children will have an opportunity to participate in the study on \_\_\_\_ (date TBD) \_\_\_\_\_. Please return the forms to me by this date, or your child will not be eligible to participate.

As a thank you for his or her participation, your child will receive a \$10 gift card to Barnes and Noble. Students will receive this token of appreciation only if both they and a parent have agreed to participate in the study.

The risks from participating in this study are no more than encountered in everyday life. The benefit of your participation is that this study will help to further educators’ understanding of the factors that allow children to become emotionally competent. There will be approximately 90 families participating in this study. I may publish results of the study, but names of people, or any identifying characteristics, including the name of the school *will not* be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

If you have any questions about this research, you can contact me at (212) 362-9597 or [bethmclaughlin@yahoo.com](mailto:bethmclaughlin@yahoo.com), or my advisor, Dr. Marian Fish at (212) 817-8290 or [mfish@gc.cuny.edu](mailto:mfish@gc.cuny.edu). If you have questions about your rights as a participant in this study, you

can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525, [kpowell@gc.cuny.edu](mailto:kpowell@gc.cuny.edu).

Thank you for your participation in the study. Please sign the attached form to indicate your consent for you and your child to participate in this project. This form and the questionnaires should be mailed to me in the enclosed envelope by \_\_\_\_\_

\_\_\_\_\_  
Investigator's signature

\_\_\_\_\_  
Date

## Appendix H

## Parental Informed Consent Form

I, \_\_\_\_\_, have read the attached letter and give permission for my  
Parent/Guardian's Name

child, \_\_\_\_\_, to participate in the research study, *Mindfulness and*  
Child's Name

*Emotion Regulation in Children*, described in the letter.

\_\_\_\_\_  
Parent/Guardian's signature

\_\_\_\_\_  
Date

## Appendix I

## Summary of Instructions for Participation

- (1) Discuss with your child whether you both would like to participate in the study.
- (2) If you decide to participate, read, complete, and sign the Consent Form.
- (3) Complete one version of the *Background Information Form* per household. This can be completed by either parent or guardian.
- (4) There are 2 copies of the *Emotion Regulation Checklist* included with this packet. One parent/guardian should complete one copy by following the written instructions. A second parent or guardian is welcome to complete an additional copy, if you would like.
- (5) When the Background Information Form and one or two copies of the Emotion Regulation Checklist are done, put the completed questionnaires along with the signed Consent Form in the enclosed self-addressed stamped envelope and drop it in the mail to the researcher.

If you wish to have your child participate, the forms must be returned by *(date)*. If the forms have been received, your child will be invited to participate in school during the last week in January. ***They will not miss any academic learning time by choosing to participate.***

When your child is invited to participate, they will receive a \$10 gift card to Barnes and Noble as a token of my appreciation.

## Appendix J

## Student Assent Form

I \_\_\_\_\_ (child's name) have decided that I want to take part in Ms. McLaughlin's study about the ways kids manage their feelings. Ms. McLaughlin has explained to me that I will be answering questions about my own feelings and about the ways I usually think and feel in different situation. She told me that I can decide for myself which questions to answer and that I can stop answering questions if I want to. She also told me that I could ask questions any time about the study and she will answer them for me.

Signature of participant: \_\_\_\_\_

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to \_\_\_\_\_ (participant's name) in age-appropriate language. He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

## Appendix K

## Correlation Coefficients and Path Model Corrected for Attenuation

Table 6

*Intercorrelations Corrected for Attenuation Among Measures of Student's Mindfulness, Parent Ratings of Student's Emotion Regulation, Children's Self-Report of Emotion Regulation, and Student's Emotional Awareness*

| Variable   | CAMS-R:SAC | ERC-P | HIF | LEAS |
|------------|------------|-------|-----|------|
| CAMS-R:SAC | --         |       |     |      |
| ERC-P      | .37        | --    |     |      |
| HIF        | .58        | .08   | --  |      |
| LEAS       | -.03       | .33   | .00 | --   |

Figure 3. Path model: Beta weights using correlations that have been corrected for attenuation

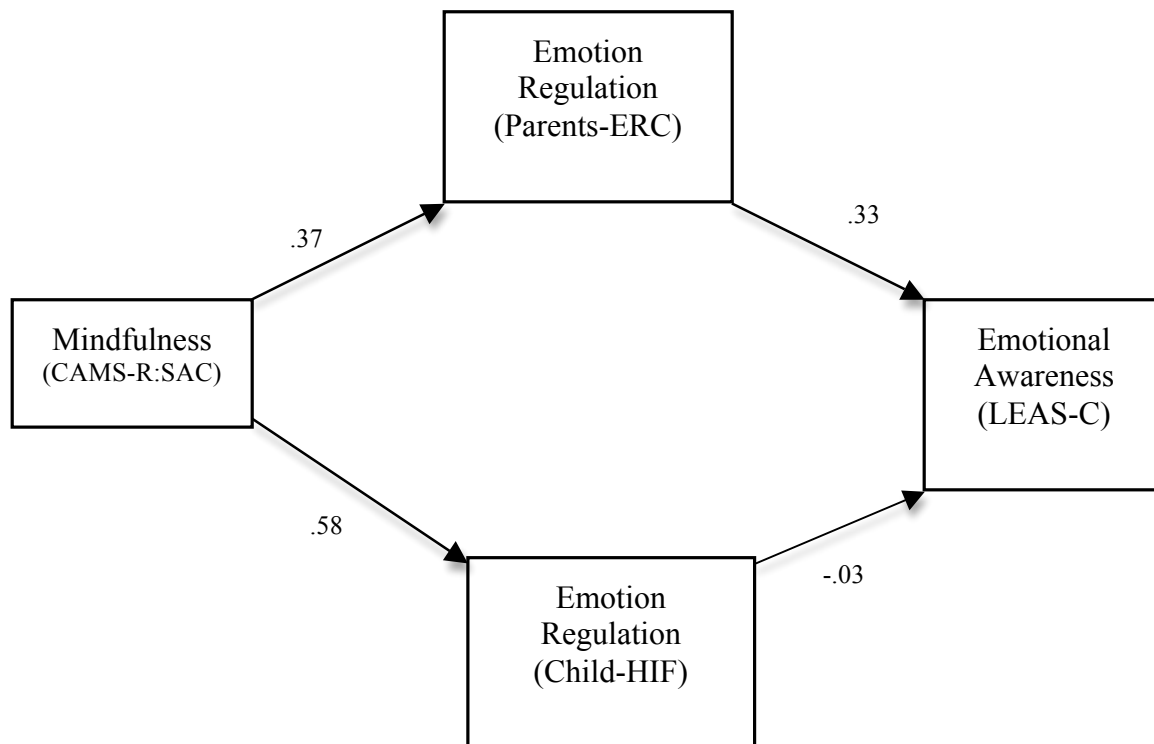


Figure 2. Path model for the proposed relationship among mindfulness, emotion regulation, and emotional awareness using correlations that have been corrected for attenuation from Table 6.

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