Mindfulness Training to Promote Self-Regulation in Youth: Effects of the Inner Kids Program

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The mind, hard to control,
Flighty—alighting where it wishes—
One does well to tame.
The disciplined mind brings happiness.

~Buddha
Dhammapada

…Set your mind to concentrate.
For those whose minds are slack and wandering
Are caught between the fangs of the afflictions.

~Shantideva
The Way of the Bodhisattva

Introduction

Self-regulation research has seen enormous growth in the past decade due, no doubt, to a growing recognition of self-regulation as an important feature of human health and development. Prospective longitudinal studies confirm that children with higher self-regulation are more prepared to learn when they enter kindergarten (Blair, 2002; Blair & Razza, 2007), earn higher grades throughout the schooling years (Duckworth & Carlson, 2013), are more likely to graduate from high school (Galla et al., 2014), and are more likely to earn a college degree by age 25 (McClelland, Acock, Piccinin, Rhea, & Stallings, 2012). The benefits of self-regulation extend beyond the classroom. Children who are better able to regulate their attention, emotion, and behavior display better social functioning (Kochanska, Murray, & Harlan, 2000; Spinrad et al., 2006), are more physically healthy (Tsukayama, Toomey, Faith, & Duckworth, 2010), and have fewer mental health problems (Eisenberg, Hofer, & Vaughan, 2007). Children with higher self-regulation also go on to earn higher incomes, save more for retirement, and are less likely to have a history of incarceration as young adults (Moffitt et al., 2011).

Yet, despite its importance, people appear to struggle mightily with self-regulation. In a large international survey, adults from 50 different countries endorsed "self-discipline" as among their lowest strengths of character (Park, Peterson, & Seligman, 2006). It is therefore not surprising that repeated failures of self-regulation constitute a major public health challenge, as these failures are linked with addiction as well as physical and mental health problems (Baumeister, Heatherton, & Tice, 1994). Given its association to so many consequential life outcomes, researchers and policymakers alike are eager to find ways to promote self-regulation during childhood and adolescence.

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Mindfulness training offers one approach to promote self-regulation, and potentially, to improve long-term developmental outcomes. Although mindfulness training programs are geared primarily for adults, there have been advancements in the development of programs designed for children and adolescents. In this chapter, we focus on one mindfulness training program called Inner Kids (Kaiser-Greenland, 2010) and the impact it might have on self-regulation and other important health constructs. The aims of this chapter are to: (a) define self-regulation and consider its relation to other conceptually similar constructs and its developmental trajectory across childhood and adolescence; (b) provide a brief overview of mindfulness; and (c) offer a discussion of how mindfulness training might promote self-regulation. We then turn to a discussion of Inner Kids, as well as to results of a randomized controlled trial testing the program's beneficial effect on self-regulation in second- and third-grade children. We conclude with specific recommendations for future research.

Defining and Conceptualizing Self-Regulation

We define self-regulation as the process of voluntarily regulating attention, emotion, and behavior in the service of personally valued, higher-order goals (Baumeister et al., 1994). For the sake of clarity, we elaborate upon several features of this definition. First,because higher-order goals incline behavior toward rewards that are temporally, spatially, or more psychologically distant (Fujita, 2011), they often come into conflict with other goals that incline behavior toward immediately rewarding objects or experiences but which do not advance higher-order goals. Successful self-regulation will therefore often require self-control, which entails overriding these conflicting response tendencies (Mischel, Shoda, & Rodriguez, 1989). This may involve the inhibition of a strong but maladaptive response, the activation of a weak but adaptive response, or the substituting of one process for another (Baumeister et al., 1994). For example, a dieter would rely on self-control in order to refrain from eating a slice of cheesecake despite a strong urge to do so. Similarly, a child may draw upon self-control in order to stay focused on a boring, but important, homework assignment instead of watching online videos. Second, and as the name implies, self-regulation is self-initiated and is therefore distinct from merely complying with external rules and authority. For example, it would not be an instance of self-regulation for a teenager to start cleaning her room only because her parents demanded it. Third, we distinguish self-regulation from more involuntary, impulsive forms of action control, which typically entail inflexible reactions to the environment based on biologically endowed differences (Derryberry & Rothbart, 1997) or previous learning histories (Dickinson, 1985).

Self-regulation is conceptually related to an aspect of temperament called effortful control, which has been defined as "the ability to inhibit a dominant response to perform a subdominant response, to detect errors, and to engage in planning" (Rothbart & Rueda, 2005, p. 169). In terms of the Big Five taxonomy of personality, self-regulation is a facet of conscientiousness, which also encompasses the traits dependability, punctuality, and orderliness, among others (MacCann, Duckworth, & Roberts, 2009). Self-regulation can be considered the conceptual opposite of impulsivity, or the tendency to act spontaneously, without planning or considering the consequences of acting (Sharma, Markon, & Clark, 2013). Exercising self-regulation depends in part upon the executive functions, a suite of higher-level cognitive processes, including working memory, response inhibition, and attention shifting, which collectively enable top-down, goal-directed control over lower-level impulses (Diamond, 2012).

Extensive behavioral and neurobiological research suggests that self-regulation ability emerges in the first year of life followed by rapid development during the early childhood years (Diamond, 2002; Garon, Bryson, & Smith, 2008; Waber et al., 2007; Welsh, Pennington, & Groisser, 1991). Adolescence marks another period of maturation in the prefrontal cortex

signaling further increases in the efficiency of higher-order cognitive abilities and behavioral control, such as responsible decision-making (Casey, Tottenham, Liston, & Durston, 2005; Giedd, 2004; Giedd et al., 1999). Such periods of developmental plasticity suggest that early childhood and adolescence may represent windows of opportunity to intervene and promote self-regulation, and hence, healthy development (Blair & Diamond, 2008; Moffitt et al., 2011).

Mindfulness and Mindfulness Training

Mindfulness is defined as a nonreactive awareness of present moment experience (Analayo, 2003; Kabat-Zinn, 2003). Mindfulness denotes a presence of mind (Brown, Ryan, & Creswell, 2007), one that is alert, receptive, and absent of distraction (Analayo, 2003; Bodhi, 2011). In the psychological literature, mindfulness has been operationalized to include two major components: awareness of present moment experience through the regulation of attention, and an attitude of curiosity, openness, and acceptance (Bishop et al., 2004). Regarding the attention component, mindfulness involves the sustained moment-to-moment awareness of ongoing sensory, affective, and cognitive experience. In this way, mindfulness enables a continuous discernment of ongoing experience that functions to provide greater sensory clarity and to reduce biases of information processing (Vago & Silbersweig, 2012). The acceptance component of mindfulness implies that when experience is met with mindful awareness, there are no attempts made to control, suppress, or get involved with it; mindfulness simply reveals what is occurring in any given moment of experience in a receptive, nonreactive manner (Bishop et al., 2004). A mindful mode of information processing can be contrasted to a conceptually driven mode of processing, in which thoughts, emotions, and behavior are filtered through habitual evaluations, emotional reactions, and expectations (Brown et al., 2007).

Mindfulness is most commonly trained in the context of contemplative practices, such as meditation and yoga. For our purposes here, we focus on two broad styles of meditation that are widely acknowledged for cultivating the capacity for mindfulness (Brown & Ryan, 2004; Lutz, Dunne, & Davidson, 2007; Lutz, Slagter, Dunne, & Davidson, 2008). The first style of meditation practice is called focused attention (FA) and involves engaging and sustaining moment-to-moment attention on a mental or physical object, such as the rhythmic movement of the belly or chest during breathing. Here, no attention is given to the sensory experiences that fall outside of this limited focus; all other objects of experience are treated as distractions from the primary object. When the attention strays, it is refocused back to the chosen object. The goal of FA training is to stabilize and unify the mind so that it becomes free of distraction and tiredness (Vago & Silbersweig, 2012). Mindfulness is cultivated during FA to the degree that this training involves a sustained moment-to-moment metacognitive monitoring of the location and quality of attention (Lutz et al., 2008).

The second style of meditation practice used to establish and cultivate mindfulness is called open monitoring (OM) (Lutz et al., 2008). OM practice is typically integrated into mindfulness training programs following initial experience in cultivating focused attention. During OM, the attentional field is widened to include any experiences that enter conscious awareness. In this way, awareness is brought to bear on the moment-by-moment unfolding of experience—including sense impressions, mental and emotional states, and so on—without the need to focus on any one object in particular (Brown & Ryan, 2004). Maintaining undistracted awareness of sensory experience enables greater recognition into how moment-to-moment experience is typically overlaid with habitual emotional reactions, evaluations, and attempts to escape or perpetuate the experience based on its emotional tone. Once recognized, these implicit features of subjective experience can be investigated, rather than reacted upon or suppressed, allowing for the development of metacognitive insight into their constantly fluctuating nature (Analayo, 2003). Such insights gradually reinforce a degree of

"de-automatization" from heretofore unseen conditioned reactions to sensory input (Kang, Gruber, & Gray, 2013), which also provides the basis for altering or even reducing compulsive mental habits that reinforce psychological suffering (Bishop et al., 2004).

Mindfulness and Executive Function

The skills learned during FA and OM training map conceptually onto the executive function capacities underlying self-regulation (Black, Semple, Pokhrel, & Grenard, 2011). During concentration practice, for example, individuals must work to keep in mind the goal to sustain attention on a present moment experience (working memory), monitor for deviations from that goal (conflict monitoring), inhibit elaborative processing of distracting stimuli (inhibitory control), and redirect attention as needed (attention shifting). Indeed, multiple studies show that brief mindfulness training is associated with improvements in executive function. For example, a study by Zeidan, Johnson, Diamond, David, and Goolkasian (2010) showed that 4 days of 20-min FA training improved working memory compared to a control group who listened to an audio book recording. Studies involving more intensive mindfulness training have also shown training-related improvements in components of executive function, including inhibitory control (Sahdra et al., 2011), working memory (Chambers, Lo, & Allen, 2008; Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010; Mrazek, Franklin, Phillips, Baird, & Schooler, 2013), perceptual sensitivity (MacLean et al., 2010), and sustained attention (Lutz et al., 2009).

In addition to research involving mindfulness training, studies also show that dispositional mindfulness—or individual differences in the general tendency to be mindful in daily life—is associated with executive function ability. Dispositional mindfulness is typically measured using self-report scales that tap various aspects of mindfulness, including present-moment attention and awareness, nonreactivity to inner experience, and nonjudgmental acceptance of experience (Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Baer et al., 2008; Black, Sussman, Johnson, & Milam, 2012a; Brown & Ryan, 2003). Individuals who score higher on various aspects of dispositional mindfulness have been shown to have better inhibitory control (Galla, Hale, Shrestha, Loo, & Smalley, 2012; Moore & Malinowski, 2009) and sustained attention (Galla et al., 2012; Mrazek, Smallwood, & Schooler, 2012; Schmertz, Anderson, & Robins, 2009).

While published research on children and adolescents is noticeably sparse (for a review, see Black, Milam, & Sussman, 2009), there are several studies that suggest it is possible to improve executive function via mindfulness training. In a study of third-grade children, Linden (1973) found that children who participated in an 18-week, twice weekly program of mindfulness practices were better able to find target objects amidst a distracting background (Children's Embedded Figures Test) relative to two control groups who showed no improvement. In another study, Napoli, Krech, and Holley (2005) found that elementary school-age children who completed a 24-week, bi-monthly mindfulness training program improved in selective, but not sustained, attention compared to a wait-list control condition.

Mindfulness and Emotion Regulation

The majority of research on mindfulness and self-regulation falls into the category of emotion regulation, defined broadly as "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998, p. 275). The links between mindfulness and emotion regulation are fairly straight forward given that mindfulness involves a nonreactive awareness and acceptance of present moment experience. By learning to observe and accept unpleasant experiences, for example, mindfulness training may help individuals learn to

disengage from habitual ruminative thoughts (Greeson, Garland, & Black, 2014). Mindfulness training may also reduce the need to change, escape, or suppress unpleasant experiences that often have the paradoxical effect of making the unpleasant experience more salient (Wegner, 1994).

There is now a wealth of scientific evidence attesting to the benefits of mindfulness training in adults for emotion regulation, and hence psychological well-being (Baer, 2003; Brown et al., 2007; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann, Sawyer, Witt, & Oh, 2010). Research with children and adolescents also suggests that mindfulness training can benefit the self-regulation of emotion. For example, a recent study tested whether mindfulness training could improve emotion regulation in a sample of urban, economically disadvantaged fourth- and fifth-grade students (Mendelson et al., 2010). Over the course of 12 weeks, students received mindfulness training for 45 min, 4 days per week. Relative to a wait-list control condition, mindfulness training was associated with significant reductions in involuntary responses to stress, including rumination and intrusive thoughts.

Dispositional mindfulness is also related to emotion regulation in children and adolescents. In a study by Greco, Baer, and Smith (2011), adolescents who scored higher on a self-report measure tapping both awareness (e.g., "It's hard for me to pay attention to only one thing at a time") and acceptance (e.g., "I get upset with myself for having certain thoughts" [reverse-scored]) also reported less thought suppression, or the tendency to push away or escape unpleasant thoughts (e.g., "There are things that I try not to think about"). A recent naturalistic study also showed the benefits of dispositional mindfulness for day-to-day emotion regulation (Ciesla, Reilly, Dickson, Emanuel, & Updegraff, 2012). In this study, 78 high-school students first completed the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2008), a widely used self-report measure of mindfulness. The FFMQ assesses five aspects of mindfulness: awareness of actions, observation of present moment experience, nonreactivity to inner experience, nonjudgmental acceptance of experience, and the ability to describe experience. Next, students completed self-report measures of daily hassles, sadness, and rumination each night for a week. Students with higher levels of nonreactivity, nonjudgment, and awareness of actions reported less sadness and rumination in their daily lives. Moreover, nonreactivity and nonjudgment moderated the effect of daily stress on sadness and rumination. That is, daily stress predicted increases in sadness and rumination for students with lower levels of nonreactivity and nonjudgment, but not for students with higher levels of nonreactivity and nonjudgment. Together, these correlational data suggest that mindfulness may buffer the negative effects of stress on psychological well-being by protecting against maladaptive emotion regulation strategies, including rumination.

Mindfulness and Self-Regulation of Desires, Impulses, and Behavior

Although most research exploring the links between mindfulness and self-regulation has involved either executive function or emotion regulation, research is beginning to examine the effect of mindfulness training on the self-regulation of maladaptive desires and urges, and hence, the prevention of maladaptive behaviors. In fact, one of the central aims of mindfulness training in traditional Buddhist doctrine is to reduce problematic desires that serve to perpetuate psychological suffering (Analayo, 2003). Research examining the links between mindfulness training and reductions in craving and maladaptive impulses typically builds upon dual process models of information processing. Dual process models—ubiquitous to psychology and cognitive science—suggest that behavior is the result of an interplay between impulsive and controlled processes (Strack & Deutsch, 2004). Impulsive processes describe a set of mental operations that can be carried out quickly with little to no conscious awareness. Controlled processes, on the other hand, describe a set of higher-order mental operations that enable deliberate judgments and appraisals and can be used to

guide behavior toward intended goals (Hofmann et al., 2009). Reflective processes are flexible, but computationally intensive, whereas impulsive processes are computationally efficient, but relatively inflexible. As such, the fast response stemming from impulsive processing may not always be appropriate or consistent with goal standards. For example, the mere perception of a cigarette might automatically trigger the impulse to smoke even though this impulse conflicts with the higher-order goal to abstain. The ability to successfully adjudicate conflicts that arise between impulsive and reflective processes is at the root of successful self-control (Hofmann et al., 2009). Mindfulness training has the potential to influence both the impulsive, bottom-up processing system and the controlled, top-down system.

Because mindfulness involves increased monitoring and awareness of interoceptive cues, increasing this capacity might promote earlier recognition of automatically activated desires before intense craving can occur (Teper, Segal, & Inzlicht, 2013). For example, a series of studies by Papies, Barsalou, and Custers (2011) showed that a brief mindfulness induction reduced automatic impulses toward attractive stimuli. Impulsive approach tendencies, measured using an implicit approach-avoidance task, were eliminated among participants who were trained to view reactions to external stimuli as passing mental events. Mindfulness training has also been shown to "decouple" the link between impulsive processes and self-regulation failure. For example, a study by Ostafin, Bauer, and Myxter (2012) showed that mindfulness training moderated the relationship between implicit alcohol motivations and drinking behavior. Among participants who received three mindfulness training sessions, automatic alcohol motivations (measured using an implicit association test) did not predict self-reported drinking behavior. For participants who did not receive training, implicit alcohol motivations strongly predicted drinking behavior.

In addition to disrupting the early stages of impulsive processes, mindfulness training also shows promise as one way to reduce the experience of craving in a number of health-related domains (Black, 2014; O'Reilly, Cook, Spruijt-Metz, & Black, 2014). For example, research with adults suggests that mindfulness training is effective for dealing with cravings toward unhealthy food (Alberts, Mulkens, Smeets, & Thewissen, 2010), as well as smoking cigarettes (Elwafi, Witkiewitz, Mallik, Thornhill, & Brewer, 2012; Witkiewitz & Bowen, 2010).

Regarding controlled mental processes, mindfulness may improve the ability to maintain valued goals in working memory (Jha et al., 2010) and to better act on these goals. For example, dispositional mindfulness—measured using the Mindful Awareness Attention Scale (MAAS; Brown & Ryan, 2003)—moderated the relationship between intentions to exercise and self-reported exercise behavior (Chatzisarantis & Hagger, 2007). Specifically, intentions to exercise predicted actual exercise behavior among individuals with higher dispositional mindfulness. For less mindful individuals, intentions to exercise did not predict behavior.

Research with adolescent samples also suggests that mindfulness can counteract the effects of the impulsive system on self-regulation failures, as well as buffer against maladaptive behavioral intentions. In a series of studies, Black and colleagues analyzed data from a nationally representative longitudinal study of Chinese adolescents relating dispositional mindfulness to cigarette smoking. Study participants completed the MAAS in addition to self-reporting the number of days during the last month in which they smoked cigarettes. In one study, dispositional mindfulness indirectly reduced smoking frequency through its effect on negative affect and perceived stress (Black, Milam, Sussman, & Johnson, 2012). Specifically, adolescents with higher dispositional mindfulness experienced lower levels of negative affect and perceived stress, which in turn mediated the association between dispositional mindfulness and frequency of smoking cigarettes. In a second study, dispositional mindfulness moderated the effect of intentions to smoke on smoking frequency (Black, Sussman, Johnson, & Milam, 2012b). That is, intentions to smoke cigarettes predicted higher

frequency of cigarette smoking for adolescents with lower dispositional mindfulness; intentions did not predict smoking frequency for adolescents with higher mindfulness. Together, these two studies suggest that mindfulness can shield against self-regulation failure (i.e., cigarette smoking) by protecting against negative affective states and by countering maladaptive intentions.

Adapting Mindfulness Training for Children: Inner Kids

The studies highlighted above suggest that improving the capacity for mindfulness may be an effective means for promoting self-regulation. However, less is known about the specifics and effectiveness of child-friendly adaptations of mindfulness training, and further, what effect these adaptations may have for improving self-regulation ability. In this section, we first discuss the Inner Kids program as one model for how to adapt mindfulness training for children and adolescents. Then, we describe results of a randomized controlled trial examining the effect of Inner Kids to promote self-regulation in elementary school-age youth.

Modeled after classical mindfulness training for adults, Inner Kids is a semi-structured curriculum that teaches secular and age-appropriate mindfulness exercises to youth (Kaiser-Greenland, 2010). In broad terms, the Inner Kids program focuses on the development of three areas that are also emphasized in classical mindfulness training: attention, emotional balance, and compassion. Inner Kids has been developed in two formats to suit children as young as 4 (preschool) and as old as 18 (twelfth grade) with a flexible length and frequency that varies according to the students' ages and the facilitators' objectives. The first format (stand alone drop-in activities) is designed so that parents and professionals can integrate relatively brief (under 10 min) mindfulness-based activities into their routines at home, work, or school. Transitions—for instance, when children are standing in line, sitting at the kitchen table, getting ready to leave the house, waiting their turn or waiting to go to lunch, recess or the next class—are opportunities to integrate mindfulness activities into daily life. In the second format (life-skills classes), the same activities are sequenced together to create longer, stand-alone classes that challenge children and teens with longer periods of mindfulness practice and group process. This second, life-skills class format is the course structure that was used in the study described below where young children (ages 4–9) typically receive Inner Kids training in 30-min sessions twice a week for 8 weeks. For older children, the course usually meets once a week for 45–60 min, for 10–12 weeks.

Each Inner Kids life-skills class is divided into three main sections. The first section involves a sitting introspective practice, and the closing third section involves another introspective period (often lying down). Unlike the first and third sections of each class, the middle section includes goal-directed, relational activities and games directed toward a specific learning objective. At the beginning of the program, the first and third sections are relatively brief, but over the course of the 8- to 12-week program these sections are gradually extended as students develop a capacity to engage in introspective practices for longer periods of time.

Inner Kids activities are designed to help youth "develop and strengthen their ability to pay attention to their inner and outer experiences" (Goodman & Greenland, 2009, p. 418) in an objective and friendly manner. In addition to games, songs, and activities that develop awareness of oneself and others (collectively referred to as "Awareness Practices"), Inner Kids activities also emphasize other fundamental elements of classical meditation training (collectively referred to as "Kindness Practices") in an age-appropriate manner, including: (1) the cultivation of kindness, compassion, and an ethic of service toward oneself, others, and the broader community; (2) an understanding that all actions, large or small, have consequences that one cannot always anticipate; (3) an understanding that thoughts, emotions, and physical sensations come, go, and that they change; (4) an understanding that people, places, and things are

connected in ways one might not expect; (5) an understanding that there is a way to view inner and outer experience with a clear-headed perspective even when one is overly excited or upset; and (6) an understanding that many life events do not fit neatly into a category of right or wrong, and/or black or white.

The multi-lesson curriculum is divided into four equal-length units (one to four lessons each), with each unit containing lessons that include both Awareness and Kindness Practices. In addition, each unit will target one or more age-appropriate, real life applications of mindfulness. For example, students learn that breath awareness can help them calm, focus, and concentrate, or that mindful awareness can help them clearly see and better understand what is happening in, to, and around them.

Because attention serves as the foundation for all the later practices in the program, the first of the four units is designed to help kids become more familiar with the process of their attention (e.g., how it always wanders, that we can consciously control it) and to help them learn how to focus and stabilize it with greater ease. The first unit is also devoted to allowing children to become aware of their present moment experience and developing a visceral understanding of breath and sensory awareness, specifically awareness of sound. To promote FA, this unit introduces students to various mindful breathing and mindful listening activities as children sit, move, stand, and lie down. The breath awareness activities focus on the sensation of breath as it moves in, out, and through the body, thus grounding the child in a visceral, body-based experience as opposed to the more cerebral stance often taken when a child "tries" to pay attention. In addition to mindful breathing and mindful listening, in the first unit students are also introduced to Kindness Practices that encourage both FA and kindness to self. Students are given opportunities to develop a present-moment and visceral experience of kindness by extending friendly wishes toward oneself (e.g., through visualizing themselves in a safe place, and actively wishing happiness, safety, and health for themselves or giving themselves a hug). An example of a mindful breathing, a mindful listening, and a kindness activity are set forth in the Appendix below.

Once children have received FA instructions and have had some formal practice focusing and sustaining their attention on the sensations of breathing and listening, the second unit leads students through a group of exercises aimed at deepening their clarity and awareness regarding inner experience. The second unit expands the objects of awareness from breath and sound to include their inner experience of the five common main sensory systems, as well as the vestibular sensory system (awareness of physical balance) and the proprioceptive sensory system (awareness of one's body in space). A common exercise to train FA using the senses is to ring a very resonant chime and ask the children to raise their hands when they can no longer hear the sound. In Inner Kids classes for young children, this exercise is immediately preceded by a playful, movement sequence. Engaging in purposeful and lively activities prior to more formal attention training has a number of functions, not the least of which being that they are fun. Movement prior to introspection often makes it easier for children to concentrate while encouraging them to temporarily "drop" an analytic mindset and approach the mindfulness-based exercise from a different, more experiential perspective.

In this unit, children are also given instructions on developing the capacity for more mindful presence by: (1) observing their sensory experiences impartially by noticing and identifying sensory experience as it occurs; and (2) by using mindful awareness to calm their minds and bodies prior to reflecting on their experiences so that they are able to view what is happening as objectively as possible. If students notice that there is an "emotional charge" connected with their experience, the object is not to "get rid of" the emotion but rather to become aware of it and reflect on how it might affect their capacity to see the experience impartially.

New Awareness Practices, such as eating meditations and mindfulness of movement, are also introduced in this unit. The Kindness Practices are extended in unit 2 and provide children with opportunities to develop a sense for

extending kindness toward others as well as themselves through aspirations that both self and other are safe, happy, healthy, and living in peace (e.g., "may I be happy," "may you be happy," "may everyone be happy").

The third unit builds on the sense of self-awareness and self-management that is weaved throughout the first two units. Children are taught strategies and skills for becoming more familiar with how their minds and bodies react to inner and outer experiences. This unit emphasizes awareness of thoughts, emotions, and physical sensations and teaches children about how the three are inter-connected. In addition, activities in this unit promote an experiential understanding that actions tend to follow from these thoughts, emotions, and sensations and that they have consequences. For example, children are introduced to the "Awareness Meter" (see Fig. 19.1), "Pinky Pointing," (see Appendix), and similar techniques that help them notice, identify, and then gauge how certain experiences result in feelings that are pleasant, unpleasant, and neutral (e.g., an argument with a parent feels unpleasant, having fun with a friend on the playground feels pleasant). The Awareness Meter and Pinky Pointing are concrete tools used in this unit to help children notice, identify, and connect how these various feelings are often accompanied by other inner experiences (e.g., thoughts and/or physical sensations, for instance a stomach ache) and/or urges to act in a particular way. Children are also encouraged to become more aware of how they habitually tend to react to and respond to various situations, which might then provide opportunities for a larger discussion about different and more flexible ways of responding. The Kindness Practices in unit 3 are designed, among other things, to help children become acquainted with the experience of offering compassion to people who are experiencing some kind of suffering, in addition to feeling joy and happiness for people who are experiencing good fortune.

The fourth and final unit is designed to help children become more aware of themselves as interdependent members of a community. The

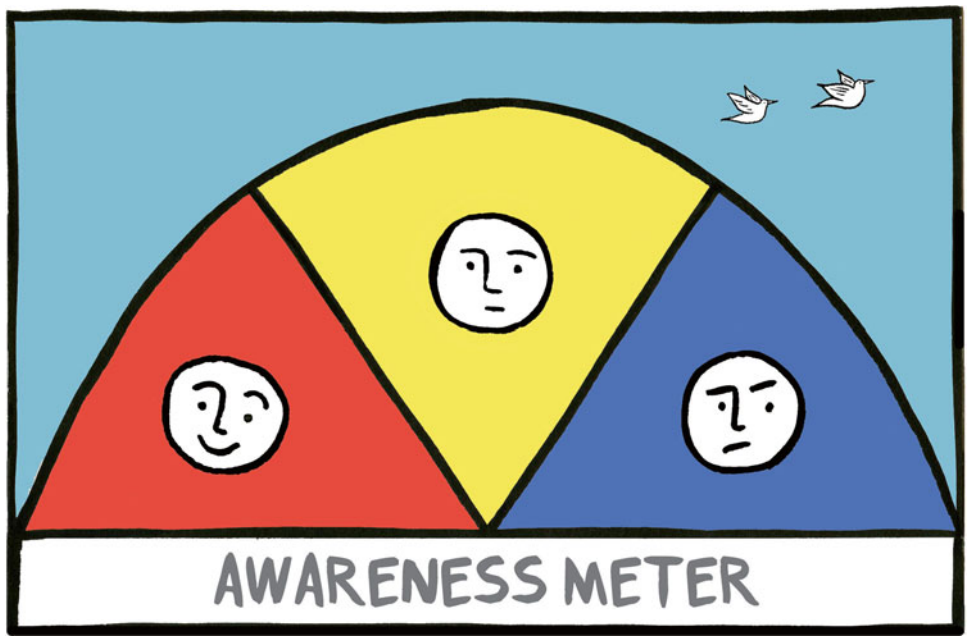

Fig. 19.1 The Awareness Meter is a visual aid that offers children a playful way to reflect on a life experience and communicate to you whether it is pleasant, unpleasant, or neutral. © Susan Kaiser Greenland, 2013 | www.innerkids.com | *The materials provided are authored and copyrighted by Susan Kaiser Greenland. They are intended for the sole use of Inner Kids training participants and may not be duplicated without the express permission of the author. Artist: Lindsay DuPont*

"clear seeing" of inner experience developed in the earlier units is now used to help children become more aware of and connected to their outer experiences, notably through an awareness of other people and the environment. Awareness Practices that help children become more attuned to others, such as mirroring the physical movements of their peers, are developed to help foster a sense of community and teamwork among children. Kindness Practices in this unit also promote awareness and a visceral understanding of interconnectedness. For instance, children can be led through an exercise where they visualize the entire life cycle of a piece of fruit—from seed to stomach. The child can imagine the progressive trajectory of a raisin, from the grape seed being planted and tended to, to the fruit being harvested, dried, and shipped to the grocery, and finally to the raisin being purchased by the child's family and packaged into their lunch. In this way, the children can gain a greater sense of the many people involved in bringing the fruit to them, as well as how this awareness shifts their perspectives. Cultivation of this type of awareness can open doors for discussions about gratitude and ways to act in the community that supports the environment (e.g., older children might think to start a recycling program at school).

Does Inner Kids Promote Self-Regulation in Children?

With this description of Inner Kids in mind, we now turn to a short discussion of recent efforts to study the effect of Inner Kids to promote self-regulation. In this study (Flook et al., 2010), 64 second- and third-grade children attending a university laboratory school were randomized to either a mindfulness training condition or an active control condition. Children in the mindfulness training condition met with an Inner Kids facilitator (S.K.G.) twice per week for 8 consecutive weeks. Children in the control condition engaged in a period of quiet reading. Each session was 30 min long and all activities took place at school. Self-regulation ability was measured using the Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000). The BRIEF is an adult-report questionnaire that assesses multiple aspects of self-regulation and executive function utilized in everyday life. For example, parents and teachers can report on children's ability to resist impulses and problematic urges (inhibitory control), their ability to plan and manage current and future task demands (plan/organize), and their ability to monitor performance on a task as well as to monitor how their actions might affect others (monitor). The eight subscales can be combined to form a Global Executive Composite (GEC) score. The BRIEF was designed to be a more comprehensive, ecologically valid measure of self-regulation compared to behavioral measures that typically only measure discrete aspects of self-regulation and executive function (Isquith, Gioia, & Espy, 2004). In the current study, teachers and parents assessed children's self-regulation immediately before and after the 8-week intervention period.

Results indicated that Inner Kids training was particularly effective in promoting self-regulation for children who began the program with lower self-regulation (for full results, see Flook et al., 2010). That is, children with lower initial self-regulation who participated in the Inner Kids training showed significant improvement in self-regulation (as indexed by the GEC score) following training compared to children in the control group. For children initially rated as average or above-average on self-regulation, there was no discernible effect of Inner Kids training on their post-training self-regulation. A similar pattern of change emerged for both teacher-reported and parent-reported self-regulation, suggesting that improvements in children's self-regulation generalized to non-school settings.

To further explore these results, we also tested whether Inner Kids training improved specific components of self-regulation on the BRIEF. Based on both teacher and parent reports, children with initial lower self-regulation who received training in Inner Kids showed significant improvement in their ability to initiate tasks, to shift between tasks, and to monitor performance on tasks. Interestingly, improvements in these three domains may reflect the set

of skills practiced during mindfulness training, which included focusing attention on a physical sensation (initiate), sustaining focus over time (monitor), and redirecting attention back to the sensation following any lapses (shifting). While the results of this study are preliminary, they do provide interesting evidence that mindfulness training may be particularly beneficial for otherwise healthy youth who have relatively low self-regulatory abilities.

Future Directions and Conclusion

The scientific evidence on the efficacy of mindfulness training for children and adolescents is considerably small compared to the research literature on adults (Black, 2015; Black et al., 2009). However, the research surveyed in this chapter suggests that mindfulness training with youth is both feasible and may foster skills and mindsets related to successful self-regulation. Looking forward, attending to the methodological rigor of studies is a primary concern. Ensuring true random assignment to groups is an important methodological component, especially given the normative development and growth in self-regulation. Designing active control groups that involve comparable activities (e.g., relaxation-training, group support) to the treatment will also be an important future step in teasing out potential active ingredients and controlling for important confounds. Monitoring implementation fidelity and training dosage will be helpful for determining how often and how much mindfulness practice is necessary for measurable effects to emerge. Including long-term follow-up assessments, beyond the immediate post-intervention assessment, is crucial to determine the sustained influence of mindfulness training on trajectories of self-regulation. Specifically, regarding self-regulation as the target of mindfulness training, incorporating reliable and objective measures into the assessment battery is critical. It will also be crucial to examine whether gains in self-regulation due to mindfulness training mediate changes observed in other areas of social–emotional or academic functioning (for an example, see Jha et al., 2010).

Appendix: Inner Kids Sample Practices

Pinky Pointing

A playful way for children to notice and identify what they are thinking and how they are feeling and communicate what they learn to you without using words.

Sequence for Pinky Pointing

- Suggest that sometimes it is hard to put feelings into words, but that it is important to find ways to notice feelings and communicate them. Pinking Pointing can help when it is hard to describe feelings with words.
- Explain that you are going to ask a question, and children will respond with a pinkies-up, pinkies-down, or a pinkies-sideways. Ask children to wait to respond until they hear the word "Go" as in "1-2-3-Go!"
- Ask a simple, concrete question (for instance, is it easy or hard to sit still right now), and invite children to answer using their pinkies (pinkies up if it is easy, pinkies down if it is hard, pinkies sideways if it is in-between). "1-2-3-Go!"
- Ask children to keep their pinkies in the air and look around.
- Point out that not everyone feels the same way. Now that is interesting!
- Repeat with one or more clear, concrete questions.

Notes

- It is common for children to check how their friends respond before responding themselves. To avoid this, make sure children wait to give their pinkies up, down, or sideways until they hear the words "1-2-3-Go!"
- After children answer a question, ask them to keep their pinkies in the air and check to see how others responded. This reminds them that they are not alone in how they are feeling, and the flip side, that not everyone feels the same way that they feel.
- There are no right or wrong answers, and one answer is not "better" than another, the object is simply to notice and identify what is happening, in the present moment.

The Awareness Meter

The Awareness Meter is a visual aid that offers children a playful way to reflect on a life experience and communicate to you whether it is pleasant, unpleasant, or neutral. The sequence for using the Awareness Meter is similar to the sequence for playing Pinky Pointing.

Sequence for Awareness Meter

- Check to make sure that children understand the meaning of the words "pleasant," "unpleasant," and "neutral" by asking for examples of pleasant, unpleasant, and neutral experiences.
- Suggest that it is helpful to pay attention to the quality of our life experiences by noticing which ones feel pleasant, unpleasant, or neutral.
- Ask a simple, concrete question (for instance, what is it like to stop and feel your breathing) and invite children to answer using the Awareness Meter (pointing to the red triangle for pleasant, the blue triangle for unpleasant, and the yellow triangle for neutral).
- Ask children to keep pointing to the appropriate triangle on the Awareness Meter while they look around to see where their friends are pointing.
- If working with a group of children, there will usually be different opinions.
- If there are different opinions, ask for volunteers to describe the pleasant, unpleasant, or neutral qualities of their experiences.
- Brainstorm about ways that noticing these different qualities can help children navigate life's ups and downs.

Notes

- The object of the activity, in the first instance, is for children to notice and identify the quality of a life experience. A pleasant experience is not necessarily better than an unpleasant or a neutral one.

Counting Breaths

Counting breaths develops concentration (focused attention) and helps students quiet busy thoughts by narrowing their field of concentration. Sometimes referred to as training wheels for meditation, it is one of the first formal introspective practices we teach children.

Sequence for Counting Breaths

- Ask children to define concentration. For instance, concentration is paying attention to one thing and nothing else.
- Ask students to define a distraction. For instance, a distraction is something that makes it difficult to pay attention to one thing and nothing else.
- Ask children to offer examples of things that are easy to focus on (a favorite video game, for instance) and things that are hard to focus on (homework that feels boring, for instance).
- Explain that counting breaths is one way to practice concentrating and that the more we practice, the easier it becomes to concentrate on one thing and ignore distractions.
- Encourage children to sit (or stand) like a mountain with their spines straight and their muscles relaxed.
- Raise one finger and suggest that children keep the number one in their minds (silently think the number 1) when they breathe-in and relax when they breathe-out.
- Raise a second finger and suggest that children silently think the number 2 when they breathe-in and relax when they breathe-out.
- Raise a third finger and suggest that children silently think the number 3 when they breathe-in and relax when they breathe-out.
- Continue counting from 1 to 3 using hand motions (no words) for the remainder of the introspective period.

Notes

- Children can lead the class in counting breaths either out loud or by raising a finger with each inhale (one finger, then two fingers, then three fingers).
- Group students in pairs or small groups and ask them to take turns leading three breaths together by raising a finger with each inhale.

Listening on Purpose

Even when a room seems quiet, there's sound around us. If you take a minute to listen carefully, you might be surprised at all that you hear.

Sequence for Listening on Purpose

- Encourage children to sit (or stand) like a mountain with their spines straight and muscles relaxed.
- Invite children to close their eyes and remind them you will keep yours open.
- Lead a brief progressive muscle relaxation starting at the top of the head and moving down by first relaxing the muscles in their faces, then their chins, necks and shoulders, upper arms, lower arms, hands, fingers, chests, bellies, rears, upper legs, lower legs, ankles, feet, toes.
- With spines straight and muscles relaxed, encourage children to listen normally, making no special effort. Remind them not to be surprised if soon their minds wander. The moment children notice that their minds have wandered is a moment of mindful awareness!
- After *listening on purpose* for a few minutes, ask children how they feel. Many children say they feel more relaxed or focused or calm. Reflect on times that listening on purpose could be helpful outside of mindfulness class—at home, at school, or in the community.

Notes

- When working with a group, start with a few minutes of listening on purpose and extend the length of time as children become more comfortable with the activity.
- Pace the activity based on how long the least comfortable child can practice.
- Transitions, or times that children are waiting, are opportunities to *listen on purpose*.
- You can use a bell, tone bar, water feature, or CD to better control the ambient sound.

Imaginary Hugs

Children practice concentrating as they picture themselves in a safe place where they are happy, healthy, and having a lot of fun. Children bring to mind pictures of other people too and visualize images of themselves, their families, their friends, and eventually everyone and everything having a lot of fun as they live happily, safely, and peacefully together.

Sequence for Imaginary Hugs

- Ask children what it feels like to get a hug and give someone a hug.
- Check to make sure that young children understand the words "pretend" and "imagine" by asking them what it means to imagine that they are doing something else or to pretend that they are in someplace else.
- Invite children to imagine a peaceful place. If working with a group, ask children to put one hand on their heads when they have a peaceful place in mind so that you will know when everyone is ready.
- Once children have a peaceful place in mind, ask them to pretend they can feel, see, touch, hear, taste, or smell something in that peaceful place.
- Encourage children to give themselves a hug and send themselves a friendly wish picturing themselves in a peaceful place where they are having fun and feeling happy.
- Next invite children to give an imaginary hug to a friend or family member and send that person a friendly wish. Ask children to put one hand on their head when they have chosen the friend or family member.
- Once all the children have a hand on their head, encourage them to hold their arms away from their chests in a circle and pretend they are hugging that friend or family member picturing him or her in a peaceful place where they are happy, safe, and having fun.
- Children can give even more people imaginary hugs by bringing them to mind too as they make their arms wide enough to hug all of them in their imaginations while silently sending them friendly wishes.
- Close by encouraging children to stretch their arms out wide and imagine that they can hug the entire planet as they imagine a world where everyone and everything is happy, healthy, safe, and peaceful.

Notes

- We only invite children to close their eyes, we do not insist on it, and we remind them that our eyes will be open and watching the room when their eyes are closed.

- We do not ask children to ignore or change their feelings about what is happening in their lives when they picture the world as a kind and happy place. Nor do we ask them to change their feelings about people they know by asking them to like someone whom they don't already like.

References

Alberts, H. J. E. M., Mulkens, S., Smeets, M., & Thewissen, R. (2010). Coping with food cravings. Investigating the potential of a mindfulness-based intervention. *Appetite, 55*, 160–163.

Analayo, B. (2003). *Satipatthana: The direct path to realization*. Birmingham, England: Windhorse.

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, 125–143.

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky inventory of mindfulness skills. *Assessment, 11*, 191–206.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45.

Baer, R. A., Smith, G. T., Lykins, E. L. B., Button, D., Krietemeyer, J., Sauer, S., … Williams, J. M. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and nonmeditating samples. *Assessment, 15*, 329–342.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., … Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230–241.

Black, D. S. (2014). Mindfulness-based interventions: An antidote to suffering in the context of substance use, misuse, and addiction. *Substance Use & Misuse, 49*, 487–491.

Black, D. S. (2015). Mindfulness training for children and adolescents: A state-of-the-science review. In K. W. Brown, R. M. Ryan, & J. D. Creswell (Eds.), *Handbook of mindfulness: Theory and research (pp. 283-310)*. New York, NY: Guilford Press.

Black, D. S., Milam, J., & Sussman, S. (2009). Sitting-meditation interventions among youth: A review of treatment efficacy. *Pediatrics, 124*, e532–e541.

Black, D. S., Milam, J., Sussman, S., & Johnson, C. A. (2012). Testing the indirect effect of trait mindfulness on adolescent cigarette smoking through negative affect and perceived stress mediators. *Journal of Substance Abuse, 17*, 417–429.

Black, D. S., Semple, R. J., Pokhrel, P., & Grenard, J. L. (2011). Component processes of executive function-mindfulness, self-control, and working memory-and their relationships with mental and behavioral health. *Mindfulness, 2*, 179–185.

Black, D. S., Sussman, S., Johnson, C. A., & Milam, J. (2012a). Psychometric properties of the mindful awareness attention scale (MAAS) among Chinese adolescents. *Assessment, 19*, 40–50.

Black, D. S., Sussman, S., Johnson, C. A., & Milam, J. (2012b). Trait mindfulness helps shield decision-making from translating into health-risk behavior. *Journal of Adolescent Health, 51*, 588–592.

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist, 57*, 111–127.

Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20*, 899–911.

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development, 78*, 647–663.

Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism, 12*, 19–39.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848.

Brown, K. W., & Ryan, R. M. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice, 11*, 242–248.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237.

Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: What have we learned about cognitive development. *Trends in Cognitive Sciences, 9*, 104–110.

Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research, 32*, 303–322.

Chatzisarantis, N. L. D., & Hagger, M. S. (2007). Mindfulness and the intention-behavior relationship within the theory of planned behavior. *Personality and Social Psychology Bulletin, 33*, 663–676.

Ciesla, J. A., Reilly, L. C., Dickson, K. S., Emanuel, A. S., & Updegraff, J. A. (2012). Dispositional mindfulness moderates the effects of stress among adolescents: Rumination as a mediator. *Journal of Clinical Child and Adolescent Psychology, 41*, 760–770.

Derryberry, D., & Rothbart, M. K. (1997). Reactive and effortful processes in the organization of temperament. *Development and Psychopathology, 9*, 633–652.

Diamond, A. (2002). Normal development of prefrontal cortex from birth to young adulthood: Cognitive functions, anatomy, and biochemistry. In D. T. Stuss & R. T. Knight (Eds.), *Principles of frontal lobe function* (pp. 466–503). London, UK: Oxford University Press.

Diamond, A. (2012). Executive functions. *Annual Review of Psychology, 64*, 135–168.

Dickinson, A. (1985). Actions and habits: The development of behavioural autonomy. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, 308*, 67–78.

Duckworth, A. L., & Carlson, S. M. (2013). Self-regulation and school success. In B. W. Sokol, F. M. E. Grouzet, & U. Müller (Eds.), *Self-regulation and autonomy: Social and developmental dimensions of human conduct* (pp. 208–230). New York, NY: Cambridge University Press.

Eisenberg, N., Hofer, C., & Vaughan, J. (2007). Effortful control and its socioemotional consequences. In J. J. Gross (Ed.), *Handbook of emotion regulation*. New York, NY: Guilford.

Elwafi, H. M., Witkiewitz, K., Mallik, S., Thornhill, T. A., & Brewer, J. A. (2012). Mindfulness training for smoking cessation: Moderation of the relationship between craving and cigarette use. *Drug and Alcohol Dependence, 130*, 222–229.

Flook, L., Smalley, S. L., Kitil, J., Galla, B. M., Kaiser-Greenland, S., Locke, J., …, Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology, 26*, 70–95.

Fujita, K. (2011). On conceptualizing self-control as more than the effortful inhibition of impulses. *Personality and Social Psychology Review*, 15, 352–366.

Galla, B. M., Hale, T. S., Shrestha, A., Loo, S. K., & Smalley, S. L. (2012). The disciplined mind: Associations between the Kentuck inventory of mindfulness skills and attention control. *Mindfulness, 3*, 95–103.

Galla, B. M., Plummer, B. D., White, R. E., Meketon, D., D'Mello, S. K., & Duckworth, A. L. (2014). The Academic Diligence Task (ADT): Assessing individual differences in effort on tedious but important schoolwork. *Contemporary Educational Psychology, 39*(4), 314–325.

Garon, N., Bryson, S. E., & Smith, I. M. (2008). Executive function in preschoolers: A review using an integrative framework. *Psychological Bulletin, 134*, 31–60.

Giedd, J. N. (2004). Structural magnetic resonance imaging of the adolescent brain. *Annals of the New York Academy of Sciences, 1021*, 77–85.

Giedd, J. N., Blumenthal, J., Jeffries, N. O., Castellanos, F. X., Liu, H., Zijdenbos, A., … Rapoport, J. L. (1999). Brain development during childhood and adolescence: A longitudinal MRI study. *Nature Neuroscience, 10*, 861–863.

Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). *Behavior rating inventory of executive function*. Lutz, FL: Psychological Assessment Resources.

Goodman, T. A., & Greenland, S. K. (2009). Mindfulness with children: Working with difficult emotions. In F. Didonna (Ed.), *Clinical handbook of mindfulness* (pp. 417–429). New York, NY: Springer.

Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment, 23*, 606–614.

Greeson, J., Garland, E., & Black, D. S. (2014). Mindfulness: A transtherapeutic approach for transdiagnostic mental processes. In A. Ie, C. Ngnoumen, & E. Langer (Eds.), *The Wiley Blackwell handbook of mindfulness* (Vol. 2). Oxford, England: Wiley.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*, 271–299.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*, 35–43.

Hofmann, W., Friese, M., & Strack, F. (2009). Impulse and self-control from a dual-systems perspective. *Perspectives on Psychological Science, 4*, 462879.

Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 78*, 169–183.

Isquith, P. K., Gioia, G. A., & Espy, K. A. (2004). Executive function in preschool children: Examination through everyday behavior. *Developmental Neuropsychology, 26*, 403–422.

Jha, A. P., Stanley, E. A., Kiyonaga, A., Wong, L., & Gelfand, L. (2010). Examining the protective effects of mindfulness training on working memory and affective experience. *Emotion, 10*, 54–64.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*, 144–156.

Kaiser-Greenland, S. (2010). *The mindful child: How to help your kid manage stress and become happier, kinder, and more compassionate*. New York, NY: Free Press.

Kang, Y., Gruber, J., & Gray, J. R. (2013). Mindfulness and de-automatization. *Emotion Review, 5*, 192–201.

Kochanska, G., Murray, K. T., & Harlan, E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36*, 220–232.

Linden, W. (1973). Practicing of meditation by school children and their levels of field dependence-independence, test anxiety, and reading achievement. *Journal of Consulting and Clinical Psychology, 41*, 139–143.

Lutz, A., Dunne, J. D., & Davidson, R. J. (2007). Meditation and the neuroscience of consciousness. In

P. D. Zelazo, M. Moscovitch, & E. Thompson (Eds.), *The Cambridge handbook of consciousness*. Cambridge, NY: Cambridge University Press.

Lutz, A., Slagter, H. A., Dunne, J., & Davidson, R. J. (2008). Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences, 12*, 163–169.

Lutz, A., Slagter, H., Rawling, N., Francis, A., Greischar, L. L., & Davidson, R. J. (2009). Mental training enhances attentional stability: Neural and behavioral evidence. *Journal of Neuroscience, 29*, 13418–13427.

MacCann, C., Duckworth, A. L., & Roberts, R. D. (2009). Empirical identification of the major facets of conscientiousness. *Learning and Individual Differences, 19*, 451–458.

MacLean, K. A., Ferrer, E., Aichele, S. R., Bridwell, D. A., Zanesco, A. P., Jacobs, T. L., … Saron, C. D. (2010). Intensive meditation training improves perceptual discrimination and sustained attention. *Psychological Science, 21*, 829–839.

McClelland, M. M., Acock, A., Piccinin, A., Rhea, S. A., & Stallings, M. C. (2012). Relations between preschool attention span-persistence and age 25 educational outcomes. *Early Childhood Research Quarterly, 28*, 314–324.

Mendelson, T., Greenberg, M. T., Dariotis, J. K., Gould, L. F., Rhoades, B. L., & Leaf, P. J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology, 38*, 985–994.

Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science, 244*, 933–938.

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H. L., … Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences, 108*(7), 2693–2698.

Moore, A., & Malinowski, P. (2009). Meditation, mindfulness and cognitive flexibility. *Consciousness and Cognition, 18*, 176–186.

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science, 24*, 776–781.

Mrazek, M. D., Smallwood, J., & Schooler, J. W. (2012). Mindfulness and mind-wandering: Finding convergence through opposing constructs. *Emotion, 12*, 442–448.

Napoli, M., Krech, P. R., & Holley, L. C. (2005). Mindfulness training for elementary school students: The Attention Academy. *Journal of Applied School Psychology, 21*, 99–125.

O'Reilly, G. A., Cook, L., Spruijt-Metz, D., & Black, D. S. (2014). Mindfulness-based interventions for obesity-related eating behaviours: A literature review. *Obesity Reviews, 15*, 453–461.

Ostafin, B. D., Bauer, D. J., & Myxter, P. (2012). Mindfulness decouples the relation between automatic alcohol motivation and heavy drinking. *Journal of Social and Clinical Psychology, 31*, 729–745.

Papies, E. K., Barsalou, L. W., & Custers, R. (2011). Mindful attention prevents mindless impulses. *Social Psychological and Personality Science, 3*, 291–299.

Park, N., Peterson, C., & Seligman, M. E. P. (2006). Character strengths in fifty-four nations and the fifty US states. *Journal of Positive Psychology, 1*, 118–129.

Rothbart, M. K., & Rueda, M. R. (2005). The development of effortful control. In U. Mayr, E. Awh, & S. W. Keele (Eds.), *Developing individuality in the human brain: A tribute to Michael I. Posner* (pp. 167–188). Washington, DC: American Psychological Association.

Sahdra, B. K., MacLean, K. A., Ferrer, E., Shaver, P. R., Rosenberg, E. L., Jacobs, T. L., … Saron, C. D. (2011). Enhanced response inhibition during intensive meditation training predicts improvements in self-reported adaptive socio-emotional functioning. *Emotion, 11*, 299–312.

Schmertz, S. K., Anderson, P. L., & Robins, D. L. (2009). The relation between self-report mindfulness and performance on tasks of sustained attention. *Journal of Psychopathology and Behavioral Assessment, 31*, 60–66.

Sharma, L., Markon, K. E., & Clark, L. A. (2013). Toward a theory of distinct types of "impulsive" behaviors: A meta-analysis of self-report and behavioral measures. *Psychological Bulletin, 140*, 374–408.

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard, S. A., … Guthrie, K. (2006). Relation of emotion-related regulation to children's social competence: A longitudinal study. *Emotion, 6*, 498–510.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 8*, 220–247.

Teper, R., Segal, Z. V., & Inzlicht, M. (2013). Inside the mindful mind: How mindfulness enhances emotion regulation through improvements in executive control. *Current Directions in Psychological Science, 22*, 449–454.

Tsukayama, E., Toomey, S. L., Faith, M. S., & Duckworth, A. L. (2010). Self-control protects against overweight status in the transition to adolescence. *Archives of Pediatrics and Adolescent Medicine, 164*, 631–635.

Vago, D. R., & Silbersweig, D. A. (2012). Self-awareness, self-regulation, and self-transcendence (S-ART): A framework for understanding the neurobiological mechanisms of mindfulness. *Frontiers in Neuroscience, 6*, 1–30.

Waber, D. P., De Moor, C., Forbes, P. W., Almi, C. R., Botteron, K. N., Leonard, G., … Brain Development Cooperative Group. (2007). The NIH MRI study of normal brain development: Performance of a population based sample of healthy children aged 6 to 18 years on a neuropsychological battery. *Journal of*

the International Neuropsychological Society, 13, 729–746.

Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review, 101*, 34–52.

Welsh, M. C., Pennington, B. F., & Groisser, D. B. (1991). A normative-developmental study of executive function: A window on prefrontal function in children. *Developmental Neuropsychology, 7*(2), 131–149.

Witkiewitz, K., & Bowen, S. (2010). Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention. *Journal of Consulting and Clinical Psychology, 78*, 362–374.

Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition, 19*, 597–605.