CONTEMPLATIVE EDUCATION

Cultivating Ethical Development through Mindfulness Training

Robert W. Roeser, David R. Vago, Cristi Pinela, Laurel S. Morris, Cynthia Taylor, and Jessica Harrison

Alertness is the hidden discipline of familiarity.

David Whyte

DEFINING CONTEMPLATIVE EDUCATION

The purpose of this chapter is to introduce Contemplative Education—an emerging, practical, and applied scientific approach to the cultivation of positive mental skills and social-emotional dispositions that we hypothesize are relevant to individuals’ ethical development. (Mind and Life Educational Research Network [MLERN], 2012; Roeser & Peck, 2009). The key question of this chapter is how might developmentally appropriate secular mindfulness training contribute to the ethical development of young people and their parents and teachers?

Contemplative, from the Latin root *contemplatio*, refers to the marking out of a space for the cultivation of attentiveness to the fullness of life—including oneself, other people, and the sociocultural and natural worlds (Zajonc, in press). Education, from the Latin root *educare*, can be defined as the “drawing forth” of children’s intrinsic potentials—somatic, emotional, imaginative, cognitive, and attentional in nature—and the guiding of these qualities towards fruitful personal and societal ends (Dewey, 1900). Given these etymologies, we can say that as an applied, practical approach, Contemplative Education (CE) aims to draw forth and cultivate children’s intrinsic self-regulatory skills and social-emotional dispositions in the directions of focused attention, mindful awareness, and altruistic motivation and action through joint activity, mentorship, and sustained practice.

At the heart of Contemplative Education as a practical approach is mindfulness training (MT). MT refers to secularized teaching approaches and practices aimed at cultivating focused attention and a calm, clear, and non-reactive/non-judgmental awareness of what
is occurring moment by moment (Kabat-Zinn, 2003). By cultivating a healthy mind, MT is hypothesized to have implications for ethical development, leading to the development, for instance, of individuals who “know what is good and spontaneously do it” in their daily lives (Varela, 1999, p. 4). How is this so? As an applied scientific discipline, CE aims to answer these questions.

**CONTEMPORARY APPROACHES TO ETHICS IN EDUCATION**

The need for ethics in education is particularly urgent in a world that is increasingly flat, hot, and crowded (Friedman, 2008), and where ethical lapses among individuals in high positions of governance, finance, sports, and even public education seem all too common today (Dalai Lama, 2012; Sachs, 2011). Paradoxically, given these pressing cultural needs, moral or character development now appears to take a back seat to academic skill development as a top educational priority (White House, 2000). Nevertheless, American parents continue to place high value on having their children learn moral-behavioral skills in school such as communicating emotions, taking turns and sharing, being fair and caring, and being able to pay attention (Phi Delta Kappan, 2012).

Challenges in offering effective programs that impart these kinds of ethical skills and dispositions have existed for decades. In a review of such efforts, however, Nucci and Turiel (2009) concluded that

the general picture suggests that formal efforts to engage in moral education have not translated into gains in student socialization beyond what is obtained through widely recognized “best teaching” practices . . . that emphasize classroom community, student intellectual autonomy, and high levels of academic instruction.

(p. 151)

Over the past several decades, various new programmatic initiatives have focused on the cultivation of the social, emotional, and ethical development of the child as part of an expanded vision in our nation’s public schools of what it means to become a fully educated citizen beyond the mastery of the traditional three Rs. Evaluation research on programs such as social-emotional learning (SEL), service learning, and conflict resolution has shown that these programs are effective. Evidence supports the notion that social and emotional learning programs can reduce antisocial behavior (Wilson, Gottfredson, and Najaka, 2001) and increase school attendance and achievement (Durlak, Weissberg, Taylor, Dymnicki, & Schellinger, 2011). Similarly, meta-analyses suggest that the school-wide use of conflict resolution and peer remediation programs reduces antisocial behavior, especially during adolescence (Burrell, Zirbel, & Allen, 2003; Garrard & Lipsey, 2007). Finally, research on service learning has shown it is associated with reduced academic and behavior problems and increased learning and prosocial behavior, especially when reflection on offering service is a central feature of the program (Conway, Amel, & Gerwien, 2009; Hart, Matsuba, & Atkins, this volume). We believe that these kinds of programs work because they all incorporate a focus on community, emotion and emotion regulation, and prosocial attitudes and behavior (e.g., Mahoney, Larson, & Eccles, 2005). A focus on training attention in the service of emotion regulation, self-awareness, awareness of others, and prosociality in a supportive community is also central to contemplative education as a practical endeavor.
DEFINING THE CONTEMPLATIVE SCIENCE PROJECT (CSP)
As an applied scientific endeavor, Contemplative Education is a subfield of the Contemplative Science Project (CSP). The CSP is a trans-disciplinary effort to describe and explain the effects of engagement with contemplative practices on the mind, brain, body, and social relationships within and across different periods in the lifespan (Roeser & Zelazo, 2012; Wallace, 2007). As a meeting of the so-called East and West around mind-body issues, the CSP has rich historical roots that date back centuries (Harrington, 2008). The disciplines involved in the CSP today include psychological, social and developmental science; biology, neuroscience and developmental neuroscience; and the humanities and contemplative studies (see Figure 13.1). Contemplative studies refers to a discipline of study and is populated by individuals who are conversant with the philosophies at the heart of contemplative traditions; and who also have extensive first-person experience in engaging in the contemplative practices of such traditions.

Meta-theoretical Assumptions of CSP. The meta-theoretical assumptive framework of the CSP diverges from classical Cartesian dualistic approaches to mind-body phenomena and ways of conceptualizing human development (see Overton & Reese, 1977). Specifically, the CSP is grounded in a dialectic rather than dualistic meta-model of human development. In Figure 13.2, the ying-yang symbol provides a visual representation of two guiding assumptions regarding the process of human development from a dialectic vantage point (Sameroff, 2010): (a) the unity of apparent opposites (e.g., mind

![Figure 13.1 Trans-disciplinary Nature of the Contemplative Science Project.](image-url)
and body) and (b) the interpenetration of apparent opposites (e.g., genes and environments). According to Lerner and Overton (2008):

Today, the cutting edge of the study of the human life span is framed by a developmental systems theoretical model, one that is informed by a post positivist, relational metatheory that moves beyond classical Cartesian dichotomies, “avoids all splits,” and transforms fundamental antinomies into co-equal and indissociable complementarities (Overton, 2006).

Throughout its history, the study of human development has been the captive of numerous fundamental antinomies (Overton, 1998, 2006). Whereas the original Cartesian splits were between mind and body or subject and object, the most prominent of contemporary split conceptions has been, of course, between nature and nurture or variants of this split, such as maturation versus experience or innate versus acquired … the central emphasis in contemporary developmental science is on mutually influential, individual-context relations.

(Lerner & Overton, 2008, pp. 245–246)

A dialectic metatheory of human development, including ethical development, assumes that (a) there are continuities between human and primate evolution and development; (b) that mutually influential, individual-context relations are fundamental in shaping development; (c) that the mind is embodied; and (d) that cognition and emotion are intrinsically interdependent processes that can best be described to

![Figure 13.2 Dualistic vs. Dialectical Meta-models of Human Development.](image)
operate in “top-down” and “bottom-up” fashions, respectively (de Waal, 2009; Varela, Thompson, & Rosch, 1991; Zelazo & Carlson, 2012).

In a similar vein, Haidt and colleagues (Haidt, 2007; Haidt & Joseph, 2007) outlined a new synthesis in moral psychology that attempts to move the field beyond dualistic and towards dialectic assumptions. Such assumptions include (a) the view that ethics are grounded in long-evolved emotions characteristic of mammalian social life and are “bequeathed by our biological nature as animals that survive and thrive only in an environment of concern, affection and warm-heartedness—or in a single word, compassion” (Dalai Lama, 2012, p. xi); (b) that emotional intuitions and actions (bottom-up) precede reasoned cognitions (top-down) in regulating ethical behavior; (c) that ethical emotions, actions, and cognitions are transformed in ontogenetic time through culture and social interaction; and (d) that ethics safeguard the welfare of individuals and groups by balancing self-interests with the interests of others. Thus, both the CSP and contemporary moral psychology posit that a moral sense exists from very early in development in the forms of emotional intuitions and actions that are extended and transformed through development into spontaneous ethical dispositions to act in particular ways (Varela, 1999).

Two additional assumptions of the CSP that are important for understanding ethical development are that (a) the brain is an inherently adaptive organ, evolved to change in response to experience and intentional training and education (e.g., mindfulness training) through the processes of neuroplasticity (see MLERN, 2012); and (b) that contemplative practices such as MT are specialized forms of mental training that, when practiced for an extended period of time, significantly alter cognitive, emotional and motor processes and the underlying neural substrates of what are classically called “skills” (e.g., Bransford, Brown, & Cocking, 1999; Ericsson & Charness, 1994). Through sustained training over time, newly acquired skills become automatized and “second nature” (see Figure 13.5).

These two assumptions form the foundation of a secular account, based in the Learning Sciences, of ethical development as the learning and gradual automatization of ethical skills and know-how (e.g., Varela, 1999). Such an account is compatible with new directions in moral psychology (e.g., Narvaez, 2013), and provides a means of understanding what Gandhi may have meant when he suggested we must “be the change we wish to see in the world” and what Mencius may have meant when he said that the virtuous person is “one who knows what is good and spontaneously does it.”

**Scientific Goals of CSP.** The goals of the CSP are threefold (Baltes, Reese, & Nesselroade, 1977): (a) to **describe** the developmental effects of engagement in contemplative practices on body, brain, mind, and social relationships; (2) to **explain** contemplative practice effects at neurophysiological, psychological, and social levels of analysis; and (3) to use descriptive and explanatory findings to **optimize** human development through the introduction of contemplative practice-based interventions in families, schools, clinics, and communities in ways attuned to the needs and requirements of culture, developmental stage, and historical age (see Figure 13.1). During the past decade, the number of peer-refereed journal articles and nationally funded research grants on the use of MT for a variety of health and wellbeing outcomes has risen dramatically (see Roeser & Zelazo, 2012). Relatively few studies have adopted a developmental perspective to date regarding these aims, however. Thus, the question of how mindfulness may contribute to the ethical development of children and adolescents remains new and uncharted territory.
Ways of Knowing. In order to achieve these scientific goals, the CSP draws on dialogue and scientific collaboration between individuals representing the three broad sets of disciplines depicted in Figure 13.1. Through transdisciplinary collaboration, the CSP aims to produce high quality studies that coordinate first-, second-, and third-person accounts of how various forms of contemplative training may affect human development. First-person accounts refer to data gathered through phenomenological/self reports; second-person accounts refer to data gathered from expert observers of target individuals—for instance, parental ratings of children; third-person accounts refer to data collected from non-subjective sources, for example, brain scans (de Wit, 1991; Varela & Shear, 1999).

MINDFULNESS TRAINING AND ETHICAL DEVELOPMENT
Given this basic assumptive framework, we are now in a position to address the question: How might mindfulness training support the ethical development of children, adolescents, and their caregivers such that they become people who know what is good and spontaneously do it?

Contemplative Perspectives. From Buddhist perspectives, the training of attention and emotion is central to ethical development and can be understood in relation to progressions in motivation and behavior from self-interest to selflessness (altruism; Dalai Lama, 2012; Ekman, Davidson, Ricard, & Wallace, 2005). Through training, an individual is assisted in developing three sets of ethics (Dalai Lama, 2012) (1) the ethic of restraint or self-control over affective emotions (e.g., fear, greed, jealousy, hatred) and the actions that they motivate; (2) the ethic of virtue or prosocial emotions (e.g., kindness, joy) and the actions these motivate (e.g., consideration of others’ needs alongside or even before our own; and (3) the ethic of altruism or selfless altruistic motivations involving expanded feelings of love and kindness for all beings and the actions these motivate. These three ethics can be conceptualized as a path of ethical development (see Table 13.1).

Table 13.1 Preliminary Taxonomy of Ethical Aims of Contemplative Education

<table>
<thead>
<tr>
<th>Child Quality</th>
<th>Moral Emotions</th>
<th>Moral Motivation</th>
<th>Self-System Target</th>
<th>Type of Ethic</th>
<th>Locus of Moral Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calm</td>
<td>Anger, Fear, Desire, Embarrassment, Guilt, Shame, Disgust, Relief</td>
<td>Self-Control</td>
<td>Self-Regulation</td>
<td>Ethic of Restraint</td>
<td>Personal Responsibility for Actions</td>
</tr>
<tr>
<td>Mindful and Empathic</td>
<td>Empathy, Joy, Sympathetic Joy</td>
<td>Prosociality</td>
<td>Self-Awareness</td>
<td>Ethic of Virtue</td>
<td>Social Responsibility to Others</td>
</tr>
<tr>
<td>Kind</td>
<td>Compassion, Love</td>
<td>Altruism</td>
<td>Self-Transcendence</td>
<td>Ethic of Altruism</td>
<td>Global Responsibility to All</td>
</tr>
</tbody>
</table>

Notes
1 Nucci (2001).
3 Dalai Lama (2012).
4 Eccles & Roeser (2010).
Scientific Perspectives. To provide a scientific grounding of these contemplative ideas on attention and emotion training in ethics, we develop four basic issues. These include (a) the role of attention in emotional self-control; (b) the role of attention and emotion in the perception of the “ethical” in social interactions; (c) the role of attention and emotion in the extension of the ethical in the directions of the Golden Rule and Great Compassion; and (d) the role of attention and emotion regulation in remaining calm and practicing “spontaneous virtuous action” in situations where another or oneself is under stress.

Attention and Emotion Regulation

Through the training of attention, the ability to regulate emotion generally, and to inhibit impulsive, dominant response tendencies specifically (i.e., self-control), is enhanced. This is due to the fact that the circuitry of emotion regulation overlaps considerably with the circuitry of executive function/self control in the brain (MLERN, 2012; Zelazo & Carlson, 2012). Moffitt et al. (2011) have recently reported that self-control during childhood predicts physical health, substance dependence, personal finances, and criminal offenses in young adulthood in a cohort of 1,000 children followed from birth to age 32 years. Thus, to the extent MT increases self-control in children, it has the potential to exert long-term consequences on children’s ethical development and wellbeing.

Attention, Emotion, and the Perception of the “Ethical”

The training of emotion is also central to ethics, but what is the role of emotion in ethical development? Nucci and Turiel (1978) empirically demonstrated that the ethical domain is distinct from the domains of social-conventions and personal preferences as sources of norms and rules for behavior. Children as young as 4–5 years of age intuitively understand that unprovoked harm of another, or failing to help another in need, are acts that are intrinsically wrong (because they violate fairness and reciprocity). By definition, young children do not need to be socialized to understand this, or come to a personal choice about such matters. Rather, the perception of moral virtue and transgressions are theorized to be intrinsic to the events and people in question (Nucci & Turiel, 2009). How?

As one example, consider someone observing someone else physically striking another person in an unprovoked manner. In this case, the perceived consequences to the victim (i.e., the perceived consequences of being struck) have intrinsic meaning, and it is this intrinsic meaning, rather than societal prescription, that is hypothesized to determine whether the event is judged as morally right or wrong (see Nucci & Turiel, 2009). It is plausible that the “intrinsic meaning” that young children derive from such an act is given in significant part by the emotions aroused in actors and observers of the situation (e.g., “That was wrong because it frightened and hurt that person and no-one wishes to be scared or harmed and everyone has the right not to be”). From a dialectic perspective, emotions can be understood as relational, thematic evaluations regarding the current state of person–person or person–environment relations and related action readiness (Lazarus, 1991). From this perspective, one knows something is wrong initially, perceptually, because it feels that way in the body.

Consistent with these views, the ethical domain, in contrast to the conventional or personal domain of norms or rules for behavior, arises early in development and is marked by its emotionally “hot” nature (Nucci, 2001). Ethical issues activate strong emotions even in young children, whereas social-conventional rules or personal preferences
less so (Arsenio, 1988; Arsenio & Lover, 1995). For instance, 5-, 8- and ten-year-olds all report that a recipient, perpetrator, and an observer would feel positive emotion in response to situations of distributive justice (sharing, being fair) or prosocial behavior (helping, being helped). On the other hand, children also reported that recipients and observers of selfish behavior (harming, being unfair) would feel negative emotions such as sadness, anger, and fear (Arsenio, 1988). Other work is beginning to establish seeming ethical preferences in even younger children. Aknin, Hamlin, & Dunn (2012) found, for instance, that young children (around two years of age) expressed greater positive affect in behavior when giving treats to others than when receiving treats themselves (which was also associated with positive affect), even if this act of giving involved a cost to self. Consistent with a dialectic perspective on emotion and development, the authors speculate that acts of kindness and generosity (giving and receiving gifts) may have long evolutionary roots that cause such acts to be experienced emotionally as intrinsically “good/liked” and worthy of emulation and extension to others.

A basic assumption in ancient Eastern and Western worlds is that the training of attention is invaluable in ethical development because it improves an individual’s capacity to mindfully perceive and feel the non-virtuous and virtuous in daily life more clearly (Dalai Lama, 2012; Varela, 1999). To the extent MT can help caregivers, children, and adolescents to stabilize attention and calm emotional reactivity, the clarity of their awareness and representations of social interactions may be enhanced in ways that foster their ethical development.

Attention, Emotion, and the Extension of the Ethical

Enhanced awareness allows young people to directly observe the positive and negative consequences of particular mind states and behaviors in themselves and other people clearly and to learn from them (Dalai Lama, 2012). As a consequence of this enhanced perception, we hypothesize that mindfulness training also supports the capacity of caregivers, children, and adolescents to extend basic ethical intuitions regarding harm and care to others near and far.

We assume that basic emotions involving the avoidance of harm (e.g., Nucci & Turiel, 1978) and the approach of care (Eisenberg, 1998; Gilligan, 1982) form the basis of moral motivation. Through socialization, we hypothesize that most children learn to extend these basic emotions to others along the lines of the Golden Rule and the concept of moral reversibility (Nucci, 2001). This transformation is hypothesized to occur within the contexts of average-expectable attachment relationships, authoritative parenting and teaching practices, and supportive sibling and peer relationships (Nucci, 2001). Through MT, we propose, the extension of non-harm and care can be widened further in the directions of “Great Compassion” (Dalai Lama, 1999) to include unfamiliar and even unknown others. The notion of extension is presented in Figure 13.3.

We propose that the stabilization of attention affected through attuned caregiving and joint-attention, and the noting and labeling of significant features of emotionally-charged social experiences (e.g., feelings, feeling–action linkages), enhances the ability of young people to clearly perceive and develop rich cognitive-affective representations regarding ethical dilemmas they experience in daily life (e.g., Tharp & Gallimore, 1988). Enriched perceptions and representations, in turn, enhance children’s ability to accurately extend their moral understandings to situations and encounters that share correspondences and affinities with previously encountered ones—from the known to the
similar (Varela, 1999). As discussed below, ethical enhancement practices that form a key part of MT aim to increase this sphere of ethical extension beyond the known and similar to the unknown and dissimilar (see Figure 13.3). This was the view of Mencius, who posited, “truly virtuous people attend to their nature sufficiently well to understand an event in terms of their experience and thus ensure that appropriate extension follows easily” (Varela, 1999, p. 29).

**Attention, Emotion Regulation, and Prosocial Behavior**

In addition to clear awareness, another key factor in the cultivation and extension of prosocial behavior is emotion regulation and the ability to maintain a calm mind and body in distressing situations (Eisenberg & Eggum, 2009). Batson and his colleagues (1999) differentiated between empathy and personal distress as motivators of prosocial behavior. In this work, empathy is defined as the capacity to understand and respond to the affective experiences of others and is associated with an other-oriented, altruistic motivational aim (assist the other person). In contrast, personal distress is defined as a self-focused, aversive, affective reaction to another’s emotion distress and is associated with an egoistic or self-oriented motivational aim (e.g., to relieve one’s own distress). Prosocial responding in the presence of another’s distress can be motivated by either altruism or egoism (Batson, Anderson, & Collins, 2005).

Evidence suggests that under conditions of high empathic arousal due to the apprehension of another’s distress, emotion regulation is necessary if altruistically motivated responding is to occur (see Eisenberg & Eggum, 2009). By definition, empathic arousal in the presence of another’s distress leads to personal feelings of distress (i.e., affective resonance). Effective emotion regulation in the presence of another’s distress reduces the probability that feelings of personal distress will cascade into empathic over-arousal and the consequent activation of withdrawal behavior or ego-motivated helping. Empathic over-arousal is especially likely in stressful situations for individuals who are high in dispositional negative affect, high in susceptibility to vicarious negative affect, and who have poor emotion regulation skills (Eisenberg, Fabes, &
Effective regulation of empathic arousal allows for the activation and implementation of altruistic intentions aimed at helping the other. In other words, as depicted in Figure 13.4, attention leads to empathic awareness, and emotion regulation allows for that awareness to lead to the activation of altruistic intentions or compassion—a strong desire to do something to reduce the suffering of others (Halifax, 2012). Social neuroscientific findings provide support for this set of hypotheses regarding the interconnections of empathy, emotion regulation, and altruistic responding to others (Decety & Howard, 2013).

In summary, social interactions often activate strong emotions with intrinsic meanings. With appropriate mindfulness and emotion regulation, these meanings can be clearly perceived and can inform subsequent ethical behavior through the process of extension. Clearly, the processes of ethical perception, extension and altruistic motivation require mindfulness and compassion on the part of caregivers (parents, teachers) who are role models for and key socializers of children and adolescents. Therefore, assisting adults to become experts in the mental skills and social-emotional dispositions that underlie ethical development (calmness, mental clarity, disposition of kindness) is critically important. A growing body of evidence with adults suggests that MT affects basic processes of attention, sensation-perception, emotion, and social cognition that underlie ethical development (see Vago & Silbersweig, 2012).

**EVIDENCE FOR EFFECTS OF MINDFULNESS TRAINING WITH ADULTS**

**Attention.** From the contemplative traditions in which MT originated, training of sustained focused attention is thought to promote tranquility of the mind, an essential step for ethical development. Improving the efficiency and stability of attention also affords powerful forms of behavioral and cognitive regulation (see Ochsner & Gross, 2005). Studies show that MT improves adults’ ability to direct and sustain attention and to monitor the focus of attention in a conscious way (Jha, Krompinger, & Baime, 2007), even in the presence of “hot” emotionally charged, but irrelevant, distractors (Ortner, Kilner, & Zelazo, 2007). Research also shows that MT changes the underlying neural substrates for these attentional abilities, with studies of individuals with 10,000 hours or more of formal meditation practice (e.g., experts in meditation) showing enduring changes in the neural circuits of attention (Davidson & Lutz, 2008).

---

**Figure 13.4** Hypothesized Example of How Mindfulness Can Facilitate Altruistic Behavior in the Presence of Another’s Distress.
Contemplative Education

Sensory-Perception. The development of focused attention and a calm, tranquil mind is also critical to developing clearer perceptions of one’s surroundings, one’s relationships with others, and the causes and consequences of one’s behavior. Research shows that MT in adults is associated with enhanced sensory-perceptual clarity and reduced reliance on information-processing biases (Cahn and Polich, 2009; Kerr et al., 2008; Lutz, Slagter, Dunne, & Davidson, 2008; Lutz, Greischar, Perlman, & Davidson, 2009; MacLean et al., 2010). Lutz and colleagues (2008), for instance, found that long-term meditators describe subjective states of attention and awareness with more accuracy than novices, and that their first-person reports are strongly correlated with simultaneously measured brain activity.

Awareness and Regulation of Emotion. Research shows that MT enhances the clarity of awareness of emotions as they manifest in the body and mind (e.g., Nielsen and Kasznia, 2006), as well as individuals’ ability to regulate emotion (Baer, 2009). Noting and labeling of mental experience is often taught in mindfulness-based practice as a way to become more aware of one’s emotions. One study has demonstrated that trait mindfulness is correlated with accurately labeling emotions and the corresponding inhibitory influence of the frontal cortex over the amygdala due to such labeling (Creswell, Way, Eisenberger, & Lieberman, 2007).

Empathy and Prosociality. Prosocial motivation has been defined as the expressed wish to help others in need (Batson et al., 1999) whereas prosocial behavior is “behavior that benefits other people” (Staub, 1979, p. 2). Prosocial motivation is critically dependent upon multiple facets of empathic processes, such as mutual concern, perspective taking, experience sharing, neural resonance, emotional contagion, and emotion regulation (Zaki & Ochsner, 2012). Research shows that MT enhances the neural circuits underlying these empathic processes and awareness of others generally (Singer & Lamm, 2009). In a fMRI study of experts and novices, Lutz, Brefczynski-Lewis, Johnstone, and Davidson (2008) found that expertise in the form of 10,000 hours or more of a form of compassion meditation sensitizes the activation of neural circuits linked to empathy and theory of mind. Similarly, in another study, Lutz et al. (2009) found that compassion meditation enhances the emotional and somatosensory brain representations of others’ emotions, and that this effect is modulated by expertise. It appears that as expertise in compassion increases, the threshold for the activation of perception–emotion–action links in prosocial directions is diminished and compassionate responding becomes “second nature” or spontaneous. In a recent social psychology experiment with emerging adults, for example, Condon, Desbordes, Miller, and DeSteno (2013) showed that MT was associated with actual prosocial helping behavior. Research on loving-kindness meditation (LKM) practices with adults also shows relevant changes in emotional processing, empathy, psychological wellbeing, and immune function in adults (Hofmann, Grossman, & Hinton, 2011). In one randomized control trial, LKM was found to increase feelings of implicit and explicit social connection towards novel other people (Hutcherson, Seppala, & Gross, 2008).

MINDFULNESS TRAINING SPECIFICALLY FOR PARENTS AND TEACHERS

Based on this work, MT programs for both parents and teachers have been developed. We believe it is critically important to offer MT to caregivers to provide them with a set of tools for personal stress-management that ultimately will improve their ability to be calm, clear, and kind in their caregiving or teaching activities. In addition, the
embodiment of virtue on the part of adults provides a powerful, implicit means of socializing these same qualities in young people.

**Research with Parents.** Duncan, Coatsworth, and Greenberg (2009) proposed that MT impacts basic dimensions of parenting such as attentive listening, emotional awareness, self-regulation, non-judgmental acceptance of self and the child, and compassion for self and child. At this time, only a few studies of mindful parenting have been conducted.

One randomized control trial (RCT) examined the effects of randomization to a parenting program that included MT on parenting outcomes in 64 families in which one of the parents was on methadone maintenance. The 10–12 week program included one 60–120 minute in-home session per week. Results showed that parents receiving the MT-infused program showed significantly reduced parental stress, rigid parenting attitudes, and child behavior problems compared to others receiving a brief intervention or treatment-as-usual (TAU); as well as significantly reduced child abuse potential compared to those in TAU (Dawe & Harnett, 2007). Results were maintained at three- and six-month follow-up.

A second RCT on mindfulness and parenting was done by Coatsworth, Duncan, Greenberg, and Nix (2010). In a sample of 65 families with an early adolescent, researchers examined the effects of randomization to either a parent intervention (Strengthening Families Program) infused with mindfulness practices, the parent-intervention as usual, or a waitlist control condition. The MT-infused program taught both parents and their adolescents (children ages 11–14) very brief exercises using mindfulness. Results showed that while both intervention programs improved child management practices, the mindfulness-infused parenting intervention saw significant improvements in the use of mindful parenting strategies, use of effective management practices, and in the affective relationship between parent and child. Mindful parenting mediated the relationship between MT and improved affective relationship quality.

In a third RCT, Benn, Akiva, Arel, and Roeser (2012) found that parents of special needs children randomized to a five-week MT reported greater increases in empathic concern and tendency to forgive than parents in the waitlist control condition. In a series of small-scale clinical case studies of parents of special needs children, Singh and colleagues (2006, 2007, 2010) found that MT for parents of special needs children was associated with improvements in parents’ satisfaction with their parenting skills and interactions with their children, increases in their children’s social skills and a reduction in child non-compliance (refusal by child to comply with instructions or requests made by the mother within the time parameters set by the mother).

**Research with Teachers.** Similarly, only a handful of studies of MT with teachers have been published to date. In an early pilot RCT, Winzelberg and Luskin (1999) examined the effects of MT on teachers’ job stress. The four-week program included one 45-minute session per week. The meditation technique taught used sound as a focusing device followed by one of the following practices: mantra repetition (silent repetition of a word or phrase), slowing down (the deliberate practice of slowing down one’s actions), and one-pointed attention (the deliberate practice of focusing attention on one thing at a time). Results showed that teachers randomized to MT showed greater reductions in self-reported somatic, emotional, and behavioral manifestations of stress compared to controls.

Franco and colleagues (2010) conducted an RCT for public school teachers that compared a mindfulness intervention to an active control group on the reduction of
psychological distress. Teachers were randomly assigned to either a 10-week mindfulness intervention or a 10-week psychomotor therapy program. Mindfulness practices included body scans, focused attention on the breath in conjunction with a word or sound, group discussion of practice, and presentation of metaphors and exercises to explain mindfulness. The psychomotor intervention involved playing games and doing exercises with large balls, rings, music, etc. Results showed that teachers who were randomized to MT showed significantly greater reductions in self-reported psychological distress (especially somatization) after the program and at four-month follow-up compared to those in the psychomotor group.

In an uncontrolled pilot study, Jennings, Snowberg, Coccia, and Greenberg (2011) examined the effects of a teacher MT designed to reduce stress and burnout. The program took place over four to five weeks and included four day-long sessions. Program activities involved teaching of emotion skills and mindful listening, and mindfulness practices like focused attention on the breath and body scans. The program was assessed in two samples: in-service teachers in a lower SES urban setting, and pre-service student-teachers in a university, suburban setting with results showing increases in self-reported mindfulness among the in-service teachers.

In an RCT, Kemeny and her colleagues (2012) evaluated the effects of a mindfulness intervention on the wellbeing of teachers. Eighty-two female public school teachers took part in an eight-week, 42-hour meditation/emotion regulation training. Program activities included focused attention on the breath meditation, open-monitoring meditation, LKM, training in emotion skills, mindful movement, and didactic instruction on emotions and life purposes. Results showed that teachers randomized to MT reported greater increases in self-reported mindfulness, greater improvements on a behavioral task requiring recognition of emotions, and greater reductions in self-reported rumination and symptoms of depression and anxiety, as well as increases in positive affect compared to waitlist controls.

In an RCT with educators and parents of special needs students, Benn et al. (2012) examined the effects of MT on stress, distress, and teaching and parenting practices. The program included ten two and a half hour sessions over five weeks and two six-hour retreats. MT program activities included body scans, focused attention on the breath meditation, open monitoring meditation, LKM, forgiveness meditation, and didactic instruction regarding emotion, forgiveness, and stress reactivity. Results showed that teachers and parents randomized to MT showed greater increases in self-reported mindfulness, self-compassion, forgiveness of others, and empathic concern for others; and greater declines in stress, negative affect, anxiety, and depression at the end of the program and at follow-up two months later compared to waitlist controls.

In two RCTs of the same MT as in Benn et al. (2012), Roeser and his colleagues (2013) examined effects of randomization to MT on Canadian and American public school teachers’ mindfulness and stress reduction. The eight-week program included 11 sessions for a total of 36 hours of MT. Results showed that teachers randomized to MT showed greater increases in self-reported mindfulness and occupational self-compassion, greater improvements on a behavioral task requiring focused attention and working memory; and greater reductions in occupational stress and burnout at post-program and follow-up compared to waitlist controls. Results also showed that group differences in mindfulness and occupational self-compassion at post-program mediated longer-term reductions in occupational stress, burnout, anxiety, and depression.
Summary. The emerging research on mindfulness-based contemplative practice with adults—particularly those who are parents or teachers, as well as our emerging understanding of the plasticity of the brain across development (e.g., Decety & Howard, 2013; Giedd, 2008; Zelazo & Lyons, 2012), provide scientific warrants for a careful exploration of MT with school-aged children and adolescents (MLERN, 2012).

MINDFULNESS TRAINING WITH CHILDREN AND ADOLESCENTS

Similar to work with parents and teachers, research on MT for children and adolescents in clinical and community settings is only beginning. Early efforts have focused primarily on adapting practices for use with children and adolescents, and on examining the self-regulatory and stress reduction effects of such practices. There exist almost no studies to date examining the prosocial outcomes of MT (Greenberg & Harris, 2012; Zelazo & Lyons, 2012).

Two randomized control trial studies have examined the effects of a developmentally appropriate MT (Kaiser-Greenland, 2010) for pre-school and elementary school children on executive function and self-regulation, respectively. The program included focused attention on the breath as well as games and activities promoting awareness and attention regulation. In pre-school aged children, randomization to a five-week long version of the MT was associated with improvements in sustained attention and perspective-taking compared to controls (Johnson, Forston, Gunnar, & Zelazo, 2011). For children with poor executive function in grades 2–3, Flook and colleagues (2010) found that an eight-week MT program was associated with increases in parent- and teacher-ratings of students’ ability to direct, sustain, and monitor attention at post-test compared to controls.

Napoli, Krech, and Holley (2005) examined the effects of randomization to a 24-week MT program on attention and anxiety levels in first to third grade students. The primary activities included focused attention on the breath and the body, in which attention is gradually guided through each part of the body to increase somatic/emotional awareness; and a mindful movement activity to bring together focused attention and motor behavior. Results indicated that students receiving the MT demonstrated decreases in teacher-rated attentional problems, decreases in self-reported test anxiety, and increases in a behavioral measure of selective visual attention, compared to those in the control condition.

Mendelson et al. (2010) examined the effects of randomization to a 12-week mindful yoga program on involuntary stress responses, mental health, and social adjustment for inner-city elementary school students in grades 4–5. Children were taught yoga-inspired postures and movement series that were selected to enhance muscle tone and flexibility, as well as the health benefits of the poses. At the end of each class the instructors guided children through a mindfulness practice, which involved attending to a specific focus for several minutes, such as paying attention to each breath or sending kind thoughts to others. Results showed that children in the mindful yoga program self-reported greater decreases in rumination, intrusive thoughts, and involuntary emotional arousal to stressful events compared to controls.

In a quasi-experimental study with elementary school students in grades 4–7 of what would become the MindUp program (Hawn Foundation, 2011), Schonert-Reichl and Lawlor (2010) examined the effects of a 10-week MT on students’ social-emotional...
wellbeing and socially-responsible behavior compared to controls. The central mindfulness practice in this program was a focused attention meditation done three times per day for three minutes throughout the duration of the program. Results showed that teachers rated students who received MT as less aggressive and less oppositional, better able to focus attention, and more likely to act prosocially towards others compared to teacher ratings of students in the control group. In addition, students receiving MT reported greater wellbeing (optimism, positive mood).

A recent school-based randomized-control trial by Raes, Griffith, Gucht, and Williams (2013) with 408 adolescents and emerging adults aged 13–20 in Flanders, Belgium examined the effects of MT on reducing and preventing depression. Results showed that students randomized to MT reported a greater decrease in symptoms of depression post-MT and at a one-year follow-up compared to controls. Similar results in RCTs with clinically-referred adolescents have been obtained in the USA (Biegel, Brown, Shapiro, & Schubert, 2009).

In a non-randomized study with a control group involving 150 high school students in grades 11–12, Broderick and Metz (2009) examined the preliminary efficacy of a five-week MT for adolescents (Broderick and Jennings, 2012) on mental health outcomes. Each session included a short introduction of the topic (e.g., body awareness, understanding and working with feelings, reducing harmful self-judgments), several activities for group participation and discussion to engage students in the lesson, and an opportunity for in-class mindfulness meditation practice. Mindfulness practices included focused attention on the breath and body, open-monitoring meditation, and LKM. Results showed a significant reduction in negative affect and a significant increase in feelings of relaxation and self-acceptance among adolescent girls receiving MT compared to controls.

Finally, two RCTs have been done looking at the stress-reduction effects of mindful yoga with high school students. The secular yoga program included four key elements: physical exercises and postures, breathing exercises, deep relaxation, and meditation. The majority of yoga postures were simple and adaptable for all physical fitness levels. First, Noggle and colleagues (2012) examined the effects of randomization to a 10-week yoga versus physical education class as usual on 11th and 12th grade high school students’ self-reported self-regulation and wellbeing. Results showed that students randomized to yoga showed greater reductions in negative affect and anxiety. Also investigating the program’s effects on 11th and 12th grade students, Khalsa and colleagues (2012) found that randomization to an 11-week mindful yoga program versus physical education was associated with students’ self-reported increases in anger regulation and the ability to bounce back from stressful events, as well as decreases in fatigue.

In sum, preliminary evidence regarding how developmentally-appropriate MT can stabilize attention, calm the mind, and reduce negative affect among children and adolescents exists; and there is some preliminary evidence that MT might improve students’ social adjustment as well. Overall, there exists a need to increase the rigor of research in future studies of MT in education (randomization, active control groups, blinded studies, non-self-report measures), and to examine the effects of MT and yoga not just on self-regulation and stress reduction, but also on self-awareness and empathy, kindness, and altruism (see Table 13.1). Summarizing this emerging body of research, Greenberg and Harris (2012) concluded “meditation and yoga may be associated with beneficial outcomes for children and youth, but the generally limited quality of research tempers the allowable conclusions” (p. 161).
NEUROCOGNITIVE MODELS OF THE EFFECTS OF SPECIFIC CONTEMPLATIVE PRACTICES

The question of how particular mindfulness practices shape these basic processes of attention, sensation-perception, empathy, and compassion at the levels of mental skills and underlying neural substrates is also an intense focus of research currently. Vago and Silbersweig (2012) developed a series of process models of the four main contemplative practices used in MT programs for children, adolescents, and adults today. These practices include three types of formal meditation (focused attention, open monitoring, ethical enhancements) and mindful movement practices (mindful yoga). Models are presented in Figure 13.5.

Focused Attention Meditation (FA). A foundational form of mindfulness practice called focused attention meditation aims to cultivate vivid forms of attention on an object (e.g., the breath, external sound, an image) for sustained periods of time, as well as meta-awareness with regard to whether one’s attention is focused on the object of attention or not (see Lutz, Dunne, & Davidson, 2007). FA meditation “exercises” top-down attential control in the forms of response inhibition, set shifting, sustained attention, and monitoring (Zelazo & Carlson, 2012); and results in the calming of the mind and body (Wallace, 2007). The ability to stay calm and clear in stressful or distressing situations is clearly central to ethical development as discussed earlier (see Figure 13.4). Such practices, through use of props to help direct attention to the body, feelings, and the breath, are used even with young children (Kaiser-Greenland, 2010). A process model of this practice and its putative training effects is presented in Figure 13.5a.

Open-Monitoring Meditation (OM). A second form of practice called receptive or open-monitoring (OM) meditation is characterized by the absence of a focus on a particular object. Instead, attention is directed towards any sensations, feelings, images, and thoughts that arise while maintaining awareness of the phenomenal field of awareness as a non-attached observer (see Lutz et al., 2007). Novices begin by actively monitoring and labeling sensations, feelings, images, and thoughts. Verbal labeling increases awareness of these sensory-affect states and forms of thinking. Although distraction and discursive thinking may arise often in novices practicing OM meditation, the practitioner is encouraged to continually rest in awareness of moment to moment experience and avoid any cognitive forms of appraisals/judgments. Distraction and mind-wandering are also typically associated with the arousal of negative affect. Thus, the practice affords both attentional and emotion training through de-centering and self-compassion. De-centering is the ability to create psychological distance between one’s perception and response. De-centering with respect to the activated phenomena in the stream of consciousness from moment to moment is described as a critical self-regulatory capacity that emerges from OM meditation (Vago & Silbersweig, 2012).

Eventually, through training, the active noting of mental contents moment to moment (e.g., thinking, feelings, visualizing, perceiving) can cease, and the process of mental noting becomes effortless. At the point in which mental noting becomes effortless, non-conscious, embodied forms of conditioning have increased the efficiency of substrates within the attentional system, resulting in decreased allotment of attentional resources towards any particular feeling, image, or thought. Perception is clarified, emotional reactivity is reduced, and attention efficiency is increased. The ethical implications of such outcomes seem self-evident. Figure 13.5b illustrates a process model for
open-monitoring practice. Given the metacognitive demands of this kind of practice, it is usually introduced in adolescence and beyond (e.g., Broderick, 2013).

**Ethical Enhancement Practices (EE).** A third kind of practice being explored in secular settings is what we call Ethical Enhancement Practices (EE; see Figure 13.5c). Such practices involve explicit instructions for visualization (imagining others), emotion cultivation (love, forgiveness), and extension of that feeling to the imagined others (Varela, 1999). The cultivation of loving-kindness (Pali; metta) is an example of an EE practice, and is based on the idea that all beings wish to be happy (Ricard 2003; Salzberg & Bush, 1999). This practice is characterized by progressively cultivating loving-kindness towards oneself, a good friend, a neutral person, a difficult person, all four of the above equally, and then gradually the entire universe. For a “neutral” person, the practitioner is encouraged to choose someone they may come into contact with every day, but who does not give rise to strong emotions. For a “difficult” person, the practitioner is encouraged to choose someone strongly disliked. Furthermore, the practitioner is encouraged to break down the barriers between self and others by practicing loving-kindness repeatedly, achieving mental detachment and impartiality towards the four persons, including him/herself, the close friend, the neutral person, and the hostile person. EE practices are unique from the others in that they recruit positive forms of reappraisal (Garland, Gaylord, and Park, 2009), in which there is secondary appraisal of stressor stimuli (e.g., difficult person) that allows for reframing with positive emotion. Most other mindfulness-based practices do not reframe any experience as positive, but rather label valence with a neutral attitude—as a form of acceptance and non-judgment. A process model of EE practices is presented in Figure 13.5c. Loving-kindness meditation has the effect of engaging the social cognitive network, a network of brain areas responsible for perspective taking, theory of mind (ToM), and empathic concern. Such practices can be modified for even young children (e.g., Kaiser-Greenland, 2010).

**Mindful Movement (MM).** Finally, and perhaps most importantly for considering the needs of children and youth, contemplative practices involving mindful movement (e.g., yoga, tai-chi) are very popular. Mindful movement practices train attention through a focus on the whole body and increase awareness of bodily states and sensations. In this way, a “gross object” that is concrete and tangible (the body) becomes the focus of attention, and training in how to “transfer” mindfulness to action in the world is fostered. In adults, mindful movement practices show some of the strongest effects on outcome variables compared to the formal sitting practices (Carmody and Baer, 2008). A process model of EE practices is presented in Figure 5d. The critical mechanisms by which movement practices exert their putative effects include parasympathetic activation (e.g., de-activating the stress response), aerobic fitness, musculoskeletal strength and flexibility, and embodiment of a calm, clear, and focused mind. These practices are adaptable for any age.

**CONCLUSIONS**

We began this chapter by introducing Contemplative Education as a newly emerging approach to holistic and ethical education, anchored in insights from deep in the history of both Western and Eastern culture. Perhaps the two guiding pillars of Contemplative Education are those of our shared humanity—that we all aspire for happiness and freedom from suffering; and interdependence—that no person is an island, each a part of the main called humanity. Through a supportive community, mentorship, and practices that train attention and emotion, we suggested that Contemplative Education aims at the
Figure 13.5a/b/c/d Four Theoretical Models of the Neural-Psychological Processes Recruited During Contemplative Practices.
cultivation of calm bodies, attentive minds, and empathic and caring hearts (see Table 13.1). We also discussed how secularized mindfulness training is a core practice in Contemplative Education. MT represents one way of training attention, emotion, sensation and perception, and empathy in ways that support the ethical development of children, adolescents, and adults.

We then described the Contemplative Science Project, and noted its aims are to describe and understand efforts at mindfulness training in families, schools, and community settings with children, adolescents, and the adults who raise them. We suggested that the CSP is pursuing questions about the ethical development of children and adolescents that are similar to several new directions in moral psychology, moral education, and character development today (e.g., Narvaez, 2013). These include a focus on: (a) the differential roles of conscious cognitive and non-conscious emotional processes in ethical action, and educational approaches to cultivating each; (b) the development of ethical dispositions and character as forms of expertise; (c) the neurobiology underlying ethical development; and (d) the central roles that sensation-perception, attention, and the emotions play in ethical perception and action.

We then proposed how MT might contribute to the ethical development of children and adolescents by (a) helping them to develop skills and dispositions associated with abstentions from destructive motivations and actions (i.e., those marked by selfishness that fails to account for the rights and welfare of others), and the cultivation of virtuous motivations and actions (e.g., those marked either by “wise selfishness” in which self-pursuits are balanced with needs of others, or those marked by “compassion/altruism” in which one dedicates one’s efforts to selflessly serving others (Dalai Lama, 2012). By cultivating self-control and emotional regulation, focused attention, clearer perception, and greater empathy, we suggested that MT affects the fundamental processes underlying ethical development. We then reviewed the nascent research base on the effects of MT on adult caregivers as well as children and youth. We noted that although this work is just beginning, there are some promising indications of the efficacy of MT programs.

Although we see this as an exciting new area of study and practice in ethical development, clearly more research and practical innovation is needed before definitive insights into the feasibility, efficacy, and effectiveness of MT in education can be ascertained. In addition, future work needs to focus on the kinds of outcomes of interest to those in this handbook: How might MT shape the ethical development of individuals? In closing, we want to reiterate that we believe the greatest gift MT may offer in the fields of moral and character education is a way of teaching skills and dispositions with which, through their application in their own lives, young people can discover the intrinsic value of virtue for themselves through their own embodied experience. Such a process of ethical self-discovery through the use of MT does not require belief or faith in any religion. As the 14th Dalai Lama (1999) put it:

Our own heart, our own mind is the temple. The doctrine is compassion. Love for others and respect for their rights and dignity, no matter who or what they are: ultimately these are all we need. So long as we practice these in our daily lives, then no matter if we are learned or unlearned, whether we believe in Buddha or God, or follow some other religion or none at all, as long as we have compassion for others and conduct ourselves with restraint out of a sense of responsibility, there is no doubt we will be happy.
NOTE

1. It turns out that until adolescence, children tend to see victimizers as “happy” and do not see that it is often unhappiness and suffering that leads individuals to act in unethical ways (see Nucci, 2001). This suggests that scaffolding this kind of awareness through noting and labeling is a key aspect of disrupting hostile attributions to others who act out in antisocial ways. Training students to have compassion for bullies is implicated here.

REFERENCES


