

Mindfulness and Compassion in Human Development: Introduction to the Special Section

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Research on contemplative practices (e.g., mindfulness or compassion training) is growing rapidly in the clinical, health and neuro-sciences, but almost none of this research takes an explicitly developmental life span perspective. At present, we know rather little about the naturalistic development of mindfulness or compassion in children and adolescents, or the processes by which parents can socialize these positive qualities in their offspring. Thus, the goal of this special section is to showcase empirical research articles that redress this absence of a developmental focus in contemplative science by focusing on issues of construct conceptualization and measurement, socialization practices in families, and the role that interventions can play in fostering mindfulness and compassion in children, adolescents, and care-givers alike.

Keywords: mindfulness, compassion, developmental contemplative science, parents, interventions

The capacity to be attentive to, and compassionate toward, the fullness of life, including our inner mental life, other people, and the designed and natural worlds, is arguably the *sine qua non* of human existence. And yet, scientifically, we are only beginning to understand how mindful awareness and compassion toward the inner, other, and outer spheres of experience develop across the life span, or how such positive human qualities are nurtured in homes, schools, and community settings (e.g., Goleman, 2013).

Nonetheless, there is a growing body of evidence that shows that training in contemplative practices (e.g., mindfulness or compassion meditation practices) can facilitate the development of mindful awareness and compassion in adults (e.g., Carmody & Baer, 2008; Grossman et al., 2004; Hofmann, Grossman, & Hinton, 2011; Jazaieri et al., 2013). Furthermore, research is beginning to document the neurophysiological and psychological processes, such as attention and emotion regulation, that are affected by mindfulness and compassion training, and that appear to mediate training-related outcomes like stress reduction, well-being, and improved health (Chambers, Gullone, & Allen, 2009; Holzel et al., 2011; Lutz, Dunne, & Davidson, 2007; Teper, Segal, & Inzlicht, 2013; Vago, 2014; Vago & Silbersweig, 2012).

At the same time, research on contemplative practices with children and adolescents is only just beginning (e.g., Greenberg & Harris, 2012; Mind and Life Education Research Network [MLERN], 2012; Zelazo & Lyons, 2012), and almost no studies within the emerging domain of contemplative science explicitly

adopt a *developmental life span perspective* (Roeser & Zelazo, 2012). Thus, the goal of this special section is to showcase empirical research articles that redress this absence of a developmental focus in contemplative science by focusing on key developmental questions such as:

1. How are mindfulness and compassion defined at the intra- and interpersonal levels of analysis? At the level of the individual, what are the constituent processes and normative developmental trajectories of mindfulness and compassion across different times in the life span? At the level of transactions between individuals, are there discernible forms of parenting and teaching in which these constituent processes cohere and manifest?
2. How can we validly and reliably measure these constructs, using different methods, across time and levels of analysis (e.g., brain, mind, behavior, and social relationships) in children, adolescents, and adults in experimental and naturalistic cultural settings?
3. Can intentional forms of mindfulness and compassion training facilitate the development of these positive qualities in key socialization agents (parents, teachers, and youth leaders) in ways that directly benefit their own health and well-being, and also in ways that provide indirect benefits to the children and adolescents in their care?
4. Can mindfulness and compassion training be modified in developmentally appropriate and effective ways for children and adolescents?

With these key developmental questions regarding mindfulness and compassion in mind, we solicited articles for this special section.

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Defining and Assessing Mindfulness and Compassion

Authors of each article were asked to give specific conceptualizations and operationalizations of *mindfulness* and *compassion* in their articles. Issues of conceptualization and measurement at different levels of analysis are clearly critical to the development of this field of study, and consensual, substantive, and functional definitions of *mindfulness* and *compassion* remain elusive in science today (see Goetz, Keltner, & Simon-Thomas, 2010; Williams & Kabat-Zinn, 2013). Nonetheless, there does exist a sense, within the emergent domain of Contemplative Science (see Ekman, Davidson, Ricard, & Wallace, 2005; Roeser, 2013; Roeser et al., 2014; Varela, 1999), that mindfulness and compassion can be conceived of as intrinsic, though limited, capacities of human beings that can be “extended” through intentional training and education toward certain end-states (see Figure 1).

Mindfulness

With regard to mindfulness, many current scientific studies and intervention programs draw upon a substantive definition of mindfulness that was offered two decades ago by Kabat-Zinn (1994) as “paying attention, on purpose, in the present moment, nonjudgmentally” (p. 2). In clinical science, this definition was operationalized by Bishop et al. (2004) as consisting of two individual-level facets: (a) the self-regulation of attention, “so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment” (p. 232), and (b) an orientation toward experience in the present moment “that is characterized by curiosity, openness, and acceptance” (p. 232).

The development or *extension* of the intrinsic capacity for mindfulness—through socialization and intentional practice—is hypothesized to result in a relatively enduring disposition called

“trait mindfulness” (Brown & Ryan, 2003). In contrast to normal, everyday phenomenal awareness, which is usually marked by mindless habit and automaticity (e.g., Bargh & Chartrand, 1999; Langer, 1989); the repeated practice of being mindful extends this everyday state into the “Zone of Potential Awareness” that surrounds it. This “zone” is hypothesized to contain more information regarding somatic, sensory-perceptual, emotional, cognitive, and social experience than one normally attends to or processes (e.g., Davidson & Lutz, 2008). Over time, with sustained practice, challenge, and the support of a mentor, state mindfulness is thought to develop into trait mindfulness. Several of the articles of the special issue expand upon Kabat-Zinn’s (1994) pragmatic definition and begin to address the development and extension of this most human of qualities.

For instance, in their intervention work with young children, Flook and her colleagues (Flook, Goldberg, Pinger, & Davidson, 2015) define mindfulness as a *set of practices* that cultivate the regulation of attention and executive function (e.g., working memory, response inhibition, and mental flexibility). They posit that mindfulness meditation practices, by asking individuals to bring awareness to particular attentional objects, whether these be the breath, thoughts or emotions, or various external stimuli, engages self-regulatory, neural circuits in the prefrontal cortex in a sustained way. Over time, with increasing challenge and engagement, such practices are hypothesized to lead to improvements in awareness, attention, and emotion regulation (see MLERN, 2012; Teper et al., 2013; Zelazo & Lyons, 2012). Thus, these authors rely upon third person objective, behavioral measures of executive function to assess the impact of mindfulness training in young children.

Similarly, in their intervention study with upper elementary schoolchildren, Schonert-Reichl et al. (2015) define mindfulness as a *set of skills* that enable children to focus attention on thoughts,

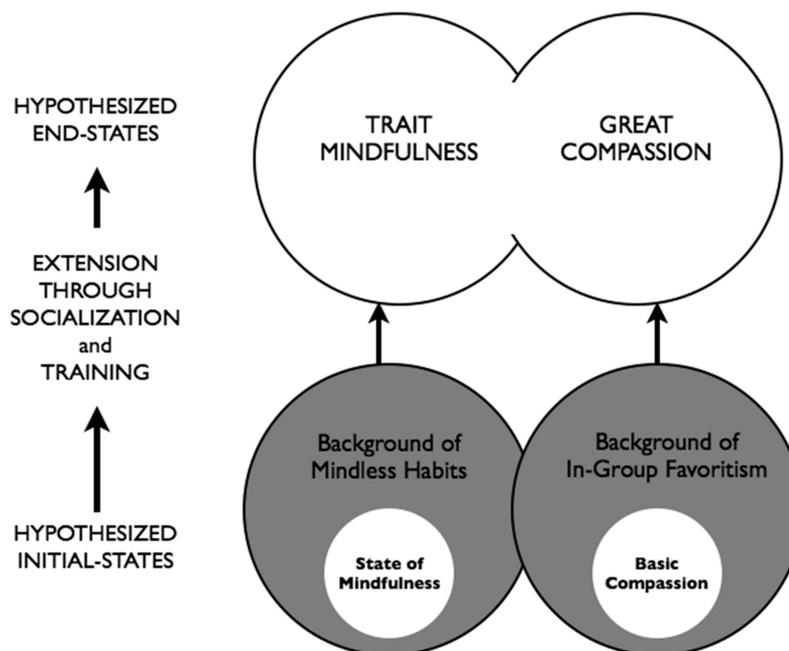


Figure 1. Hypothesized developmental trajectories of mindfulness and compassion.

feelings, or sensation-perceptions that arise moment to moment, and to do so in a cognitively nonlaborative, and emotionally nonreactive, way. To operationalize this construct, these authors also use third person, objective measures of executive function to assess children's developing abilities to attend, inhibit dominant responses, and remember what one is doing. In addition, [Schonert-Reichl et al. \(2015\)](#) assess mindfulness in a first person, phenomenological sense through children's self-report measures of how mindful they believe they are. This survey measure is an adaptation of a questionnaire of the absence of mindful awareness originally developed for adults (Mindful Attention and Awareness Scale [MAAS]; [Brown & Ryan, 2003](#)). Finally, the authors use a second person method to assess the self-regulatory skills of the children in their study—they collect peer nominations in the classroom of children who appear to their peers to manifest these qualities in salient ways. This inclusion of so-called first person, second person (peer), and third person (behavioral) measures within a single study is noteworthy, and represents an innovative measurement approach that can inform future studies in this area.

The intervention study with parents by [Coatsworth and colleagues \(2015\)](#) also takes [Kabat-Zinn's](#) notion of mindfulness, defined as a particular kind of conscious, intentional, present-centered awareness, as a point of departure. For these authors, however, the focus is on translating this individual-level, state-like conceptualization of mindfulness into a *set of parenting behaviors* and corresponding *intervention activities/practices* that either reflect, or cultivate "mindful parenting," respectively. Specifically, they draw upon [Duncan, Coatsworth, and Greenberg's \(2009\)](#) conceptualization of five dimensions of mindful parenting, including: (a) *listening with full attention*, (b) *nonjudgmental acceptance of self and child*, (c) *emotional awareness of self and child*, (d) *self-regulation in the parenting relationship*, and (e) *compassion for self and child*. In this case, mindfulness is defined in terms of potentially observable, relational behaviors and practices that reflect/cultivate the state of mindfulness in words and deeds.

In summary, the articles of the special section define mindfulness in first person phenomenological, second person key-informant, and third person behavioral ways. Understanding the development of the phenomenology of mindful awareness (e.g., [Zelazo, 2004](#)), as well as its heterotypic manifestations and measurement across the life span behaviorally and relationally in the context of activities like friendships, parenting, and teaching, are important methodological approaches that might be pursued in future work in this area.

Compassion

Consensual definitions of compassion also remain elusive in science at this time. Whether compassion is a collection of skills, an emotion, an educated disposition, a synonym for love, or a self-centered motivation in disguise remains the subject of debate in science today (see [Keltner, 2009](#)). A simple and straightforward way that compassion has been defined substantively is in terms of the capacity to feel, and wish to relieve, the suffering of others ([Miller, 2006](#)). Along similar lines, [Jinpa \(2010\)](#) conceptualized compassion as having four distinctive aspects, including (a) a *cognitive* aspect (an awareness of suffering), (b) an *emotional* aspect (an empathic concern in which one is moved by perceived suffering), (c) an *intentional* aspect (a wish to see that suffering

alleviated), and (d) a *behavioral* aspect (a readiness to help to relieve suffering).

Drawing on an evolutionary perspective, [Goetz et al. \(2010\)](#) define compassion as "the feeling that arises in witnessing another's suffering that motivates a subsequent desire to help" (p. 352); and as a "distinctive and complex affective state associated with specific situational appraisals, nonverbal displays, subjective experience and autonomic physiology" (p. 352). According to this view, compassion evolved to serve three evolutionary functions, including (a) the enhancement caring for vulnerable offspring, (b) facilitation of selecting a good mating partner given this is a desirable attribute, and (c) the facilitation of cooperation between nonrelated individuals.

In all of these instances, basic compassion is seen as a capacity that is intrinsic to mammals (e.g., [Ekman, 2010](#)), but that nonetheless requires socialization and education to fully flower and fructify. The development of compassion through socialization and intentional practice is hypothesized to result in a relatively enduring disposition in which the normal, everyday manifestation of basic compassion, which is focused narrowly on the concerns of oneself, one's kin, and one's in-group members (see [Ekman, 2009](#); [Goetz et al., 2010](#)); is gradually extended into what might be called a "Zone of Potential Compassion." This hypothesized "zone" refers to the possibility of a human being attaining a wider scope of perception, empathic concern, intention, and action aimed at the alleviation of the suffering of "all beings"—including those beyond appraisals of "me and mine" ([Dalai Lama, 1999](#)). Such extended or "great compassion" is thought to be marked by a clear perception that all beings suffer, a felt empathic concern for this common humanity and shared suffering (regardless of whether others are near to, or far from oneself or whether they are evaluated positively, negatively, or neutrally), and an intention to act for the welfare of all beings who, like oneself, wish not to suffer and wish to be happy (e.g., [Ekman, 2009](#); [Dalai Lama, 1999](#)).

These definitions of compassion indicate a multifaceted, complex construct that both has intrinsic roots in mammalian evolution, and that develops to a greater or lesser extent depending on the nature of experienced child rearing environments. The facets of compassion appear to include perceptual and social-cognitive processes, empathy, and emotion regulation in the face of others' distress, and prosocial motives, intentions and actions. Furthermore, the hypothesized evolutionary functions of compassion direct attention to how this construct manifests in, and is shaped by, relationships generally, and parental caregiving in particular. These basic issues of measurement in the study of compassion are taken up and expanded upon in several articles of the special section ([Eisenberg, VanSchyndel, & Hofer, 2015](#); [Miller, Kahle, Lopez, & Hasting, 2015](#); [Taylor, Eisenberg, & Spinrad, 2015](#)).

[Eisenberg and her colleagues \(2015\)](#) undertake longitudinal assessments of two constructs that are theoretically related to compassion as described above. These constructs include empathy (defined as the perception of others' feelings) and sympathy (defined as the emotional response of feelings of concern or sorrow for others who are perceived to be in distress or in need of something). Thus, in this article, the focus was on the parenting practices that affect children's perceptions of distress and their aroused motives of concern. These motivations, over time, presumably can become important predictors of actual prosocial behavior ([Eisenberg et al., 2006](#)). To measure these developing facets

of compassion, the authors relied upon children's self-report, questionnaire measures during the childhood and adolescent years; and questionnaire-based ratings of 1–2 of the target child's good friends during the early adulthood years. This strategy of using peer informants is novel in the research on compassion and may be fruitful for future investigations of these same phenomena.

Similarly, Taylor and colleagues also investigated the early developmental precursors of children's "sympathy." Individual differences in children's sympathy were assessed using what can be considered second person reports of children's prosocial dispositions by parents and teachers. These questionnaire measures were statistically reliable, and the moderate levels of correlations across informants on these measures suggest that they provided both convergent and divergent information on the child's levels of sympathy in the different contexts in which parents and teachers see children interact with others. This use of "expert" informants to assess the prosocial dispositions of children provides yet another model for how to assess the rudiments of compassion in future studies.

In the article by Miller et al. (2015), the authors define "compassionate love" as a holistic quality of caregiving encompassing attitudes, cognitions, emotions, and actions related to selfless concern and giving of oneself for the wellbeing of others. Using a self-report questionnaire measure of compassionate love, they examine how maternal care-givers who rate themselves relatively higher or lower on this collection of attributes physiologically respond to stress in the context of challenging caregiving activities. In this way, they combine first person perceptions of compassionate love with its functional consequences for related skills such as emotion regulation in the face of challenge and for parenting behaviors.

In summary, articles in this special section examine aspects of compassion through the use of first person phenomenological, second person close-informant, and third person behavioral measures. Understanding the development of the rudiments of compassion over time, in culturally diverse samples; as well as the heterotypic manifestations and measurement of compassion behaviorally and relationally across the life span, are two important directions for future work that are implicated in, and initiated by these articles. The development of naturalistic observational measures of compassionate behavior for children, adolescents, and adults is an area in particular need of attention.

Socialization and Training of Mindfulness and Compassion in Children and Caregivers

The articles of the special section, in addition to providing insights into the conceptualization and measurement of mindfulness and compassion, also provide initial empirical evidence regarding the socialization practices on the part of parents, and the kinds of enrichment activities (e.g., interventions) for parents and children, that support the development of mindful awareness and the rudiments of compassion. For instance, the articles provide evidence for the notion that authoritative parenting, parents' identification of self as a loving and compassionate presence in their children's lives, and parents' ability to regulate stress in healthy ways can all contribute to the development of mindfulness and prosocial dispositions in children and adolescents. In addition, these articles provide initial evidence for the benefits of direct

contemplative interventions for parents and elementary school-age children, as well as for the indirect benefits for adolescents that may accrue from mindfulness trainings offered to their parents.

The first two articles of the special section examine longitudinal relations of child factors and parent socialization practices in predicting children's prosocial development (e.g., Eisenberg, Fabes, & Spinrad, 2006). In the first article, Eisenberg et al. (2015) investigated the longitudinal associations between mothers' socialization practices in childhood and adolescence and their offspring's sympathy in adolescence and early adulthood. They found that mother self-ratings (derived from q-sorts) of parenting practices during childhood and adolescence—specifically rational discipline (including inductions) and expressed positive affect, were positively associated with friends' subsequent ratings of target children's prosocial dispositions (e.g., sympathy and caring for others) during early adulthood. In contrast, the amount of negative affect mothers reported expressing, especially during adolescence, was negatively associated with their offspring's subsequent self- and friend-rated sympathy and caring. These correlational results, assessed over the course of 30 years, suggest that possibility that discipline practices that incorporate verbalizations of reasons for behaving in personally and socially responsible ways, as well as the expression of positive affect for the child, both cultivate the basic seeds of prosociality in the child. The longitudinal nature of this study is a major strength, and the authors note that future longitudinal studies that include a broader array of maternal and paternal parenting behaviors, and that assess bidirectional relations of parenting and children's emerging rudiments of compassion across time and in diverse cultural contexts would move the field ahead considerably.

In the second article, Taylor et al. (2015) examined how physiological factors associated with temperament, self-regulatory processes, and authoritative parenting practices as observed during a lab task (e.g., warmth, sensitivity, and autonomy support), were associated with the development of sympathy in young children. They found that authoritative parenting predicted subsequent sympathy, and this effect was mediated through the development of children's self-regulation. They also found that measure of children's temperament was a marginally significant predictor of their subsequent sympathy, and this was in part mediated by their self-regulatory abilities as well. These results implicate the key role of emotion regulation in the development of sympathy and compassion (Eisenberg et al., 2006; Goetz et al., 2010). As the authors note, future studies are needed to further investigate the bidirectional relationships between children's temperament, developing self-regulatory capacities, and parenting practices in the shaping of trajectories of prosocial development. Furthermore, including measures of parents' own mindfulness and compassion in such studies maybe be helpful to understanding the implicit role of adult modeling, in addition to the explicit role of authoritative parenting practices, in contributing to the socialization of children's prosocial development. Using observational measures of parenting like those used in this study in future intervention studies could also contribute to our understanding of behavioral effects of mindfulness and compassion interventions.

In the third article of the special section, the only one that focused on a parent *intervention*, Coatsworth and colleagues (2015) investigated the value-added effects of mindful parenting activities with regard to the Strengthening Families Program—a

previously empirically validated intervention for parents of adolescents. Using a randomized-controlled comparative effectiveness study design, they tested the efficacy of a Mindfulness-Enhanced Strengthening Families Program (MSFP), compared with standard program and a minimal-treatment home study control condition. Results suggested that the MSFP program was associated with increases in parents' own well being, their interpersonal mindfulness when parenting, the quality of their relationships with their adolescents, and their adolescents' own behavior management. These effects were found for both parent and youth self-report data, as well as at postprogram and 1-year follow-up. In addition, there were some indications in this study that the mindful parenting activities helped improve the effects of the Strengthening Families Program for fathers. The authors note the need to better understand the processes of change leading to these outcomes. In addition, the authors suggest the need for observational measures, not just questionnaire measures, of mindful parenting in future studies.

The findings of this intervention study cohered nicely with the cross-sectional findings of the fourth article of the special section by Miller et al. (2015). These authors examined the relations between mothers' self-reported identification of themselves as loving and compassionate care-givers, physiological variables related to stress regulation, and parenting behavior. The authors found that mothers' self-identification as a compassionate and loving caregiver appeared to help them to establish positive socialization contexts for their children and to avoid stress-induced, adverse parenting. This effect was particularly strong for those parents who experienced strong physiological arousal during difficult parenting situations with their child. The authors note that their findings are consistent with studies of mindful parenting that predict more affection and less negativity in parent-child relationships as parents adopt a compassionate stance toward their children (Coatsworth, Duncan, Greenberg, & Nix, 2010; Duncan, Coatsworth, & Greenberg, 2009). This raises a key point in all of this work—that mindfulness and compassion are likely part of a single phenomena, rather like two wings of the same bird than distinct constructs (see Cullen, 2011). This conjecture requires future study (e.g., Roeser et al., 2014).

The last two articles of the special section offer evidence for the direct benefits of providing mindfulness interventions in school settings for children (Flook et al., 2015; Schonert-Reichl et al., 2015). In both studies, the results suggest that developmentally appropriate mindfulness interventions exist for children, and that these interventions show significant promise with respect to cultivating self-regulatory skills associated with mindfulness, and prosocial dispositions associated with compassion, in children during early and middle childhood. More rigorous research on these kinds of interventions are needed, as are process studies that illuminate the pedagogical factors within these interventions that foster the learning and transfer of mindfulness- and compassion-related skills and dispositions in children from the training environment to life beyond in classrooms, homes, playgrounds, and so on. Understanding the processes within the "black box" of these interventions may tell us more about the components of "mindful and compassionate teaching and caregiving." The need for naturalistic measures of self-regulation and prosocial dispositions to complement more behavioral tasks is also an important future direction in this work.

Summary

Research on mindfulness or compassion training is growing rapidly in the clinical, health and neuro-sciences, but almost none of this research takes an explicitly developmental life span perspective. The goal of this special section was to begin to showcase empirical research articles that redressed this absence of a developmental focus in studies of mindfulness and compassion by focusing on issues of construct conceptualization and measurement, socialization practices in families, and the role that interventions can play in fostering mindfulness and compassion across development. Although this research is clearly in its nascent stages, we believe greater research focus on these positive human qualities, and on the socialization practices and interventions that support their flowering, can enrich the scope of developmental science and provide practical knowledge that is needed in the world today.

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