Chapter 11
A Socio-affective, Developmentally Informed Perspective for Contemplative Practices in Adolescence: Towards Resilient Communities

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Abstract In this chapter, we describe socio-emotional developmental psychological abilities such as self-regulation, mentalization, and empathy in childhood and adolescence and examine how contemplative practice may foster and enhance such capacities, contributing to building personal and social resilience. Development is understood as the result of biological (genetic) and environmental (cultural, social, interpersonal factors) interactions. The main notion at stake is the plasticity of people's socio-emotional capacities throughout developmental stages, from childhood to adolescence. In other words, from a dynamic systems approach, development is a state of flux led by multicausal interactions between the physical, environmental, and psychosocial domains. Such a complex process results in the emergence of variability regarding psychological and biological skills (e.g. self-regulation); within this context, other mental facets including the sense of self and personality develop as well (Smith and Thelen in Trends Cogn Sci 7(8):343–348, 2003). We describe the adolescent mind along with the psychological challenges and neurological developmental specificities of young people, speculating that contemplative practices, among other interventions, may lay the groundwork for self and social resilience by targeting specific psychological needs in connection with socio-emotional development. Furthermore, we refer to early parenting, psychotherapy, and educational interventions as social prevention strategies which open up new opportunities for family and children in this particularly sensitive context. Finally, we share some views and suggestions for future research regarding the integration of contemplative practices from an individual to a communal level.

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C. Steinebach and Á. I. Langer (eds.), *Enhancing Resilience in Youth*,
https://doi.org/10.1007/978-3-030-25513-8_11

Keywords Mentalization · Empathy · Genetic-environment interaction · Multicomponent interventions · Contemplative practices

11.1 Introduction

Socio-affective capacities are established early in life and continue to be developed throughout it in a dynamic, progressive, and relational way. They play a crucial role regarding copying and stress regulation. Research on the effect of early stress and trauma has shown its formative impact in the construction of socio-emotional capacities in children and adolescents, shaping dynamic phenotypic characters for vulnerability and resilience. In this chapter, we describe socio-emotional developmental psychological abilities such as self-regulation, mentalization, and empathy in childhood and adolescence and examine how contemplative practice may foster and enhance such capacities, contributing to building personal and social resilience.

Here we understand development as the result of biological (genetic) and environment (cultural, social, interpersonal factors) interactions. The main notion at stake is the plasticity of the socio-emotional capacities throughout developmental stages, from childhood to adolescence. In other words, from a dynamic systems approach, development is a state of flux lead by multicausal interactions between physical, environmental, and psychosocial domains. Such a complex process results in the emergence of variability regarding psychological and biological skills (e.g. self-regulation); within this context, other mental facets including the sense of self and personality develop as well (Smith & Thelen, 2003).

We describe the adolescent mind along with the psychological challenges and neurological developmental specificities of young people, speculating that contemplative practices, among other interventions, may lay the groundwork for self and social resilience by targeting specific psychological needs in connection with socio-emotional development. Furthermore, we refer to early parenting, psychotherapy, and educational interventions as social prevention strategies which open up new venues for family and children in this particularly sensitive context. Finally, we offer some comments and suggestions for future research regarding the integration of contemplative practices from an individual to a communal level.

11.2 Early Socio-affective Development as Terrain for Resilience

Current perspectives in psychology and psychiatry assume that self and social capacities emerge as the result of the dynamic interaction of genetic, environmental, and social factors. Less emphasis is given to conceive fix diagnostic categories instead it attempts to understand how social and biological aspects interact leading to the maturation of crucial socio-emotional capacities that constitute vulnerability and

resilience factors (Pollak, 2015). For example, as in other studies, a longitudinal study conducted by Conway, Raposa, Hammen, and Brennan (2018) showed that social stressors early in life determine transdiagnostic psychopathological vulnerabilities later on.

Models of genetic-environment interaction highlight that early life stressful experiences can indeed alter genetic profiles in critical brain circuits devoted to emotion and cognition, determining a psychological foundation which will later on interact with novel social and life challenges, leading to a range of possible mental health levels (Daskalakis, Bagot, Parker, Vinkers, & de Kloet, 2013).

Another way to understand these socio-emotional resilience/vulnerability factors is through the motivational system model proposed by Paul Gilbert, which includes the threat detection system (linked to feelings such as anger, anxiety), the soothing-affiliative system (linked to feelings such as content and connectedness), and the incentive-reward system (linked to feelings such as desire, gain, and progress). These motivational systems correspond with brain circuits and can be differentially shaped throughout development, posing specific challenges during adolescence. In the case of trauma- or fear-related disorders in childhood, the threat system appears overactivated and capacities for self-soothing and connectedness are low (Gilbert, 2010). When intense threat is perceived and social support and consolation are not available, more primitive strategies for self-preservation are activated (i.e. fight/flight and freeze responses), leading to maladaptive behavior (Nesse, Bhatnagar, & Ellis, 2016; Porges, 2011). This may result in anxiety, dysfunctional cognitions, body dysregulation, and social dysfunctions, among other symptoms.

In the following, we describe three widely studied *socio-affective developmental functions: Self-regulation, mentalization, empathy and altruism*, as they have shown to be crucial in determining vulnerability and resilience factors, thus linking early development (stress) and subsequent good mental health and/or psychopathology.

Self-regulation refers to the ability to inhibit and/or modify cognitions, feelings, behavior, and desires in order to facilitate goal-oriented actions and respond optimally to demanding inner and outer stimuli (Baumeister & Heatherton, 1996; Posner, Rothbart, Sheese, & Tang, 2007; Zelazo & Lyons, 2012). In the context of early attachment relationships, affective experiences are crucial in the development of self-regulatory capacities and adjustment to stress contributing to well-being and resilience throughout life (Schore, 2012). According to Bucci (2007), when arousal is overwhelming for the child and/or the caregiver is dysfunctional, effective mechanisms of self-regulation are not fully developed. The organization of regulatory capacities is deeply affected, manifesting itself later through vulnerability to stress, anxiety, depression, aggression, and impulsivity (Lewis et al., 2008; Pagliaccio, Luby, Luking, Belden, & Barch, 2014).

Mentalization or reflective function refers to the ability to understand human behavior through inference of motivated intentional mental states (e.g. desires, memories, intentions) (Fonagy, Bateman, & Luyten, 2012). It occupies an essential place in developmental psychology and psychopathology, as it depends on the quality of early mother-child relationships, particularly on the development of a secure attachment system where maternal mentalizing abilities are present

(Fonagy, Target, Gergely, & Jurist, 2002). Mentalization is also sensitive to exposure to relational or developmental trauma; mentalization deficits, although not always causal, are associated with a wide range of psychopathologies including autism, schizophrenia, and borderline disorder (in Roffman, Gerber, & Flick, 2012).

Empathy is the ability to share affective states, whereby the person who perceives knows that a given emotion originates from the other (de Vignemont & Singer, 2006). From a felt sense of other people's experience, different responses can emerge in the observer, varying from rejection and stress to taking care of the other. For Rogers (1965), empathy is the emotional and cognitive ability to correctly perceive another person's internal frames of reference—in terms of their meanings and emotional components—as if one were the other or were in their own skin, but without losing the condition "as if", that is, without identifying oneself or losing the I—another differentiation. Siegel (2007) proposes that empathy is built from internal changes, the result of resonance circuits that translate the effect of the perception of other signals in the limbic system and their bodily manifestations. Altruism or prosociality, corresponds to a variety of feelings (such as compassion or sympathy) and behaviors (different helping actions) that actively target and intend to alleviate another person's mental state (like suffering). In simple words, an altruistic response can arise from empathy (feeling like the other) or mentalizing (understanding the other) (Davis, 2015). According to Halifax (2012), compassion and altruistic behavior arise from the interaction of *attentional-cognitive* (e.g. what we know from the other), *somatic-body* (e.g. physiological resonance), and *emotional* (e.g. what feelings we have and how much we care about the other) aspects in the observer. Interestingly, attentional and emotional aspects, as well as prosociality, are modeled throughout development and can be trained by contemplative interventions.

11.3 The Adolescent Mind and Brain

11.3.1 Psychological Context and Particular Needs

What is the psychology of adolescents? What are their particular conflicts, needs, and anxieties? What are their vulnerabilities and strengths? These questions help us reflect on the role of contemplative interventions interacting with complex developmental systems, in ongoing processes, where domains of identity and self-regulation are at play. Adolescence is a period filled with tensions between wanting to belong and finding out one's way; trying to be accepted by others and at the same developing one's own identity and self-worth. From a psychodynamic perspective, it can be said to include conflicts between the active need for care versus self-sufficiency and between independence/autarky and dependence (OPD Task Force, 2008). Moreover, for adolescents, the social world of peers is a crucial source of challenges, including the importance to fit in and the heightened relevance of social evaluation (Somerville, 2013).

Studies have shown that adolescents are prone to take risk in several domains, including health and recreation (Blakemore, 2018a). This aspect is related with what is known as novelty seeking and the creative exploration of relationships (see Table 11.1). A large-scale intercultural study showed that sensation-seeking behaviors increased between 10 and 20 years of age and decreased after the early twenties; in contrast, self-regulation markedly increased from early to late adolescence (Steinberg et al., 2017).

Coming back to Gilbert's evolutionary origins of emotion regulation, adolescence can be characterized by variable forms of threat detection (e.g. perhaps lower threat perception facilitates engagement in high risk behaviors), usually high drive (e.g. novelty seeking), and variable forms of self-soothing (e.g. diverse strategies for self-calming). In the case of early stress, these systems may undergo complex dysregulations. During adolescence, the soothing system may be enhanced through healthy interactions and practical strategies. When emotional experience becomes less threatening and a feeling of safety is present, social engagement is possible (Porges, 2011). According to Steinberg, (2007) and Steinberg et al. (2008), during late adolescence and early adulthood risk perception is refined and resistance to peer influence strengthened; moreover, anticipation of future consequences is improved and sensation seeking and impulsivity are lessened.

Table 11.1 summarizes specific tasks, psychological and brain mechanisms present during adolescence, and potential targets for contemplative practices. We suggest contemplative practices can foster the social engagement system through threat regulation and the cultivation of socio-cognitive abilities, facilitating more adaptive behavior. Thus, the creation and maintenance of supportive relationships with peers, which have been shown to be the best predictors of well-being, longevity, and happiness (Siegel, 2013), can be fostered.

11.3.2 The Adolescent Brain

During adolescence, the brain experiences several changes, one of the most important being the overall reduction in gray matter (neurons and synapses) and increase in white matter (different brain tracts and fibers) (Mills et al., 2016). These changes are the result of a complex maturational processes in brain organization, including a decrease in the number of synapses (synaptic pruning) and an increase in the myelination of neuronal fibers, which mainly occur in the pre-frontal, temporal, and parietal cortex (Petanjek et al., 2011). However, this does not mean the number of neurons is necessarily declining, but that the neuronal connections and tracts are going through a massive optimization of their functional architecture (Blakemore, 2018b).

These brain changes might be the substrate for the multiple psychological and social changes (e.g. increased self-regulation and mentalization) experienced during adolescence. Somerville (2013) points out the particular relevance of the maturation of the socio-affective circuits, highlighting the role of these regions in perceiv-

Table 11.1 Specific adolescence tasks, psychological and brain mechanisms, and potential targets for contemplative practices. Abbreviations: temporo parietal junction (TPJ), superior temporal sulcus (STS)

Drives	Psychological mechanism in adolescence	Referential brain system	Downside	Mindfulness and compassion—potential targets
Novelty seeking	Increased inner drive for rewards. Looking for and trying new experiences. Feeling more engaged and motivated with life	Reward system. Including nucleus accumbens and basal ganglia structures. Mediated by dopaminergic system	Sensation seeking, risk taking, impulsive decision making, "overemphasizing the thrill and downplaying the risk"	Self-regulation: increased capacity for regulation of intense affects. Delay of immediate gratification Self-soothing: capacity for cultivating positive emotions and engaging in healthy self-care strategies
Social connection	Creation and maintenance of supportive relationships with peers	Empathy (e.g. insula, anterior cingulate) and mentalizing (TPJ, Precuneus, STS) systems Vagal system Mediated by: Oxytocin among others	Overcommitment and over reliance of social relationships (loss of autonomy) Other people's necessities at the expense of one's own Lack of engagement and reliance on social relationships (isolation)	Altruistic and compassion dispositions: increasing social engagement and connection without losing personal autonomy Self-compassion: being aware of and fostering what is suitable for one's needs

(continued)

Table 11.1 (continued)

Drives	Psychological mechanism in adolescence	Referential brain system	Downside	Mindfulness and compassion—potential targets
Increased emotional intensity	Enhanced emotionally driven behaviors. Exacerbated emotional reactivity, for positive or negative situations	Emotion generation (amygdala, insula) and regulation (prefrontal and parietal cortex) systems	Intense and unmanageable emotional states. Impulsivity, moodiness, and unhelpful reactivity	Self-emotion regulation skills: affective tolerance, emotional awareness Self-soothing: capacity for cultivating positive emotions and engaging in healthy self-care strategies
Creative exploration, Self-development	Increased engagement in new activities (e.g. physical, intellectual, creative), new experiences (relationships, social groups, spirituality, etc.) and new ideas (e.g. questioning status quo, emergence of innovation)	Fronto-parietal and Default mode network systems	Challenges in the development of identity, vulnerability to peer pressure, and a lack of direction and purpose	Self-regulation skills: self-awareness, decentering/disengagement, self-acceptance Self-compassion in terms of being aware of and fostering what is suitable for one's needs

Adapted from Siegel "Brainstorm" (2013)

ing salient information, giving emotional value to perception (hedonic or aversive), engaging in social cognition (empathy and mentalization), and using this information for guiding learning and behavior. For example, a study inducing social emotions like shame and guilt showed that adolescents, compared to adults, had a higher activation in the dorsomedial part of the prefrontal cortex, a key area for mentalization (Burnett, Bird, Moll, Frith, & Blakemore, 2009).

11.4 Building Personal Resources in Childhood and Adolescence: Cultivating Resilience Through Mindfulness and Compassion

We have mentioned the relevance of early-life adversity and its impact on developmental capacities, altering psychological well-being in children and adolescents. Resilience has been defined as the process of negotiating, managing, and adapting to significant sources of stress or trauma, in which assets and resources within the individual, their life and environment facilitate this capacity for adaptation and 'bouncing back' in the face of adversity (Windle, 2011). Although resilience as a construct has different facets, it points out not only to the absence of pathology, but to the prevention of and recovery from different forms of adversities (Davydov, Stewart, Ritchie, & Chaudieu, 2010). Adolescence is a complex dynamic process in which developmental socio-affective abilities and attachment styles, evolved from early life experiences, are challenged and continuously remodeled. Importantly, in the context of adolescence and development, Rutten et al. (2013) highlight specific factors promoting resilience, mainly secure attachment, positive emotions, and purpose in life.

Contemplative practices such as mindfulness-based interventions (MBIs) and compassion-based interventions (CBIs), are structured programs that integrate mindfulness and compassion meditation practices into secular multicomponent interventions. Importantly, these diverse programs are designed to cultivate different psychological and socio-cognitive mental skills. In adult populations, MBIs have been shown to increase self-regulation, either by increasing attention regulation or emotion regulation capacities; correspondingly, MBIs might also increase activation of brain regions in affect regulation networks (Guendelman, Medeiros, & Rampes, 2017). CBIs have been shown to increase empathy and compassion dispositions (Kirby, Tellegen, & Steindl, 2017). Interestingly, in adults, mindfulness interventions have been shown to increase positive emotions and meaning in life (Goyal et al., 2014).

A large longitudinal study comparing a MBI and a CBI in adults found that both produced a differential effect on specific brain structures, with the MBI targeting regions associated with attention and body awareness and the CBI targeting regions associated with emotion, empathy, and affiliation/altruism (Valk et al., 2017). In sum, contemplative practices have been shown to target resilience factors such as self-regulation, empathy, and compassion; thus, they hold promise in serving to promote

mental health benefits in adolescents. In this regard, as we summarized in Table 11.1, we speculate that MBIs and CBIs could target specific psychological processes during adolescence by developing or training particular socio-emotional skills. For example, the increased drive and proneness to seek novelty and its associated impulsive decision making could be balanced through the enhancement of self-regulation. A randomized controlled study in adolescents showed that a MBI led to decreased levels of impulsivity and aggressive behavior (Franco, Amutio, López-González, Oriol, & Martínez-Taboada, 2016). The increased intensity of emotional experience could be counterbalanced with emotion regulation and self-soothing strategies. Also, the enhanced drive for social connection and sensitivity to peer evaluations could be worked out with the balanced training of altruism (helping others) and self-compassion in terms of being aware of and fostering what is suitable for one's needs. In this line, another intervention study in preschoolers showed that a CBI increased self-regulation and prosociality using behavioral tasks (Flook, Goldberg, Pinger, & Davidson, 2015).

Despite the enthusiasm in the application of MBIs and CBIs in children and adolescents, this research field is only in its infancy. Although the initial output seems promising, there is a lack of studies evaluating neuronal correlates, and very few have used validated behavioral experiments to actually measure cognitive or social performances, precluding further understanding of psychological mechanisms linked to contemplative practices. Most studies are hindered by small sample sizes, a lack of active control groups, and reliance on self-reported questionnaires. New studies will need to overcome these methodological limitations to further demonstrate the effectiveness of contemplative practices in ameliorating mental health and facilitating the transition from personal self-regulation to social functioning.

11.4.1 Contemplative Practices in School Settings

As pointed out in earlier chapters, contemplative practices in school settings show promising results in fostering psychological health (see Andreu and Langer in this volume). We highlight the need to incorporate not only self-centered practices but also the cultivation of prosocial attitudes and compassion. Davidson et al. (2012) propose a model of cultivation of healthy educational contexts through the encouragement of individual changes (i.e. psychological functions and neural substrates), which are expected to result in positive behavioral and social outcomes. We suggest an integrated and horizontal approach in which not only teachers but all staff may share a common vision in order for sustained benefits to flourish. Moreover, by focusing on developmental aspects, educational interventions can be optimized to address specific needs in the prevention and management of relational stress and suffering.

11.4.2 Mindful Parenting

Even though it is beyond the scope of this chapter, we point to early parenting as a critical period where contemplative practices may be as fundamental in enhancing profound and long-term resilience. Bögels, Lehtonen, and Restifo (2010) describe how mindful parenting may foster parent–child interactions through mechanisms such as reducing parental stress, reactivity, and preoccupation, improving parental executive functioning and impulsivity, and increasing self-nourishing attention and co-parenting. Moreover, they suggest that this may help in breaking cycles of intergenerational transmission of trauma and dysfunctional styles. Regarding the role of parents and their engagement in a contemplative educational school context, we believe in the necessity of a shared and common vision on the values and socio-affective capacities to be enhanced in children. Ideally, parents should cultivate mindful and compassionate qualities in their own ongoing processes. This is especially relevant because parental difficulties in being present with their own experience during stressful interactions with their children probably translate the reactivation of their own traumas and vulnerabilities (Medeiros & Guendelman, 2016; Medeiros, 2017).

11.4.3 Psychotherapy

In western countries, the use of contemplative practices should not prevent patients from receiving psychotherapeutic help when they need it. Psychotherapy fosters self-regulation, which can be explicitly enhanced through specific skills learned in sessions (Cognitive Behavioral Therapy or CBT, Dialectical Behavior Therapy or DBT) or implicitly modeled through the therapeutic relation itself. Furthermore, given the interpersonal nature of psychotherapy, mentalizing abilities are key to the tasks to be fulfilled by the therapist (to work with the patient) and the patient (to develop in the treatment) (Fonagy & Bateman, 2006). Strengthening mentalization is considered a common factor and the basis of psychotherapeutic change in several clinical currents (for CBT, see Björgvinsson & Hart, 2006; for DBT, see Lewis, 2006).

In this context, it is necessary to determine how contemplative practices and psychotherapy can inform the work conducted at a social or community level. We believe in a synergy between contemplative approaches and psychotherapeutic interventions. Both offer the potential for integrating the psychological "work" at the individual level, but also offer a perspective for working at a social or communal level. Both can foster positive mental characteristics such as emotion regulation and social closeness while reducing psychopathology, thus contributing to social interactions and community building. In this vein, we suggest future research should also focus on interventions that not only develop attentional and cognitive facets of mindfulness, but that also explicitly cultivate socio-affective skills associated with compassion

(empathy, assertiveness, prosociality, and altruism). Moreover, we suggest that contemplative interventions should target not only school students, but also teachers and the administrative body, thus contributing to a cultural and systemic change within the organization and community. Local idiosyncrasies and specific backgrounds and needs should also be considered when exploring the transition from personal to embedded cultural and community dimensions.

11.5 Conclusion

This chapter explores a dialogue between developmental, clinical, and neuroscientific aspects of the adolescent mind to reflect on the integration of contemplative practices in this population. Contemplative studies can be enriched by considering aspects of early affective dynamics for a more fruitful dialogue between research, prevention, and treatment. We propose that socio-affective capacities, self-regulation, mentalization, and empathy/prosociality act circularily as both *terrain* and target-mechanisms where contemplative practices build personal and social resilience. Given the critical role of early stress and the social environment in the later maturation of resilience systems, it is fundamental to acknowledge how developmental capacities are always plastic and can be modeled through experience. Contemplative practices offer potential benefits in targeting specific psychological challenges and socio-emotional capacities of adolescents, possibly subserving and ensuring resilience at a personal and relational level.

Funding This paper was supported by the Fund for Innovation and Competitiveness (FIC) of the Chilean Ministry of Economy, Development, and Tourism, through the Millennium Science Initiative, Grant No. IS130005.

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