28

Emotional Self-Regulation in the Early Years: The Role of Cognition, Metacognition and Social Interaction

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INTRODUCTION

Self-regulation is a life-long process that underlies effective adaptation in the face of challenges in all aspects of life. Self-regulation is conceptualized as management of one's own cognitive processes, affective states and behavior to accomplish one's desired goals (Efklides, Niemivirta, & Yamauchi, 2002; Timmons, Pelletier, & Corter, 2016). Development of self-regulation begins in infancy but continues to develop during the life span. Early childhood is an important period in the development of self-regulation because it is during this time that young children begin to face challenges in their cognitive, emotional and social competences, and behaviors (Timmons et al., 2016). In these early years, children begin to control impulsive behaviors, learn to communicate and participate with others in play and classroom settings, acquire the ability to understand their own and others' mental states, thinking and emotions, learn to follow rules imposed by others, become able to delay gratification, and develop skills to resolve conflicts and manage their own and others' emotions. Thus, self-regulation of cognition and emotion are essential for children's socioemotional adaptation, learning and well-being (Davis, 2016).

In recent years, there is an increasing interest in emotion regulation and the role of temperament (e.g., Séguin & McDonald, 2016) and attachment (Waters & Thompson, 2016). For example, securely attached children tend to have better emotion understanding, particularly of negative emotions, and more efficient coping and emotion regulation strategies to regulate negative emotions such as anger, sadness, or fear compared to insecurely attached children (see Thompson, 2015). However, these predispositions do not suffice to explain the development of self-regulation of emotion. There are other major changes that take place in the early years that make self-regulation possible. These developments pertain to executive functions and theory of mind (ToM).

Specifically, during early childhood, major changes take place in the brain that allow more deliberate exercise of control. Deliberate exercise of control involves executive functions such as shifting of mental set ('Shifting'), information updating and monitoring ('Updating' or Working Memory) and inhibition of prepotent responses ('Inhibition') (Miyake et al., 2000). Changes in executive functions are discussed later in the chapter. The notion of ToM, on the other hand, encompasses the awareness and representation of one's own and others' thinking and internal states, such as emotions, desires and beliefs. ToM is another major accomplishment between the ages of 3 and 5 years. ToM is at the core of self-regulation and effective communication in a social context. It allows the understanding of mental phenomena and emotions as well as reflection on them. This is a 'meta' function that gains importance in later development and self-regulation, particularly self-regulated learning (Efklides, 2011; Efklides, Schwartz, & Brown, 2018). This suggests that self-regulation of emotions in the early years could also be linked to cognitive and metacognitive processes (Whitebread et al., 2010; Whitebread & Basilio, 2012).

Self-regulation of cognition in the early years is usually studied independently from self-regulation of emotion because the former is related to effortful control and attention whereas the latteris related to modulation and management of the levels of arousal and irritability (Karreman, van Tuijl, van Aken, & Deković, 2006). Emotional self-regulation is often operationalized as the behavioral strategies the child uses, such as self-comforting, help-seeking, or self-distraction, to manage emotions triggered in situations that elicit frustration, anger or fear (Karreman et al., 2006). The claim made here is that self-regulation of emotion makes use of executive functions, cognitive processes such as nonverbal IQ, language, and metacognition – in the form of ToM – and strategies such as gestures that allow exercise of control on own and others' cognitive and affective states. Moreover, because self-regulation of emotions takes place in a social context and is related to intrapersonal goal conflicts or conflicts between one's own goals and those of others (Campos, Walle, Dahl, & Main, 2011), children's self-regulation of emotion cannot be considered without reference to the child's interactions with parents, teachers or peers.

In early childhood the role of parents, teachers or peers is highly important for both learning and emotion regulation. For example, caregivers set, share, or have conflicting, goals with those of the child. This creates emotions in both the caregiver and the child and oftentimes requires regulation of emotion by both. Depending on the caregiver's response or self-regulation of emotions, the child is either supported or not in understanding their own emotion and those of the other. This has implications for the child's early attempts at self-regulation of emotion. To put it more broadly, self-regulation of emotion is not a purely intrapersonal process but a relational one (Campos et al., 2011), and involves other- and co-regulation processes and not only child-related factors.

In what follows, we shall, firstly, give a conceptualization of emotion processes such as emotion generation (experience and expression), emotion recognition, emotion knowledge, and emotion regulation in early childhood. Emotion understanding, which is a manifestation of affective ToM, and its relations with other components of emotion processes will also be discussed. Secondly, we will present the development of emotion regulation and the role within it of cognition (e.g., language), and ToM – as an exemplar of early metacognitive processes (Misailidi, 2010; Whitebread et al., 2010). Thirdly, we will elaborate on the role of parents, teachers, and peers in the development of young children's self-regulation of emotion. It should be noted, however, that the scope of this literature review is mainly normal development and self-regulation of emotion rather than poor self-regulatory skills and their implications for behavioral or other emotional problems.

EMOTION PROCESSES AND REGULATION IN THE EARLY YEARS

Despite decades of research on emotions, there is still no consensus on its definition. Following Frijda (1986), one can conceptualize emotions as subjective states that have a pleasant/unpleasant valence, are associated with arousal and activity of the autonomic nervous system, may be accompanied by characteristic, for discrete emotions, facial muscle configurations or body posture, and facilitate action tendencies (action readiness). Components of emotion are: the emotional *experience* and *expression*; emotion *recognition* (e.g., based on facial, vocal, or body-posture cues); emotion *knowledge* (i.e., knowledge of labels of emotions and situations that elicit emotions), and emotion *regulation*. An umbrella term that is used to denote emotional competence is emotion *understanding*. It refers to the ability to cognitively represent emotions, their nature, causes, consequences, and strategies for regulating them (Saarni, 1999). It is a manifestation of ToM and undergoes major changes during development, particularly in the preschool and school-age period (see the section on ToM later in the chapter on ToM). Emotion understanding is instrumental to self-regulation of emotion.

Emotion regulation is the monitoring and control of emotion as regulation of cognition is the monitoring and control of cognition. It serves higher-order goals, intrapersonal or interpersonal, and is inextricable from emotion generation (Tamir, 2011). Emotion regulation can be implicit, non-conscious and automatic, or explicit, conscious, effortful and controlled. It comprises strategies that can operate on any of the components of emotion (e.g., experience or expression of emotion) or the processes involved in it (i.e., situation, attention, appraisal, response; Gross, 2013). Specifically, in early childhood children can change the experienced emotion by *selecting the situation* in which a specific emotion is experienced (e.g., infants divert their gaze to self-soothe when they are distressed, Crockenberg & Leerkes, 2004); young children can also *modify the situation* through problem solving or support seeking, or *deploy attention* to situations that have given rise to a pleasant, or unpleasant, emotion by modifying their thoughts or by self-distraction (Cole, Dennis, Smith-Simon, & Cohen, 2009); as children grow cognitively and better understand the links between situation, appraisal, and emotional response, cognitive strategies such as *reappraisal* are used (Gross, 2013); finally, children can modulate the emotion response by *suppressing* the expression of the emotion (Fabes, Leonard, Kupanoff, & Martin, 2001).

EMOTION REGULATION AND THE ROLE OF COGNITION

Regulation of cognition and emotion make use of brain structures and processes which are specific to each of them. However, self-regulation is an integrated process that makes use of both the cognitive and the affective loop (Leerkes, Paradise, O'Brien, Calkins, & Lange, 2008). This is evident in challenging tasks in which both control of emotional arousal and deliberate and effortful attention is needed (Leerkes et al., 2008).

Interactions between Cognition and Emotion

The interaction between cognition and emotion is manifested in the effects of cognitive factors on emotion processes and vice versa. For example, non-verbal ability is associated with emotion recognition and understanding in children aged 3 to 10 years (Albanese, de Stasio, di Chiacchio, Fiorilli, & Pons, 2010). More importantly, it has been shown that non-verbal cognitive ability explains emotion understanding beyond and above children's age, receptive language skills and attention (Von Salisch, Haenel, & Freund, 2013).

This does not mean that language is not important for the regulation of emotions. As Day and Smith (2013) showed, private speech, which is related to cognitive ability, predicted emotion regulation beyond the variance explained by emotion regulation strategies. Private speech moderated the relations of emotion regulation strategies with reported anger and sadness. Further evidence suggests that the language skills of toddlers (18-months-old) explained part of the variance of expressed anger at 48 months, but this relationship was partly accounted for by two emotion regulation strategies, namely, support seeking and distraction (Roben, Cole, & Armstrong, 2013).

Conversely, emotion processes can influence cognitive processes, academic performance and self-regulation of cognition. For example, preschoolers' emotion knowledge was found to be related to memory accuracy of vignettes depicting children playing with toys and expressing basic emotions. Emotion knowledge predicted memory of emotion information beyond and above age and receptive language skills (Channell & Barth, 2013). Preschool children's emotion knowledge also predicts autobiographical memory ability (Wang, 2008). Further, regulation of emotions such as sadness in children aged 6 to 13 years was found to broaden information processing and, thus, support memory, at least in older children (Davis, 2016). Finally, emotion understanding in 3-year-olds was found to be positively associated to early school adjustment and academic success, although in older children it is cognitive ability and metacognition that are most relevant (see Leerkes et al., 2008).

Emotions may also function as cues for cognitive self-regulation as manifested in delay of gratification tasks (Shimoni, Asbe, Eyal, & Berger, 2016). Delay of gratification requires the child to resist an immediate temptation to achieve a long-term goal. In the Shimoni et al. (2016) study, induced pride led to less delay of gratification because pride signals that progress has been made toward a long-term goal and, therefore, there is no need for further regulation.

Executive Functions

The deeper relations between regulation of emotion and cognition can be attributed to the fact that they share underlying mechanisms, such as executive functions. Specifically, executive functions, and particularly mental set shifting, predict emotion understanding in 4-year-olds, above and beyond the effect of mother's age, and children's IQ, language ability and ToM (Martins, Osório, Verissimo, & Martins, 2016). However, self-regulation of emotion begins already in the first year of life. Self-regulation of emotional reactivity begins at the end of the first year of life (at about 8 months of age) and is facilitated by the development of attention. During the same period infants begin to exercise cognitive control as manifested in working memory and inhibitory control tasks. But the brain mechanisms underlying self-regulation in infancy and at 3 to 4 years of age differ. Whereas in infancy it is the parietal and frontal areas, which are involved in the orienting network, that are dominant in the regulation of affect, by the age of 3 to 4 years, the executive network takes over from the brain's orienting network. Regulation of attention and self-regulation then involve midfrontal and anterior cingulate areas (Rothbart, Sheese, Rueda, & Posner, 2011). The anterior cingulate cortex is also involved in metacognition (Efklides et al., 2018), that is important in cognitive regulation as children grow older.

Summing up, in early childhood self-regulation of emotion and cognition is an integrated process that involves executive functions but also reciprocal effects between emotion and cognition. For example, child negative emotional reactivity at 15 months of age has been shown to be related to executive functioning at 48 months of age through emotion regulation (Ursache, Blair, Stifter, Voegtline, & The Family Life Project Investigators, 2013). However, the picture is more complex than what has been shown up to now. This is so because metacognition, in

the form of ToM or other behaviors indicative of metacognitive awareness such as gestures or use of metacognitive strategies, also plays a significant role (Whitebread et al., 2010; Whitebread & Basilio, 2012).

THEORY OF MIND

ToM is broadly defined as the ability to attribute mental states – such as desires, beliefs, knowledge, emotion and intentions – to oneself and to other people (Premack & Woodruff, 1978). The acquisition of ToM is an important accomplishment of childhood (Wellman, 1990, 2014). ToM enables children to predict and make sense of other people's behavior and appropriately respond to them in everyday social interaction. Once a child develops a ToM 'the assumption is that this understanding guides all social action and interaction' (Wellman, 1993, p. 10). ToM expands during the preschool period but continues to develop in important respects beyond the preschool years. For example, at the age of 6 or 7 years, children acquire the capacity to understand thinking as an internal mental activity (e.g., Flavell, Green, & Flavell, 2000). Representing one's and other people's thinking and feeling is the critical ground for metacognition.

One important distinction in the study of ToM is that between 'cognitive' and 'affective' ToM (Dvash & Shamay-Tsoory, 2014). Cognitive ToM (cToM) refers to the capacity to represent other peoples' cognitive – and conative – mental states (e.g., beliefs, knowledge, intentions, desires). In contrast, affective ToM (aToM) is the awareness and understanding of affective mental states, such as basic, self-conscious and hidden emotions, in one's self and in others. Over the last decade, evidence has accumulated in support of the dissociation and interaction of these two components of ToM. This evidence comes mainly from two sources: (a) developmental studies indicating that although cToM and aToM follow distinct developmental trajectories they are richly interconnected (e.g., O'Brien et al., 2011); (b) neuropsychological studies which show that overlapping but distinct neural substrates are activated during the processing of cognitive and affective ToM tasks (e.g., Kalbe et al., 2010; Molenberghs, Johnson, Henry, & Mattingley, 2016).

Cognitive ToM

In studies assessing the development of cToM, children are presented with a story about a character who puts an object (e.g., a chocolate) in a position (e.g., a blue cupboard) and then leaves the scene. During the character's absence, a second character moves the object from the original position to another place (e.g., a green cupboard). At this point, children are asked to predict where the first character will look for the object. Children aged 4 years or older correctly predict that the character will search for the object where he put it originally (blue cupboard), suggesting that they understand the character's false belief. In contrast, 3-year-old children typically fail to take into consideration the character's false belief and respond to the question by stating what they themselves know is the object's true location (green cupboard).

This developmental shift in children's understanding of false belief is a much-replicated and extremely robust finding (Wellman, Cross, & Watson, 2001). Children undergo a change from failing the false belief task to passing it between the ages of 3 and 5 years. Although most of the research interest on cToM has concentrated on preschoolers, some researchers maintain that the foundations of this ToM component are traced in infancy. Two important cToM milestones that are achieved during the first two years of life are: (1) the awareness that other people's desires may differ from one's own, and (2) the ability to recognize the goals in others' actions (Repacholi & Gopnik, 1997).

Affective ToM

Compared to cToM, significantly fewer studies have focused on the development of children's aToM. The affective component of ToM comprises understanding of emotions in oneself and in others (e.g., Harris, 2008; Pons, Harris, & de Rosnay, 2004). Affective ToM begins to develop in infancy. Studies have reported evidence that infants younger than 10 months recognize the positive vs. negative valence of facial expressions (Soken & Pick, 1999), whereas gradually they become able to interpret the discrete emotions expressed in the faces of others. By 9 to 12 months of age, infants also develop the ability to use the emotional expressions in the face or vocal tone of their parents as guides on how to feel about and respond to an ambiguous situation (Repacholi, 1998; Vaish & Striano, 2004). For example, when they are uncertain as to whether to approach a novel person, toy or whether to pass the visual cliff, infants may look to their parent for clarification. If the parent displays a positive emotion, infants approach the stimulus with interest and comfort; if the parent displays a negative emotion, they withdraw. This social referencing indicates that infants know that the parent's emotional expression signals her or his intentional relation to a stimulus.

By approximately 2 to 3 years of age, children have the capacity to label facial expressions of basic emotions when presented as pictures (e.g., Ridgeway, Waters, & Kuczaj, 1985). For example, Widen (2016) combined data from 11 studies in which 2- to 9-year-old children had been asked to label facial expressions of different emotions. The results showed that the majority of 2- to 3-year-olds correctly recognized and labelled three basic emotions: happiness, sadness, and anger. By the age of 3 to 4 years, children's aToM expands to include a more mature understanding of the causes of emotion. Children begin to appreciate that specific situations elicit specific emotions (Harris, Olthof, Meerum-Terwogt, & Hardmann, 1987). For example, 3-year-olds typically understand that situations, such as getting a birthday present, elicit positive emotions, whereas other situations, such as losing one's favorite toy, cause negative emotions. However, at this age children do not yet appreciate that it is not the objective features of a situation, but the subjective interpretation (i.e., the mental states) of the person appraising the situation, that cause emotion (Harris, de Rosnay, & Ronfard, 2014). An appreciation of the role of mental states, such as beliefs and expectations, in the elicitation of emotion comes about a little later, around the age of 6 years.

By 6 years, children's aToM becomes more sophisticated as they begin to appreciate the distinction between appearance and reality in the realm of emotions. Six-year-olds acknowledge that an outward expression (appearance) can be dissembled and, thus, it will not correspond to the emotion felt subjectively (reality) (Gross & Harris, 1988; Misailidi, 2006). Six-year-old children are well able to: (a) take account the different reasons (prosocial, self-protective) motivating people to dissemble emotion (Misailidi, 2006); (b) appreciate the misleading impact of a person's dissembled emotion on others (Gross & Harris, 1988); (c) articulate their knowledge of emotion dissemblance, by describing, for example, prototypic situations where they would hide their real emotions from others (Saarni, 1979).

Summing up, key cognitive developmental changes – between early infancy and 3 to 4 years of age–, including age-changes in cToM and aToM, are intrinsically linked to children's ability to self-regulate emotion. During the preschool years, children's growing awareness of their own thinking and emotions and greater understanding of others' mental states, emotions and behavior help them regulate their emotional reactions and cope adaptively with the challenges they face in the social and educational realms. However, emotional self-regulation in early childhood cannot be treated too narrowly as residing solely within the child, thereby

overlooking the social context in which it is embedded. Studies have shown that parents, teachers and peers play an instrumental role in children's motivation and competence to manage their emotions (e.g., Warren & Stifter, 2008). These social influences are discussed in the following section.

PARENTAL, TEACHER AND PEER EFFECTS ON SELF-REGULATION OF EMOTION

Parents' Role in Children's Self-Regulation of Emotion

Infants are born with the readiness to feel and express emotions. Facial activity, body movements, and vocal expressions are constrained by evolution but progressively they become functionally linked with emotions through social interaction (Campos et al., 2011; Cole & Moore, 2015). That is, infants inform their caregivers about their internal state and the response–facial, vocal or behavioral–of the caregivers provides feedback that further shapes the connection of facial activities with specific emotions. In this way, parents communicate and share meanings with their infants but also get actively involved in the socialization and regulation of their infants' emotions. Parents often use an emotion-regulation strategy, called 'disruption soothing', which aims to regulate infant distress, by abruptly inducing an alternative intensive emotion in the infant (e.g., tickling the infant, throwing the infant up in the air) (Fonagy, Gergely, Jurist, & Target, 2002). Also, research has shown that mothers' infant-directed speech or singing is effective in modulating infant emotion (Shenfield, Trehub, & Nakata, 2003).

As children grow older, at the age of 3 to 4 years, they can verbally describe strategies to regulate their emotions (e.g., anger, sadness) and predict their effectiveness (Cole et al., 2009). The interaction with parents helps children understand emotions and generate strategies to regulate them (Cole et al., 2009). Parents communicate to their children through their own expressed emotions, emotion talk, family emotional climate, attachment relationships, and parenting practices related to emotion regulation, emotion knowledge and skills (Morris, Silk, Steinberg, Myers, & Robinson, 2007; Warren & Stifter, 2008). For example, parental modeling of expressive styles and emotional responsiveness to child emotions predicts preschoolers' emotional and social competence (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair, 1997). Maternal structuring was found to be related to strategy generation related to regulating anger whereas maternal support was related to strategy recognition and generation (Cole et al., 2009).

Parents' emotion expression, contingent reaction to child emotion, and coaching of children's emotional skills help children understand and self-regulate emotions in social contexts (Denham et al., 1997; Legacé-Séguin & Coplan, 2005). Positive parenting contributes to effective emotion regulation even in children that were emotionally reactive in infancy (Ursache et al., 2013). Further, parenting in the early years does not have only short-term effects but also long-term effects in school adjustment (Pettit, Bates, & Dodge, 1997). In general, authoritative parenting that sets rules but at the same time respects and promotes child autonomy, even in early childhood, has positive effects on children's self-regulation skills unlike the use of excessive parental control (authoritarian parenting) or permissiveness (absence of control) that is associated with self-regulation deficits (Piotrowski, Lapierre, & Linebarger, 2013).

Positive parenting is conceptualized as early supportive or positive control behaviors. It includes responsiveness — defined as parent-to-child warmth, acceptance, sensitivity, and synchronous or contingent behavior. Positive control is defined as proactive teaching, encouragement, or guiding of the child's behavior, inductive discipline and positive

involvement. Negative control comprises of power-assertive parental behaviors, including anger, use of harsh/physical discipline, criticism, excessive or intrusive physical interventions (Karreman et al., 2006; Pettit et al., 1997). It has been found that maternal expressed criticism or over-involvement in the child's behavior is negatively related to emotion self-regulation (Han & Shaffer, 2014; see also Kallia & Dermitzaki, 2017). However, in a meta-analysis of 41 studies there was no association found between parental responsiveness and the child's self-regulation; there was association of positive and negative control with child compliance but not with inhibition and emotion regulation (Karreman et al., 2006).

It is worth noting that maternal emotion-related supportive socialization behaviors (i.e., emotional expressivity, responses to the child's emotions and emotion talk) predicted, after controlling for receptive language ability, children's self-awareness of happiness whereas non-supportive emotion-related behaviors predicted low self-awareness of sadness (Warren & Stifter, 2008). This is important for self-regulation of emotion because accurate awareness of one's emotions is critical for the use of appropriate emotion-regulation strategies. As Denham, Bassett, and Zinsser (2012) argue, parents who encourage emotional expression allow children to have access to their emotions and understand them. In contrast, parental punitive socialization of emotion, that is, reacting with anger to the child's sadness or anger, or with happiness when the child is sad, hamper the child's learning about emotions. Also, parents who discuss or teach about emotion help their children make the link between situations and expression of emotion. Furthermore, when children participate in conversation about emotions they learn how to clarify the sources of their emotions and how to modulate expression of emotions. Thus, children learn to self-regulate their emotions rather than rely on parents to regulate them.

Teacher role in Children's Self-Regulation of Emotion

Pre-school teachers, similarly to parents, spend a lot of time with children in the classroom and inevitably become active agents of socialization of young children's emotions. Although empirical evidence on this aspect of teaching is limited (see Denham et al., 2012), there are findings showing that teachers' own emotional competence plays an important role in the way they react to children's negative emotions. For example, teachers with low awareness of their own emotions often ignored children's negative emotions. Also, teachers experiencing a negative emotional state often opted for a punitive stance towards children's emotions. Further, teachers reporting more reappraisal strategies in the regulation of their own emotions exhibited more supportive responses to children's negative emotions (Swartz & McElwain, 2012).

Despite effects of their own emotions and regulatory strategies used, preschool teachers are aware of the importance of their contingent responding to children's emotions and use a variety of strategies to encourage positive affect or regulate negative emotions. For example, in childcare contexts teachers teach emotion words and discuss with children the causes of emotions to boost emotion understanding. Particularly important is the emotional tone of the teacher and a secure emotional environment through predictable routines, teacher smiles, affectionate touches, and supportive words (Ahn, 2005). Also, teachers co-regulate children's activities, behavior and emotions in challenging situations to prevent negative affect, particularly favouring activity-related rather than emotion-related strategies (Kurki, Järvenoja, Järvelä, & Mykkänen, 2016). When using emotion-related strategies, teachers regulate children's emotions by creating conditions that encourage positive affect expression, empathizing with children's emotions and using strategies to manage negative emotions. Such strategies include physical

comfort, distraction, problem solving, ignoring, restriction, threatening, ridicule, punishment, or minimization of children's emotion expression (Ahn, 2005; Denham et al., 2012).

Finally, other characteristics of the preschool classroom that foster children's self-regulation are small group play, pretend play and games with rules (Savina, 2014; Timmons et al., 2016). In play children learn to inhibit impulsive behaviors and use language to resolve disagreements or conflicting goals with their peers. They agree on rules or invent new ones, thus, exercising intra- and interpersonal regulation of emotions.

The Role of Peers in Children's Self-Regulation of Emotion

As compared to the well-established influence of parents, the influence of peers on children's ability to regulate emotions is relatively unexplored (Thompson & Meyer, 2007). However, peer interactions provide unique opportunities for the development of children's ability to manage emotions. For example, conversations with peers are contexts in which young children often discuss emotions — more frequently than they do with parents (Brown, Donelan-McCall, & Dunn, 1996; Dunn & Brown, 1991). Discussing emotions with peers helps children to formulate knowledge about emotion and enhances their ability to consider alternative ways for regulating emotion (Thompson & Waters, 2010).

On the other hand, there is evidence that children's attempts to regulate emotion during peer interactions are qualitatively different from those used in interactions with parents and other adults. In an observational study, Fabes and Eisenberg (1992) showed that 5-year-old children used more passive emotion regulation strategies (e.g., venting responses) when angered by adults and more assertive emotion regulation strategies (e.g., active resistance, seeking adult help) when angered by peers. Still, evidence from research on emotion display rules (Zeman, Penza, Shipman, & Young, 1997) indicates that young children are more willing to dissemble negative emotions (e.g., anger or sadness) in the presence of peers than in the presence of a parent, possibly because of an expectation that parents will respond to these emotions with support or acceptance whereas peers will react to them in a less sympathetic manner.

The peer group generally requires socially acceptable regulation of intense emotions (Lemerise & Harper, 2010). Failure to 'keep the emotional lid on' (Raver, Blackburn, & Bancroft, 1999) places children at risk for rejection by peers. Evidence indicates that highly emotional children (e.g., those displaying frequent outbursts, tantrums or uncontrolled crying) have lower sociometric status and are disliked by their peers (Denham, McKinley, Couchoud, & Holt, 1990; Eisenberg et al., 1993). Conversely, young children who endorse the rules for appropriate emotional expression, even in reaction to conflicts or disagreements with peers, are likely to be more successful in their peer encounters.

Taken together, the evidence supports the view that parents, teachers and peers shape young children's understanding of emotion, strategies of emotion regulation, and ability to cope with intense emotion. Investigating the processes underlying the effect of these close relationships is extremely important, as discussed next, for a full account of the development of a child's emotional self-regulation.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This chapter aimed to highlight the complexity of the processes involved in emotional self-regulation in early childhood, and particularly the effects that cognitive processes and cognitive control (e.g., executive functions), metacognition (e.g., ToM), and social learning (e.g., through the interactions with parents, teachers and peers) have on it. The effects of cognition are evidenced in the

use of language and nonverbal abilities supporting the exercise of emotion regulation. Executive functions, such as set shifting, are involved in emotion regulation and their effect is independent from cognitive and metacognitive processes, such as language and ToM (Martins et al., 2016). Still, the acquisition and use of specific emotion-regulation strategies (e.g., distraction, attention deployment, problem solving, control of emotion expression, etc.) cannot be reduced to cognitive factors.

In many ways, young children's emotional self-regulation takes place in the context of their interactions with parents, teachers and peers; hence interaction with these socializing agents can facilitate or hinder the development of a child's ability to manage his or her own emotions. Parents, teachers and peers' responses to the child's emotions, their understanding of the situations that caused the child's emotions, their talk about emotions with the child, the coaching of the child's regulation of emotion, and the strategies they use to regulate their own emotion shave broad consequences on early emotion and emotion self-regulation. The question thus arising is whether the effect of these social interactions on young children's emotion regulation is direct and sufficient or, instead, is mediated by executive functions and/or cognitive and metacognitive processes.

A potent factor in emotion regulation is emotion monitoring and understanding. Affective ToM is directly implicated in emotion understanding. However, emotion monitoring presupposes awareness of own desires and personal goals as compared to those of others as well as awareness of emotional experience and emotion recognition in self and others. Awareness of subjective feeling states serves the monitoring of own emotions and forms the basis for reflection and more deliberate emotion regulation, possibly via emotion understanding. Similar monitoring of cognitive processing is served by metacognitive experiences such as feeling of familiarity, feeling of confidence or feeling of knowing that are also present in preschool years (Lyons & Ghetti, 2010). A challenge for future research is to work out whether self-awareness of emotional and cognitive experiences allows interactions between metacognitive and emotional experiences, e.g., whether emotions impact metacognitive experiences and vice versa.

Finally, another issue that deserves attention in future research on emotion self-regulation in early childhood is the use of domain-free strategies, such as help seeking, and their transformation into more specialized emotion-regulation strategies. For example, help seeking presupposes that the child is aware of own goals and the lack of progress towards them. Feeling of difficulty is a cue indicating disfluency in cognitive or task processing (Efklides et al., 2018). It is also a cue for obstacles in goal attainment. Directing help seeking to the appropriate person and asking for cognitive or affective support suggests that preschool children differentiate between metacognitive and emotional feelings and adapt their help seeking accordingly. Similar differentiation of feeling states and strategy use is evidenced in the use of distraction. Distraction can be detrimental to cognitive processing but helpful to overcoming emotional distress. How do children know when it is best to use distraction as a self-regulation strategy?

To conclude, the study of emotion regulation in the preschool years is a challenge but also a highly promising area of research theoretically. Issues that are more salient in early childhood, such as the importance of others in the self-regulation of emotion, could inform research on emotion regulation in older children and adulthood and also in educational practices, where other-regulation tends to be substituted by co-regulation.

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