



# How do parents guide children towards ‘playing to learn’? Reflections on four studies in a special issue on self- and co-regulation in early childhood

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## Abstract

This special issue on early self- and co-regulation addresses a topic that is founded on a rich mix of theoretical perspectives, including self-determination theory, socio-cultural theory, attachment theory and artificial intelligence. Reflecting this diversity, the papers adopt a diverse range of approaches to cutting-edge questions regarding self- and co-regulation. At the same time, the papers share a number of common themes, of which the first is a downwards expansion of the developmental scope of existing research on children’s ability to delay gratification to encompass findings from infants and toddlers. A second common theme is a careful attention to issues of ecological validity. Alongside these commonalities, the papers also show complementarity in their focus on the parent or the child. In this commentary I seek to identify both common and specific strengths and limitations and offer suggestions regarding fruitful avenues for future research in this field.

**Keywords** Scaffolding · Autonomy support · Beliefs and cognitions · Self-regulation · Children · Parents

Infants love exploring the world around them, but their discovery and learning require encouragement, support and guidance from caregivers. Thus, alongside helping infants to achieve their immediate goals (e.g., reaching for a desired object), caregivers promote infants’ autonomy, competence and relatedness and so foster their psychological health and development. Within this framework of self-determination theory (Deci and Ryan 2015), caregiver behaviours that support children’s goals, interests and choices are referred to as ‘autonomy support’ (Whipple et al. 2011). This term also draws on attachment theorists’ accounts of the emergence of ‘goal corrected partnerships’ between caregivers and children across the first few years of life (e.g., Crittenden 1992). As noted by E and F (this issue), the concept of autonomy support

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also shows close parallels with that of parental ‘scaffolding’ (see, for a recent review Mermelstine 2017). As discussed elsewhere (Hughes and Ensor 2009), three distinct components (cognitive / affective support and autonomy transfer) all contribute to the process of scaffolding, which in turn is rooted in a long tradition of theoretical and empirical study of how skilled peers and adults help children master inhibition and planning skills. Specifically, drawing both on Vygotsky’s seminal socio-cultural theory (Vygotsky 1978) and on insights from artificial intelligence, Wood and colleagues conducted land-mark studies that highlighted the importance of adult contingency in children’s learning and problem solving (Wood et al. 1976; Wood and Middleton 1975). Empirical evidence for an overlap between autonomy support and scaffolding comes from their common predictive associations with later executive function (e.g. Bernier et al. 2010; Hughes and Devine 2019). As this potted overview illustrates, the topic of this special issue - early self- and co-regulation - is founded on a rich mix of theoretical perspectives.

### **Commonalities: Expanding the Developmental Scope of Research on Delay of Gratification and Attending to Issues of Ecological Validity**

Perhaps reflecting this diversity of theoretical frameworks, the interesting set of findings from the four papers in this special issue (written by Mulder van Ravenswaaij, Verhagen, Moerbeek, & Leseman; Neale & Whitebread; Gärtner, Vetter, Schäferling, Reuner, & Hertel; and Compagnoni, Karlen, and Maag Merki) demonstrate the growing breadth and depth of research on self- and co-regulation in early childhood. Before outlining and commenting on the key findings from each study, several commonalities deserve note. The first of these is the delay of gratification paradigm (e.g., snack/gift delay tasks), which is used in the three studies that involve toddlers as a means of assessing individual differences in effortful control. While the delay of gratification paradigm has long been used to examine pre-schoolers’ ability to regulate their behaviour by with-holding impulsive reaches for an immediate reward in order to gain a larger reward, it is relatively novel to see this delay of gratification being assessed in children below the age of three. Thus the first way in which the papers in this special issue contribute to the field is by demonstrating the feasibility of applying this delay of gratification paradigm to infants and toddlers (for other recent studies that include this downward extension of the developmental scope of delay tasks see Białocka-Pikul et al. 2018; Mulder et al. 2009; Song et al. 2018). Highlighting the potential utility of delay of gratification paradigm within research on toddlers’ self-regulatory skills, these three papers apply this paradigm to examine: (i) predictive effects of maternal scaffolding in infancy; (ii) toddlers’ own behavioural strategies for coping with the delay period; and (iii) parental self-efficacy as a predictor of variation in toddlers’ ability to wait for a reward.

A second commonality that unites the final three papers in this SI is the integration of direct measures of inhibitory control with adult (parent or teacher) ratings of children’s displays of inhibitory control in everyday situations. To date, investigations with experimental measures of executive function and studies of children’s effortful control in everyday life have typically been conducted by separate research groups, such that their integration within these three studies is warmly welcomed.

## Complementarity: Focus on parent or child?

The four studies in this SI can also be divided into two pairs, with each pair providing a complementary focus on either parent or child. Thus, while Neale and Whitebread adopt micro-coding of mothers' contingent responses to toddlers' success or failure on a ring task, Mulder et al. apply a similarly fine-grained approach to investigating the latency of toddlers' recruitment of their own strategic responses to the challenge of waiting for an attractive reward. Equally, while Gärtner et al. focus on parental beliefs about their own self-efficacy as a predictor of toddlers' inhibitory control, Compagnoni et al. consider how kindergarten children's beliefs and attitudes shape their self-regulatory skills in the classroom. Given that recent neuroscientific studies have begun to adopt hyper-scanning as a means of examining brain-to-brain synchrony in mother-child dyads (Miller et al. 2019), an obvious next step for research in this field is to adopt a dual focus on parental and child cognitions when exploring individual differences in early self-regulation.

## Common limitations

Thus far, I have focused on common strengths across the four papers in this SI; as a counterpoint, common limitations also deserve mention. Given the resource intensive nature of detailed observational coding, it is understandable that the samples of toddlers in the first three studies are relatively modest in size, ranging from 33 in Neale and Whitebread's study to 90 in the study conducted by Mulder and colleagues. As several authors acknowledge, the conclusions from these studies are also constrained by the lack of socio-economic diversity in the samples. These problems of sample size and homogeneity will be recognized by many readers, but nevertheless represent a key challenge for future research. Equally significant as a means of enhancing the academic impact of each study is the common (albeit not universal) need to situate these studies within a wider theoretical literature on social and environmental influences on young children's emerging self-regulation.

Thus, despite their many commonalities, each set of authors appears to draw on a different theoretical framework. For example, Neale and Whitebread refer to Vygotsky's seminal socio-cultural account of young children's acquisition of higher-order cognitive skills (Vygotsky 1978), but do not mention Wood's influential work on contingency as a key ingredient to parental scaffolding, despite concluding that "maternal contingency during play in infancy could lay the foundation for the strategic regulation of cognition, attention and behaviour (pp XX)". Neale and Whitebread also neglect to mention the growing body of research demonstrating the influence of parental 'autonomy support' upon young children's developing self-regulatory skills. This omission is striking, given that their report of a (lack of) temporal stability in mothers' contingency contrasts with the positive findings regarding the stability of maternal autonomy support across a very similar period within toddlerhood (Matte-Gagné et al. 2013). If nothing else, this between-study contrast highlights the potential impact of contrasting methodological approaches. For example, autonomy support is typically coded using a global scale that takes into account the extent to which parents are able to follow the child's pace, but also include dimensions of flexibility and both affective and verbal support. It may therefore be these latter dimensions, rather than contingent responding per se that show stability over time; consistent with this view, Neale and Whitebread found that individual differences in mothers' 'propensity to scaffold' did show stability over time. In contrast,

Gärtner and colleagues cite both Wood et al.'s seminal work on scaffolding and also refer to Bernier and colleagues' work on parental autonomy support. Moreover, while not explicitly mentioning attachment theory, Gärtner and colleagues also note that there is an important affective dimension to the support that caregivers provide for young children's self-regulatory skills (e.g., via praise and encouragement).

In keeping with their specific focus on toddlers' strategic behaviours within delay of gratification paradigms, Mulder and colleagues refer to the seminal studies conducted by Mischel and colleagues (e.g., Metcalfe and Mischel 1999), but do not mention previous studies that highlight the importance of children's beliefs in the trustworthiness of adults conducting the experiment as a determinant of their willingness to wait for a reward (e.g., Ma et al. 2018; Michaelson and Munakata 2016). That said, their empirical analyses do demonstrate careful attention to potential influences of contextual factors, including both the caregiver's presence or absence and the adult/child height of the chair. Interestingly, neither contextual factor appeared to influence children's performance on the delay of gratification paradigm. Compagnoni and colleagues also adopt a narrow focus upon the child, but their work is framed within Dweck's theory of individual differences in children's mind-sets (Paunesku et al. 2015). As a result, the potential influence of caregivers on children's beliefs and attitudes is only mentioned in the final part of the discussion section. Given that the SI is explicitly dedicated to exploring the processes through which adults and children achieve co-regulation, it is somewhat surprising that Compagnoni and colleagues do not devote more attention to caregiver influences.

## Strengths and limitations of specific studies in the special issue

Having considered broad brushstroke commonalities in methods, strengths and weaknesses across the studies, I shall now set the scene for more specific commentary, by sketching out the design and key findings for each study. In the first paper, Neale and Whitebread report on a longitudinal study in which a well-educated sample of 33 mother infant dyads was filmed at 12, 18 and 24 months playing with a ring task (plus stacking cups at 12 months). The key measure of 'effortful control' at 24 months was children's success in waiting, assessed via both gift and snack delay tasks. Importantly, the longitudinal design of this study enabled infant performance on a grasping task administered at 12 months to be included as means of controlling for stable individual differences in self-regulatory control. Individual differences in maternal scaffolding were indexed by *contingency*, *directiveness* and *propensity to scaffold* and analyses led to three key findings. First, all three scaffolding measures demonstrated contextual stability (ring vs cups) at 12-months but (as noted above) only the propensity to scaffold also showed significant temporal stability. Second, mothers were more likely to demonstrate contingent responses in the context of child success than child failure –stepping back and reducing support following child success is clearly easier than finding an effective means of ramping up support in response to child difficulty and so this asymmetry is perhaps to be expected. Third, maternal contingency at 12 months showed a unique effect upon delayed gratification a year later, with stronger effects shown for mothers who were consistently contingent. While the inclusion of a prior child measure of self-regulation is a strength of this study, the conclusion that contingency has a unique influence upon self-regulation is perhaps premature, given that the study did not include a range of different parental measures. Underscoring this point, recent work has shown that parents contribute to children's emerging

self-regulation in multiple ways, both positive and negative and both global and specific (Hughes and Devine 2019).

As noted earlier, Mulder et al. also used snack and gift delay tasks to assess effortful control. This study involved second-by-second coding of actions towards or away from the reward, physical distraction (fidgeting) and deliberate with-holding of hands during the delay period, supplemented by Early Childhood Behaviour Questionnaire ratings of inhibitory control from both parents and nursery teachers for all 62 toddlers in the study sample. This micro-analysis revealed that, compared with the toddlers who were unable to wait for a reward (approximately a quarter of the sample), those who were able to wait displayed strategic behaviours (e.g., holding onto hands, looking away) for a greater proportion of the delay period. Moreover, these strategic behaviours were typically evident from very early in the waiting period, indicating that even very young children can rapidly recruit strategies for managing a frustrating delay. Positive associations between both the timing and co-occurrence of these strategic behaviours and teachers' (but not parents') ratings of inhibitory control provided empirical support for the ecological validity of this paradigm.

Following Duckworth and colleagues (Duckworth et al. 2016) and Fujita (2011), Mulder et al. draw an analogy between young children's ability to recruit strategies for resisting temptation and the Greek myth of Odysseus, who ties himself to the mast of his ship to ensure that he does not succumb to the call of sirens. Importantly, Mulder et al. also cite two studies (Friedman et al. 2011; Watts et al. 2018) that each indicate that failure or success in getting through the first 10–20 s without succumbing to temptation is pivotal to the long-term predictive value of children's responses to the challenge of waiting for a reward. This finding has potential value for interventions, in that it suggests that giving opportunities to wait for a reward even if only for quite brief delay periods may help children develop strategies for self-regulation. Given that clinical models of attention deficit hyperactivity disorder (ADHD) highlight the dual influence of impairments in self-regulatory skills and distortions in perception of time (Sonuga-Barke et al. 2010), an interesting challenge for these authors would be to extend their micro-coding to children with a clinical diagnosis of ADHD and/or other developmental disorders.

Moreover, in a recent study in which 195 infants were seen at home at ages 4 and 14 months, Devine et al. (2019) found that individual differences in 4-month-olds' duration of gaze at a novel toy shown across repeated trials (i.e., variation in 'habituation' rates) predicted variation in working memory performance at 14-month olds. As this study is the first to report a predictive association between visual attention in early infancy and executive function in toddlerhood, the findings require replication. If confirmed, these findings provide another example of how, from a very early age, children play an active role in gate-keeping perceptual stimuli and thus selecting their environmental inputs.

In the third study, Gärtner et al. administered a snack delay task to 90 2- to 3-year-olds, using parental ratings of inhibitory control to supplement observational ratings. Here, however, the focus was upon the psychological underpinnings of parents' ability to provide positive co-regulation. Specifically, parents' domain-specific self-efficacy beliefs (e.g. "I am able to explain things to my child so that s/he is able to understand") rather than domain-general self-efficacy (e.g. "I am able to find a solution for any problem with my child") that emerged as an independent predictor of toddlers' inhibitory control, highlighting the need for interventions to target parental beliefs alongside parental practices. This is a very useful insight, as there is inevitably a gap between what parents say they do and what they actually do, such that surveying parents about their beliefs is clearly much simpler than gathering reliable and

sensitive measures of parental practices. The finding that it was domain-specific rather than domain-general self-efficacy that predicted scores on the inhibition scale of the Behaviour Rating Inventory of Executive Functions (BRIEF-IN) adds to the growing consensus regarding the importance of adopting differentiated models of parenting (e.g., Hughes and Devine 2019; Smetana 2017). This message is also encouraging for parents, in that recognizing the multi-faceted nature of parenting enables individuals to be more realistic in their parenting goals (i.e., to strive to be ‘good enough’ rather than ‘perfect’ parents) and hence more likely to develop a sense of self-efficacy. Note, however, the parents in this study rated both their own self-efficacy and their child’s inhibitory control, such that the likelihood of shared informant effects temper the strength of this conclusion. Supporting this note of caution, parental beliefs were not significantly related with direct assessments of inhibitory control on the snack delay task (although, as the authors note, this lack of association may be attributable to a ceiling effect).

Complementing the focus on parental beliefs in Gärtner et al’s study, in the fourth and final study, Compagnoni et al. interviewed 147 children aged 5 to 7 years about their beliefs and attitudes to problem-solving. Interviews are relatively rare in studies involving children below the age of eight years, such that instruments are relatively scarce. Addressing this gap, Compagnoni et al. developed a new mind-set scale designed to capture variation in the extent to which children: (a) believe that traits such as intelligence are fixed or malleable; and (b) approach tasks with the goal of improving their mastery (as opposed to achieving success on the set task). Latent variable analysis showed that these constructs were distinct and independently predicted variation in teachers’ ratings of classroom behavioural self-regulation and academic achievement. Moreover, performance on a direct measure of executive function (Heads-Toes-Knees-Shoulders – HTKS) playing a mediating role in the association between goal orientation and teachers’ ratings of behavioural self-regulation (note, however, that the cross-sectional nature of this study limits conclusions about mediating mechanisms). Beyond the development and use of a mind-set scale with 5- to 7-year-old children, a second strength of the study, shared by a few other papers in this SI, is the integration of direct assessments of executive function and teachers’ ratings of children’s self-regulatory skills within the classroom. The use of structural equation modelling to test whether orientation towards mastery rather than successful performance may improve children’s executive function skills and long-term outcomes by enabling them to seek out challenges and show persistence is a third strength, made possible by the inclusion of almost 150 participants. As the authors argue in the title to this paper, the study’s simple take-home message is that teachers and caregivers should encourage children to go beyond ‘playing safe’ and engage in ‘playing to learn’.

As I hope this brief overview illustrates, the papers in this SI represent a genuinely interesting set of studies into early self and co-regulation that has the potential to advance the field in several respects – by illustrating the validity and utility of asking very young children to complete snack/gift delay tasks that have traditionally been used with older children; by integrating experimental and real-life ratings of children’s self-regulatory skills; and by considering the role played by both parents’ and children beliefs’ or mind-sets.

## **Lessons from other studies of scaffolding or autonomy support**

From a life-span perspective, often neglected by developmental psychologists, there is an interesting question to answer regarding the extent to which, just as scaffolding and autonomy support may be largely synonymous, the terms ‘self-efficacy’ and ‘growth mind-set’ can be

used more or less interchangeably. This point brings me back to my earlier points regarding the need to build bridges between different theoretical camps to enable a cross-fertilization of ideas. With this goal in mind, in the second half of this commentary I will attempt to link the four studies in this SI with recent findings from related area of research, drawing both on the work of my own team / close colleagues and the wider literature addressing similar questions but with different age groups or social partners.

First, however, three points from Mermelshtine's (2017) scholarly review of research on parental scaffolding of children's self-regulatory skills deserve mention. The first of these concerns the diversity across studies in approaches to conceptualizing scaffolding, which may reflect the different challenges and opportunities faced by researchers working with distinct age groups. Perhaps the best recognized of these is the Vygotskian socio-cultural approach, operationalized by Woods and colleagues in the 1970s that highlights the importance of caregivers' contingency (Wood et al. 1976; Wood and Middleton 1975). The second approach, outlined by Hughes (2015), recognizes the multi-faceted nature of scaffolding, with three key components being affective support (praise, encouragement), cognitive support (simplifying the problem space) and transfer of responsibility (effectively the ramping up and rolling back of support identified by Wood's focus on contingent responding). In many ways, this approach is very similar to the global rating scheme used by Bernier and colleagues (Whipple et al. 2011) to assess individual differences in autonomy support. The third approach, favoured by Landry and colleagues (Landry et al. 2006), focuses on the verbal modality – and is supported by evidence that gains in child language skills play a mediating role in the developmental association between maternal scaffolding and children's acquisition of self-regulatory skills (Landry et al. 2009).

Second, Mermelshtine (2017) provides a useful summary of the considerable evidence for the cognitive benefits of scaffolding / autonomy support, a point that is generally assumed rather than discussed by the contributors to this special issue. Specifically, studies involving samples of different ages and from different countries show that even when background parental measures are controlled, both global measures of autonomy support and more specific measures of parental scaffolding predict both gains in pre-schoolers' executive functions (Bernier et al. 2012; Bernier et al. 2010; Hughes and Devine 2019; Hughes and Ensor 2009) and children's later academic success (Bernier et al. 2017; Devine et al. 2016). As noted by Mermelshtine (2017), there is also a small but growing body of evidence (Landry et al. 2006; Pettygrove et al. 2013) that scaffolding also benefits children's socio-emotional development. Just as Hughes and Devine (2019) extend knowledge regarding parental scaffolding by adopting a dual focus on executive function and language ability as child outcomes, an interesting avenue for future research might therefore be to consider the extent to which there are common or distinct parental influences in scaffolding children's cognitive and socio-emotional development (for a recent example of the latter, see McHarg et al. 2019).

Mermelshtine (2017) concludes her review with a synopsis of factors (ranging from prematurity to poverty) that might constrain effective scaffolding. As noted earlier, the low-risk homogeneous nature of the samples in these SI papers is a key limitation, such that an obvious challenge for the authors is to extend their innovative methodologies to include more diverse samples. Recent work by Gärtner and colleagues in developing and evaluating an intervention for parents with full-term and prematurely born infants (Gärtner et al. 2018) demonstrates that some of the contributors to this SI have already begun to respond to this challenge. Others may find inspiration in the recent work of Obradovic and colleagues that includes direct observational ratings of maternal scaffolding of children's executive functions

in a large sample of families with young children growing up in rural Pakistan (Jeong et al. 2019). While effortful, recruiting more diverse samples is theoretically rewarding in enabling an examination of how parents may hinder as well as help young children's developing self-regulation. For example, in a review of the field, Belsky and de Haan (2011) argued that the literature on parenting and children's brain development can be viewed as being 'at the end of the beginning' in that the best evidence for environmental influence on children's brain development at present comes from studies of maltreated or neglected children. To advance beyond this 'beginning' stage, researchers need to consider negative effects of normative risk factors (e.g., exposure to parental depression, family chaos), as well as differential susceptibility to parenting effects and mechanisms underpinning associations between parenting and brain and/or behavioural outcomes.

Responding to this challenge and, as briefly mentioned earlier, Hughes and Devine (2019) conducted a 13-month longitudinal study of 117 parent - pre-schooler dyads, including a very similar detailed micro-coding of contingent parental responses (based directly on the original coding scheme developed by Woods et al. (Wood et al. 1976; Wood and Middleton 1975) and including measures of executive function in both parents and children. Supporting the differentiated model of parental influence noted earlier in regard to Gärtner et al's study, negative parent-child interactions and parental scaffolding showed unique and specific associations with child executive function, whereas the home learning environment and parental language measures showed global associations with children's executive function and verbal ability. Put more simply, parents who engaged in extended discourse with their child during the free play task were not necessarily more adept at fine-tuning the level of their support during the structured task or more likely to report providing their child with frequent learning opportunities (e.g., reading, painting etc.). As a result, researchers should include a broad array of parenting measures in order to capture a full picture of social influences on children's cognitive development.

Another key research challenge for the contributors to this SI is the need to go beyond the traditionally narrow focus on mother-infant interactions when considering family influences. Despite fathers becoming increasingly involved in childcare (Sullivan et al. 2009) they have, with recent exceptions (Mills-Koonce et al. 2015; Nordahl et al. 2016; Sethna et al. 2017), generally been overlooked in studies of individual differences in early parent-child interactions. Another obvious challenge is thus to extend beyond the traditional focus on mothers to consider children's interactions with fathers (Volling et al. 2019).

Here it is worth noting that while early theorists (e.g., Belsky 1984) posited qualitative differences between mothers' and fathers' caregiving, reflecting contrasts in parental experience and/or context, recent theoretical reviews have called for gender-neutral models of parenting (Fagan et al. 2014). Establishing the conceptual equivalence of maternal and paternal measures requires confirmatory factor analyses (CFAs) to test whether the model retains a good fit even when specific aspects (e.g., structure, variance, intercepts) are constrained to be equal across parent gender. This in turn requires larger samples than those traditionally used in observational research (and much larger samples than the two observational studies in this SI). To my knowledge, just two observational studies have tested measurement invariance in mothers' and fathers' caregiving. In the first of these, Mills-Koonce et al. (2015) conducted observational ratings of parental detachment, stimulation, positive regard and animation at 6 and 24 months for a large sample of 630 low-income North American families, applying CFA to demonstrate statistically equivalent overall ratings for mothers and fathers. While this is undoubtedly an extremely impressive study, the combination of different aspects of parenting,



different contexts and different time-points may have masked subtle non-equivalencies. Addressing this possibility, the second study (Hughes et al. 2018a) focused on home-based observations of structured play for 195 14-month-old infants in dyadic interaction with mother and father, using two matched inset puzzles, counterbalanced across parents. The global coding scheme developed by Bernier and colleagues (Whipple et al. 2011) was used to create latent measures of individual differences in maternal and paternal autonomy support. Through CFAs the authors demonstrated: (a) measurement invariance across parent gender; (b) higher levels of autonomy support in mothers than in fathers; (c) lack of associations between individual differences in autonomy support and either parental personality or child temperament, highlighting the potential importance of dyadic characteristics. Confirming this latter view, fathers with sons displayed less autonomy support than did fathers with daughters (in contrast, maternal autonomy support did not differ by child gender).

As I have argued elsewhere (Devine and Hughes 2018; Hughes et al. 2018b; White and Hughes 2017), sibling interactions also play an important role in contributing to individual differences in children's developing socio-cognitive skills. A further challenge for the contributors to this SI and to others working in this field is therefore to increase the scope of their observational work to include studies of how older siblings can foster children's goal-directed behaviour. In a wonderful example of this approach, Jenkins and colleagues (Prime et al. 2014a; Prime et al. 2014b) have developed a paradigm and coding scheme for assessing the extent to which older siblings show cognitive sensitivity when guiding their (toddler-aged) younger siblings in a construction task. These studies demonstrate that the benefits of having an older sibling upon children's acquisition of a theory of mind are only evident in the context of cognitive sensitivity.

Note also that the study in Pakistan conducted by Jeong et al. (2019) also showed that older siblings made a positive unique contribute to young children's emerging executive functions. Interestingly, this juxtaposition of studies highlights a binary distinction between studies of family influences on children's cognitive development that include Western or non-Western samples. Specifically, as highlighted by Gregory et al. (2010), studies involving Western samples typically focus on scaffolding, whereas studies involving non-Western studies focus instead on young children's active observation of more expert social partners, who are typically portrayed as 'modelling' rather than 'scaffolding' the desired response. Challenging this binary division, Gregory et al. (2010) report findings from a qualitative study observational study involving third-generation migrants living in London. Using examples of children, their younger siblings and their grandmothers, Gregory et al. (2010) demonstrate how, in multi-cultural families, the older generations are able to fuse these two alternative approaches to supporting young children's learning, thereby providing children with the 'best of both worlds'.

In sum, the studies in this special issue should inspire readers to build upon the findings regarding early regulation and co-regulation by adopting wider horizons. This widening may be achieved at a number of different levels: in terms of theoretical frameworks (from research focused on both cognitive and affective outcomes); in relation to sample size and diversity (e.g., different social partners from more representative samples); in the breadth of outcome measures (e.g., to explore the specificity of effects of co-regulation); and through the adoption of longer follow-up periods (e.g., to assess directly the developmental significance of toddlers' early experiences in guided self-regulation). There are thus many different avenues to explore – an exciting prospect for future research!

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