

THE ROLE OF SUSTAINED SHARED THINKING, PLAY AND METACOGNITION IN YOUNG CHILDREN'S LEARNING

Iram Siraj and Rehana Asani

Taylor & Francis

Introduction

There has been a considerable resurgence in research on children's play in recent years, which provides clear guidelines as to the nature of provision for play, its purposes and the processes by which it influences children's development and learning (Broadhead *et al.*, 2010; Moyles, 2010; Whitebread, 2011). Powerful evidence has also emerged within developmental psychology as new research techniques using neuroscientific and other physiological measures have shown strong and consistent relationships between children's level of play and their cognitive and emotional development (Bornstein, 2006; Tamis-LeMonda and Bornstein (1989).

Within the educational arena, play is widely recognized as a leading context for the child's acquisition of communication and collaboration skills and provides an important context for well-being, learning and development. The current Early Years Foundation Stage (EYFS) guidance (DfES, 2012) in England uses the role of play as 'an effective characteristic of learning', encouraging adults to use a rich range of experiences and resources through talk, modeling and joint-play activities.

The role of the 'adult' within joint activity is of particular interest here. The notion of *sustained shared thinking* (SST), referring to the sharing of thinking with an adult and to the sustained nature of some of the interactions identified in effective (in terms of child outcomes) preschool settings (Siraj-Blatchford *et al.*, 2002) is an area of current research development. As decades of research have shown, play begins first with solitary play and the child goes on to develop the capability to share, then to co-operate and finally to collaborate in their play (Siraj-Blatchford, 2008).

1 But solitary play, shared play, co-operative and collaborative play are not discrete
 2 'stages' that the child works through. These experiences also support children in
 3 developing a greater awareness of their own development and learning, through
 4 building on their metacognitive abilities (i.e. processes whereby individuals become
 5 increasingly aware of and are able to control their own cognitive processes).

6 Thus, recent studies in the area of early childhood education (ECE) have examined
 7 the role of play in supporting children's development of 'metacognitive' and self-regulatory
 8 abilities (Whitebread and Pino-Pasternak, 2010; Robson, 2010). Studies ranging from
 9 experimental to ethnographic investigations have also examined how the field of play
 10 develops, how contextual factors support or impede its development and what its specific
 11 functions are. While much of the research has focused on early transformational abilities
 12 and how they enhance the development of a broad range of skills including literacy
 13 abilities (Pellegrini, 2009), the focus of this chapter is on how young children's play func-
 14 tions as a 'leading activity' (Vygotsky, 1933) and more specifically, how it might work in
 15 the child's development of metacognitive and self-regulation skills.

16 Until recently, it was thought that metacognitive skills did not emerge till later
 17 childhood (Veenman *et al.*, 2006). However, more developmentally appropriate meth-
 18 odologies now identify that children as young as 3 years old are able to demonstrate
 19 metacognitive behaviours including elementary forms of planning, orientation and
 20 reflection (Whitebread *et al.*, 2007, 2009) and early individual differences predict
 21 school achievement more robustly than other indicators such as IQ (Veenman *et al.*,
 22 2004) and reading and maths skills (McClelland *et al.*, 2007).

23 The term metacognition was initially used by Flavell and by Brown in their early
 24 work in the 1970s to refer to knowledge about cognition and regulation of cognition.
 25 According to Flavell (1976), 'metacognition refers to one's knowledge concerning
 26 one's own cognitive processes and products or anything related to them' (p. 232).

27 Flavell (1977) recognized early on that the development of metacognition was a
 28 centrally significant cognitive-developmental hallmark of early childhood. Research
 29 based on Vygotsky's (1978) model of development showed how children's learning is
 30 a process of moving from other-regulation (performing a task supported by an adult
 31 or peer) to self-regulation (performing a task on one's own). Within this dominant
 32 Vygotskian framework, the role of an adult or educator supports children's learning,
 33 emphasizing the significance of mediation by an adult as 'sustained shared thinking'
 34 during such interactions. A range of studies have confirmed these theoretical interre-
 35 lationships between metacognitive and self-regulatory performance by using child-
 36 initiated play (Berk *et al.*, 2006) where these higher order processes promote intentional
 37 learning in ECE.

38 The notion of SST as a pedagogical construct is thus defined as a vehicle for
 39 developing these latter strategies, first identified in a mixed method, educational
 40 effectiveness study (Siraj-Blatchford *et al.*, 2002). Pedagogic progression in the early
 41 years is then identified as an educational response to, *and an engagement with*, the most
 42 commonly observed, evidence-based developmental trajectories of young children as
 43 they learn through play.

44 The development of this chapter represents one stage in a continuing effort to
 45 develop a better understanding of SST as a pedagogic practice in ECE. We focus on

- 1 the educational potential of shared playful activities within the context of metacogni-
- 2 tive abilities.

3

Sustained shared thinking

4 To understand sustained shared thinking (SST) it is important to recognize firstly that
 5 it emerged as an analytic node or 'condensation symbol' in the process of qualitative
 6 research. These data were collected in the intensive case study analysis of 12 'effective'
 7 preschool drawn from the 141 settings involved in the Effective Provision of Pre-
 8 School Education (EPPE) longitudinal study. The term came to be defined as SST
 9 because research respondents and observers specifically referred to the 'sharing of
 10 thinking', and to the particularly sustained nature of some of the interactions identi-
 11 fied in effective (in terms of child outcomes) preschool settings: sustained and mean-
 12 ingful to those sharing the interaction from just a few exchanges of conversation to
 13 much longer episodes.

14 What is novel and important about SST is its evidential basis in group settings, and
 15 as a useful concept for pedagogy. Arguably, many other researchers have adopted
 16 similar terms and have described similar pedagogic practices. In reviewing the litera-
 17 ture for this chapter, the strongest theoretical resonances were found with Vygotsky
 18 (1978) who described a process where an educator supports children's learning within
 19 their 'zone of proximal development'. The zone of proximal development (ZPD) is
 20 primarily where children are given some support from an adult or experienced peer
 21 within the zone of effective learning. Forms of interaction underpin a support struc-
 22 ture for the child to build on such as encouragement, simplifying the task, reminding
 23 the child of the goal, making suggestions and modeling answers. This temporary
 24 structure termed as 'scaffolding' enables the child to successfully carry out a particular
 25 task, building on their existing skills and understanding. The interaction has to be
 26 meaningful to the child and build on her interests.

27 But interactions of this sort have also been described as 'distributed cognitions'
 28 (Salomon, 1993), in terms of the pedagogy of 'guided participation' (Rogoff *et al.*,
 29 1993), and as 'scaffolding' (Wood *et al.*, 1976). Similar examples of participation and
 30 interaction also characterize 'dialogic teaching' (Alexander, 2004), 'dialogic enquiry'
 31 (Wells, 1999), 'interthinking' (Mercer 2000), and 'mutualist and dialectical pedagogy'
 32 (Bruner, 1996, p. 57).

33 The research methods applied in the case studies to identify effective pedagogy in
 34 the EPPE project have been described fully elsewhere (Siraj-Blatchford *et al.*, 2006).
 35 For the purposes of this chapter, it will be enough to explain that the research pro-
 36 vided a qualitative extension to the (then) ten-year longitudinal EPPE study which
 37 has followed the progress of over 3,000 children in England.

38 EPPE controlled for the influence of family and child characteristics and was able
 39 to establish the 'effectiveness' of each of the preschool settings attended by the chil-
 40 dren in its sample. The qualitative case studies drew upon these findings to construct
 41 a stratified random sample of 'good' to 'excellent' settings for further in-depth qualita-
 42 tive data collection and analysis. EPPE was also able to provide data on the 'quality'
 43 of each of the settings as measured by the Early Childhood Environment Rating

1 Scale: Revised (ECERS-R: Harms *et al.*, 1998) and the Early Childhood Environment
2 Rating Scale: Extended (ECERS-E: Sylva *et al.*, 2006).

3 Pedagogy was defined broadly in the qualitative analysis to include all of those
4 processes and provisions that could be considered to initiate or maintain learning
5 processes, and to achieve educational goals. Such a wide definition was considered
6 important so that it would include the common practice of providing resources for
7 exploration and (constructivist) 'discovery' learning environments (e.g. sand and water
8 and play). The analytical process was initially 'grounded', as the process began with
9 induction, and this was only followed later by stages of deduction and verification
10 using the ECERS scores for quality. All of this initial work was also carried out blind
11 in the sense that the researcher was unaware of the particular learning outcomes
12 achieved by the settings and identified by EPPE.

13 In the identification of sustained shared thinking, the pedagogic 'instructional
14 techniques' were at first coded with a multitude of subcategories that included
15 'Questioning', 'Demonstrating', 'Telling', and 'Dialogue'. The reclassification of some
16 of the 'Dialogue' as 'Sustained Shared Thinking' (SST) with subcategories of 'Child-
17 initiated SST' and 'Adult-initiated SST' initially took place after data such as the fol-
18 lowing were revealed:

19 CONTEXT: Children engaged in water play.

20 BOY (4:1) (who has been watching various items floating on water), 'Look at
21 the fir cone. There's bubbles of air coming out.'

22 NURSERY OFFICER 'It's spinning round.'

23 BOY (4:1) 'That's 'cos it's got air in it.'

24 NURSERY OFFICER (picks up the fir cone and shows the CHILDREN
25 how the scales go round the fir cone in a spiral, turning the fir cone round with
26 a winding action), 'When the air comes out in bubbles it makes the fir cone spin
27 around.'

28 GIRL (4:9) (uses a plastic tube to blow into the water), 'Look bubbles.'

29 NURSERY OFFICER 'What are you putting into the water to make bub-
30 bles? ... What's coming out of the tube?'

31 GIRL (4:9) 'Air.'

32 (Dialogue continued ...)

33 The analytical process was continued further through theoretical sampling informed
34 by an analysis of the EPPE multi-level outcomes data, and the centre quality ratings
35 of the ECERS-R and ECERS-E environmental rating scales. Various positive cor-
36 relations were found between child outcomes on, for example, Early Number out-
37 comes with the ECERS-R interaction Sub-scale ($r=0.26$, $p<0.005$). Setting 421
38 (referred to above) was found to have achieved 'excellent' (95 per cent confidence
39 level) practice in terms of the children's developmental progress according to their
40 'non-verbal' and 'number concepts' assessments. Performance in 'Language' was also
41 found to be 'good' (above 68 per cent confidence level). Further analysis soon revealed
42 a general pattern of high cognitive outcomes associated with sustained adult-child
43 verbal interaction along with a paucity of such interactions in those settings achieving

The role of sustained shared thinking

1 less well. SST thus came to be defined as an effective pedagogic interaction, where
 2 two or more individuals ‘work together’ in an intellectual way to solve a problem,
 3 clarify a concept, evaluate activities, or extend a narrative within meaningful contexts
 4 for the child. Thus, SST was subsequently found to occur most commonly in 1:1
 5 adult–child interactions. An example is through questioning with instances of SST
 6 from the observations of practitioners:

7 ‘... it is knowing your children, it’s treating them as equal. It’s asking questions of
 8 them, knowing that you really want to find out, not just because you want them
 9 to give you the right answer. It’s entering into their thoughts ...’
 10 (421 interview with head, para 64)

11 **Play and pedagogic progression in the early years**

12 Play is widely recognized as a leading context for the child’s acquisition of commu-
 13 nication and collaboration skills and provides an important context for learning and
 14 development, as Vygotsky (1933) put it: ‘Only theories maintaining that a child does
 15 not have to satisfy the basic requirements of life, but can live in search of pleasure,
 16 could possibly suggest that a child’s world is a play world’ (p. 1). But: ‘The child moves
 17 forward essentially through play activity. Only in this sense can play be termed a lead-
 18 ing activity that determines the child’s development’ (p. 1).

19 In terms of empirical progression we know that play begins with solitary play and
 20 the child goes on to develop the capability to share, then to co-operate, and finally to
 21 collaborate in their play. We also know that these developments open up much wider
 22 opportunities for learning. However, there are no clear stages of ‘solitary’, ‘shared’,
 23 ‘co-operative’ or ‘collaborative’ play that the child works through. Even solitary play
 24 serves us well at times throughout our learning lives. In most theoretical accounts
 25 describing the ways in which these different forms of play open up the possibility of
 26 learning, the notion of emergent development is often implicit. For example, when
 27 describing play as a ‘leading activity’ (Leontiev, 1964; Oerter, 1993), it is only being
 28 suggested that it should be seen as a driving force in the child’s development of new
 29 forms of motivation and action.

30 Activities that may all be considered examples of SST (Siraj-Blatchford, 2007) are
 31 considered by many neo-Vygotskian writers (Karpov, 2005), to mark the transition
 32 from learning activities that are characterized by ‘emotional communication with
 33 caregivers’ (Lisina, 1986), then to ‘object-centred joint activity’ (Elkonin, 1989) where
 34 the child begins object substitutions, and then on to socio-dramatic play (Leontiev,
 35 1964), with finally activities that reflect the child’s desire to learn more formally and
 36 embrace formal learning (or schooling) as the dominant learning activity.

37 Figure 34.1 summarizes these major developmental phases and identify some of
 38 the major features of pedagogic progression. The figure follows the example of the
 39 English Early Years Foundation Stage (EYFS) Guidance (DfES, 2012) in referring to
 40 some of the most significant, overt and immediate learning that takes place through-
 41 out each phase as something for practitioners to ‘Look, listen, and note’, and to iden-
 42 tify the potential developmental significance of this separately. In place of pedagogy

Playful activity	Sustained shared thinking	Pedagogy	Learning	Developmental potential
1. Emotional communication with caregivers	Communications with adults and peers involves the exchange of significant gestures	Adult models and leads (Treating all of the child's actions as 'communicative'). Scaffolding is then progressively reduced. 'Extensions' provided.	Object permanence 'Social smiles' and Gestures, signs and symbols are increasingly recognised by the child as communicative acts.	Towards the development of a conception of the 'self'.
2. Object-centred joint activity	Pretend role play and object substitution become internalised (as imagination) and as inner speech develops. Sharing play symbols and signs in pretend play with partners	Object substitution and 'pretend' modelled by adults and/or peers Scaffolding in the provision of props (e.g. dressing up clothes) and environments progressively reduced. Extension by encouraging more abstract symbolisation and open ended questioning.	Reciprocity in sharing peer relations Being an (object) other to oneself Increasingly acknowledging other perspectives	Towards the co-ordination of 'self' to 'others'.
3. Socio-dramatic play	Collaborative involvement in improvised play with partners.	Modelling by adults and peers. Progressively reduction of scaffolding in the provision of ideas and themes for play. Extend by encouraging play with more capable peers Introduction of games with more sophisticated rules.	Collaborative skills as socio-dramatic play becomes more as partners at first share symbols and then reciprocally negotiate roles Greater resilience.	Towards a theory of mind and metacognition.
4. Transition to learning activity	Collaboration in increasingly structured activities and games with more complex rules	Encouragement of extended play (over days) to promote self regulation, planning and memory. Progressively reduction of scaffolding in planning. Scaffolding more disciplined collaborations, e.g. carrying out an 'investigation'.	Reflection upon the relationship between 'pretend' signs and 'real' meanings Orientation towards more formal learning and school. Learning to learn.	Towards learning to learn and the development of learning 'dispositions'.

Figure 34.1 Towards a model of pedagogic progression in play

The role of sustained shared thinking

1 we apply the more common phrase ‘effective practice’. The first three developmental
 2 phases that are identified broadly correspond with Broadhead’s (2001) empirical
 3 account of the ‘social play continuum’ levels for ‘Associative Play’, ‘Social Play and
 4 Highly Social Play’, and ‘Co-operative Play’. There is no specification of the ages to
 5 which these apply and there is no particular problem with these being defined as
 6 broad and overlapping phases (as again applied in the EYFS). But arguably these pro-
 7 cesses do not end with play, or in school, or even in adult life. There is an essential
 8 continuity between the playful collaborations of the nursery and the more formal
 9 collaborations between peers, and between teachers and pupils in schools, in working
 10 partnerships, in the provision of apprenticeship and tutorial relationships and even
 11 professional mentors and collaborators at the academic and professional level. In
 12 terms of competence, progression goes from mastering the very informal and strongly
 13 improvised sustained and shared interactions to more highly structured and much
 14 more formal sustained and shared interactions in adult life.

15 **Metacognitive development**16 *The role of others*

17 Researchers agree that social influences are central to metacognitive development.
 18 The dominant theoretical contribution is derived from Vygotsky’s (1978) notion that
 19 children develop the capacity for self-regulation through interaction with more
 20 knowledgeable others. During episodes of true collaboration, the child moves from
 21 being ‘other-regulated’ to ‘self-regulated’ (Zimmerman and Schunk, 2001). Work
 22 within this approach has emphasized the significance of mediation by an adult who
 23 initially assumes responsibility for monitoring progress, setting goals, planning activi-
 24 ties, etc.; however, over time, responsibility of these executive processes is given over
 25 to the child.

26 Findings from the Researching Effective Pedagogy in the Early Years (REPEY)
 27 study (Siraj-Blatchford *et al.*, 2002) have demonstrated the effective pedagogue
 28 orchestrates learning through the following adult–child interactions, for example:

- 29 • *Scaffolding* – to extend children’s knowledge and understanding through the use
 30 of strategies such as open ended questioning;
 31 • *Extending* – by making a suggestion that helps a child to see other possibilities;
 32 • *Discussing* – which supports the interchange of information or ideas.
 33 • *Modelling* – which includes the demonstration of activities and verbal commen-
 34 tary from the adult.

35 Such opportunities should be sensitive to the curriculum concept or skill being
 36 ‘taught’, which take into account the child’s interests and ZPD (Vygotsky, 1978).

37 In principle, REPEY (Siraj-Blatchford *et al.*, 2002) established that the most effec-
 38 tive (excellent) settings (for enhancing child development) achieved a balance between
 39 the opportunities provided for children to benefit from adult-initiated group work
 40 and in the provision of freely chosen, yet potentially instructive, play activities.

1 According to Whitebread *et al.* (2007), when adults are engaged in activities with
 2 children, they may tend to stimulate the children to reflect on and engage with, what
 3 they know about their *own* learning more frequently.

4 Intervention research has also shown that children are able to benefit from peda-
 5 gogical techniques to promote metacognitive development. Such instruction, partic-
 6 ularly language (both oral and written) includes developing the students' awareness
 7 (encouraging talk about the strategies used and how they affect performance).
 8 Pramling (1988) argues that 'explicit talk' or 'metacognitive dialogues' between adult
 9 and child helps children become more consciously aware of their thinking, which
 10 ultimately supports their metacognitive development.

11 The role of peer-assisted learning has been well documented within the self-
 12 regulation literature. Evidence of metacognitive development has been found in play-
 13 ful contexts which involved another child or small groups with high levels of
 14 collaborative dialogues. Robson (2010) found extensive evidence of metacognitive
 15 and self-regulatory behaviours in preschool children's self-initiated play and shared
 16 talk. Opportunities for open-ended group-work, and child-initiated activities which
 17 encouraged children to articulate their ideas and explain their reasoning, were found
 18 to be significantly effective in stimulating metacognitive and self-regulatory behavior
 19 (Whitebread *et al.*, 2007).

20 **The role of self-regulation**

21 A number of studies have investigated 'the role of the child during play' and develop-
 22 ment of self-regulation (Berk *et al.*, 2006). Findings from these studies suggest that
 23 some types of play, i.e. social pretend play, can promote private speech (where children
 24 are observed to self-commentate) (Diaz and Berk, 1992).

25 Vygotsky (1962) initially proposed that private speech stems from social speech,
 26 which emerges from the guiding nature of children's parent-child interactions. Within
 27 his framework, he argued that higher mental functions develop through this internal-
 28 ization and transformation of mental processes. As adult and child participate in a
 29 linguistically mediated joint activity, a child creates a dialogue that can be internalized
 30 to form self-regulatory private speech (Fernyhough, 1996). As Fernyhough (2010)
 31 explains, words that were previously used by the child to regulate the thought and
 32 behaviour of others (or which others have used to regulate the child's thought and
 33 behaviour), become employed in regulating the thought and behaviour of the child.

34 Research has revealed interesting findings about the context of private speech
 35 occurrence in young children. Diaz and Berk's (1992) study shows that the use of
 36 private speech during goal-directed activities is firstly overt and is an important tool
 37 to guide attention and regulate behaviour during problem-solving tasks. It later
 38 undergoes a developmental transition where it becomes more internalized, frag-
 39 mented and relevant over time (Winsler and Naglieri, 2003). Within the context of
 40 play in young children, studies examining private speech found a positive relationship
 41 between the development of self-regulation and make-believe play (Krafft and Berk,
 42 1998). They found that the incidence of private speech was higher during open-
 43 ended activities, especially during fantasy play where children were involved in

1 associative play with peers. In this view, the self-regulatory functions of speech have
 2 their origins in social exchange, and are not simple imitations of the adult's guiding
 3 speech (Berk and Spuhl, 1995).

4 **The development of play**

5 Let us now consider how SST develops over time in progressively more sophisticated
 6 contexts, as sustained and shared 'moments of activity' (Leontiev, 1978). We can begin
 7 by drawing upon George Herbert Mead's account of the processes that are involved
 8 in children's early 'emotional communications with caregivers' seeing these as gestural
 9 symbols that are at first recognized by babies as communicative acts.

10 To paraphrase Morris (1962): 'The "significant gesture", itself a part of a social
 11 process, internalizes and makes available to the [child] the means which have them-
 12 selves emerged earlier, nonsignificant, stages of gestural communication' (p. xxii).
 13 'Significant gestures' thus provide the means by which a baby is able to at first objec-
 14 tify the behaviour (or role) of the other, and control their own behaviour in response
 15 to these roles. It is also in this process that the child first develops a conscious aware-
 16 ness of the 'self'. The interactive contexts for these very early learning experiences
 17 usually involve the parent or primary carer playing 'peek-a-boo' or other baby games
 18 that involve taking turns. But the development of higher mental functions only
 19 'emerges' following a multiplicity of these relatively simple interactions.

20 The pedagogy that might be considered implicit in these interactions follows a
 21 sequence where the adult at first repeatedly models a particular action or gesture (an
 22 early example may be a big smile following eye contact), or the adult provides a
 23 reward when the child responds and then as the child begins to initiate the game
 24 themselves, progressively reducing the scaffolding (in this case the adult initiation and
 25 rewards). The guided assumption here is that children at first cannot perform the lead-
 26 ing activity independently without adult interaction. However, gradually children
 27 become full partners, during these interactions, where 'playful activity' between parent
 28 and child operates within the child's zone of proximal development. Progressively, as
 29 the child continues to communicate with adults and other children, the meanings
 30 that they are constructing are mediated by all their previous historical moments of
 31 significant activity.

32 At this point conceptual knowledge and understanding of the 'other', and of the
 33 'self', develop further and learning 'dispositions' become more significant (e.g. prob-
 34 ably most clearly identified in studies of gender preference). The development of
 35 these sophisticated levels of abstraction (and meta-consciousness), commonly referred
 36 to as a theory of mind (ToM), also facilitates the development of metacognitive skills.
 37 The metacognition that is so important in learning-to-learn also develops as the child
 38 finds it necessary to describe, explain and justify their thinking about different aspects
 39 of the world to others.

40 Thus, from an early age, young children learn to separate objects and actions from
 41 their meaning in the real world and give them new meanings. This provides the basis
 42 for early representational thinking and in more advanced forms of representational
 43 thinking these 'props' are no longer required, so that problems may be solved entirely

1 'in the head'. With their play partners, communication is conducted, from their own
 2 historically constructed perspective, which includes their understanding of the per-
 3 spective of themselves constructed by the other participant in the communication (or
 4 SST). This has important implications for development as 'the child's position towards
 5 the external world changes ... and the ability to co-ordinate his point of view with
 6 other possible points of view develops' (Elkonin, 1978, p. 282).

7 Forman and Cazdan's (1998) research suggests that children's problem-solving
 8 improves in collaboration, as the partners alternately provide scaffolding for each
 9 other within the partners' 'zone of proximal development' (ZPD). That is, the 'zone of
 10 capability' that extends beyond what the partner is capable of doing on their own to
 11 include those activities they may successfully do with the support of their peer.

12 This pedagogic sequence of *modelling – progressive reduction of scaffolding – extension*
 13 may continue to be employed in supporting children's learning in a wide range of
 14 play contexts throughout the early years.

15 As children develop, a range of particular (and increasingly unique) cultural, per-
 16 sonal and situational factors will make some contexts more significant to the indi-
 17 vidual child than others. But in the child's first significant gestures, and later in many
 18 other communications, both positive and negative emotional influences are likely to
 19 motivate their learning, with the operation of interests, desires and impulses being
 20 applied on the one hand (perhaps dominating in the earliest years), and concerns
 21 about what Piaget referred to as 'disequilibrium' (and *cognitive dissonance or conflict*)
 22 being applied on the other.

23 For Van Oers (1998), the creative processes of learning that are involved can be
 24 characterized as a process of 'progressive continuous re-contextualization' (pcr-c),
 25 where it is considered that as soon as the individual recognizes the potential of achiev-
 26 ing a recalled (and motivating) object (or outcome) they may choose to re-contextualize
 27 that object, transforming (or 'transferring') their (structure and meaning) of the activ-
 28 ity to that end. The developmental significance of these first separations of meaning
 29 from objects is enormous: 'At that critical moment when a stick – i.e. an object –
 30 becomes a pivot for severing the meaning of horse from a real horse, one of the basic
 31 psychological structures determining the child's relationship to reality is radically
 32 altered' (Vygotsky, 1933, p. 1).

33 It is in this context that the power of play and pretence may be seen most clearly.
 34 Vygotsky (1933) argued that in the child's 'real' life, action always dominates over
 35 meaning. The evidence suggests that the crucial practice of *substituting a real object for*
 36 *a symbol* may occur spontaneously in play, but that this is also greatly facilitated in
 37 playful interaction with others.

38 Conclusions

39 This chapter has considered the role of SST as a form of pedagogy in the sense that
 40 it is something adults do to support and engage children's learning. SST is argued as
 41 a high order pedagogical concept as the adult has to sensitively tune into the child's
 42 interests and meaning making before extending it with them, and, as a common
 43 approach, has the potential to provide just this sort of continuity. Drawing upon

The role of sustained shared thinking

1 broadly Vygotskian sources, the model presented suggests that learning can change
 2 the child's developmental level through ZPD to which adults can progressively intro-
 3 duce children to the cultural tools that they require to mediate cognitive develop-
 4 ment. Furthermore, through pretend play, the chapter has argued that symbolic
 5 construction and the role of language can be introduced as an appropriate pedagogic
 6 activity for young children to enhance both self-regulation and metacognitive
 7 abilities.

8 In discussing the transition from play to learning as 'a leading activity', Carpay and
 9 Van Oers (1993) argued that 'learning activity must be fostered as a new special form
 10 of play activity. As a new quality emerging from play activity, it can be argued that
 11 learning activity has to be conceived as a language game in which negotiation about
 12 meanings in a community of learners is the basic strategy for the acquisition of
 13 knowledge' (cited in Van Oers 1999, p. 273).

14 During the course of development, children experience more challenging SST in
 15 their play initially with adults, then in reciprocal peer play and later in sophisticated
 16 collaborative play. We can support this process in ECE by providing children with
 17 more challenging forms of SST and by initiating more sophisticated and abstract scaf-
 18 folding props. The prime objective should be further opportunities for meaningful
 19 talk between adult and child, providing cognitive challenge that is manageable for the
 20 children.

References

- 21
 22 Alexander, R. (2004) *Towards Dialogic Teaching: Rethinking Classroom Talk*. York: Dialogos.
 23 Berk, L. E. and Spuhl, S. T. (1995) Maternal interaction, private speech, and task performance
 24 in preschool children. *Early Childhood Research Quarterly*, 10, 145–69.
 25 Berk, L. E., Mann, T. D. and Ogan, A. T. (2006) Make-believe play: Wellspring for develop-
 26 ment of self-regulation. In D. G. Singer, R. M. Golinkoff and K. Hirsh-Pasek (eds)
 27 *Play=Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional*
 28 *Growth* (pp. 74–100). Oxford: Oxford University Press.
 29 Bornstein, M. H. (2006) On the significance of social relationships in the development of
 30 children's earliest symbolic play: An ecological perspective. In A. Göncü and S. Gaskins
 31 (eds) *Play and Development: Evolutionary, Sociocultural and Functional Perspectives* (pp. 101–29).
 32 Mahwah, NJ: Erlbaum.
 33 Broadhead, P. (2001) Investigating sociability and cooperation in four and five year olds in
 34 reception class settings. *International Journal of Early Years Education*, 9(1).
 35 Broadhead, P., Howard, J. and Wood, E. (eds) (2010) *Play and Learning in the Early Years*. London:
 36 Sage.
 37 Bruner, J. (1996) *The Culture of Education*. Cambridge, MA: Harvard University Press.
 38 Carpay, J. and Van Oers, B. (1993) Models for learning and the problem of classroom dis-
 39 course. *Voprosy Psichologii*, 4, 20–6.
 40 DfES (Department for Education and Skills) (2012) *Practice Guidance for the Early Years*
 41 *Foundation Stage*. DfES Publications. Available at: www.foundationyears.org.uk/eyfs-2014/.
 42 Diaz, R. M. and Berk, L. E. (eds) (1992) *Private Speech: From Social Interaction to Self Regulation*.
 43 Hillsdale, NJ: Erlbaum.
 44 Elkonin, D. (1978) *Psychology of Play*. Moscow: Pedagogika.
 45 Fernyhough, C. (1996) The dialogic mind: A dialogic approach to the higher mental func-
 46 tions. *New Ideas in Psychology*, 14, 47–62.
 47 Fernyhough, C. (2010) Inner speech. In *Encyclopaedia of the Mind*. Pashler: H. Sage.

- 1 Flavell, J. H. (1976) Metacognitive aspects of problem solving. In B. L. Resnick (ed.) *The Nature*
- 2 *of Intelligence*. Hillsdale, NJ: Erlbaum.
- 3 Flavell, J. H. (1977) *Cognitive Development*. Englewood Cliffs, NJ: Prentice-Hall.
- 4 Forman, E. and Cazdan, C. (1998) Exploring Vygotskian perspectives in education. In
- 5 D. Faulkner, K. Littleton and M. Woodhead (eds) *Learning Relationships in the Classroom*,
- 6 pp. 189–206. London: Routledge and the Open University.
- 7 Harms, T., Clifford, R. and Cryer, D. (1998) *Early Childhood Environment Rating Scale – Revised*.
- 8 North Carolina: Teacher's College Press.
- 9 Karpov, Y. (2005) *The Neo-Vygotskian Approach to Child Development*. Cambridge: Cambridge
- 10 University Press.
- 11 Krafft, K. C. and Berk, L. E. (1998) Private speech in two preschools: Significance of open-
- 12 ended activities and make-believe play for verbal regulation. *Early Childhood Research*
- 13 *Quarterly*, 13, 637–58.
- 14 Leontiev, A. (1964) *Problems of Mental Development*. Washington: US Joint Publication Research
- 15 Service.
- 16 Leontiev, A. (1978) *Activity, Consciousness, Personality*. Englewood Cliffs, NJ: Prentice Hall.
- 17 Lisina, A. (1986) *Problems of the Ontogenesis of Communication*. Moscow: Pedagogika.
- 18 McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M. and Morrison,
- 19 F. J. (2007) Links between behavioral regulation and preschoolers' literacy, vocabulary, and
- 20 math skills. *Developmental Psychology*, 43, 947–59.
- 21 Mercer, N. (2000) *Words and Minds*. London: Routledge.
- 22 Morris, C. (1962) Introduction. In G. H. Mead (ed.) *Mind, Self and Society* (pp. i–xii). Chicago:
- 23 University of Chicago Press.
- 24 Moyles, J. (ed.) (2010) *The Excellence of Play*, 3rd edn. Maidenhead, UK: Open University Press.
- 25 Oerter, R. (1993) *The Psychology of Play: An Activity Oriented Approach*. Munich: Quintessenz.
- 26 Pellegrini, A. D. (2009) *The Role of Play in Human Development*. New York: Oxford University
- 27 Press.
- 28 Pramling I. (1988) Developing children's thinking about their own learning. *British Journal of*
- 29 *Educational Psychology*, 58, 266–78.
- 30 Robson, S. (2010) Self-regulation and metacognition in young children's self-initiated play
- 31 and reflective dialogues. *International Journal of Early Years Education*, 18(3), 227–41.
- 32 Rogoff, B., Mistry, J., Göncü, A. and Mosier, C. (1993) Guided participation in cultural activ-
- 33 ity by toddlers and caregivers. *Monographs of the Society for Research in Child Development*, 58
- 34 (7, Serial No. 236).
- 35 Salomon, G. (1993) *Distributed Cognitions: Psychological and Educational Considerations*. Cambridge:
- 36 Cambridge University Press
- 37 Siraj-Blatchford, I. (2007) Creativity, communication and collaboration: The identification of
- 38 pedagogic progression in SST. *Asia-Pacific Journal of Research in Early Childhood Education*,
- 39 1(2), 3–23.
- 40 Siraj-Blatchford, I. (2008) Understanding the relationship between curriculum, pedagogy and
- 41 progression in learning in early childhood. *Hong Kong Journal of Early Childhood Education*, 7(2).
- 42 Siraj-Blatchford, I. (2009) Conceptualising progression in the pedagogy of play and sustained
- 43 shared thinking in early childhood education: A Vygotskian perspective. *Educational and*
- 44 *Child Psychological Society*, 26(2), 77–89.
- 45 Siraj-Blatchford, I., Sylva, K., Muttock, S., Gilden, R. and Bell, D. (2002) *Researching Effective*
- 46 *Pedagogy in the Early Years*, DfES Research Report 356. London: DfES.
- 47 Siraj-Blatchford, I., Sammons, P., Sylva, K., Melhuish, E. and Taggart, B. (2006) Educational
- 48 research and evidence based policy: The mixed method approach of the EPPE Project.
- 49 *Evaluation and Research in Education*, 19(2), 63–82.
- 50 Sylva, K., Siraj-Blatchford, I. and Taggart, B. (2006) *Early Childhood Environmental Rating Scale –*
- 51 *Extension (ECERS-E)*, 2nd edn. Stoke-on Trent: Trentham Books.
- 52 Tamis-LeMonda, C. S. and Bornstein, M. H. (1989) Habituation and maternal encourage-
- 53 ment of attention in infancy as predictors of toddler language, play and representational
- 54 competence. *Child Development*, 60, 738–51.

The role of sustained shared thinking

- 1 Van Oers, B. (1998) The fallacy of decontextualisation. *Mind, Culture and Activity*, 5(2), 135–42.
- 2 Van Oers, B. (1999) Teaching opportunities in play. In M. Hedegaard and J. Lompscher (eds)
- 3 *Learning Activity and Development*, pp. 268–89. Aarhus: Aarhus University Press.
- 4 Veenman, M. V. J., Wilhelm, P. and Beishuizen, J. J. (2004) The relation between intellectual
- 5 and metacognitive skills from a developmental perspective. *Learning and Instruction*, 14,
- 6 89–109.
- 7 Veenman, M. V. J. and Hout-Wolters, B. H. A. M. van and Afflerbach, P. (2006) Metacognition
- 8 and learning: Conceptual and methodological considerations. *Metacognition and Learning*,
- 9 1(1), pp. 3–14.
- 10 Vygotsky, L. (1933) Play and its role in the mental development of the child. *Voprosy psikhologii*,
- 11 1966, No. 6, trans. C. Mulholland, *Psychology and Marxism Internet Archive 2002*. Available at:
- 12 www.marxists.org/archive/vygotsky/works/1933/play.htm.
- 13 Vygotsky, L. S. (1962) *Thought and Language*. Cambridge, MA: MIT Press.
- 14 Vygotsky, L. S. (1978) *Mind in Society: The Development of Higher Psychological Processes*.
- 15 Cambridge, MA: Harvard University Press.
- 16 Wells, G. (1999) *Dialogic Inquiry: Towards a Socio-cultural Practice and Theory of Education*.
- 17 Cambridge: Cambridge University Press.
- 18 Whitebread, D. (2011) *Developmental Psychology and Early Childhood Education*. London: Sage.
- 19 Whitebread, D. and Pino-Pasternak, D. (2010) Metacognition, self-regulation and meta-
- 20 knowing. In K. Littleton, C. Wood, and J. Kleine Staarman (eds) *International Handbook of*
- 21 *Psychology in Education*. Bingley, UK: Emerald.
- 22 Whitebread, D., Bingham, S., Grau, V., Pino-Pasternak, D. and Sangster, C. (2007) Development
- 23 of metacognition and self-regulated learning in young children: The role of collaborative
- 24 and peer-assisted learning. *Journal of Cognitive Education and Psychology*, 6, 433–55.
- 25 Whitebread, D., Colman, P., Pino-Pasternak, D., Sangster, C., Grau, V., Bingham, S., Almeqdad,
- 26 Q. and Demetriou, D. (2009) The development of two observational tools for assessing
- 27 metacognition and self-regulated learning in young children. *Metacognition and Learning*,
- 28 4(1), 63–85.
- 29 Winsler, A., and Naglieri, J. (2003) Overt and covert verbal problem-solving strategies:
- 30 Developmental trends in use, awareness, and relations with task performance in children
- 31 aged 5–17. *Child Development*, 74, 659–78.
- 32 Wood, D., Bruner, J. and Ross, G. (1976) The role of tutoring in problem solving. *Journal of*
- 33 *Child Psychology and Psychiatry*, 17(2), 89–100.
- 34 Zimmerman, B. J. and Schunk, D. H. (eds) (2001) *Self-regulated Learning and Academic Achievement:*
- 35 *Theoretical Perspectives*, 2nd edn. Mahwah, NJ: Erlbaum.