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**Children's social literacies: Meaning making and the emergence of graphical signs and texts in pretence****Maulfry Worthington and Bert van Oers**

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**Abstract**

This study builds on recent research into young children's pretend play. Social literacy practices and events in which the children engaged were investigated to uncover features of their meaning making.

Drawing on Vygotsky's view of the social nature of symbol use and writing, it stresses the significance of cultural and social features of meanings and literacies within the children's play narratives. Data were collected for case studies of seven children aged three to four years in an inner-city maintained nursery school in southwest England, as part of a larger longitudinal ethnographic study. Data comprise written documentation of the children's play and their visual representations, and analysis follows an interpretive, social semiotic multimodal paradigm.

The findings make a compelling case for greater appreciation of pretence as a potentially valuable context for the enculturation of literacies, highlighting the diversity and richness of children's spontaneous meaning making and self-chosen literacy events. Informed by cultural and literacy practices of home and nursery, the children's communications show how meanings and signs are carried across time, space and contexts. Rich and sustained play supported the children's self-initiated literacies in which they explored a heterogeneous range of textual genres, uncovering their developing semiotic understandings and expanding repertoire.

**Key words**

Pretend play, literacy practices and events, multimodality, meaning making, graphical signs and texts

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**Introduction**

An important aspect of children's cultural development is the process of sense-making in which young children attribute personal meaning to available cultural heritage (van Oers, 2012). The abstract symbolic systems of writing and mathematics, for example, are important for both individuals' and society's success and are consequently a focus for learning in many early childhood curricula. Both systems are acknowledged as literacies (UNESCO, 2006), this change affirming a shift from a monomodal, written literacy to multiple literacies.

Within their families and communities children engage in a continuous stream of cultural events where literacy is embedded in children's everyday activities at home rather than being just a school subject (Barton, 1994). Early childhood teachers must consider which contexts best provide young children with meaningful experiences to explore and build on their powerful cultural knowledge and home literacies.<sup>1</sup> Vygotsky and Leont'ev regarded pretend play (symbolic play) as the 'leading activity' in early childhood, the location of the most significant psychological changes, paving the way for 'the child's transition to a new, higher level of development' (Leont'ev, 1981: 369).

Recent research has revealed the extent of children's *mathematical* interests and the role of cultural knowledge in social pretend play (Worthington and van Oers, 2016). The current study goes beyond the mathematical domain and interrogates the same data. Its aim is to investigate features of young children's meaning making and the breadth and nature of the literacies they use to communicate at home and in their imaginary play.

In this study we address the following research questions:

1. What is the relationship between the children's cultural knowledge of literacy practices at home and their literacy events in the nursery?
2. What is the extent of children's literacies in pretend play?
3. Which features of the children's texts contribute to their play and understanding?

**Theoretical framework**

*Rationale for research*

Hall (e.g. 1991), Meek (1991) and Wells (2003) identified the relationship between children's cultural knowledge of home literacy practices and their educational settings. This study draws on cultural-historical and multimodal, social semiotic theories: these different research traditions are underpinned by Vygotskian theory, informing the design and analytical approach employed. These research traditions support various aspects of the study including the home cultural knowledge the children bring to their nursery. The ways in which the children make meanings through symbolic tools, and their use of their literacies to communicate meanings in the social context of their play confirm the significance of children's spontaneous pretend play.

The headteacher of this nursery school emphasises the intellectual over academic and children's meaning making over 'school-readiness'. Continuing professional development (CPD) is promoted through research, and almost all staff members are involved in research projects. All the teachers are studying for Masters degrees and the headteacher is engaged in doctoral research. Of the two teachers involved in this study, Hugo was an experienced teacher and Emma was in her third year of teaching.

The nursery's culture places considerable value on children's self-initiated play and literacies, and there is no formal adult-directed writing or teaching of synthetic phonics. Teachers provide a rich literate environment in which all aspects of play and graphicacy are encouraged and enriched through rich dialogue and numerous displays, and a wealth of graphical resources is available indoors and out (e.g. pens, chalks, papers, whiteboards).

#### *Literacy as a social practice*

This study conceives of literacy as an everyday social-communicative practice. Moreover, cultural ways of knowing show how children's experiences and interests 'may prepare them for knowing how to engage in particular forms of language and literacy activities' (Gutierrez and Rogoff, 2003: 23). Literacy *practices* focus 'on the social models of literacy that participants bring to bear upon those events and that give meaning to them... to *link* them to something broader of a cultural and social kind' (Street et al., 2008: 19, emphasis in the original). Literacy *events* refer to incidents in which children use literacies as an integral part of their interactions (Heath, 1982). Literacy events also include communicative acts that further the play narrative. Many children appear to communicate their ideas through graphicacy almost as frequently as they use speech, and children are the main players in these play episodes although occasionally adults are involved. Their play provides instances of embedded uses of literacies, imitated or adapted from home literacy practices, for example when shopping with their daughters, the mothers of two of the children in the study regularly made shopping lists (a literacy *practice*): when the same children played pretend shops they often made their own shopping list (a literacy *event*). In our view, all purposeful use of signs (including both the production and interpretation) are taken as 'literacy'.

Children learn from other people in the process of communication within culturally developed forms of activity in accordance with cultural-historical values (Valsiner, 1987; Wertsch, 1985). Vygotsky (1978) placed emphasis on the importance of culture and the way in which social contexts and cultural tools mediate learning, resulting in learning that is active, collaborative and emergent. Moreover in the context of children's participation in cultural and social contexts, Rogoff, (2008) employs the metaphor of *apprenticeship*. This stance reflects the work of Lave and Wenger (1991) who see apprenticeship learning as *situated* within a cultural community. In the current study children participate in their home cultural knowledge and, where favourable opportunities exist in their educational settings, they draw on their cultural understandings (Worthington and van Oers, 2016). Cultural-historical theory therefore underscores the importance of meaningful and shared social engagement in cultural practices. In early childhood educational settings a potentially rich context for children's engagement in literacy events is pretend play.

#### *Pretend play*

Many children engage frequently in pretence through talk, action and symbolic artefacts (as in Vygotsky's example of a child using a stick to signify a horse): this ability to substitute one meaning for another underpins symbolic representation through graphical marks, signs and symbols.<sup>2</sup> Vygotsky (1978) regarded pretence as highly significant for young children's development: cultural learning and the development of psychological tools within social pretend play also 'furnish opportunities for the development of everyday concepts... a 'bridge' between spontaneous and scientific concepts' (Vygotsky, 1987: 238). Hence, pretend play is a powerful context for the emergence of graphical signs that underpin development of symbolic activities such as literacy, mathematics and music.

Harris observes that children take a great deal of their conceptual knowledge to their pretend play (2000: 8). Communication through talk and graphical representation helps further the development of the play narrative, not as adult planned tasks to fulfill curriculum goals, but as improved participation in meaningful communicative cultural practices.

The starting point should be to view play from the children's perspective (Rogers, 2010), although research has shown that whilst many early childhood teachers make provision for pretence it is nowadays still largely adult-planned. The extent to which rich pretend play is realised in modern early years practice is disputed (Brooker, 2010; Rogers, 2010).

Opportunities for genuine, *child-initiated* pretend play appears to be limited, a concern that has been highlighted elsewhere (e.g. Brooker, 2011; Parker-Rees, 1999: 61; cited in Rogers and Evans, 2008; Rogers 2011). Adult-planned play restricts children's genuine connections with their personal 'funds of knowledge' (Moll et al., 1992). Worthington and van Oers highlight the practice common in most of the world:

'... where adults choose, plan and resource themed role-play areas, revealing *adults'* *perceptions* of children's interests, rather than children's authentic and immediate interests that have personal cultural meaning. In contrast when children initiate and freely shape their play, their 'authentic and immediate interests... have personal cultural meaning' (2016, emphasis in the original).

Hall (1991) advocated the provision of rich literacy resources for pretence; however, whilst Hall and Robinson's 1995 publication includes some examples of children's spontaneous writing (albeit in adult-planned and resourced play areas), one teacher's creation of a garage - planned with the intention of stimulating contextualised writing - suggests that that she had specific curricula goals in mind. Hall and Robinson refer to this as *writing in association with play*.

In line with these reflections we identified as pretend play in our studies, all play activities of children that focused on imaginary or 'possible worlds' in which the children freely imitated and explored cultural practices they had experienced. Integral to this play are features of children's meaning making. It is argued that in early childhood settings joint pretend play provides a potentially rich context for meaningful social participation, and, since the study focuses on children's communications, only social play episodes involving two or more children playing together were categorised.

This research focuses on children's communicative means for specific communicative purposes in pretence, embracing the diverse ways in which children make meanings: they invent new means of communication in situations that make sense to them and provide the freedom to do so. Other researchers have identified this inter-relationship between pretend play and literacy, (e.g. Barrs, 1988; Hall, 1991; Isenberg and Jacob, 1983; Klenk, 2001; Kress, 1997; Meek, 1991; Pellegrini, 1980 and Vygotsky, 1978).

Multiple ways of meaning making are increasingly referred to as *multimodal*. It was evident from the data that the children drew on multimodal ways of representing and communicating their meanings, and the increasing body of research into multimodality informs analysis of the set of visual data in this study.

### *Multimodality*

The children's literacies are analysed from a multimodal, social semiotic perspective. Research by Kress and others (e.g. Jewitt and Kress, 2003; Pahl, 1999) encourages us to 're-think children's paths into writing' (Kress, 1997: xviii) and challenges conventional conceptions of literacy. Kress emphasises that whereas literacy as a social practice focuses on collaborative acts, multimodality attempts to understand the tools people use as they engage in joint social actions (2006). He proposes that we 'cannot understand how children

find their way into print unless we understand the principles of their meaning making' (1997: xvii). A traditional, cognitive psychological approach to literacy learning normalises progress, matching it to an agreed developmental pathway for all children (Larson and Marsh, 2014: 4). In contrast, multimodality presents a more realistic view of young children's emerging literacies, treating '*individual speakers or writers not as language users but as language makers*' (Kress, 1997: xvi, emphasis in the original).

Young children's language making is essentially a multimodal process. *Modes* (forms of communication), *materiality* and *affordances* are significant aspects of multimodality. According to Bezemer and Kress (2008) a mode is 'a socially and culturally shaped resource for meaning making' (2008: 171). *Modes* (e.g. found and made artefacts, speech, drawings) are used to express particular meanings, doing 'different kinds of semiotic work with different *affordances* – potentials and constraints for making meaning' (Bezemer and Kress, 2008: 171). *Materiality* refers to the 'stuff' chosen to make particular meanings (for example, paper, plastic, sticks, pens).

#### *Characterisation of the study*

In this study *literacies* refers to the marks and signs children choose to use: they are also all referred to as *graphics* (Carruthers and Worthington, 2006), the term *graphical communication* emphasising the children's communicative intention in creating a text.<sup>3</sup> The term *visual data* is also used to refer to the children's graphics in this study.

The observations of the case study children's play were analysed to uncover some processes in their ways of participation in literacies, especially to articulate how they develop meaningful communicative texts and how their understandings grow. Data collected through case studies as part of a larger, ethnographic study are interrogated from several perspectives, taking an interpretive stance combining social semiotic and discursive analyses.

In order to ensure that this stance is sufficiently rigorous and to support systematic data analysis of the written observations, *computer assisted qualitative data analysis* software 'ATLAS-ti' was employed. Data were coded to identify evidence of *pretend play episodes* combined with *graphicacy*. Additional coding enabled the children's marks, signs and symbols to be located in the transcripts, and those occasions when a child referred to the meaning of their graphics to be identified. Transcripts were also coded for the children's different writing genres.

Although concerns have sometimes been raised regarding the generalisability of case studies (Anderson, 1990; Bogdan and Biklen, 1982), Simons argues that they can provide 'glimpses into wider socio-cultural patterns' (1996, cited in Marsh 1999: 130). Early and Cummins (2011) argue that case studies provide creditable data documenting authentic instances of

practice that allow hypotheses to be formed and tested, thereby contributing to theory. Case studies 'speak directly' to both theory and practice, and contribute to the knowledge base relating to literacy and education... every bit as credibly as any quantitative research' (2011:19). The multiple case studies in this study also work together, highlighting similarities and differences in the children's play and literacies.

In the early stages of this study ethnographic research was identified as being particularly appropriate, firstly since it is an invaluable method to investigate children's cultural knowledge and practices in naturalistic settings, and secondly since it has been widely and successfully used in studies of literacies and multimodality. According to Griffin and Bengry-Howell (2008) ethnographic research is concerned with understanding people's cultural and symbolic behaviours within specific contexts (2008). For achieving this, we follow Geertz's idea that 'ethnography is thick description' (1973: 217) in order to allow the voices, emotions, behaviours and meanings 'of interacting individuals are heard' (Denzin, 2001: 100). The diverse data and the different voices of the children, their parents and teachers contributed to this thick description.

Embedded in the children's literacy events are *artefactual literacies* (Pahl and Rowsell, 2014), (also referred to as *literacy objects* by Neuman and Roskos, 1990). From a Vygotskian perspective these *artefactual literacies* are also material cultural tools. According to Pahl and Rowsell,

'Artefacts embody people, stories, thoughts, communities, identities, and experiences... They are valued or made by meaning makers and in a particular context... They enable a different kind of learning, one that is located, drawing on personal and collective stories and heritage, and re-position learners as experts in the field of their own objects' (Pahl and Rowsell. In Larson and March (2014: 99).

In this study the children appeared to understand *texts* as 'things', 'as objects with a history and as a material presence' (Pahl and Rowsell, 2005: 27), their texts also serving as objects within their play.

## **Methodology**

### *Research setting and participants*

The nursery school participating in this study is situated in a large city in southwest England: sixty children attend each morning and afternoon session and individual key people each lead a group of children. The nursery's culture and ethos support open ways of learning and teaching. Rather than anchoring practice in narrow curriculum goals, teachers encourage children to initiate ideas and support their complex thinking through rich dialogue. Pretend

play in this nursery is neither themed in advance nor planned by adults and is a popular choice for many of the children, and graphical communication has a high profile.

The teachers value and support children's impromptu pretence and imagination, often staying close to the location of their play and sometimes drawn into children's dialogues. They frequently bring in resources to support the children's interests, enabling children to extend and deepen their ideas and narratives. Whereas some researchers focus on the provision of literacy resources relevant to adult-planned pretence (e.g. Bradford, 2015; Bröstrom, 1997; Cook, 2006), children in this nursery locate resources when they need from those readily available.

The teachers collaborating in this study were asked to identify several children whom they knew - from their knowledge of the children and previously documented observations – to often choose to use graphics. They identified Isaac and Shereen, (both four years of age) and Elizabeth, (three years six months). These children will be referred to as focal children in the following. To determine if previous interest and experience in graphicacy were significant, the teachers randomly selected four additional children (Oliver, David, Ayaan and Tiyanni). The children were all in their final year at nursery, and at the onset of the academic year their ages ranged from three years two months, to four years of age.

Shereen's family comes from the Philippines and she speaks English fluently. Ayaan's family is from Somalia: Ayaan speaks Somali fluently and when she arrived in the nursery she was unsure about communicating in English. Ayaan's teacher observed that the pretend play in which Ayaan increasingly participated encouraged friendships to develop, boosting her confidence in spoken English. The remaining children's first language is English. Tiyanni's family is from the West Indies. Several of the families live within walking distance of the nursery school, but Elizabeth, Isaac, Shereen and Tiyanni live at a distance, their parents explicitly choosing this particular nursery school. Elizabeth had attended the longest, first attending as a baby and providing long term familiarity with the culture and routines of the nursery.

Data drawn from the first researcher's visits to the children's homes and informal discussions with their teachers, showed that their home cultural experiences included many everyday experiences rich in literacy practices.

### **Ethics**

With the described measures and provisions we endeavoured to conscientiously abide by the ethical regulations of BERA and the VU University's (2014) *Ethical Review Regulations*, and participants were consulted and informed at every stage. In order to sanction the ethical quality of the research, permissions were sought to gather data from all those who would be

involved. The headteacher and teachers gave their consent for data to be gathered in the nursery. The parents were consulted at the onset of the research and their informed consent sought in writing to observe their child and collect data. The research was explained to the children using everyday language and their agreement sought. Since some of the children's graphics would be published, this was explained to both the children and their parents, and their consent given: the headteacher and teachers also gave their permission for their future publication. The parents were informed that they could withdraw their child from the research at any point, and one family did so early in the period of data collection: none of the data pertaining to this child have been used.

With the consent of the parent present and the child, several photographs were taken of each child playing or drawing at home, and short written notes made of information provided by the parent regarding their child's play and graphicacy at home, also with the parent's consent.

#### *Data sources*

In order to answer our research questions, several types of qualitative data were collected: visual data comprising children's writing, drawings, maps and plans children use to play out pretend scenarios, and *children's mathematical graphics*, (all referred to as literacies or *graphics* here); field notes made by the first researcher; transcripts of informal discussions with parents and photographs of children engaged in play and literacy events. <sup>4</sup>

The teachers' written documentation in the children's 'learning diaries' complement the graphics and include children's talk and behaviours. The first researcher (Worthington) also documented the children's play and graphicacy during regular visits to the nursery school, through children's home scrapbooks (provided by the first researcher), and during visits to the children's homes. To ensure maximum validity the visual data is analysed in conjunction with their accompanying written documentations. The children's use of home scrapbooks varied, both by their frequency of use and the range of their graphics. The data from the scrapbooks were therefore less reliable, although they did reflect some of the range of children's choices and interests relating to their graphicacy at home.

#### *Procedure*

Informal home visits are an accepted practice in this nursery and familiar to all parents, so that expectations were already established. The researcher (Worthington) approached the parents of each child during the summer term (by which time the parents had come to know her), to ask if she might make a visit at a time that suited them. Visits were of 30–45 minutes duration and entailed informal discussion with the child and parent: they focused on the child's interests and what their child played and activities in which they engaged at home, individually and with siblings and parents.

The teachers make daily, written documentation of children's learning, observing and photographing children's play and collecting children's graphics as part of their normal practice. Green and Hogan (2005) propose that 'observing children engaging, in as natural way as can be arranged, in the types of activities that would be a typical part of their everyday lives, is surely a way for those children to be participants in the study rather than passive objects of research' (2005: 115). The teachers' rich written observations provided the main written data of the children's play. They write open and unstructured accounts whilst observing children and include as much detail as possible, focusing not only on an individual child but also on the context of the play and all the children involved, and document the behaviours, talk, actions and artefacts they used or made. In addition to the teachers' documentation, the first researcher made some additional observations: these were checked and discussed with the teachers to ensure that they were of a similar nature to those they routinely made and that they fairly represented the observed play. In order to eliminate bias we avoided selecting only some written observations for analysis, and included documentation of *all* pretence during the year as data for analysis.

#### *Data analysis*

In the current study, computer assisted qualitative data analysis software was used to support systematic data analysis of the written observations. The data codes were open and derived from the field. For the purposes of this paper transcripts of each observation were coded to identify;

- 1) Children's engagement with literacies at home;
- 2) The extent of children's literacy events within their pretend play in the nursery.  
The rationale for quantifying these events, was to support identification of the frequency of the children's freely chosen literacies across all play episodes.

The visual data enabled aspects of the children's texts to be analysed in order to determine:

- 3) Multimodal ways in which the children communicated their meanings;
- 4) Specific semiotic features of the children's literacies.

For both the paper transcripts and graphics, features coded were then quantified and are presented in Table 1 and in the findings of question 2b. To strengthen reliability and validity an additional researcher independently coded ten percent of randomly chosen examples. Agreement was reached for 90.0% of the codes assigned, a significant level of consensus.

#### *Elaboration of the research questions*

RESEARCH QUESTION 1: What is the relationship between the children's cultural knowledge of literacy practices and their literacy events at home, and their literacy events in the nursery school?

Interpretive analysis of the children's home scrapbooks, transcripts of informal discussions with parents and field notes made during home visits provided additional evidence, helping identify:

- a. The children's cultural knowledge of literacies at home, *showing family members' literacy practices, and the self-initiated literacies in which the children engaged;*
- b. The children's literacy events within their sustained pretend play, *showing their relationship with home literacy practices and events.*

RESEARCH QUESTION 2: *What is the extent of children's literacies in play?*

Analysis of the written documentation was coded with the support of 'ATLAS-ti' software and identified;

- a. The number of pretend play episodes for each child - *coding each child's play episodes;*
- b. Pretend play episodes in which children engaged in literacy events – *coding all play episodes that included evidence of children's use of graphical marks, symbols and texts.*

RESEARCH QUESTION 3: *What features of the children's texts are evident in their pretence?*

Features of the *children's play* were investigated in conjunction with the children's graphics and the teachers' written documentation, highlighting,

- a. Multimodal ways in which the children communicated their meanings, *modes, materiality and affordances;*
- b. Specific semiotic features of the children's literacies: graphical marks, symbols, signs and their *affordances.*

## Results

In the following we discuss the collected data in relation to the different research questions.

RESEARCH QUESTION 1: What is the relationship between the children's cultural knowledge of literacy practices and their literacy events at home; and their literacy events in the nursery school?

*a. Children's engagement with literacies, showing family members' literacy practices, and the children's literacy events at home.*

The extent to which a parent (sometimes with their child) engaged in literacy practices for authentic purposes appears to be especially valuable, clearly demonstrating the role and power of literacies in ways that make personal sense. For example one of Ayaan's older brothers was learning Arabic, and at Ayaan's request her aunt had started to teach her Arabic using a large blackboard. Other experiences originated from a parent's work: for example from a very early age Isaac had been involved in his father's work, first as a builder and then managing a micro-brewery. Oliver's father often worked on his computer at home and Tiyanni saw her mother studying. The richness and diversity of these 'funds of knowledge' (Moll et al. 1992) provided meaningful models of contextual literacy practices and communications, models on which the children drew, imitated and expanded in their pretend play.

The children also initiated their own literacy events at home, as when Elizabeth made an invitation for her birthday party. Isaac's played pretend 'ice-cream vans' with his dad (in his father's real van): his play included several literacy events using written symbols, including a large 'M' for 'MacDonald's' and a double-headed arrow 'to show where to go'. A large map Isaac had drawn was stuck on the wall of the stairs in his house: Isaac's interest grew from several old maps his father displayed on the walls at home, and together they often consulted contemporary maps when going out in the city or on a longer journey. Elizabeth's birthday invitation, Isaac's 'ice cream van' and his map were themselves 'texts' full of meanings (Pahl, 1999; Pahl and Rowsell, 2014). These examples show how some of the children's play narratives at home were embedded in meaningful contexts that required literate communications.

Most of the children freely engaged in some graphical activity (visible in their scrapbooks) at home, for example Shereen and Elizabeth wrote and drew individual letters, numerals and a wide range of other symbols such as arrows, crosses and ticks, smiley faces, spirals, circles, hearts and stars, sometimes including them as graphical elements in their drawings. Tiyanni also enjoyed drawing, also experimenting with graphic symbols and letters. Oliver's mother encouraged him to copy writing his name and he enjoyed drawing people, rockets and characters from television. David's extensive engagement with literacies in his play suggests home influences.<sup>5</sup>

*b. Children's literacy events within pretend play in the nursery*

Analysis of the data revealed the significant relationship between the literacy practices the children experienced at home and their literacy events within their pretend play at nursery. The following transcriptions exemplify the children's cultural and literate knowledge evident in every narrative and text.

*Pretend play narrative 1: car park entry*

Isaac and his Dad had recently swiped a plastic card through an electronic card-reader in a city car park. Isaac connected this concept with the business cards his Dad used for work: Isaac's own interest in technologies, electricity and security measures, and his considerable knowledge of environmental signage were also evident in this and many other play narratives. In the nursery the following illustrative events occurred.

*Rapidly drawing marks on a sticker, Isaac announced, 'you need to have a business card to get in here. I'm fixing the gate so it has electric. You have to have a business card to swipe. I don't need one - I use my hands.'* Isaac gave a piece of paper to Oliver, *'Here's your business card'*, then writing more marks on a label announced, *'this says 'swipe here with your special code card'*.

*As Oliver swiped his card, Isaac noticed another child enter without one. He stuck a smaller sticker with scribble-marks on the fence, 'this is the bell if you don't have a sticker, someone can let you in. It says, 'press here'. Someone will come and open the gate.'* He added a third sticker in the centre of the gate, *'This is for lorries and deliveries - it opens automatically - it's a camera'*.

*Oliver quietly listened and observed before deciding to participate, drawing dots followed by several ticks, explaining: 'these are ticks. When there are three ticks you can go, when there are two you can't go that way. I've made two ticks - that means you are not allowed. People allowed in that way'*.

*Oliver wrote his name 'O, L, I', then wrote 'E' for Ellie (his sister) and 'D' for Daddy, before attaching them to the fence, appreciating the power of signs when another boy followed his verbal instruction and sign by walking where directed.*

Isaac's texts drew Oliver's interest and the complexity of their signage evolved through their joint play. The boys used graphics intentionally for authentic and contextualized purposes, Isaac using scribble-marks as shorthand for the information he wished to communicate. Oliver used a combination of dots, scribble-marks, several letter-like signs and ticks to convey the meaning of his car park sign.

The term 'scribble-marks' refers to marks that adults would find difficult to interpret without the child's explanation, and is used by Carruthers and Worthington in the context of *children's mathematical graphics* (e.g. 2006). Others also use the term 'scribble' when referring to children's early marks for writing (e.g. Baghban, 2007; DfES, 2008; Kaderavek et al., 2009; Klenk, 2001). The term *scribble-marks* is also used in the context of early drawings, (e.g.

Pinto et al., 2011). In this paper this term is differentiated from the wavy or zigzag lines that some children used to signify writing.

Confusingly the term 'mark-making' (though seldom defined), is increasingly used as a generic term to encompass all of young children's earliest scribble-marks, signs, symbols and drawings (e.g. DfES, 2008). Carruthers and Worthington (2005) chose instead 'graphics' to embrace the full range of marks, signs and visual texts.

The *modes* used and their *affordances* met the rapidly changing pace of the children's play, for example Isaac's placed his marks centrally on his stickers, perhaps for impact and certainly for brevity. Accompanying their sign making with dialogue enabled the children to make their meanings transparent to their co-players. Machón emphasises 'Oral language... more developed than drawing in children of these ages, comes to the aid of graphic language to create a mixed language that results from the combination of both symbolic systems (2013: 258). Each textual artefact had its own role to play in this episode; for example, a card to gain entry and an imagined bell with written instructions 'press here'.

#### *Pretend play narrative 2: playing cafés*

Buying, preparing, ordering and eating food together have significant roles in Shereen's family. Drawing on her personal and social knowledge of cafés, Shereen approached her friends for orders, creating wavy lines, and a drawing of a mushroom in response:

*After a while she returned to ask her teacher Emma, 'what you want: rice, chocolate, cake, chicken?' Emma said she didn't want chicken and Shereen wrote a mark for 'chicken' and drew a cross by it, clarifying, 'It says 'x' - no chicken'. Later Emma said she would have chicken, but pointing to the 'x' she had written, Shereen said 'Look! No chicken! You want mushroom?' Then pointing to her drawing of a mushroom explained 'Look. A tick, that mean we got some'.*



**Figure 1.** 'You want mushroom? Look! A

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tick – that mean we got some.'

Shereen approached her customers with a clipboard, ready to take orders as a waitress would: her written orders became an aide-memoire, enabling her to revisit them as she discussed menu options. Figure 1 highlights Shereen's expanding repertoire of graphical symbols. Kress (1997) emphasises 'signs arise out of our *interest* at a given moment... This interest is always complex and has physiological, psychological, emotional, cultural and social origins' (1997: 11, emphasis in the original). It appears also that the children were also aware of a *need* to communicate to maintain the integrity of their play narrative, reflecting Vygotsky's concern that writing (and by analogy, all literacies),

'... must be 'relevant for life', [they] should be meaningful for children, that an intrinsic need should be aroused in them, and that writing should be incorporated into a task that is necessary and relevant for life. In the same way as children learn to speak, they should be able to learn to read and write.... Reading and writing should be necessary for her in her play' (1978: 118).

In both play narratives the children's cultural knowledge of home and community permeated their pretence in a functional way, melding their lived experiences and cultural knowledge with imagined possibilities and underscoring that meaning is the foundation of semiotic behaviours. The children chose to be involved in emulations of everyday practices that required communication. They recontextualised literate genres and texts (e.g. business cards, car park signs, menus), exemplifying 'the lifting of particular genres, or texts from one context, to another' (Pahl and Rowsell, 2006: 6), in Dyson's words, 're-mixing' and 'energizing the children's appropriations of cultural texts' (2003: 25) for their play. The seven children's literacies revealed many other genres including persuasive letters, cheques, registers, bookings for a campsite, 'open' and 'closed' signs, maps, plans, shopping lists and receipts.

RESEARCH QUESTION 2: *What is the extent of children's literacy events in play?*

a. *Pretend play episodes identified for each child.* Table 1 shows individual children's engagement in pretend play and the percentage of episodes in which individuals engaged in literacy events.

**Table 1.**

*The relationship between the number of pretend play episodes and children's engagement in literacy events: (the focal children are marked by \*).*

*This table represents all literacy events explored in the children's pretend play, including children's mathematical signs and texts.*

	<b>Total number of pretend play episodes observed</b>	<b>Percentage of play episodes in which children engaged in literacy events</b>
	(n = 146)	(n = 64)
<b>Shereen*</b>	12	91.6%
<b>David</b>	29	65.5%
<b>Ayaan</b>	16	43.7%
<b>Isaac*</b>	51	35.2%
<b>Oliver</b>	22	27.2%
<b>Tiyanni</b>	8	25.0%
<b>Elizabeth*</b>	8	12.5%

A total of 146 episodes of pretend play were recorded over three terms, with variation in the number of episodes for each child, from 51 episodes for Isaac to 8 for both Elizabeth and Tiyanni. Such variability between the quantities of pretend play episodes for each child was unexpected and could not have been predicted prior to the beginning of the study. However, since four of the children were randomly selected, these differences appear unlikely to have distorted the findings.

*Pretend play episodes in which children engaged in literacies*

The data showed that pretend play often provided contexts in which the children freely chose to communicate through literacy events. 43.8% of all pretend play episodes included children's literacy events, increasing during the year, (5 during the first term, 27 in the second term and 32 in the third term). This is an interesting finding; particularly since neither their pretend play themes nor their literacy events were adult-planned or resourced.

Of the focal children, Shereen engaged in literacy in all but one of her pretend play episodes, and Isaac in 35% of his. Whilst Isaac showed considerable cultural and social use of literacies, much of his pretence occurred in the large outside sand pit and involved talk, actions and other artefacts rather than graphical communications. Elizabeth seldom engaged in pretence during the year and was observed to communicate through graphicacy in only one play episode. However, according to her teacher and documented observations,

Elizabeth frequently used literacies in other child-initiated contexts, her understanding and use of signs showing considerable maturity. The data reveal that no remarkable differences appear between the focal children and the randomly chosen children. David and Ayaan in particular (non-focal children) made extensive use of literacies in their pretend play.

RESEARCH QUESTION 3: *What features of the children's texts are evident in their pretence?*

- a. Multimodal ways in which the children communicated their meanings, *modes*, *materiality* and *affordances* were investigated: (in conjunction with the teachers' documentation) highlighting;
- b. Specific semiotic features of the children's literacies: graphical marks, symbols, signs and their *affordances*.

A number of multimodal features were evident in the children's texts. For young children, writing includes the *choice* of marks and signs used (e.g. scribble-marks, letters), their size and arrangement within a frame. The children in this study placed most of their written texts centrally on their writing surface. Exceptions included curved or zigzag lines (to represent writing) and occasions when children wrote their names: Shereen was the only child who wrote letters in a linear, left-to-right arrangement (writing a shopping list) in a column arrangement, rather than placing them centrally on her notepad.

The children created their maps using spatial arrangements of lines, and in the process, recounted highly complex narratives. Their maps were made on *large* sheets of paper: in the case of maps this afforded the boys space to physically construct the extensive networks of roads. In their 'registers' some children used both random arrangements of symbols and marks, whilst others inclined towards a linear (left-right), column arrangement. When used alone, single symbols (e.g. on paper, in the sand, in snow) tended to be larger than those they used within texts, the size of the symbols, the children's spoken words accompanying them emphasising their importance.

Figure 2 shows the marks Isaac used for his 'building plan' appeared very similar to those he used in the letter he wrote to Oliver; however for his map Isaac selected a large sheet of blue plastic that he could readily roll, as he had seen his father, a builder do, whereas he wrote his letter on a sheet of A4 paper.



**Figure 2.** Isaac's rolled 'building plan'.

In terms of *materiality* the children chose a range of surfaces, including sand, paper (colour and size), plastic, old diaries, envelopes and stickers, sometimes using clipboards or child-height whiteboards. Large diaries may have been chosen to lend gravitas and emphasise an adult's activity, whilst stickers could readily be stuck to many surfaces. When pens were not to hand (e.g. in the sand) the children used sticks or a spade. The *affordances* of both the chosen modes and materials arose from the children's knowledge of 'what works best' combined with what was readily available.

*b. Multimodal, semiotic features of the children's literacies: marks, symbols and signs and their affordances*

Analysis of the children's texts revealed a range of specific, multimodal marks, symbols and signs. Whilst there were variation between individual children's use of literacies to communicate within their pretence, there were no significant differences between the focal and non-focal children's use.

*Scribble-marks.* 20.3% of the children's texts included predominately these marks. Whereas some children used graphic symbols, letters or drawings in *other* child-initiated contexts during this period, in their pretence they appeared to sometimes use scribble-marks as 'placeholders' to denote specific meanings, suggesting that such rapidly made marks allow the course of play to proceed uninterrupted.

*Interpretations of children's graphical symbols*

Machón (2013) emphasises that between the ages of three and four years children begin to use distinct graphic symbols, concurring with the findings of this research. Vygotsky identified children's ability to substitute the meaning of an artefact with an alternative in pretence: this ability unpins symbolic languages where graphic symbols carry abstract meanings unrelated to their shape or form. 'Wavy lines, loops, zigzags circles, squares, crosses, grids radials...

give rise to equivalents [that] are at a midpoint between graphic symbols and writing signs' (Machón, 2013: 322); children develop 'a graphic vocabulary' (2013: 430) that span representational systems. According to Machón this period of experimentation and expansion of graphic symbols '*is undoubtedly the most important in the entire graphic development*' (2013: 95, emphasis added).

Crosses are one of a number of abstract symbols children choose to use to signify both similar and different meanings (Carruthers and Worthington, 2006; Worthington, 2009; Magnusson and Pramling, 2011). For example, David drew a cross in the sand, explaining 'the bumblebee died here', later writing crosses on paper, saying 'No more children getting in our car'. In addition to crosses (the most frequently used graphical symbol in this study), the children used ticks, arrows, circles, vertical lines and zigzags within their play. These symbols show the 'multifunctional nature of signs' (Valsiner, 2001: 92), described by Werner and Kaplan (1963: 216) as *multireferentiality* or *plurisignificance*. This kind of graphical symbol appeared in 34.3% of all cases in this study.

*Signs for symbolic languages.* Children use symbols to signify a likeness to something (a *denotative* function), as in historically early pictographic language systems. For example, David 'read' his diagonal, zigzagging marks as writing, 'I'm going shopping to get sausages, beans and peas'. Shereen used a single wavy line to signify 'shop open' followed by two similar lines (one above the other), commenting 'shop closed'. Machón determined that such 'writing-scribbles' begin around the age of three years when children notice and imitate adults' linear arrangements of writing that appear similar to their own scribbles.

In the current study some children also used letter-like signs and standard letters they knew (32.8% of the total). For example, while playing 'builders' Isaac wrote zigzag lines on a play cheque book, followed by a letter-like 'a' announcing, 'a cheque for £500.00, for all the jobs I've done at my house.' When the totals for *graphic symbols* and *signs for symbolic languages* are combined they show that the children included one or more of these in over 67.1% of their texts.

*Drawings.* Drawings were the least chosen graphics the children used in their play. For example, Ayaan told Zalluyah, 'My baby need TV' and taking a piece of paper wrote a capital 'A' and drew a grid of intersecting lines, then fixed her 'television' to the wall. As she did so, Ayaan again explained 'my baby need TV' and taking a strip of raffle tickets, carefully placed the doll in a chair facing her 'television' and pressed the numbered raffle tickets (as a remote control) to turn it on. On the same occasion Ayaan also drew ice creams, pretending to lift them from the paper. Isaac drew a 'builder's plan' with identifiable features and the boys drew several maps. Drawing in pretence appeared to be reserved for *objects*, whereas writing

in all its modes was used to explain or recount information. Drawing is *showing*, whereas writing is *telling* and more often used to communicate within pretend play.

*Combining modes.* As previous research (Carruthers and Worthington, 2006) has shown, children's use of *code switching* in graphical texts is significant, enabling them to select the most appropriate symbols for their immediate purpose. Whilst several children used one or two *different* marks or signs within one text, Figure 1 is notable in its inclusion of drawings (a fish and a mushroom) in association with other marks, symbols and signs. Shereen appeared to know that the meanings of crosses and ticks are unambiguous, and the different modal signs she chose to use each offered very particular *affordances*.

Their texts revealed many different genres including persuasive letters, registers, bookings for a campsite, 'open' and 'closed' signs, maps and receipts.

### **Limitations**

The range of children's graphical signs, symbols, genres and textual artefacts accord with those found in previous studies by Carruthers and Worthington of children of the same age (e.g. 2006; 2011; Worthington, 2009), however, in this study, the small number of case study children may limit generalizations. In defence of case studies Early and Cummins (2011) assert that they 'are the mainstream of scientific inquiry'.

'The implications for policy are equally direct... The logic... [underlying case studies] can be simply stated: actuality implies possibility... [Moreover] case studies have immense power to effect change both in the instructional choices made by teachers... policy makers... [and] students' (2011: 19).

Several factors could contribute to the variation in the findings. The seven children had attended the nursery school for differing amounts of time, from three years for one child, to another who had just begun to attend at the onset of data collection: these differences may have impacted on individual's level of confidence and familiarity with the nursery's culture. Selection effects (for both focal and randomly selected children) include personal characteristics of the children and of the teachers involved in the study. Variation in the seven families' home cultures and backgrounds are likely to have also contributed to differences in individual children's experiences of home literacy practices and opportunities: these differences were not possible to predict or to select for prior to the onset of the study. Due to the nature of this study, children who did not readily choose to engage in graphical communication were not included: this important aspect will be worth investigating in the future.

### **Discussion and implications for practice**

The aim of this study was to reveal features of young children's meaning making and literacies within their pretend play. The findings contribute to theories and practices concerning pretend play and emerging literacies, extending understanding of the creativity and capabilities of young children. In contrast, current pedagogy in England,

'... has increasingly narrowed to ensuring that children succeed within specific testing regimes which interpret literacy and numeracy in very particular ways... the impact of such school-based testing regimes has the potential to subvert the early years from being a unique child-centred and play-based educational stage in its own right to that of subserviently preparing children for school' (Roberts-Holmes, 2015: 303).

To answer the first question, the parents' use of literacies for authentic and contextual purposes clearly contributed to children's understandings of the role and purposes of literacies, although there appeared to be variation in the children's level of participation and apprenticeship in these situated literacy practices. All the children appeared to freely engage in self-initiated literacy events at home, although the amount they did so varied.

The three focal children often chose to explore meanings through play and graphical texts at home, Shereen and Isaac also engaging in rich literacy experiences within their pretence at nursery, whilst Elizabeth engaged in literacies in many other self-initiated contexts. The transcripts of two pretend play episodes included here exemplified the significance of the children's sustained narratives, their home cultural knowledge both framing their play and revealing their textual understandings, and, as the children explored and expanded their home cultural knowledge, clear links between both became evident.

Second, our findings show that many of the children's pretend play episodes included literacy events, with sustained play proving especially rich and complex: particularly noticeable was that the children so readily chose to communicate through their literacies. The children's communicative meaning making clearly arose from their experience and involvement in cultural and social literacy practices at home and their *interest* and perceived *need* to communicate to further their play. Shereen used graphic symbols in all but one of her play episodes, and, although there was variation in the extent to which individuals used graphics to communicate, no significant differences between the focal and randomly selected children were found.

Third, the children's use of different modalities and materials showed the extent of their growing understanding of the affordances of various artefacts and graphical signs. Particularly significant for this study is the children's growth of *graphic symbol and sign use* within their play narratives, underpinning their emerging symbolic languages such as writing and mathematics. Machón (2013) emphasises that 'graphic symbols are not merely a cultural product which children borrow' from their sociocultural environment, 'but a genuine

construction of theirs...a highly personal mode of representation of the child' (2013: 251). The period between 3 – 4 years of age appears to be a liminal one for children's literacies, children continuing to use their early marks, yet also experimenting with graphical symbols and signs as they move towards standard, abstract symbolic written languages.

Finally, the findings also reinforce the impact that high ratios of well-qualified staff have on the quality of children's play and literacies in early childhood education. Drawing on cultural-historical, ethnographic and social-semiotic, multimodal methodologies, reveals early meaning making and communication through literacies as a continuum that evolves through everyday practices within the interlinking cultures of family, community and nursery school. Understanding is exhibited not through interventions of special programmes or techniques, but through children's meanings and literacy events within naturalistic contexts. Children bring their culture and experiences to nursery, but the opportunity for using them may be lacking, and whilst pretend play is not the only social context in early childhood education, it offers significant potential for children to explore and link their home culture to nursery school or school.

Carruthers and Worthington emphasise that young children invent and adapt from different symbol systems, using 'visual signs and texts in incredibly powerful ways' (2011: 42). The children's literacies and shared social interactions with peers and adults combine to mediate symbolic understanding. According to Vygotsky, 'In this context, we can use the term *higher* psychological function... as referring to the combination of tool and sign use in psychological activity' (1978: 55, emphasis in the original). Freely situating literacies within their pretence permits children to develop dynamic and reciprocal relationships, allowing existing cultural knowledge to flourish, and fulfilling Vygotsky's concern that writing should be 'cultivated' rather than 'imposed' (1978, 118).

*What are the implications for early childhood education?*

The research findings challenge current views of a single 'skills-based' literacy' with its narrow emphasis on synthetic phonics in England and restricted views of pretence.

Recommendations for literacies suggest a need develop a multimodal stance; to appreciate young children's existing knowledge in all its complexity and to support the emergence of children's literacies in meaningful social contexts.

The findings show how spontaneous social pretend play can create a rich social-ecocultural niche in early childhood (Worthington 2015), promoting the emergence of a variety of literacy events through social engagement in pretend play contexts. Acknowledged by a considerable body of research and highlighted in the current study, pretend play is an important aspect of the early years curriculum that demands to be understood in more than

words. The implications of the findings point to a need to elevate the status of play during this important phase of childhood.

This study underscores the importance of adults' understanding the significance of children's meaning making in all its guises, enabling them to link their new knowledge with their existing home cultural knowledge, and highlighting social pretend play as a context for making meanings and communicating through literacies. For adults working with young children, increased understanding of the value of free and spontaneous pretend play is likely to contribute to richer and sustained narratives. To achieve greater understanding of these important aspects it is recommended that policy documents and teachers' and practitioners' professional development be reassessed, so that both high quality, rich and sustained pretend play and literacies are fully understood by all engaged in early childhood education, so that their true potentials are valued.

The complexity, richness and diversity of the multimodal texts and literacies highlighted in this article also have implications for young children's emergent mathematical understandings and the beginnings of communication through their *mathematical graphics* in early childhood education settings (e.g. Carruthers and Worthington, 2011; 2006; 2005). The visual data collected for the larger, doctoral study of which this forms a part, includes examples of *children's mathematical graphics* and will be interrogated in the future: one aspect of this will examine the interrelationship between the processes and contexts involved in the various literacies analysed here and those that young children use to communicate their mathematical thinking.

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#### **Notes.**

<sup>1</sup> Both teachers and early years practitioners work together in the nursery school, but for the purposes of this article, the word 'teacher' is used throughout.

<sup>2</sup> For the purposes of this research, *symbol* is used to refer to graphical symbols such as arrows, crosses, circles and hearts. *Sign* is used to refer to writing-like marks such as wavy lines, alphabetic letters and numerals.

<sup>3</sup> Emig (1977) first used the term *graphics* in the context of symbol systems such as writing and mathematics.

4. Whilst the *children's mathematical graphics* are understood as a literacy, they are not a focus of this paper.

5. For personal family reasons it was not possible to visit David at home for this research, or to discuss his graphics with his family.

\* For related graphics and information, see also [www.childrens-mathematics.net](http://www.childrens-mathematics.net)

## References

Anderson G (1990) *Fundamentals of Educational Research*. Basingstoke: Falmer Press.

Baghban M (2007) Scribbles, labels, and stories: the role of drawing in the development of writing. *Young Children* 62(1): 20-26.

Barrs M (1988) Maps of play. In: Meek M and Mills C (eds) *Language and Literacy in the Primary School*. London: Falmer Press, pp, 101-115.

Barton D (1994) *Literacy: An Introduction to the Ecology of Written Language*. Oxford: Blackwell.

BERA. (2011) *Ethical guidelines for educational research*. London: BERA.  
<https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf?noredirect=1> (accessed 10th July 2014).

Bezemer J and Kress G (2008) Writing in multimodal texts: a social semiotic account of designs for learning. *Written Communication* 25(2): 166-195.

Bogdan R and Biklen S (1982) *Qualitative Research for Education*. Boston: Allyn and Bacon.

Bradford H (2015) Play, literacy and language learning. In: Moyles J (ed) *The Excellence of Play*. 4<sup>th</sup> ed. Maidenhead: Open University Press, pp. 250-261.

British Educational Research Association (BERA) (2011) *Ethical guidelines for research*. London: BERA. Available at: <http://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2011> (accessed 12 September 2014).

Brooker L (2010) Learning to play in a cultural context. In: Broadhead P, Howard LJ and Wood E (eds) *Play and Learning in the Early Years*. London: Sage Publications, pp. 27-42.

Brooker L (2011) Taking play seriously. In: Rogers S (ed) *Rethinking Play and Pedagogy in Early Childhood Education*. Maidenhead: Open University Press, pp. 152-164.

Bröstrom S (1997) Children's play: tools and symbols in frame play. *Early Years: An International Research Journal* 17(2): 16-21.

Carruthers E and Worthington M (2005) Making sense of mathematical graphics: the development of understanding abstract symbolism. *European Early Childhood Education Research Association Journal* 13(1): 57–79.

Carruthers E and Worthington M (2006) *Children's Mathematics: Making Marks, Making Meaning*. 2<sup>nd</sup> (ed) London: Sage Publications.

Carruthers E and Worthington M (2011) *Understanding Children's Mathematical Graphics: Beginnings in Play*. Maidenhead: Open University Press

Cook D (2006) Mathematical sense making and role play in the nursery. *Early Child Development and Care* 121(1): 55-66.

Denzin N (2001) *Interpretive Interactionism*. London: Sage Publications.

DfES (2008) *Mark Making Matters*. London: Department for Education and Skills. Available at:  
[http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/Mark\\_Making\\_Matters.pdf](http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/Mark_Making_Matters.pdf) (accessed 1 September 2014).

Dyson AH (2003) *The Brothers and Sisters Learn to Write*. New York: Teachers College, Columbia University.

Early M and Cummins J (eds) (2011) *Identity Texts: the Collaborative Creation of Power in Multilingual Schools*. Stoke-on-Trent: Trentham Books.

Emig J (1977) Writing as a mode of learning. *College Composition and Communication*, 28(2): 122-128.

Geertz C (1973) *The Interpretation of Cultures*. New York: Basic Books.

- Green S and Hogan D (eds) (2005) *Researching Children's Experience*. London: Sage Publications.
- Griffin C and Bengry-Howell A (2008) Ethnography. In: Willig C and Stainton Rogers W (eds) *The Sage Handbook of Qualitative Research in Psychology*. London: Sage, pp. 15-31.
- Gutierrez K and Rogoff B (2003) Cultural ways of learning: Individual traits or repertoires of practice. *Educational Researcher* 32(5): 19–25.
- Hall N (1991) Play and the emergence of literacy. In: Christie J (ed) *Play and Early Literacy Development*. New York: State University of New York Press.
- Hall N and Robinson A (1995) *Exploring Writing and Play in the Early Years*. London, David Fulton.
- Harris P (2000) *The Work of the Imagination*. Oxford: Blackwell Publishing.
- Heath SB (1982) Protean shapes in literacy events: Ever-shifting oral and literate traditions. In: Tannen D (ed) *Spoken and Written Language: Exploring Orality and Literacy*. Norwood, NJ: Ablex Publishing Co., pp. 91-118.
- Isenberg J and Jacob E (1983) Literacy and symbolic play: a review of the literature, *Childhood Education* 59(4), 272-276.
- Jewitt C and Kress G (eds) (2003) *Multimodal Literacy*. Oxford: Peter Lang.
- Kaderavek JN, Cabell SQ and Justice LM (2009). Early writing and spelling development. In: Rhyner PM (ed) *Emergent Literacy and Language Development: Promoting Learning in Early Childhood*. New York: Guilford Press.
- Klenk L (2001) Playing with literacy in preschool classrooms, *Childhood Education* 77(3), 150-157.
- Kress G (1997) *Before Writing: Rethinking the Paths to Literacy*. London: Routledge.
- Kress G (2006) Foreword. In: Pahl K and Rowsell J (eds) *Travel Notes from the New Literacy Studies*. Clevedon: Multilingual Matters, pp. vii–x.
- Larson, J. and Marsh, J. (2014) *Making Literacy Real*. 2nd ed. London: Sage, pp. 99-100.

- Lave J and Wenger E (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Leont'ev AN (1981) *Problems in the Development of the Mind*. Moscow, Russia: Progress.
- Machón A (2013) *Children's Drawings: The Genesis and Nature of Graphic Representation*. Madrid: Fibulas Publishers.
- Magnusson M and Pramling N (2011) Signs of knowledge: The appropriation of symbolic skills in a five-year old. *European Early Childhood Education Research Journal* 19(3): 357-372.
- Marsh J (1999) Batman and Batwoman go to School: popular culture in the literacy curriculum, *International Journal of Early Years Education* 7(2): 117-131
- Meek M (1991) *On Being Literate*. London: Bodley Head.
- Moll L, Amanti C, Neff D and Gonzales N (1992) Funds of knowledge for teaching. *Theory into Practice* 31(2): 132-141.
- Neuman S and Roskos K (1990) Literacy objects as cultural tools: effects on children's literacy behaviours in play. Paper presented at *the Annual Meeting of the National Reading Conference*, Miami: Florida: 27<sup>th</sup> November-December 1<sup>st</sup> 1990.
- Pahl K (1999) *Transformations: Children's Meaning Making in a Nursery*. Stoke-on Trent: Trentham Books.
- Pahl K and Rowsell J (2005) *Literacy and Education: Understanding the New Literacy Studies in the classroom*. London: Paul Chapman Publishing.
- Pahl K and Rowsell J (eds) (2006) *Travel Notes from the New Literacy Studies*. Clevedon: Multilingual Matters.
- Pahl K and Rowsell J (2014) Classroom case studies: artefactual literacies in action. In: Larson J and Marsh J *Making Literacy Real*. 2nd ed. London: Sage, pp. 99-100.
- Pellegrini A (1980) The relationship between kindergarteners' play and achievement in prereading, language and writing, *Psychology in the Schools* 17(4): 530-535.

- Pinto G, Accorti Gamannossi B and Cameron C (2011) From scribbles to meanings: social interaction in different cultures and the emergence of young children's early drawing, *Early Child Development and Care* 181(4): 425-444.
- Roberts-Holmes G (2015) The 'datafication' of early years pedagogy: 'if the teaching is good, the data should be good and if there's bad teaching, there is bad data', *Journal of Education Policy* 30(3), 302-315.
- Rogers S (2010) Powerful pedagogies and playful resistance: Role play in the early childhood curriculum. In: Brooker L and Edwards S (eds) *Engaging Play*. Maidenhead: Open University Press, pp. 152-165.
- Rogers S and Evans J (2008). *Inside role-play in early childhood education*. London: Routledge.
- Rogoff B (2008) Observing sociocultural activity on three planes. In: Murphy P, Hall K and Soler J (eds) *Pedagogy and Practice: Culture and Identities*. London. Sage Publications, pp. 58-74.
- Street B, Baker D and Tomlin A (2008) *Navigating Numeracies: Home/school Numeracy Practices*. New York: Springer.
- UNESCO. (2006) Understandings of literacy. In: UNESCO. *Education for all: a global monitoring report*. UNESCO. 147-159.
- Valsiner J (1987) *Culture and the Development of Children's Actions*. New York: John Wiley and Sons.
- Valsiner J (2001) Process structure of semiotic mediation in human development. *Human Development* 44(2-3): 84-97.
- Van Oers B (2012) Meaningful cultural learning by imitative participation: the case of abstract thinking in primary school. *Human Development* 55(3): 136-158.
- VU University. *Ethical Review Regulations*. (2014) Faculty of Psychology and Education, VU University Amsterdam. Available at: [http://www.psy.vu.nl/en/Images/VU%20FPP%20ethiek%20reglement%20updated%202\\_3\\_fin al%20\(Engels\)\\_tcm109-392981.pdf](http://www.psy.vu.nl/en/Images/VU%20FPP%20ethiek%20reglement%20updated%202_3_fin al%20(Engels)_tcm109-392981.pdf) (accessed 6 February 2015).

Vygotsky LS (1978) *Mind in Society: The Development of Higher Psychological Processes*. London: Harvard University Press.

Vygotsky LS (1987) Thinking and speech. In: Rieber RW and Carton AS (eds) *The Collected Works of LS Vygotsky, Volume 1: Problems of general psychology*. New York: Plenum, pp. 375-383

Wells G (2003) 'Los niños se alfabetizan hablando'. In: J.R. García (Ed.) *Enseñar a escribir sin prisas... pero con sentido*. Sevilla, Spain: Publicaciones M.C.E.P, 2003. Available at: [http://people.ucsc.edu/~gwells/Files/Papers\\_Folder/Talk-Literacy.pdf](http://people.ucsc.edu/~gwells/Files/Papers_Folder/Talk-Literacy.pdf) (accessed 2 July 2015).

Werner H and Kaplan B (1963) *Symbol Formation*. Hillsdale, New Jersey: Lawrence Erlbaum.

Wertsch JV (1985) *Vygotsky and the Social Formation of Mind*. Cambridge, MA: Harvard University Press.

Worthington M (2009) Fish in the water of culture: signs and symbols in young children's drawing. *Psychology of Education Review* 33(1): 37-45.

Worthington M (2015) Mathematics and the ecology of pretend play. In: Moyles J (ed) *The Excellence of Play*. 4<sup>th</sup> ed. Maidenhead: Open University Press, pp. 237-249.

Worthington M and Van Oers B (2016) Pretend play and the cultural foundations of mathematics. *European Early Childhood Education Research Journal* 24(3).