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**Child’s play? Does ‘subject’ learning have a role in pretend play?**

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Much research emphasises the holistic and ‘free’ nature of young children’s play, yet pressure on early years professionals increasingly results in play that is ‘planned’ to provide evidence of adults’ goals, contributing to the ‘schoolification’ of early childhood. Should play in educational settings be utilised by adults as a vehicle for academic skill development? This paper addresses two questions:

* Can young children’s *impromptu* pretend play provide opportunities for them to develop early concepts of mathematics and writing?
* What are the implications for children’s play?

Qualitative data comprising written documentation of pretend play and visual representations from seven children aged 3-4 years, were collected in an inner-city nursery for a larger longitudinal ethnographic study. Analysis is within an interpretive paradigm supported by computer-assisted qualitative data analysis software.

The research draws on Vygotsky’s perspective of the social and cultural nature of play and symbol use, and relationships between spontaneous and scientific concepts in childhood: mathematical thinking and literacies are understood to begin through participation in meaningful communicative cultural practices.

The findings show that where adults value and understand pretend play and meaning making, children will establish spontaneous concepts that provide firm foundations for subsequent ‘scientific’ concepts of school. Children’s understandings are exhibited not through narrow curriculum targets, but through their interests and desire to communicate their thinking within their play narratives. Whilst pretend play can provide meaningful *locations* of semiotic and ‘subject’ explorations, this paper[[1]](#footnote-1) argues that its ownership should rest with the children.

**Introduction**

Play is highly complex and agreement on its definition elusive; Wood explains ‘truly free play’ as,

open-ended and unpredictable… children develop their own play in their own ways and on their own terms. They let play happen, by becoming immersed in the mood or spirit of play. They see the world from the perspective of play, creating their own playful meanings, symbols and practices, which are imbued with cultural significance, and result in self-development and self-actualization (2010: 14).

Vygotsky equated ‘play’ with *pretend play*, ‘the leading source of development in the pre-school years’[[2]](#footnote-2) (1967: 6). The social spaces of collaborative pretend play enables children to make, negotiate and communicate meanings as their play narratives develop. In high quality pretence this meaning making (connected to children’s object-meaning substitution) also supports children’s symbolic /psychological tool-use as they meanings through graphicacy.

**The politics of play**

Wood and Atfield argue that play has ‘an idealized status in early childhood’ (2005: 9); however, Anning (1997) contends that play ‘has been defined as trivial by a male-dominated society which emphasizes the power of rational thought. Work is the serious, rational business of life, while play is for leisure and fun’ (Wood and Atfield 2005: 9). These conflicting views combine with the highly politicised educational agenda in England, increasingly resulting in the ‘*pedagogization* of play’, ‘planned’ or ‘structured’ to meet specific curriculum targets, (Rogers 2010: 163, emphasis in the original): This impacts on young children’s experiences in educational settings so that play is often marginalised and misunderstood, (Moyles and Worthington 2011).

The current Early Years Foundation Stage curriculum emphasises, ‘Children learn by leading their own play, *and by taking part in play which is guided by adults*’ (DfE 2014: 11, emphasis added). This statement appears to fly in the face of much of the research into play; and references to ‘*adult-led play’*, ‘*planned, purposeful play’* and ‘*structured play’* in the English early years curriculum are unhelpful. Wood emphasises,

adults’ plans and purposes are privileged [distorting] the more complex meanings and purposes of play, including the ways in which children exercise power, agency and control, how they make and communicate meanings through symbolic activity, and the significant role of representations in play (2010: 14).

Brooker asks ‘Where are the children in this debate, and what do they make of their experiences? (2010: 44).

**‘Subject’ learning and pretend play**

Christie and Roskos call for the integration of play and literacy in early education (2009), a view shared by other researchers including Pramling and Johansson (2006). Hedges and Cullen (2005) propose that play be integrated with other ‘subject’ knowledge, whilst Fleer (2010) recommends a ‘wholeness approach’.

In the prevailing global climate teachers[[3]](#footnote-3) feel pressured to demonstrate children’s ‘basic skills’ yet researchers have identified problems children experience with a ‘transmission’ approach, particularly when teaching involves symbolic languages such as writing and mathematics. Rather than learning as *transmission* (adult-led) Brooker argues for ‘learning as a*cquisition* (child-led)’, pressing for learning as the *transformation of participation in cultural activities* (2010: 41, emphasis in the original). In this view, cognitive development ‘occurs in the course of ‘children’s everyday involvement in social life’ (Rogoff 1990: 18) and is underscored by cultural-historical theory that informs this research (Vygotsky 1978).

Mathematics and writing are human products and inseparable from their cultural context: we learn through participating in meaningful cultural practices, (Rogoff 2008). Vygotsky emphasised that writing (and by analogy, mathematics and all literacies)…

must be ‘relevant for life’, [they] should be meaningful for children, that an intrinsic need should be aroused in them’, and that ‘in the course of children’s play… writing should be ‘cultivated’ rather than imposed’ (1978: 118).

Research into children’s ‘funds of knowledge’ (Moll et al. 1992) shows also the abundance of children’s home cultural knowledge. In Vygotsky’s view, pretend play can provide rich contexts for children to explore their cultural knowledge and writing, and a ‘bridge’ between spontaneous (everyday) and scientific concepts later in school.

**Background to the study**

Young children learn (and are taught) the symbolic languages of ‘written’ mathematics and writing simultaneously. In England the emphasis is increasingly on teachers to *prepare* children so that they are ‘ready’ for school at 4 years of age, although this agenda works against young children’s interests (Whitebread and Bingham 2011).

Whereas we might expect to find evidence of children’s rich cultural knowledge in their pretend play, researchers have often been surprised by the lack of mathematics evident (e.g. Gifford 2005). Adult-planned role-play areas in many settings replace genuine *child-initiated* and impromptu play, highlighting ‘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’ (Worthington and van Oers 2016).

The research described here is based on earlier studies of *children’s mathematical graphics,* an educational concept Carruthers and Worthington have developed (e.g. 2005; 2006). Recent ethnographic research[[4]](#footnote-4) investigated the mathematics that 3-4 year-old children explored within their rich pretend play, highlighting firstly the extent of their mathematical interests:

Paradoxically this research reveals that whilst the adults in this nursery did not plan for mathematics within pretend play, the children’s self-initiated play triggered their cultural mathematical understandings (Worthington and van Oers 2016).

The documented play episodes highlight the embedded nature of the knowledge through the children’s *participation* in home cultural events on which they drew, enabling them to ‘bridge’ home and early childhood cultures (Carruthers and Worthington, 2006). The same research (Worthington and van Oers, *submitted*) also investigated the literacy practices and writing in which the children engaged and concluding, ‘the findings make a compelling case for greater appreciation of pretend play as a potentially valuable context for the enculturation of literacies’[[5]](#footnote-5).

The children drew on their understandings of marks, symbols and signs, revealing interconnections between their drawing, maps, writing and mathematics, and highlighting the rich multimodal nature of communication (Kress, 1997). The research questions addressed in this paper are:

1. Can young children’s *impromptu* pretend play provide opportunities for them to develop early concepts of mathematics and writing?
2. What are the implications for children’s play?

**Methodology**

**Research setting and participants**

Qualitative data were gathered from a nursery school within a Children’s Centre in a large city in the southwest of England, in an area designated one of the 30% most deprived in England and welcoming families from various ethnic cultures. Sixty children attend nursery sessions each morning and afternoon, and 13 different languages were spoken there at the time of data collection.

Three children who often chose to use graphics were identified, and four additional children were randomly chosen. The children’s ages ranged from three years two months, to four years of age.

**Data sources and procedures**

As their established practice, teachers in this nursery write ongoing observations of children’s play throughout each day, and, as a participant observer Worthington also made written observations during her regular visits. These written observations or ’learning stories’ (Carr 2001: 103) and children’s graphics provided the main body of data: data were collected during a period of one academic year.

Data collection was guided by BERA’s ethical principles (2011) and includes voluntary informed consent, openness, the right to withdraw and privacy.

**Data analysis and findings**

Interpretative analysis of the data was supported by the use of computer- assisted qualitative data research software, in which data were coded to provide evidence of specific categories (e.g. evidence of children’s cultural home knowledge in their play; children using graphics to communicate).

**Research question 1:** Can young children’s *impromptu* pretend play provide opportunities for them to develop early concepts of mathematics and writing?

**Mathematics**

Over 44% percent of all documented pretend play episodes showed evidence of mathematical exploration, the children using dialogue to communicate mathematical ideas to further their play. Incidence of mathematics in the children’s spontaneous pretend play increased throughout the year: the children’s mathematical interests ranged across the entire mathematics curriculum, the most frequent aspects explored including number (31%), money (24%) and time (15%).

Remarkable were the very clear links between the children’s home cultural knowledge and the ways in which this was played out within their self-chosen pretend play contexts. The children showed high levels of personal involvement in their play, often developing themes and ideas over many days or weeks, allowing increasing complexity of ideas: their ‘funds of knowledge’ were evident in every play episode.

For example among his many interests at the time, Isaac was deeply curious about safety and locks as the following play narrative shows. Appreciating his interest, Isaac’s teacher Emma bought a small safe into the nursery for the children to investigate.

*A few days later Jaydon and Isaac moved a small cupboard to create a safe, placing a keyboard and clipboard on top. They transported wooden blocks on the trolley and when another child removed one, Jaydon wrote wavy lines on his clipboard. Taking his paper Jaydon placed it in the safe, tapping several keys on the keyboard and repeating this each time a child removed a block.*

*Isaac announced, ‘this is the safe. There’s a key, only one - you press it here and it opens. It has a number and no one else knows it, ‘one, one, eight, seven, zero, six’. It’s rather difficult to remember.’*

*Jayden put some real coins and play cheques in their safe and Isaac stuck a calculator on the cupboard door adding: ‘You need to press the buttons to get in the safe… it’s four, nine, seven, nine’. Jayden pressed some numbers making ’Beep, beep’ noises as he opened it, then closing the doors asked, ‘What’s the closing number?’ saying ‘one, nine, five, two,’ as he pressed buttons on the calculator.*

*Later Jaydon said, ‘you need to give me ‘one, nine, five, two’ and when Emma explained that she didn’t have enough cash but could write a cheque, Isaac replied,’ I need hundreds of pounds!’ Emma managed to find a selection of coins in her purse and Jayden responded: ‘Okay! We need to fill the box: you need to give me 15 hundred and 60 pounds.’*

*After several days playing with their ‘safe’, Isaac decided to write down the number of blocks being taken from the block areas, ‘one, two, three, gone! Gotta write it down and put it in the safe.’*

**Writing**

Analysis of the same play episodes revealed the extent to which the children freely and spontaneously communicated through writing, choosing to do so in 64% of pretend play episodes. Their engagement in literacies in play increased from 5 occasions during the first term, to 32 in the third (summer) term.

A significant aspect of Shereen’s home cultural knowledge is buying, preparing and sharing food as a family and Shereen often carries these interests over into her play. Drawing on her personal and social knowledge of cafés, Shereen approached her friends for orders, drawing wavy lines in response:

*Later 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’, adding, ‘you want ice cream? It’s 3.*

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| **Figure 1:** ‘Look! No chicken!’ |

The children used a wide range of marks and symbols for writing: a significant finding was the children’s growing interest in graphical symbols and signs for writing and mathematics, and their meaningful integration within their play narratives. Machón highlights that this period of experimentation and expansion of graphic symbols ‘*is undoubtedly the most important in the entire graphic development*’ (2013: 95, emphasis added).

**Children’s mathematical graphics**

In 46% of all play episodes that included mathematics the children also spontaneously used their *mathematical graphics* to communicate, as the following examples show.

**Ayaan**’s family is from Somalia and Ayaan was learning and gaining confidence in learning English during the year. Ayaan’s play often reflects family activities such as cooking and shopping.

*Ayaan was in the gazebo, offering children (pretend) ice cream. When a child replied ‘Yes’, she answered ‘No left’, adding ‘I make more'. Collecting stones and pretending to make ice cream, Ayaan asked Tariq if he wanted any, then passing him an imaginary one, she pressed buttons on the till saying, ‘It’s 50 minutes.’ Later Ayaan drew dashes in a notebook without comment.*

*Next time Ayaan played ice cream shops she asked ’50 minutes please’. When a child offered ‘£1.00’ Ayaan replied ‘That’s £50 please.’*

**Elizabeth** is enthusiastic and mature in her use of graphics, and engages in a great deal of graphicacy at home with her brother and in the nursery.

*Elizabeth and two other children are playing in the gazebo in the garden. One of the children began to write ‘prices’ on a notebook. Elizabeth followed suit and drew an irregular shape on the page of a notebook, ‘That’s pounds’ she explained, asking ‘Who wants ice cream?’ A child came towards her ‘My first customer’ she said.*

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| **Figure 2:** Elizabeth, ‘That’s pounds’. |

**Isaac**’s father has worked as a builder but now runs a local micro-brewery, involving deliveries, invoices and counting cash, all activities in which Isaac is involved.

*Isaac picked up a child’s (play) cheque book and made zigzag marks like writing across the lines, followed by a sign like a reversed ‘a’ explaining ‘[This is] a cheque for £500.00, for all the jobs I’ve done at my house.’*

**Discussion and conclusion**

The first research question asked if young children’s *impromptu* pretend play could provide opportunities for concept development, the findings highlighting the children’s rich and meaningful cultural knowledge of mathematics and writing. ‘Understanding is exhibited not through interventions of specially introduced programmes or techniques, but through children’s literacy practices within naturalistic contexts (Worthington and van Oers *submitted*). This research reveals both mathematics and early literacy practices including graphic symbols and sign use ‘as a continuum that evolve[s] through everyday practices within the interlinking cultures of family, community and play’ (Worthington and van Oers *submitted*).

The second research question asked, ‘What are the implications for children’s play?’ Findings from previous research into pretend play ‘may be accounted for as differences between the cultures and philosophies of various early childhood settings’ (Worthington and van Oers 2016). In this setting

‘the headteacher and staff have developed an open and unstructured culture in which children are encouraged and supported as learners, and their emerging understandings valued. Adults have clear philosophies of young children as learners and of play and mathematics, and have developed deep knowledge of learning and significant pedagogical skills to support children’s thinking and learning (Worthington and van Oers 2016).

However, according to findings from research into social pretend play by Gmitrova and Gmitrov, ‘child-directed play… evoke[s] a balanced relationship between the cognitive and affective sphere, shifting the proportion of children’s behaviours toward the cognitive domain’ (2003: 245).

‘… the lowered rate and level of cognitive domain behaviors from children during *the teacher’s direction of play* is related to the poorer use of natural drive of the pretend play in the education process. During adult-planned play, ‘children’s persistence gradually decreased, thereby shortening the duration [of play] compared with the free play condition, when children take greater pleasure in play and learning’ (2003: 245-246, emphasis added).

These findings challenge current views of ‘planned play’ and of single ’skills-based’ mathematics or literacies showing ‘how sustained social pretend play can create a rich social-ecocultural niche in early childhood’ (Worthington 2015)’ for cultural learning, which, paradoxically, underpins the ‘subject’ learning of school.

Kuschner emphasises the value of ‘*true play*… the play of children that lives outside the directing goals of the curriculum and the controlling eyes of adults… the kind of play that matters to the developing child… that helps propel development forward’, arguing ‘As teachers we must continue to value this kind of play by protecting it and providing for it’ so that children can ‘carry out *their* play’ (2012: 248, emphasis in the original).

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1. This short paper will be developed further for publication. [↑](#footnote-ref-1)
2. I.e. until 7 years of age when ‘school’ learning of ‘scientific’ concepts take precedent [↑](#footnote-ref-2)
3. In England teachers and other early years professionals work with children, the words ‘teachers’ and ‘adults’ used interchangeably in this paper. [↑](#footnote-ref-3)
4. These two studies are part of doctoral research into the emergence of mathematical semiosis in early childhood. [↑](#footnote-ref-4)
5. Mathematics is also regarded as a ‘literacy’. [↑](#footnote-ref-5)