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## The power of graphicacy for the young child

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### Chapter overview

This chapter explores graphicacy in early childhood, acknowledging the centrality of the child's perspective that enables them to explore a complex interplay of meanings in ways that are powerful and personally relevant. This perspective rests on a poststructural view of the child as a 'co-constructor of knowledge, culture and identity', assuming 'that children are knowers of their worlds and that, therefore, their perspectives and understandings can provide valuable insights' (Janzen, 2008: 291-292). It recognizes all children as capable and intelligent, providing an image of the child that changes in a 'pedagogy of listening' (Dahlberg, Moss and Pence, 2007: 102), and that teachers have the potential to make a difference (Yelland and Kilderry, 2005: 247).

Examples of children's drawings, writing, maps and their *mathematical graphics* included in the chapter are from nursery and Reception children (aged 3 - 4+ years). They were gathered during the course of data collection for doctoral research, during which the children freely chose to communicate through drawings and other visual representations. The two children attending school had made their drawings at home.

### Introduction

This chapter explores the power of young children's graphics as they draw on home knowledge and experiences to communicate personal meanings for various purposes. It raises questions about traditional (school) perceptions of drawing, writing and mathematical notations, arguing for recognition of the child's agency and identity as they explore and develop understanding of the complexity of multi-literate texts.

The research on which the chapter draws investigates the emergence of *children's mathematical graphics* within play, and takes a Vygotskian, social semiotic perspective of children's imagination and symbolic tools (Vygotsky, 1978; Kress, 1997; Van Oers, 2005; Worthington, 2010a; Carruthers and Worthington, 2011). It points 'to a 'natural history' of graphical signs' (Worthington, 2009): children's meanings and cultural knowledge are at the heart of this semiotic perspective. It is

premised on the belief of the necessity of a new discourse around children's multiliteracies based on a positive view of young children as learners.

### **Graphicacy: becoming multiliterate**

The term 'graphicacy' was originated by Balchin and Coleman (1966) who describe it as 'an intellectual skill' that is necessary for communication. It includes a range of literate texts and is increasingly used in place of 'mark making' in early childhood education. Children's graphicacy can be viewed within the context of 'multiliteracies', explained as 'the multiplicity of communications channels and increasing cultural and linguistic diversity in the world today [that] call for a much broader view of literacy than portrayed by traditional language-based approaches' (The New London Group, 1996: 60). These various 'literacies' (e.g. linguistic, scientific, digital, mathematical, visual) are all narratives through which children tell their stories, choosing modes that best communicate their meanings. They provide 'a vehicle for learning that makes children's thinking visible' (Larson and Peterson, 2003: 306, citing Gallas, 1994). Unsworth proposes that they 'can be differentiated not only on the basis of the channel and medium of communication (print, image, page, screen), but also according to field or subject area (history, geography, science, maths etc.)', (2001: 10).

Lancaster argues that 'When we talk about whether writing evolves from drawing, or is an essential precursor to writing, or simply ask whether children's early marks can be identified as drawing, writing, or enumerating ... We are operating from sets of assumptions about graphic signs and systems, from our literate adult consciousness, that very young children cannot possibly share' (2007: 130). Whilst our research shows that at an early age many children make and distinguish between contexts and their purposes, any distinctions between the different graphical genres or literacies made in this chapter are not intended to be rigid interpretations.

### **Developing agency; developing identities**

Rather than becoming dependent on adults for direct instruction, children's own literacies empower them, affirming their sense of agency and identity. In the context of this research this refers to the capacity for children to make personal choices, to shape their learning and have their voices heard. The child's personal feelings of self-worth contribute to their beliefs, enabling them to see themselves as capable and confident, and able to initiate and communicate through graphicacy.

There is increasing evidence that teachers in schools in England experience considerable 'top-down' pressures that often result in a narrowing of children's experiences and can limit their personal beliefs about their self-worth. Thompson proposes that 'Historically our schools have been predicated on the belief that it is the outsider's knowledge that is *sovereign*. Local, state and national curriculum guidelines are examples of knowledge that is handed down, not created *by* the

mind of the learner, *in the mind of the learner*' (2003:188 italics in the original). In the current educational climate the 'traditional' values and pedagogies persist; ensuring that beliefs of what counts as acceptable drawings, writing and mathematical notation in schools endure.

Our research into *children's mathematical graphics* and wider aspects of graphicacy (Carruthers and Worthington, 2011) grew from the democratic approaches to learning we espoused in our own classrooms and settings. This perspective views the child a 'co-constructor of knowledge, culture and identity', assuming 'that children are knowers of their worlds and that, therefore, their perspectives and understandings can provide valuable insights' (Janzen, 2008: 291-2). It enables children to develop 'cultural capital' (Bourdieu, 1992) and has implications for early childhood pedagogy. Recognizing all children as capable and intelligent provides an image of the child that changes in what Dahlberg and Moss describe 'a pedagogy of listening' (2005: 102). Moss proposes that 'democracy creates the possibility for diversity to flourish. By so doing, it offers the best environment for the production of new thinking and new practice' (2007: 7).

In 1930 Vygotsky argued that whereas '... writing is taught as a motor skill and not as a complex cultural activity... writing should be meaningful for children, that an intrinsic need should be incorporated into a task that is *necessary and relevant for life... reading and writing should become necessary for her in her play* (Vygotsky, 1978: 117-118, italics added). Vygotsky's words appear significant today for all children's literacies. Vygotsky was writing about children of kindergarten age (3-7 years in Russia) and 80 years later the challenge must surely be to support effective play and graphicacy, so that such 'intrinsic needs... are *necessary and relevant*' in the lives of all young children.

## **Examples from practice**

Vygotsky believed 'that make-believe play, drawing and writing can be viewed as different moments in an essentially unified process' (1978: 116), therefore it makes sense to view children's multiliterate endeavours within the context of their play. The main section of this chapter explores children's sense of identity and agency through their multiliterate texts. Some relate to themselves and to their place in their family or peer group; other children use graphics to assert and justify their views and position; to communicate rules within play; to confront anxieties, to persuade or to pretend new technologies.

### **Developing abstract symbols**

Children's active involvement enables them to make and communicate a range of personal meanings. For example playing in the sand outside her nursery class, Aman combined two visual signs signifying 'boat' and 'water', thereby creating a hybrid symbol that effectively communicated her meaning. Combining and transforming symbols allows children to create and communicate complex

meanings (Kress, 1997). Pahl proposes that 'by using one idea the children are driven by internal links within them to explore other possibilities... The meanings change and grow inside their minds... These meanings then develop as they move from one concept to another' (1999: 20-21).



**Figure 1:** Aman's 'boat-water' symbol

By two years of age many children understand that meaning can also be communicated through highly abstract visual symbols, and in the nursery are already communicating personal meanings through their own. At one nursery three boys were playing a ball game outside. As their game progressed, they began to invent a complex range of symbols, using them to keep track of their progress and to communicate the complexity of their rules to each other. Hearing Henry explain 'A cross means you lose', Joe generated a new symbol explaining 'This is where you *double* lose' (figure 2). Their nursery nurse Mandy watched their sign making, occasionally engaging in sensitive discourse with them about their symbols.



**Figure 2:** Joe -*'This is where you double lose'*

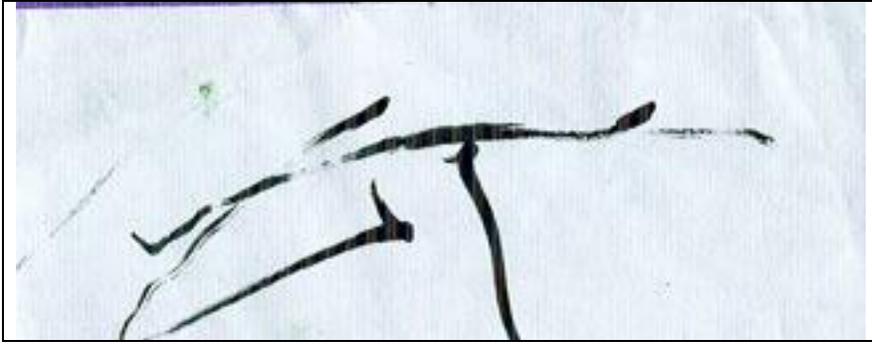
### **Multiliterate narratives**

This semiotic knowledge is powerful and allows children to explore personal narratives which Engel regards as central to their lives, allowing them to 'structure and communicate social experiences' (1995: 10). Moll et al. write of children's 'funds of knowledge' as 'historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being' (1992: 133). Such knowledge also provides rich resources that young children draw on in their play (Riojas-Cortez, 2001). The relationship between children's funds of knowledge and the narratives they explore, is evidenced by other educators such as Paley (1986) and Kress (1997).

Children's social and cultural experiences are revealed through the graphical, multiliterate narratives in this chapter, whether the role of name badges in a nursery setting, the seats occupied by various family members in the car or memories of a family visit to a fairground. They are highlighted in a child's assertion of his position in his peer group when he is almost four years of age, by another exploring personal anxieties relating to a computer game or a child playing out his ideas of electronic security systems.

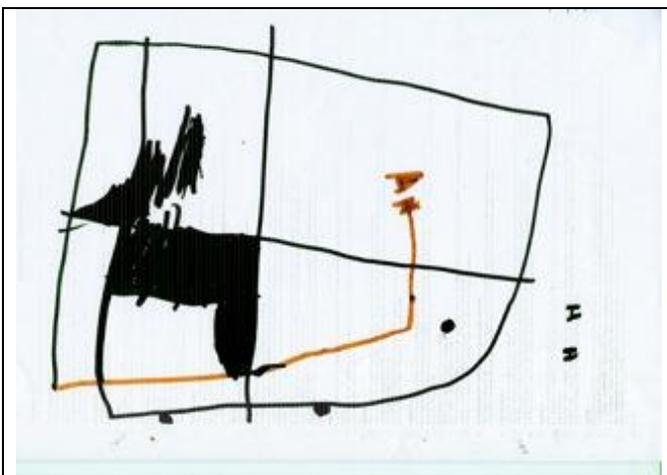
### **Representing the self**

Nathan was playing shops with some friends and decided to make name badges such as those he'd seen visitors to the nursery wearing. He used simple scribble-marks to signify the various names and his marks suggest writing, rather than being an attempt to write any specific names on each. As Nathan focused on the function and role of name badges he drew on his cultural knowledge and experiences, enabling Nathan and his peers to become part of this shared cultural practice.



**Figure 3:** *Nathan's name badge*

Hamzah loves cars and his drawing was connected to his feelings about being with his family, enabling him to revisit and reflect on journeys in the family car with his parents. This was the second of two drawings that Hamzah made about cars on the same occasion; in the first he represented his idea of the *exterior* of cars (Worthington, 2010a). In this example (figure 4) Hamzah focused on the *interior* of the car. Pointing to the four sections within the grid, he explained that these were where members of his family sat: his father in the front (the lower-right section) with the 'driving wheel', his mother at the back (the top-left section) and himself next to her (pointing to the lower left section). Finally Hamzah added two dots at the foot of his car for wheels, and wrote 'H' several times to signify the first letter of his name, also an important feature of young children's self-identity.



**Figure 4:** *Hamzah's car*

### **Assertion**

Finnian was discussing his age with his peers: the other children in his group were already four years of age and in his estimation were 'bigger'. His mum had told him his current age and in the nursery he explained 'I'm *not* three, I'm three and *three quarters!*' and making some personal letter or number-like symbols on a whiteboard he explained 'Look! *This* is how you write three and three quarters' (top and centre of figure 5). Then beneath this he wrote more symbols, explaining 'And this is how you write three and a half.'



**Figure 5:** *Finnian – ‘This is how you write three and three quarters... And this is how you write three and a half.’*

These were Finnian’s personal symbols for something that was extremely important to him and the collaborative dialogue with his peers and teacher was vital to his sense of belonging. The discussion continued over several weeks, the children making ‘many more examples of their very own fractions’ (Carruthers and Worthington, 2009: 24), helping Finn assert his position as a confident and equal member of the group.

### **Confronting anxieties**

Three year-old Tore explained his energetic marks as a ‘shark’ (figure 6): his drawing appears to be is what Luquet refers to as ‘fortuitous realism’ (2001) in which the child notices something in the marks he has made. Perhaps Tore’s marks suggested to him a shark moving rapidly in rotation; perhaps the dots and short vertical lines suggested ‘teeth’, although such drawings can be difficult for adults to understand without further explanation. Matthews argues that ‘Far from being chaotic actions and random ‘scribblings’ children’s use and organisation of visual media exhibits semantic and structural characteristics from the beginning’ (1999: 90). Tore used his marks to explore something he was excited and possibly a little afraid of: we can see that his drawing allowed him to explore his feelings in a safe context where *he* was in control of the shark.



**Figure 6:** *Tore's shark*

### **Pretending new technologies<sup>1</sup>**

Multiliteracies embrace cultural changes and modern technologies, new media and popular 'superhero' culture that impact on children's play, drawings and model making (Paley, 1984; Marsh, 2005; Dyson, 1997; Pahl, 1999; Wohlwend, 2009; Worthington, 2010b), as the next two examples show.

James's complex storying arose through his interest in 'robot (fighting) games' - console games he plays with his 10-year old brother. Drawing on a large sheet of card James has used a combination of intersecting lines, circles and figurative drawings to narrate his story (figure 7).

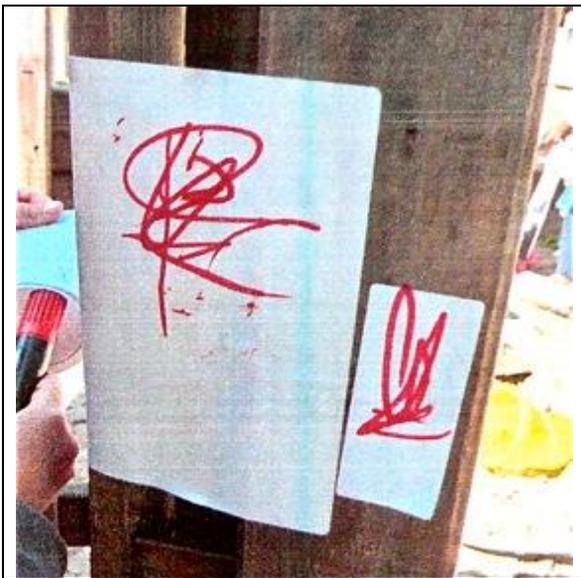


**Figure 7:** *James's 'robot game' narrative*

<sup>1</sup> This subtitle is borrowed from the title of a paper by Wohlwend (2009)

James's drawing appears to be both a means of addressing and controlling the rather frightening content of the computer game, and is as equally a relevant a form of narrative as writing. James explained that his brother had drawn some of the figures (top left): the four nearest the top are ducks, one of which James had drawn. Pointing to various features of his drawing, James explained *'The ducks built a snowman'* (the figure immediately below the ducks). To the left of this group is *'a man drinking a milk-shake – he's scared of the ducks and the snowmen!'* The large circular shape in the centre was *'a house'* and to the right of it the cross with extending lines is *'an aeroplane with things that go round'* (propellers). The remaining shapes – most of which are identical to the aeroplane) are *'grenades to fight the king who lives in the house – to fight everyone!'*

James continued his narrative on the reverse of the same sheet of card, using an equally complex drawing that extended and concluded his narrative.



**Figure 8:** *Isaac's security notice*

Isaac was interested in security systems and one day set about creating a 'business card swipe machine' for the gate to the large outside sandpit at his nursery. He stuck a large label on the fence and wrote instructions on it (figure 8), saying 'You have to have a business card to swipe in' and explained that he didn't need one as 'I've got my special hands'. Soon another child entered the sand area without a 'business card' and Isaac wrote another instruction: 'This is a bell in case you don't have a card'. Later he attached a third notice in the centre of the gate, 'this is for delivery vans. It's a camera and it opens the gate automatically.'

Isaac's friend Oliver had been quietly watching, interested in the power that Isaac's notice had in encouraging children to 'swipe' cards to gain access. Oliver decided to write his own instructions and pointing to his sign explained 'this means you're not allowed to come in this way, but two ticks means you can – I've drawn two'.

Oliver watched as several other children listened to his rules, observing the influence of his signs on their behaviours.

Isaac's interest in security arose from home and is something that he explored in his play throughout the entire year. For a long time his favourite 'bedtime story' at home had been a builders' trade catalogue which included cable locks and padlocks. During a visit to his home Isaac was keen to show me his favourite locks in one of the catalogues and to discuss them with me. Isaac's father has worked in the building trade and through his involvement and many discussions and practical experiences with his dad, Isaac had gleaned considerable knowledge about safes and combination locks; electronic entry systems; safety signs to warn of road works; surveillance cameras; designated entry points for fire engines and police speed cameras – in addition to his knowledge of tools and practices of the building trade.

Isaac made and talked about the various combinations of numbers on a lock he made for a 'safe' created during play; wrote 'no entry' signs; invented an elaborate system to record everyone coming through the door into the nursery and made police speed cameras. Isaac's teacher Emma commented how he increasingly used graphicacy to communicate in his play.

### **Persuasion**

At home children's drawing is often free of adult-expectations and agendas (Anning and Ring, 2004) and they are likely to use them to embody a rich range of experiences and feelings. Megan had made several drawings about fairground rides including a Ferris wheel and 'a runaway train'.



**Figure 9:** Megan's 'very big fast roller-coaster'

Figure 9 suggests the route the roller coaster took with its undulating and rapid movement and includes its many seats: not a conventional 'picture' it may also be

'read' as a map. Megan told her mum 'This is a very big fast roller coaster!' as she recalled some of the different rides from her previous visit with excitement and used the drawings as a means of persuading her family that they should take her again. Megan's mother explained 'Megan was thinking about how much she'd love to go to a funfair again'.



**Figure 10:** *Isaac's letter*

Whilst playing with blocks, Isaac heard Jaydon remark that there were no more hammers. He decided to write a letter to Oliver who was using the only available hammer that was much in demand. Isaac explained 'I'm writing a letter to Oliver to give Jaydon the hammer. 'It says 'let me have the hammer'' (figure 10).

Both Isaac's letter and Nathan's name badge (figure 3) are *indicators* of 'writing' within the context of their play. Such examples are likely to be accepted by teachers who 'understand more deeply how children's intentions, multiple approaches to text meaning, children's worlds and multiple discourses can be used as resources for curriculum purposes... and may begin to address educational equity (Gallas, 1997)' (Larson and Peterson, 2003: 307). One of the factors identified during the period of data collection for this research, was the extent to which effective teachers appeared to focus on the children's own meanings about their symbolic tools (in play and in their graphics) through sensitive, collaborative dialogue, helping mediate the children's understanding. Bringing their 'pedagogy of listening' enables adults not only focus on the child's embodied meanings but also bring their (adult) insights to the semiotic discourse.

### **Contrasting cultures: challenging literacies**

Lancaster emphasizes that 'Each of the [literate] systems which they develop and use is not so much a stage on the way to realism, as a system which continues to evolve and to remain useful, nothing is wasted (Lancaster, 2003: 151). However,

Anning and Ring (2004) have argued that children's drawing continues to be poorly understood, and that this can be particularly evident in school. Van Oers highlights that 'An overwhelming mass of studies can be cited to show that schooling is a decisive factor in cognitive development and identity formation, in the distribution of cultural capital and power, as well as in the innovation of culture. It has become clear that the way the teacher organizes classroom activities is crucial for the empowerment of the pupils' (2010: 165).

My research suggests that in the transition from home or nursery to school, children's personal explorations of the symbolic languages of *writing* and *mathematics* reveal an even greater disjoint than drawings. Young children's emergent writing and *mathematical graphics* may not always be viewed as conventional or 'comfortable': they may not always conform to adults' expectations and as a result are likely to challenge established perceptions. This suggests that whereas in school teachers may more readily accept the examples of drawings in this chapter, children using their early marks and symbols for writing and mathematics are likely to be led down a 'transmission' path resulting in their passive involvement. This has important implications for issues of continuity as children move from nursery to school, and from their reception class into Key Stage 1 and, since multiliterate texts play a significant role across all areas of the curriculum, pedagogy that fails to privilege democratic learning cultures can only restrict children's developing understandings of diverse literacies.

Recent research by Alexander (2010) has identified some possible causes of the tensions that exist in classes with children of 4-5 years in reception classes in England. She found that teachers and practitioners in the Foundation stage (birth to 5 years) had contrasting views of young children, and that these views were dependent on the type of setting in which they taught. Teachers in Children's Centres (with children up to 4 years of age) viewed 'successful' children in terms of communication and relationships, persistence in self-initiated activities and resilience', whereas those working in schools (with children from 4 to 5 years of age) 'tend to see successful children as compliant, understanding the rules and able to get on with their learning [tasks] in a relatively independent way' (2010: 114). These differing views impacted on the practitioners' pedagogical and organisational practices and was characterised by different experiences for the children.

Alexander observes that whilst staff all early years settings are informed by the same accountability regime and curriculum documents for the Foundation stage, 'schools seem to feel the weight of this accountability more heavily than other settings' due to 'the tremendous pressure on schools to conform to accountability measures, targets and standards' (2010: 116).

## **Conclusion**

This chapter reveals young children as active, competent, powerful thinkers and meaning-makers, co-constructing meanings and cultures. They show how young children use their drawings, maps, writing and their *mathematical graphics* to explore anxieties and be in control. They develop, negotiate and justify their sense of belonging in their family and peer group, and use graphics for a range of genres and communicative purposes, including persuasion. These multiliterate texts also highlight the children's developing understanding of the power of symbolic (graphical) tools to signify and communicate specific meanings, at home and in the nursery.

Young children need be supported to build personal 'cultural capital' (Bourdieu, 1992). Within democratic learning cultures children develop both a strong feeling of agency and personal identity, strengthening and empowering their understandings of the various literacies they explore: this should be within the reach of *all* early childhood settings. Yelland and Kilderry emphasise that postmodernism 'enables educators to view students and teachers, their teaching, the educational setting and the greater cultural context in ways that they may not have considered before' (2005: 243), inviting teachers to consider such a 'vision of literacies or multiliteracies in early childhood education' (2005: 246). Thompson concludes 'the way to reintroduce the sovereignty of the learner into the school is to create environments for authentic enquiry... Student curiosity itself should be the force that defines the school curriculum' (2003: 188) so that they develop 'a strong and positive sense of self-identity' that the curriculum requires (DfES, 2007: 45).

This chapter shows how children's meanings combine with culture to shape their narratives and inform different symbol systems, emphasizing an alternative construct of young children as powerful agents of their own learning. It challenges established views of children's drawings in early childhood, and particularly perceptions of what constitutes 'writing' and 'written' mathematics in school. These narratives reveal the power of multiliteracies and surely demand understanding throughout the most significant period of children's lives.

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### Questions to promote thinking

- To what extent are you aware of young children's purposes and meanings of the various graphical texts they create? How might you develop your understanding?
- What are *your* views of a 'successful child'?
- How close do you think the beliefs, values and cultures of the setting in which you teach (either nursery or school), are to those of the setting to which the children will move? How might you begin to explore the views of staff in both settings, and come to some shared understanding?

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**Further reading**

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