

Pretend play and the cultural foundations of mathematics

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Key words: *pretence; role-play; mathematics; funds of knowledge; graphicacy*

- **Research aims:**

To uncover the emergence of mathematical thought and visual representations in young children's spontaneous pretend play narratives.

- **Relationship to previous research works:**

Carruthers and Worthington, 2003, 2005; Worthington, 2009; Worthington and van Oers, (*forthcoming*).

- **Theoretical and conceptual framework:**

This study is based on Vygotskian cultural-historical and social-semiotic theory informed by 'funds of knowledge' (e.g. Moll et al. 1992) and considers how children draw on their informal knowledge of family practices, informing and enriching their play and mathematical understandings.

- **Paradigm, methodology and methods**

A longitudinal, ethnographic study using case studies of children aged 3-4 years in an inner-city nursery in England. The teachers and researcher made written observations of children's pretend play, and collected visual data at the same time. Analysis is largely qualitative and supported by computer-assisted qualitative data analysis software (CAQDAS).

- **Ethical considerations**

BERA's (2012) ethical research guidelines adhered to and participants (nursery staff, parents and children) consulted and informed at every stage.

- **Main finding or discussion**

A high proportion of episodes included aspects of mathematics and children's use of graphicacy to communicate. The children's home cultural knowledge underpinned their pretend play and interests and informed their mathematics.

Where children are immersed in mathematical and graphical-rich environments, exploring home mathematical cultures becomes a natural feature of their pretend play.

- Implications, practice or policy

Practice: value and develop understanding of social pretend-play; acknowledge children's 'funds of knowledge'; develop effective learning cultures to support play, mathematics and graphicacy.

Policy: acknowledge the importance of play; appreciating that the social and cultural aspects of writing and mathematics are best met in pretend-play contexts.