

**'The power of pretence: role-play and mathematics – informing the 'school readiness' debate'**

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**Abstract**

This paper draws on data gathered for doctoral research, tracing the emergence of *children's mathematical graphics* in imagination and symbolic play. It is based on a Vygotskian, cultural-historical theory, informed by a social-semiotic, multimodal perspective of young children's appropriation and creation of symbolic tools, with consideration of their communicative potential (Vygotsky, 1978; Kress; 1997).

Using longitudinal, ethnographic case studies, data were gathered from 3-4 year old children in an inner city Children's Centre nursery in England. Data include written observations and photographs of the children's role-play and graphicacy, and it is these that are analysed.

Gifford (2005) has previously commented on research that found a distinct lack of observable mathematics in children's role-play (e.g. Munn and Schaffer, 1993; Gifford, 1995; Rogers, 1996). Drawing on a number of case studies this paper focuses on incidences of mathematics and graphicacy in role-play episodes. Research questions include, do young children choose to freely explore mathematics in their self-initiated role-play? How do children communicate their mathematical thinking? How do children use graphical symbols to communicate different genres?

The findings show young children spontaneously communicating their mathematical ideas in role-play, and the extent to which they freely drew on their personal 'funds of knowledge' (Riojas-Cortez, 2001), using their multi-literacies to communicate personal ideas. They confirm that where learning cultures support children's mathematics and adults are tuned to children's mathematical meaning making, they arouse in children an 'intrinsic need' to communicate aspects of mathematics that are 'necessary relevant for life' (Vygotsky, 1978).

These findings contrast with those of the previous studies of role-play, revealing the power of young children's mathematical thinking and communicative competences well before they start school. They challenge current curricula that emphasise a narrow set of mathematical skills, and raise questions about children's mathematical experiences in school, pointing to a need to re-evaluate mathematics from the perspective of young children.

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