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Funds of knowledge: Children's cultural ways of knowing mathematics

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Abstract

In the prevailing global climate many teachers feel pressured to demonstrate children's 'basic skills' that often result in direct teaching and a marginalisation of play, and widespread orthodoxy means that direct teaching of mathematical notations continue, often causing children considerable problems. Yet research has shown that the beginnings of the abstract symbolic language of mathematics have their roots in young children's home cultural experiences, extended in meaningful contexts of pretend-play and other child-initiated activities.

This chapter draws on findings from recent doctoral research into the beginnings of young children's mathematical semiosis in their homes and nursery school, revealing the power of their mathematical thinking and understandings expressed through their graphical communications. The chapter focuses on the social and cultural contexts of home and pretend-play, the children's *mathematical graphics* underpinned by Vygotsky's cultural-historical theory, and his dialectical view of relationships between play and symbolic tool-use.

Understandings of the abstract symbolic language of mathematics are social and cultural, this chapter arguing that children's personal mathematical communications evolve over time. Competency develops as a continuum, revealing how children's early understandings contribute to subsequent mathematical notations. This study chapter uncovers the beginnings of abstraction in early childhood mathematics, focusing on the importance of children's interests and their cultural knowledge in underpinning their subject knowledge. It argues that spontaneous, social pretend play be better understood for supporting children's interests and for its mathematical potential, and for children's mathematics be prioritised in early childhood curricula so that their existing competencies and informal representations are valued and understood.