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'The latitude and longitude of play in school: the development of mathematical concepts and language in early childhood'

Abstract

From a socio-cultural perspective play is widely regarded as an appropriate medium for young children's learning; in Vygotskiian terms, it is a 'leading activity' for the young child. However, whilst it is accepted that play can facilitate children's cognitive development, the mechanisms that allow this have been less clear. Vygotsky's theoretical framework of conceptual development allows insights into ways in which young children explore their deep mathematical concerns through spontaneous concepts within their play (Vygotsky, 1986; Cole et al, 1978). Athey's recent work on schemas (1990/2007) points to a relationship with the spontaneous concepts Vygotsky identified and characterised by thinking in complexes.

This paper draws on data gathered from observations of behaviours, language and representations arising within children's self-initiated play and relating to their personal mathematical interests, from children aged 4 – 6 years during one academic year in school. The findings highlight the 'dynamic nature of word meanings', revealing the relationship between the everyday vocabulary children use within their play and how this meshes with taught scientific concepts and language of school mathematics. These activity-orientated observations provided rich insights into young children's conceptual development; suggesting that observations have a central role in supporting learning and meaning-making in early childhood.

This paper argues that play offers ideal opportunities for children up to six years of age to explore spontaneous mathematical concepts. Through collaborative and mediational means play allows children to begin to make conceptual connections between personal language and thought, and the scientific language and concepts of the school mathematics curriculum.
