

Paper presentation at the European Early Childhood Educational Research Association
(EECERA) Dublin, Conference - September, 2005

Creativity and Cognition: the Art of Children's Mathematics

Elizabeth Carruthers & Maulfry Worthington

Children's Mathematics Network
Exeter, U.K.

Abstract

This paper argues that appreciation of what it means for young children to be creative in mathematics is governed by *pedagogised identities* (Atkinson, 2002). These identities result from particular beliefs about teaching and learning sanctioned by popular views that are not always borne out by research. We show that children's role as active learners who co-construct their understanding is often restricted: contemporary socio-cultural perspectives become overshadowed by significantly behaviourist views, particularly in respect of early 'written' mathematics.

Our current research explores teachers' beliefs about creativity in early years mathematics and ways in which these are exemplified through children's experiences. We have collected questionnaires from over 200 teachers in three areas of England and subsequently explored issues in greater depth through telephone interviews. We compare examples of 'creative mathematics' identified by teachers in our study, with examples of children's *mathematical graphics* or visual representations, from our earlier research (Worthington & Carruthers, 2003).

Outcomes from the two studies to date highlight contrasting experiences for children. We show that a narrow perspective of children as learners severely limits creativity in mathematics. We believe that the resulting outcome is of low levels of cognitive challenge for young learners. We argue that teachers need to 'listen' to children's voices and to recognise value and support children's thinking and visual representation in mathematics: failure to do so will mean that opportunities for creative thinking in mathematics will continue to be limited. This has significant implications for young children's understanding of mathematics.