

TRANSITIONAL OBJECTS AND EARLY ALGEBRAIC THINKING

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According to Winnicott (1953), when a caregiver is absent, young children, to cope with separation anxiety, may use ‘transitional’ objects, such as thumb-sucking, or a soft toy, to stand in temporarily for the caregiver - an early form of symbolisation. Friedrich Froebel, the inventor of Kindergarten, similarly related babies’ play with objects such as balls and cubes to pre-verbal enactment of relationships with caregivers (Froebel, 1895). This work-in-progress study aims to explore theoretical links between psychological projection of relationships with caregivers onto objects in Kindergarten play, and proto-algebraic thinking, where an object may stand for various things, which underpins e.g. Davydovian and Gattegnan primary mathematics curricula. I reviewed Froebelian activities with balls and cubes and attempted to interpret them through first a psychological and then a mathematical lens, mapping concepts broadly gathered from developmental psychology and the mathematics curriculum in England.

ACTIVITY: Hiding and presenting a ball; Reaching for and grasping a ball	
<p>What the little one has up to this time directly felt so often by the touch of the mother's breast – union and separation – it now perceives outwardly in an object which can be grasped and clasped (Froebel, 1895, p.36)</p>	
<p>PSYCHOLOGICAL: Attachment; Separation anxiety; Containment; Splitting and integrating; Shared gaze; Paranoid-schizoid and depressive positions; Object permanence.</p>	<p>MATHEMATICAL: Problem and solution; Doing and undoing, inverse relations; Sphere, line, circle; One; Finding the unknown, algebra.</p>

Figure 1: A Froebelian activity mapped to psychological and mathematical concepts

References

- Froebel, F. (1895). *Pedagogics of the Kindergarten* (Vol. 30). D. Appleton.
- Winnicott, D. W. (1953). Transitional objects and transitional phenomena. A study of the first not-me possession. *International journal of psychoanalysis*, 34, 89-97.