Number Games in Early Childhood Centres

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ABSTRACT

Experiences provided at Early Childhood Centres can play an important role in influencing children's dispositions towards mathematical learning. This study examined the use of number games in promoting the development of number skills in young children. Specifically this study explored whether or not raising the profile of mathematical activity through the provision of number games within the centre would increase the children's number knowledge and skills.

Early differences in children's understanding about number have been found to influence their later levels of achievement in mathematics. Children who are initially ahead tend to stay ahead, while those who are initially behind tend to stay behind. Within Early Childhood Centres programmes of learning are developed within the children's range of interests. This raises concerns that children less confident in mathematics, and with little domain knowledge are not necessarily encouraged to develop in areas of mathematics. If children do not experience the early number skills crucial to broadening their domain knowledge then 'closing the gap' between children who are more, and those who are less, confident in number may not be possible.

A case study approach involving ten children, aged between four and five years, from the morning session of a city kindergarten formed the basis of the study. For each of three consecutive fortnights the teachers introduced three new number games to the children. Teachers and the researcher, using scheduled observations, monitored game usage to determine which children played the games and which games were played. Initial and final interviews of consenting children were undertaken to determine number knowledge development. Parallel to the introduction of the games, teachers undertook a six-week professional development programme consisting of three two-hour sessions focussing on the early development of number skills and knowledge in young children. Teachers were then interviewed to determine changes in teaching practice regarding number development and game usage.

There were improvements in all ten children's number knowledge within the six-week period. However, game usage varied greatly between children and there was no significant relationship between high game usage and children's improvement levels in number knowledge. It was assumed that other influences were also occurring to contribute to the children's development of number skills. Game usage was higher when an adult was present. The role played by the teacher in using appropriate mathematical domain and pedagogical knowledge appeared to be vital in the development of early number knowledge. This area of teacher interaction warrants further investigation.

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