

# Numeracy Equipment and Year 3 Children: Bright, Shiny Stuff, or Supporting the Development of Part-whole Thinking?

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New Zealand teachers' use of equipment has increased as a result of their participation in the Numeracy Development Projects. However, the equipment choices of the four teachers interviewed in this study were not strongly consistent with the equipment use recommended in the NDP materials. In the teachers' reasons for equipment choices, the surface features of equipment seemed equally important as the conceptual development it can support. In contrast, the reasons given for equipment choices by the 34 Year 3 children who were interviewed were almost exclusively concerned with how the equipment might help them to solve the given problem. The children's success rates at solving the problem declined as the equipment became more structured; this paralleled the teachers' equipment choices.

The ultimate goal for teacher educators must be for all teachers to have a richly connected conceptual map of numeracy, in order for teachers to be able to effectively use equipment in ways that help children to construct their own meaningful connections as they learn about number. Rather than talking about equipment as 'bright, shiny stuff', teachers must have a clear focus on the role that equipment can play in the development of children's part-whole thinking. In this round table presentation the findings from this study, which was conducted during 2002 as part of a Masters thesis, will be discussed.

## Students' Knowledge of Rates: A Case for a Foundation Year Program in South Africa

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This study investigated performance of South African foundation year students' ability to compute rates of change from functions represented (i) algebraically, which are largely procedural in nature and (ii) those represented graphically, which are mainly conceptual in nature. Students' responses in a test on calculus were analysed. The results show that (i) students' knowledge on calculus is mainly procedural; (ii) their understanding of rates of change at a point is inadequate, and (iii) procedural knowledge is more preferred than its conceptual referents.