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Getting it Right and Getting it Finished:
Mathematics in Year Five.

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Abstract

This study examined the extent of inquiry and traditional classroom practices and attitudes during mathematics teaching and learning in two year 5 classrooms (8-9 years old). The cultures of the classrooms were examined in the light of recent research into the social, affective and task environments of students learning mathematics.

The study was designed as an ethnographic case study, with the intention of providing a rich description of the classroom interactions and environment. Data collection was carried out during the 3rd and 4th terms of 1998, during which classroom observations were triangulated by focus group interviews, teacher interviews and questionnaires. The resulting data was analysed using the theoretical framework of Hiebert, Carpenter, Fennema, Fuson, Wearne, Murray, Olivier, & Human (1997) and related to recent theories of teaching and learning of mathematics.

The results of the study indicate that the cultures of the two classrooms were partly conducive to linked, thoughtful and contextual mathematics as envisaged by the Mathematics in the New Zealand Curriculum document and encouraged by many recent researchers in mathematics education. On the other hand many of the student and teacher practices and attitudes were reminiscent of traditional classrooms. The most important concern of the students was to complete their work and to be seen to get their answers right. The interplay between the different paradigms resulted in a mixture of rote learning and understanding of mathematics. The students showed some ability to move between paradigms depending on the classroom environment established by the teacher, but usually pressed the teacher towards traditional practices. The power environment in the classroom and the way tasks were constructed and used by the teacher were of critical importance to the quality of mathematical outcomes experienced by the students.

The study suggests that effective inquiry based teaching and learning is possible in the New Zealand context, especially where the teacher is able to link together a system of classroom practices that offer the students an alternative paradigm to traditional 'mathematics in school'. There needs to be a long-term campaign of information and professional development for both pre-service and in-service teachers, focussing on the potential and effectiveness of such linked systems of classroom practice.

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