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**Integrated Curriculum, Mathematics and
Standards Based Assessment in Secondary Education:
Parts of the Solution**

**A thesis presented
in partial fulfilment of the
requirements for the degree of
Masters of Educational Studies (Mathematics)
at Massey University**

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2008

Abstract

The concept of integrated curriculum (IC) has a long history in the education literature dating back to the 1920s. The approach is based on the belief that curriculum is most engaging and effective when driven by student interest and subject boundaries are transcended as required to support thematic and inquiry based learning. Integrated approaches had little impact on mainstream subject based curricula through most of the twentieth century but in the last 10 to 20 years interest has increased markedly.

A case study methodology was adopted for this research to explore: how IC is currently being implemented in New Zealand, how mathematics is related to integrated programmes; how standards based assessment (SBA), particularly NCEA, impacts on IC; and how current proposals for the evolution of NCEA and SBA for IC are regarded by IC practitioners. Three secondary schools with substantial IC programmes participated. Data was gathered primarily through semi-structured interviews with senior teachers: four from integrated studies disciplines (English and social sciences) and four from mathematics.

The three schools were found to be distributed widely along the interdisciplinary continuum from strongly subject based to more transdisciplinary curricula. Three major categories of integration themes were common to all three schools: *Social Justice and Local Issues*; *Sustainable Economics and Environment*; and *Biography, Self discovery and Change*. The three schools had quite distinct ways of managing the formal collegial collaboration required for the coordination and development of integration programmes. All three reported tensions related to this collaboration. It is suggested that the interdisciplinary continuum conceptualization of IC be expanded to include a social dimension.

Learning gains, increased student motivation and improved student behaviour were reported to be the main benefits of IC although the mathematics participants were more equivocal about motivational benefits than the integrated studies participants. The main challenges reported were concerned with integrated curriculum development, rigour, assessment, and timetable and programme coordination. Strategies suggested for overcoming perceived difficulties included professional development for teachers in all aspects of IC, and time and funding for the development of integrated curriculum and assessment resources.

Mathematics was found to be a particularly difficult discipline to integrate with others, especially the social sciences. The mathematics/integrated studies divide was characterised by contrasting orientations toward curriculum and assessment, differing perceptions of student

motivation and differences in collegial collaborative styles. The mathematics participants regarded small group and inquiry based learning and assessment as promising strategies for developing IC in mathematics. Level 1 NCEA mathematics unit standards and level 3 statistics standards were reported as being amenable to combinations with standards in other learning areas for assessing interdisciplinary courses.

The NCEA was seen by participants as a positive development for IC. However, negative impacts also noted included: credit seeking, curriculum fragmentation, and constraints placed on interdisciplinary combinations of standards by university entrance requirements. The proposed development for NCEA regarded as most promising for IC was new broad-based integrated standards linked to groups of existing content and skills specific standards.

Acknowledgements

I would like to express my appreciation to Dr Peter Rawlins and Associate Professor Glenda Anthony, my MEdStuds(Mathematics) thesis supervisors. Your encouragement, inspiration, generosity of time, combined wisdom and extensive editorial feedback, has greatly assisted me in this work.

I would like to thank the teachers who gave so generously of their time and openly of their insights and expertise as participants in the interviews upon which this study is based, and for their willingness to respond to my many follow-up questions.

My gratitude to Val Morey and Robyn Findlay for their proof reading and the rest of my family and friends for their unfailing moral support and encouragement through the challenging year in which I completed this research.

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