

Review of

Meaney, Tamsin; Trinick, Tony; Fairhall, Uenuku:
Collaborating to Meet Language Challenges in Indigenous Mathematics Classrooms.

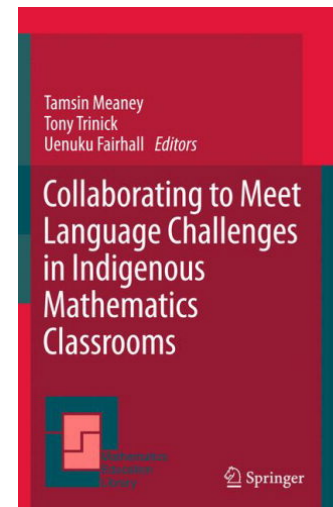
Mathematics Education Library 52. Berlin: Springer. (ISBN 978-94-007-1993-4/hbk; 978-94-007-1994-1/ebook). xii, 309 p. EUR 99.95/net; SFR 143.50; \$ 139.00; £ 90.00 (2012).

Since its inauguration some thirty years ago, ethnomathematics has had a hard time to establish itself as a proper field of research. Despite the pioneering works of Ubiratan d'Ambrosio, Alan Bishop and others, the inherent theoretical problems have not yet been solved convincingly. Terms like “indigenous” and “ethno” are political catch words rather than analytical categories, and the very notion of mathematics still refers to its “western”, hegemonic version. The unsettled debate has lately been summarized by do Carmo Domite & Pais (2010).

The political and theoretical success story the book at hand tells could very well influence this debate in favour of ethnomathematics. It is a well-informed, insightful and comprehensible study on the challenges posed by the teaching and learning of mathematics in a Maori immersion school in Rotorua, New Zealand, since 1998. Co-authored by experts in three different fields and drawing upon a decade of research and experience, the book is based on a wide range of literature and succeeds in embedding its abundant empirical material into a consistent theoretical framework.

To understand the context and scope of this research, some historical remarks are in order. In the 1820s *Aotearoa* (New Zealand), inhabited for several hundred years by Maori tribes, was colonised by *pakeha*, settlers of predominantly English origin. They drove back the indigenous people and their culture. Within this process, the Native School Act of 1867 decreed that Maori children had to be educated in English, inevitably leading to the decline of *te reo Maori* (the Maori language) in the century to follow. As late as the 1970s, however, initiatives tried to re-empower the Maori minority. In particular, Maori parents have succeeded with the establishment of Maori immersion schools. The goal of immersion, meaning that the whole school life takes place in *te reo Maori*, has been twofold: first of all to revitalise the language, secondly to improve the achievement of Maori students, who statistically did not perform as well as their peers. This study provides ample evidence that Maori immersion schools have been a success story on both counts.

The book presents eleven self-contained case studies, each highlighting a different aspect of using *te reo Maori* in mathematics classrooms. The ethnographic method of case studies reflects the theoretical tenet of the authors that meaning is always situated and experience always contextualised. Consequently, the learning of mathematics is understood as activity/practice and embedded in the theoretical framework of “practice



architectures”, a concept easily connected to the constructivist paradigm of contemporary mathematics education. In this spirit, each case study is interpreted as a “challenge” to established norms or ways of thinking. Meanwhile, some of the challenges have been overcome, whereas others are still to be met. But in each case, the attempt to resolve the challenge has stimulated a “collaborative” process, including joint discussions, the provisioning of resources (especially time and money), the readiness to accept compromises and, foremost, building and maintaining relationships.

The case studies are grouped in four parts:

Starting from the formal educational system, Part I (Political Challenges) discusses the realisation of alternative enactments of education in terms of power and praxis-architectures, covering (a) the general context of developing a mathematics register in *te reo Maori* in Aotearoa, (b) the setting up of *te kura kaupapa Maori o te koutu* (the Maori immersion school in question) and (c) the fight for bilingual exams.

Part II (Mathematical Challenges) explores the benefits of using *te reo Maori* in the teaching and learning of mathematics on the basis of (a) the specific linguistic features of *te reo Maori*, (b) the general role of writing in mathematics and (c) an example of using language for thinking probabilistically.

Part III (Community challenges) investigates the use of the mathematics register developed at school within the wider community, for example (a) outside the classroom or (b) in the education of teachers of mathematics, for who *te reo Maori* often is not their first language.

Part IV (Pedagogical challenges) asks for reformed or alternative teaching practises adopted in the process of school development, elaborating on (a) the “mathematical register acquisition model”, which theorises systematic learning, (b) the attempt to identify a specific Maori pedagogy and (c) the impact of the process on the practise of teaching.

Although the case studies seem only loosely related to one another, this book allows to deal with them synoptically by theorising the teaching and learning of mathematics in its cultural-discursive, material-economic and social-political context. The unprecedented comprehensiveness of this research does provide insights well beyond the particular case of *te kura kaupapa Maori o te koutu*. The book, therefore, will be of interest not only to the ethnomathematical specialist but to anyone interested in the teaching and learning of mathematics in a context of cultural difference.

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