Findings from the New Zealand Numeracy Development Projects 2005

Contracted researchers
F. Ell, J. Higgins, K. C. Irwin, G. Thomas, T. Trinick, J. Young-Loveridge

Associated researchers
M. Britt, R. Carman, N. Hāwera, R. Isaacson, S. Sharma, B. Stevenson, A. Tagg,

Foreword
D. Holton
Acknowledgments

These evaluations were funded by the New Zealand Ministry of Education.

Sincerest thanks are extended to the students, teachers, principals, and facilitators who participated so willingly in the evaluation of the Numeracy Development Projects in 2005. Thanks also to Tui Glen Primary School, Fergusson Intermediate, and Upper Hutt College, all of whom were involved in the 2005 photographic sessions for the cover.

Thanks also to Professor Derek Holton, The University of Otago, for peer reviewing the final drafts.

The views expressed in these papers do not necessarily represent the views of the New Zealand Ministry of Education.

First published 2006 for the Ministry of Education by Learning Media Limited, PO Box 3293, Wellington New Zealand.

Copyright © Crown 2006 All rights reserved. Enquiries should be made to the publisher.

ISBN 0 7903 1444 4
Online ISBN 0 7903 1445 2
Dewey number 372.707

Further copies may be ordered from Learning Media Customer Services, Box 3293, Wellington. Freephone 0800 800 565, freefax 0800 800 570. Please quote item number 31444.
## CONTENTS

### FOREWORD
*Derek Holton*  .............................................................................................................................................. 1

### STUDENT ACHIEVEMENT
Patterns of Performance and Progress on the Numeracy Development Project:
  Looking Back from 2005
*Jenny Young-Loveridge*  ................................................................. 6

Numeracy Development Project Longitudinal Study: Patterns of Achievement
*Gill Thomas and Andrew Tagg*  ...................................................... 22

An Evaluation of Te Poutama Tau 2005
*Tony Trinick and Brendan Stevenson*  ........................................ 34

Algebraic Thinking in the Numeracy Project: Year Two of a Three-year Study
*Kathryn C. Irwin and Murray Britt*  ................................................ 46

Students’ Perspectives on the Nature of Mathematics
*Jenny Young-Loveridge, Merilyn Taylor, Sashi Sharma, and Ngārewa Hāwera*  ................................ 55

### PROFESSIONAL PRACTICE
Modelling Books and Student Discussion in Mathematics
*Joanna Higgins with Maia Wakefield and Robyn Isaacson* ................. 65

Contextually Responsive Facilitation
*Joanna Higgins and Sandi L. Tait-McCutcheon with Raewyn Carman and Donna Yates* ........... 72

Advancing Pasifika Students’ Mathematical Thinking
*Kathryn C. Irwin and Joanne Woodward*  ...................................... 80

Numeracy Assessment: How Reliable are Teachers’ Judgments?
*Gill Thomas, Andrew Tagg, and Jenny Ward*  ................................ 91

Te Poutama Tau – A Case Study of Two Schools
*Tony Trinick*  ................................................................................................. 103

### SUSTAINABILITY
Sustaining the Numeracy Project: The Lead Teacher Initiative 2005
*Gill Thomas and Jenny Ward*  .......................................................... 115

Sustained Numeracy Project Practices in Two Schools
*Fiona Ell and Kathryn C. Irwin*  ........................................................ 129

### APPENDICES
Appendices A–K: Patterns of Performance and Progress on the Numeracy Development Project: Looking Back from 2005 ........................................................................................................ 137

Appendix L: Algebraic Thinking in the Numeracy Project: Year Two of a Three-year Study ................................................................................................................................. 156

Appendix M: Te Poutama Tau – A Case Study of Two Schools ................. 157