

Table of Contents

| | |
|-----------------------|----|
| Introduction | |
| <i>Alan J. Bishop</i> | ix |

PART ONE

SECTION 1: POLICY DIMENSIONS OF MATHEMATICS EDUCATION

| | |
|---|-----|
| Introduction | |
| <i>Christine Keitel</i> | 3 |
| 1 Mathematics, mathematics education and economic conditions | |
| <i>Derek Woodrow</i> | 9 |
| 2 <i>Is mathematics for all?</i> | |
| <i>Peter Gates and Catherine Vistro-Yu</i> | 31 |
| 3 Mathematical literacy | |
| <i>Eva Jablonka</i> | 75 |
| 4 Lifelong mathematics education | |
| <i>Gail FitzSimons, Diana Coben and John O'Donoghue</i> | 103 |
| 5 International comparative research in mathematics education | |
| <i>David Clarke</i> | 143 |
| 6 Mathematics education in international and global contexts | |
| <i>Bill Atweh, Phil Clarkson and Benvenuto Nebres</i> | 185 |

SECTION 2: RESPONSES IN MATHEMATICS EDUCATION TO TECHNOLOGICAL DEVELOPMENTS

| | |
|--|-----|
| Introduction | |
| <i>Frederick Leung</i> | 233 |
| 7 Technology and mathematics education: a multidimensional overview of recent research and innovation. | |
| <i>Jean-Baptiste Lagrange, Michele Artigue, Colette Laborde and Luc Trouche</i> | 237 |

| | | |
|----|--|-----|
| 8 | Influence of technology on the mathematics curriculum <i>Ngai-Ying Wong</i> | 271 |
| 9 | What can digital technologies take from and bring to research in mathematics education <i>Celia Hoyles and Richard Noss</i> | 323 |
| 10 | Technology as a tool for teaching undergraduate mathematics <i>Mike Thomas and Derek Holton</i> | 351 |
| 11 | Mathematics teacher education and technology <i>Judith Mousley, Diana Lambdin and Yusuf Koc</i> | 395 |

PART TWO

SECTION 3: ISSUES IN RESEARCH IN MATHEMATICS EDUCATION

| | | |
|----|---|-----|
| | Introduction <i>Jeremy Kilpatrick</i> | 435 |
| 12 | Getting the description right and making it count <i>Jill Adler and Steve Lerman</i> | 441 |
| 13 | The impact of educational research on mathematics education <i>Dylan Wiliam</i> | 471 |
| 14 | Preparing mathematics education researchers for disciplined inquiry <i>Jo Boaler, Deborah Ball and Ruhama Even</i> | 491 |
| 15 | Mathematics teachers as researchers <i>Chris Breen</i> | 523 |
| 16 | Researching mathematics education in situations of social and political conflict <i>Renuka Vithal and Paola Valero</i> | 545 |
| 17 | Obstacles to the dissemination of mathematics education research <i>Andy Begg</i> | 593 |

SECTION 4: PROFESSIONAL PRACTICE IN MATHEMATICS EDUCATION

| | | |
|--|-------------------------------------|-----|
| | Introduction <i>Ken Clements</i> | 637 |
|--|-------------------------------------|-----|

| | | |
|----|--|-----|
| 18 | Challenging and changing mathematics teaching classroom practices <i>Dina Tirosh and Anna Graeber</i> | 643 |
| 19 | Towards a didactic model for assessment design in mathematics education <i>Marja van den Heuvel-Panhuizen and Jerry Becker</i> | 689 |
| 20 | Values in mathematics teaching – The hidden persuaders? <i>Alan Bishop, Wee Tiong Seah and Chien Chin</i> | 717 |
| 21 | Regulating the entry of teachers of mathematics into the profession: Challenges, new models, and glimpses into the future <i>Max Stephens</i> | 767 |
| 22 | Examining the mathematics in mathematics teacher education <i>Thomas Cooney and Heide Wiegel</i> | 795 |
| 23 | Educating new mathematics teachers: Integrating theory and practice, and the roles of practising teachers <i>Barbara Jaworski and Uwe Gellert</i> | 823 |
| 24 | Professional development in mathematics education: Trends and tasks <i>Orit Zaslavsky, Olive Chapman and Roza Leikin</i> | 877 |
| | List of Principal Authors | 919 |
| | Index of Names | 921 |
| | Index of Subjects | 943 |