

Contents

Part I Introduction to Section A: Social, Political and Cultural Dimensions in Mathematics Education	1
Christine Keitel	
1 From the Few to the Many: Historical Perspectives on Who Should Learn Mathematics	7
M. A. (Ken) Clements, Christine Keitel, Alan J. Bishop, Jeremy Kilpatrick, and Frederick K. S. Leung	
2 Theories for Studying Social, Political and Cultural Dimensions of Mathematics Education	41
Eva Jablonka, David Wagner, and Margaret Walshaw	
3 Understanding and Overcoming “Disadvantage” in Learning Mathematics	69
Lulu Healy and Arthur B. Powell	
4 Beyond Deficit Models of Learning Mathematics: Socio-cultural Directions for Change and Research	101
Cristina Frade, Nadja Acioly-Régnier, and Li Jun	
5 Studying Learners in Intercultural Contexts	145
Yoshinori Shimizu and Gaye Williams	
6 Learners in Transition Between Contexts	169
Tamsin Meaney and Troels Lange	
7 Critical Perspectives on Adults’ Mathematics Education	203
Jeff Evans, Tine Wedege, and Keiko Yasukawa	
8 The Politics of Equity and Access in Teaching and Learning Mathematics	243
Neil A. Pateman and Chap Sam Lim	

Part II Introduction to Section B: Mathematics Education as a Field of Study	265
Alan J. Bishop	
9 From Mathematics and Education, to Mathematics Education	273
Fulvia Furinghetti, José Manuel Matos, and Marta Menghini	
10 Theories in Mathematics Education: Some Developments and Ways Forward.....	303
Bharath Sriraman and Elena Nardi	
11 Research Methods in Mathematics Teacher Education	327
Uwe Gellert, Rosa Becerra Hernández, and Olive Chapman	
12 Linking Research to Practice: Teachers as Key Stakeholders in Mathematics Education Research.....	361
Carolyn Kieran, Konrad Krainer, and J. Michael Shaughnessy	
13 Teachers Learning from Teachers	393
Allan Leslie White, Barbara Jaworski, Cecilia Agudelo-Valderrama, and Zahra Gooya	
14 Developing Mathematics Educators.....	431
Jarmila Novotná, Claire Margolinas, and Bernard Sarrazy	
15 Institutional Contexts for Research in Mathematics Education	459
Tony Brown and David Clarke	
16 Policy Implications of Developing Mathematics Education Research	485
Celia Hoyles and Joan Ferrini-Mundy	
Part III Introduction to Section C: Technology in the Mathematics Curriculum.....	517
Frederick K. S. Leung	
17 From the Slate to the Web: Technology in the Mathematics Curriculum	525
David Lindsay Roberts, Allen Yuk Lun Leung, and Abigail Fregni Lins	
18 Modelling with Mathematics and Technologies	549
Julian Williams and Marilyn Goos	
19 Technology and the Role of Proof: The Case of Dynamic Geometry	571
Nathalie Sinclair and Ornella Robutti	

20	How Might Computer Algebra Systems Change the Role of Algebra in the School Curriculum?	597
	M. Kathleen Heid, Michael O. J. Thomas, and Rose Mary Zbiek	
21	Technology for Enhancing Statistical Reasoning at the School Level	643
	Rolf Biehler, Dani Ben-Zvi, Arthur Bakker, and Katie Makar	
22	Learning with the Use of the Internet	691
	Marcelo C. Borba, Philip Clarkson, and George Gadanidis	
23	Technology and Assessment in Mathematics	721
	Kaye Stacey and Dylan Wiliam	
24	Technology-Driven Developments and Policy Implications for Mathematics Education	753
	L. Trouche, P. Drijvers, G. Gueudet, and A. I. Sacristán	
Part IV	Introduction to Section D: International Perspectives on Mathematics Education	791
	Jeremy Kilpatrick	
25	From the Local to the International in Mathematics Education	797
	Alexander Karp	
26	International Collaborative Studies in Mathematics Education	827
	Parmjit Singh and Nerida F. Ellerton	
27	Influence of International Studies of Student Achievement on Mathematics Teaching and Learning	861
	Vilma Mesa, Pedro Gómez, and Ui Hock Cheah	
28	International Organizations in Mathematics Education	901
	Bernard R. Hodgson, Leo F. Rogers, Stephen Lerman, and Suat Khoh Lim-Teo	
29	Toward an International Mathematics Curriculum	949
	Jinfa Cai and Geoffrey Howson	
30	Methods for Studying Mathematics Teaching and Learning Internationally	975
	Mogens Niss, Jonas Emanuelsson, and Peter Nyström	

31 Implications of International Studies for National and Local Policy in Mathematics Education	1009
John A. Dossey and Margaret L. Wu	
Brief Biographical Details of Authors	1043
Names of Reviewers	1063
Author Index	1065
Subject Index	1093