Contents

Setting the Stage: A Conceptual Framework for Examining and Developing Tasks for Mathematics Teacher Education ....................... 1
Orit Zaslavsky and Peter Sullivan

Part I

Instructional Alternatives via a Virtual Setting: Rich Media Supports for Teacher Development .......................................................... 23
Daniel Chazan, Patricio Herbst and Hagit Sela

Classifying and Characterising: Provoking Awareness of the Use of a Natural Power in Mathematics and in Mathematical Pedagogy .... 39
John Mason

Designing Tasks that Challenge Values, Beliefs and Practices: A Model for the Professional Development of Practicing Teachers ........ 57
Malcolm Swan

Pedagogical, Mathematical, and Epistemological Goals in Designing Cognitive Conflict Tasks for Teacher Education .................. 73
Irit Peled and Anat Suzan

Working Mathematically on Teaching Mathematics: Preparing Graduates to Teach Secondary Mathematics ....................................... 89
Anne Watson and Liz Bills

Didactical Variability in Teacher Education .............................................. 103
Jarmila Novotná and Bernard Sarrazy

Bridging Between Mathematics and Education Courses: Strategy Games as Generators of Problem Solving and Proving Tasks .... 117
Nitsa Movshovitz-Hadar
Part II

Mediating Mathematics Teaching Development and Pupils’ Mathematics Learning: The Life Cycle of a Task ........................................ 143
Barbara Jaworski, Simon Goodchild, Stig Eriksen and Espen Daland

Learning from the Key Tasks of Lesson Study .................................................. 161
Catherine Lewis, Shelley Friedkin, Elizabeth Baker and Rebecca Perry

Mathematical Problem Solving: Linking Theory and Practice ......................... 177
Berinderjeet Kaur and Tin Lam Toh

Part III

Guiding Mathematical Inquiry in Mobile Settings ........................................... 191
Michal Yerushalmy and Galit Botzer

Technology Integration in Secondary Mathematics: Enhancing the Professionalisation of Prospective Teachers ............................ 209
Merrilyn Goos

Mathematical Machines: From History to Mathematics Classroom ............. 227
Michela Maschietto and Maria G. Bartolini Bussi

Part IV

Using Video Episodes to Reflect on the Role of the Teacher in Mathematical Discussions ......................................................... 249
João Pedro da Ponte

Sensitivity to Student Learning: A Possible Way to Enhance Teachers’ and Students’ Learning? ................................................... 263
Ulla Runesson, Angelika Kullberg and Tuula Maunula

Overcoming Pedagogical Barriers Associated with Exploratory Tasks in a College Geometry Course ........................................... 279
Norma Presmeg

Using a Model for Planning and Teaching Lessons as Part of Mathematics Teacher Education ...................................................... 291
Peter Sullivan, Robyn Jorgensen and Judith Mousley

Building Optimism in Prospective Mathematics Teachers ......................... 307
Gaye Williams

Index ............................................................................................................. 325