Contents

Function, Form and Focus: The Role of Tasks in Elementary Mathematics Teacher Education .......................... 1
Barbro Grevholm, Richard Millman, and Barbara Clarke

Section A Tasks as a Tool for Exploring the Cyclical Nature of Learning and Developing Reflection in the Teaching of Mathematics

Using Lesson Study to Develop an Appreciation of and Competence in Task Design ........................................ 11
Joanne Lieberman

Reflecting on the Process of Task Adaptation and Extension: The Case of Computational Starters .......................... 25
Theresa J. Grant and Jane-Jane Lo

Tasks for Primary Student Teachers: A Task of Mathematics Teacher Educators .............................................. 37
Victoria Sánchez and Mercedes García

The Mathematics Teaching Portfolio: A Reflective Tool for Developing Professional Growth and Improving Classroom Practices .............. 51
Rose Spanneberg

Section B Tasks as a Tool for Developing Mathematical Knowledge for Teaching

Pushing Probability and Statistics Tasks in a New Direction ................. 71
Dan Canada

Logic in Wonderland: Alice’s Adventures in Wonderland as the Context of a Course in Logic for Future Elementary Teachers .. 85
Nitsa Movshovitz-Hadar and Atara Shriki
Contents

Tasks using Video Clips of Children in a Content Mathematics Course for Future Elementary School Teachers ............................ 105
Richard Millman, Kelly Svec, and Dana Williams

Teacher Tasks for Mathematical Insight and Reorganization of What it Means to Learn Mathematics ................................. 113
George Gadanidis and Immaculate Namukasa

Teaching and Understanding Mathematical Modelling through Fermi-Problems ............................................................ 131
Andrea Peter-Koop

A Research-Based Workshop Design for Volume Tasks ...................... 147
Mariana Sáiz and Olimpia Figueras

Task-Based Lessons: The Central Focus of a Mathematics Content Course for Future Elementary Teachers ......................... 161
Anne R. Teppo

Section C Tasks as a Tool for Developing Knowledge through and for Practice

The Use of Relational Games in Initial Teacher Education: Bringing the Classroom into the Lecture Theatre .......................... 177
Solange Amorim Amato

Using Mathematically Rich Tasks to Deepen the Pedagogical Content Knowledge of Primary Teachers ................................. 197
George Ashline and Regina Quinn

From Professional Tasks in Collaborative Environments to Educational Tasks in Mathematics Teacher Education ................. 215
José Carrillo and Nuria Climent

The Analysis of Classroom-Based Processes as a Key Task in Teacher Training for the Approach to Early Algebra .................... 235
Nicolina A. Malara and Giancarlo Navarra

Outdoor Mathematical Experiences: Constructivism, Connections, and Health ................................................................. 263
Meg Moss

From Teacher Education to Teacher Practice: A Gap Affecting the Implementation of Tasks ................................................. 275
Pedro Palhares, Alexandra Gomes, Paulo Carvalho, and Valter Cebolo

Concluding Remarks ................................................................. 285
Barbara Clarke, Barbro Grevholm, and Richard Millman
Contents

Author Notes .......................................................... 291
Author Index .......................................................... 297
Subject Index .......................................................... 303
Tasks in Primary Mathematics Teacher Education
Purpose, Use and Exemplars
Clarke, B.; Grevholm, B.; Millman, R. (Eds.)
2009, XII, 310 p., Hardcover
ISBN: 978-0-387-09668-1