Contents

Part I  Mathematical Knowledge for Teaching

Understanding Preservice Teachers’ Curricular Knowledge ....................... 3
Tonia J. Land and Corey Drake

Mathematical Knowledge for Teaching and its Specificity to High School Geometry Instruction .......................................................... 23
Patricio Herbst and Karl Kosko

Using Coordination Classes to Analyze Preservice Middle-Grades Teachers’ Difficulties in Determining Direct Proportion Relationships ........................................................................ 47
Erik Jacobson and Andrew Izsák

A Processes Lens on a Beginning Teacher’s Personal and Classroom Mathematics ...................................................................................... 67
M. Kathleen Heid, Maureen Grady, Ashley Jairam, Younhee Lee, Ben Freeburn and Shiv Karunakaran

Commentary on Section 1: Mounting Progress on Understanding Mathematics Teacher Content Knowledge ...................... 83
Mark Hoover

Part II  Beliefs and Identities in Mathematics Teacher Education

Photo-Elicitation/Photovoice Interviews to Study Mathematics Teacher Identity ...................................................................................... 93
Theodore Chao

Teachers, Attributions, and Students’ Mathematical Work ................................. 115
P. Holt Wilson, Cyndi Edgington, Paola Sztajn and Jessica DeCuir-Gunby
Teacher Identity and Tensions of Teaching Mathematics in High-Stakes Accountability Contexts .................................................... 133
Jill Marie Neumayer DePiper

Teachers’ Learning Journeys Toward Reasoning and Sense Making ........ 155
Lindsay M. Keazer

Commentary on Section 2: Attending to Teachers in Mathematics Teacher Education Research ............................................. 181
Denise A. Spangler

Part III Tools and Techniques for Supporting Mathematics Teacher Learning

Preservice Elementary Mathematics Teachers’ Emerging Ability to Write Problems to Build on Children’s Mathematics .................. 193
Andrew M. Tyminski, Tonia J. Land, Corey Drake, V. Serbay Zambak and Amber Simpson

Examining the Relationship Between Preservice Elementary Teachers’ Attitudes Toward Mathematics and Professional Noticing Capacities ................................................................. 219
Molly H. Fisher, Edna O. Schack, Jonathan Thomas, Cindy Jong, Sara Eisenhardt, Janet Tassell and Margaret Yoder

Transitions in Prospective Mathematics Teacher Noticing ..................... 239
Shari L. Stockero

Teachers’ Uses of a Learning Trajectory as a Tool for Mathematics Lesson Planning ................................................................. 261
Cyndi Edgington

Commentary on Section 3: Research on Teachers’ Focusing on Children’s Thinking in Learning to Teach: Teacher Noticing and Learning Trajectories ................................................................. 285
Randolph A. Philipp

Overall Commentary: Understanding and Changing Mathematics Teachers ................................................................. 295
Olive Chapman

Author Index ........................................................................................................... 311

Subject Index......................................................................................................... 317
Research Trends in Mathematics Teacher Education
Lo, J.-J.; Leatham, K.R.; Van Zoest, L.R. (Eds.)
2014, XIV, 320 p. 31 illus., 13 illus. in color., Hardcover
ISBN: 978-3-319-02561-2