

The Handbook of Mathematics Teacher Education: Volume 2

Tools and Processes in Mathematics Teacher Education

The Handbook of Mathematics Teacher Education, the first of its kind, addresses the learning of mathematics teachers at all levels of schooling to teach mathematics, and the provision of activity and programmes in which this learning can take place. It consists of four volumes. Volume 2, Tools and Processes in Mathematics Teacher Education, focuses on the "how" of mathematics teacher education. In this volume, the authors share with the readers their invaluable experience in employing different tools in mathematics teacher education. This accumulated experience could assist teacher educators, researchers in mathematics education and those involved in policy decisions on teacher education in making decisions about both the tools and the processes to be used for various purposes in mathematics teacher education. There are four sections. The first describes and discusses four successful ways of using cases in mathematics teacher education, including narratives, mathematics case discussions, video-recordings, and lesson studies. The second presents predominant tools that are used in mathematics teacher education, two textual tools (written tasks and examples) and two physical tools (manipulatives and machines). The third section suggests ways in which the accumulated research on common students' ways of thinking contributes to the development of tools and processes in mathematics teacher education. The last section provides critical response and general perspective, raising questions such as: How can the teaching of mathematics be used as a tool to promote general educational values? What are the dimensions of proficient teaching? The concluding chapter offers a provisional framework consisting of a set of seven dimensions of proficiency for teaching mathematics. Together, the chapters provide various promising tools and processes for facilitating the acquisition of major proficiencies needed for teaching mathematics, and principles that could guide the selection and use of such tools. Bibliographical Information for the complete set: VOLUME 1: Knowledge and Beliefs in Mathematics Teaching and Teaching Development Peter Sullivan, Monash University, Clayton, Australia and Terry Wood, Purdue University, West Lafayette, USA (eds.) paperback: 978-90-8790-541-5, hardback: 978-90-8790-542-2, ebook: 978-90-8790-543-9 VOLUME 2: Tools and Processes in Mathematics Teacher Education Dina Tirosh, Tel Aviv University, Israel and Terry Wood, Purdue University, West Lafayette, USA (eds.) paperback: 978-90-8790-544-6, hardback: 978-90-8790-545-3, ebook: 978-90-8790-546-0 VOLUME 3: Participants in Mathematics Teacher Education: Individuals, Teams, Communities and Networks Konrad Krainer, University of Klagenfurt, Austria and Terry Wood, Purdue University, West Lafayette, USA (eds.) paperback: 978-90-8790-547-7, hardback: 978-90-8790-548-4, ebook: 978-90-8790-549-1 VOLUME 4: The Mathematics Teacher Educator as a Developing Professional Barbara Jaworski, Loughborough University, UK and Terry Wood, Purdue University, West Lafayette, USA (eds.) paperback: 978-90-8790-550-7, hardback: 978-90-8790-551-4, ebook: 978-90-8790-552-1

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