



AMTE Professional Book Series

Volume 3

Series Editor: Christine A. Browning

Building Support for Scholarly Practices in Mathematics Methods



Edited by Signe E. Kastberg, Andrew M. Tyminski,
Alyson E. Lischka, and Wendy B. Sanchez

Building Support for Scholarly Practices in Mathematics Methods

A volume in
The Association of Mathematics Teacher Educators (AMTE) Professional Book Series
Christine Browning, *Series Editor*

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Building Support for Scholarly Practices in Mathematics Methods

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INFORMATION AGE PUBLISHING, INC.
Charlotte, NC • www.infoagepub.com

Library of Congress Cataloging-in-Publication Data

Names: Kastberg, Signe E., 1963- editor.

Title: Building support for scholarly practices in mathematics methods / edited by Signe E. Kastberg, Purdue University [and three others].

Description: Charlotte, NC : Information Age Publishing, Inc., [2017] | Series: Association of Mathematics Teacher Educators (AMTE) professional book series | Includes bibliographical references.

Identifiers: LCCN 2017035865 (print) | LCCN 2017043159 (ebook) | ISBN 9781641130271 (E-book) | ISBN 9781641130257 (pbk.) | ISBN 9781641130264 (hardcover)

Subjects: LCSH: Mathematics teachers--Training of. | Mathematics--Study and teaching.

Classification: LCC QA11.2 (ebook) | LCC QA11.2 .B8674 2017 (print) | DDC 510.712--dc23

LC record available at <https://lccn.loc.gov/2017035865>

Cover photo provided by University of Washington College of Education

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Printed in the United States of America

*For mathematics teacher educators
whose creativity, commitment, and care
inspire scholarly inquiry and practice
in mathematics teacher education.*

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FOREWORD

Uniquely positioned as the lead organization and public voice for mathematics teacher education, the Association of Mathematics Teacher Educators (AMTE) established the production of a professional book series. This book, *Building Support for Scholarly Practices in Mathematics Methods*, is the third book of the series. Its focus on the practices of mathematics teacher educators (MTEs) furthers the mission of AMTE to improve mathematics teacher education as well as promoting AMTE's goals. Although all goals of AMTE's are advanced in this work, four goals are particularly prominent: research and scholarly endeavors in mathematics teacher education, equitable practices, effective mathematics teacher education programs and practices, and communication and collaboration among MTEs.

The work leading to the development of *Building Support for Scholarly Practices in Mathematics Methods* is described by the editors, Signe Kastberg, Andrew Tyminski, Alyson Lischka, and Wendy Sanchez, as an outgrowth of 5 years of ongoing scholarly inquiry centered on the investigation of MTEs' practices in mathematics methods courses. The development was launched in 2012 in a session presentation at the AMTE annual conference. This session focused on frameworks and activities used in methods courses. As a result of this session, the participants encouraged the editors to create a working group within the North American chapter of the Psychology of Mathematics Education (PME-NA) to continue collaboration of MTEs engaged in the exploration of mathematics methods. Thus, a PME-NA working group was established in 2012, and as a result, participating MTEs were now situated within a well-organized structure designed to sustain the ongoing collaboration. Further, they expanded the focus to include the study of

residue—meaning that the focus of the scholarly inquiry now included the study of the “impact of an experience beyond methods courses.”

The following two events are noteworthy given the influence of these events leading to conception of this book. In 2013, the editors presented a session at the AMTE annual conference entitled *Building a Theoretically Grounded Practice of Methods Instruction*. In 2015, the editors held a conference, Scholarly Inquiry and Practices Conference for Mathematics Education Methods (SIP; Sanchez, Kastberg, Tyminski, & Lischka, 2015), funded by the National Science Foundation. SIP was designed with an emphasis to support MTEs’ engagement in conversations on theoretical perspectives. Further, the editors posit the significance of SIP leading to the organization and contents of this book. The editors employed the ongoing conversations on theoretical perspectives to set the stage of this book and noted that the conversations at SIP culminated in images of the variation in mathematics methods represented in the chapters in this book.

It is also pertinent to note that during the development of this book, AMTE was in the process of writing the newly released *Standards for Preparing Teachers of Mathematics* (SPTM). Although both SPTM and this book were in developmental stages at the same time, drafts of the AMTE Standards were available for review and influenced the elaboration of what “well-prepared beginning mathematics teachers” need to know and be able to do as presented within the pages of *Building Support for Scholarly Practices in Mathematics Methods*. The SPTM is a set of comprehensive standards describing a national vision for the initial preparation of all teachers, prekindergarten through grade 12, who teach mathematics. The standards advocate for practices that support candidates in becoming effective teachers of mathematics who guide student learning. In particular, one of the four standards, “Candidate Knowledge, Skills and Dispositions,” focuses on the social contexts of mathematics teaching and learning. *Building Support for Scholarly Practices in Mathematics Methods* offers several examples of practices that promote equity and access in diverse classroom settings and help beginning teachers make connections with their students.

Collectively, the chapters in this book provide an initial work of the enactment of the SPTM as well as many other standards and prove to be an excellent resource, inspiring others to engage in examining their practices, share and collaborate with others, and continue to learn. This book is invaluable in highlighting the work of MTEs engaged in examining and researching their own practices as they focus on the development of beginning teachers of mathematics.

—Christine D. Thomas

Georgia State University
AMTE President 2015–2017

REFERENCE

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PREFACE

This book is intended for mathematics teacher educators (MTEs) who teach prospective teachers (PTs) in mathematics methods courses. Through stories of practice and reports of research, it provides a focus on scholarly inquiry and practice (Lee & Mewborn, 2009) in mathematics methods courses for PTs. The chapters in this book arose from the work of the Scholarly Inquiry and Practices Conference on Mathematics Methods,¹ held in the fall of 2015 in Atlanta, Georgia. Over 50 MTEs were assembled to discuss ways in which theoretical perspectives influence teaching and research in mathematics methods courses.

Methods courses, in many ways, are the heart of teacher preparation. It is in these courses that PTs are asked to think about whom, how, and what they teach in the context of society. The content of mathematics methods courses has been shown to vary substantially across institutions (Taylor & Ronau, 2006). What is taught in mathematics methods courses is of interest to all stakeholders in mathematics education. Moreover, what is learned is even more important. What do PTs have the opportunity to learn through their mathematics methods courses, what do they learn, and what do they carry with them into their teaching practice? Further, how can MTEs build scholarly inquiry and practice (Lee & Mewborn, 2009) that explores this variation across mathematics methods courses in order to learn from each other? This book explores these questions by unpacking the ways in which MTEs use theoretical perspectives to inform their construction of goals, activities designed to address those goals, facilitation of activities, and ways in which MTEs make sense of experiences PTs have as a result.

The 22 chapters in the book are organized in seven sections that highlight how MTEs' theoretical perspectives inform their scholarly inquiry and practice (Lee & Mewborn, 2009). The final section provides insight as we look backward to reflect, and forward with excitement, moving with the strength of the variation we found in our stories and the feeling of solidarity that results in our understandings of purposes for and insight into teaching mathematics methods. This work reflects the efforts of the Scholarly Inquiry and Practices Conference participants. We appreciate their willingness to share stories of practice and embark upon research inquiry that extended the conversations from the conference. In particular, we thank Rochelle Gutiérrez, Elham Kazemi, and Martin Simon for anchoring the discussions about perspectives that launched the conference. Thank you to the University of Washington College of Education for the wonderful book cover photo. Christine Browning, the series editor, has been instrumental in guiding this book to publication. We are most grateful to Fran Arbaugh who saw the power in the work of MTEs at the Scholarly Inquiry and Practices Conference and encouraged us to continue our efforts to create this book.

—**Signe E. Kastberg**
Andrew M. Tyminski
Alyson E. Lischka
Wendy B. Sanchez

NOTE

1. This material is based upon work supported by the National Science Foundation under Grant No. 1503358. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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