

# Preface

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In the 2017 volume of the National Council of Teachers of Mathematics' (NCTM) *Annual Perspectives in Mathematics Education (APME)* series, we showcase mathematics teachers' efforts to ensure effective and high-quality mathematics teaching and learning. The twenty-four chapters included here provide illustrations of initiatives based in classrooms, schools, districts, professional development projects, and teacher education programs that promote mathematics teachers' professional growth and self-assessment, grounded in research and practice. Examples of collaborative initiatives featured in this volume include professional learning communities (PLCs), teacher-teams, peer collaborations, and lesson study groups. Some chapters highlight professional development done not *to* teachers but *with* teachers; for example, professional development that supports collaboration and fosters reflection, sustainability, and teachers' self-direction and/or self-assessment. Other chapters illustrate ways of increasing teachers' voice and participation in the evaluation of mathematics instruction, including positioning mathematics teachers as reflective practitioners, using products of teaching observations or student assessments to improve practice, and implementing instructional practices to enhance students' learning of specific mathematical topics.

The "teachers" featured across the volume include in-service teachers in secondary, middle school, and elementary mathematics classrooms; preservice mathematics teachers; and university mathematicians and mathematics teacher educators. The chapters often provide vignettes, students' work, or other classroom-based examples and artifacts that feature specific mathematical topics (e.g. number sense in elementary mathematics, mathematical proof in high school geometry), mathematical processes (e.g., the Common Core Standards for Mathematical Practice), technology (e.g., screencasts of students' work), students' mathematical identity (e.g., perceptions of mathematical strengths), and STEM explorations (e.g., exponential growth and disease control). Many of the chapters have additional resources available online through NCTM's More4U website. (See the title page for the web address and access code required to view this book's More4U materials.)

We intend for this volume to provide counter-narratives that challenge the underlying assumptions in public conversations and mandated policies that teachers need to be monitored, pressured, and held accountable by external agencies in order for them to provide high-quality instruction and/or engage in improving their practice. These chapters portray teachers who are proactively engaged in promoting and ensuring high-quality mathematics instruction and learning. Together with peers, instructional coaches, or university partners, these teachers have formed meaningful collaborations, where they have a voice in the design of their own professional learning and the direction of their own professional growth. The initiatives described in this volume promote sustainability, equipping teachers with the tools to continue to reflect on and improve practice and empowering teachers to take action to ensure high-quality teaching.

In the call for manuscripts for *APME 2017*, we asked authors to submit chapters highlighting reflective and collaborative processes for improving mathematics instruction. While we cast a broad net that included teachers' self-directed efforts toward professional growth, initiatives coordinated by instructional coaches or district-based leaders, professional development, or mathematics teacher education, the critical component was that the initiatives fosters reflection, sustainability, and/or

teachers' self-direction and self-assessment. We received sixty-two manuscripts, all of which were blind-reviewed by two editorial panel members. Selected manuscripts were then reviewed by either the volume editor or series editor and sent to authors for revisions. Revised manuscripts were blind-reviewed again by one of the two original editorial panel reviewers. This process resulted in the set of twenty-four manuscripts featured in this volume.

The volume is subdivided into five sections. The first section, **Enhancing Mathematics Teaching from the Teacher's Voice**, opens the volume with examples of mathematics teachers serving as primary agents of instructional change, engaging in the design and delivery of professional development for themselves and their peers and guiding the direction and focus of their professional learning. The second section, **Enhancing Mathematics Teaching within Schools and Districts**, features efforts for improving mathematics instruction that occur within schools, led by instructional coaches and/or professional development providers. Chapters in the third section, **Models and Frameworks for Enhancing Mathematics Teaching**, provide tools for mathematics teachers' reflection and growth, often by supporting teachers to attend to students' thinking, evidence of students' learning, and the instructional practices that appear to positively affect students' learning. In the fourth section, **Enhancing Mathematics Teaching across Multiple Stakeholders**, authors describe collaborations that support mathematics teaching, students' learning, and teacher development in partnerships between schools and universities and between university mathematicians and mathematics teacher educators. The last section, **Enhancing Preservice Mathematics Teachers' Development**, showcases efforts to promote self-assessment, reflection, and collaboration in preservice mathematics teachers.

We acknowledge that the sections are not mutually exclusive; however, we have grouped sets of chapters together based on the main purpose of the chapter and its contribution to the volume. For example, chapters throughout the book may contain examples of collaboration across multiple stakeholders, but for chapters in that specific section, the nature of the collaboration and involvement of different stakeholders is central to the work, makes a unique contribution to the volume, and is foregrounded in the authors' writing. For chapters in other sections, involvement of multiple stakeholders may occur, but not as the primary purpose and focus of the chapter.

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