

Preface

It has been twenty-two years since an annual volume from the National Council of Teachers of Mathematics (NCTM), whether in its earlier yearbook or current *Annual Perspectives in Mathematics Education (APME)* series, has focused on assessment. Much has changed in the assessment landscape over those years, and yet many fundamental ideas and principles still hold over time. The 1993 NCTM yearbook on assessment was “grounded in the vision of reform that is expressed in the Standards” (NCTM 1993, p. vii). It presented examples, perspectives, techniques, and issues that reflected the vision of the *Curriculum and Evaluation Standards for School Mathematics* (NCTM 1989) for assessment. In 1995, NCTM published its *Assessment Standards for School Mathematics*, which outlined the assessment standards of mathematics, learning, equity, openness, inferences, and coherence as well as provided a discussion of the different purposes of assessment. Both of these publications represented important shifts in assessment practices and called for assessment to more closely reflect a perspective of mathematics teaching and learning that values student engagement in mathematical activity. These Standards documents encouraged a move away from assessing merely through paper-and-pencil tests toward using a range of assessment strategies that provide multiple opportunities for students to show what they know and can do, given the multifaceted mathematical actions that are part of doing mathematics.

Assessment ideas have evolved from that time and are reflected in the literature of both general assessment and of mathematics education. The role and importance of formative assessment, or assessment as and for learning, has taken a central place in the assessment discussion in the past two decades. At the same time, accountability through large-scale assessment has also taken on a glaring prominence in educational discussion and enterprise. Furthermore, the original NCTM Standards have evolved, first with the publication of the *Principles and Standards for School Mathematics* in 2000, and more recently with the 2014 publication of *Principles to Actions*. Coupled with this has been the emergence of the Common Core State Standards (National Governors Association Center for Best Practices and Council of Chief State School Officers [NGA Center and CCSSO] 2010). However, the evolution of assessment research and theory, as well as the evolution of descriptions of mathematics content and practices, still rest on the basic tenets of the earlier work. This volume reflects current thinking, but it also reflects some of the issues present in the 1993 yearbook and the 1995 assessment document that we are still grappling with today. These challenges include how to describe what sound assessment looks like in classrooms, how to design assessment tasks and instruments, how to support teachers in adopting and adapting new assessment ideas, what constitutes sound evidence of student learning, and what inferences can be made from that evidence.

This *APME* volume includes chapters from a range of authors and a variety of perspectives. In our call to authors we asked for manuscripts that focused on the important role that assessment plays in informing teacher practice and encouraging student learning. We asked that the chapters reflect current research in assessment and cover topics such as classroom assessment practices to enhance student learning, professional learning with respect to assessment, attention to equity and assessment, the impact of high-stakes assessment, and assessment design. We received fifty-five

chapter submissions, each of which was blind reviewed by three editorial panel reviewers. After selected chapters were revised and reviewed again by three panel members, the final selection of twenty-one manuscripts was made.

The chapters are organized into four parts: assessment in action, assessment design, professional learning to enhance classroom assessment, and assessment as evidence. Each section begins with an introduction written by one or two editorial panel members who have expertise with the topic and familiarity with the chapters in the section. These introductions provide an overview of the ideas presented in the section and also pose questions to consider while reading it. **Part I: Assessment in Action** provides concrete classroom examples of assessment to enhance student learning. While each example may be tied to a specific grade, the examples and ideas provided could be applied in a variety of grades. **Part II: Design of Assessment Tools and Strategies** presents a range of assessment strategies and tools and descriptions of their development and/or their use to enhance mathematics teaching and learning. Again, while the examples were used with specific grades, they are easily transferable to other contexts. The chapters of **Part III: Professional Learning to Enhance Classroom Assessment** provide a variety of professional learning approaches that have been shown to support teachers as they engage in assessment practices that strengthen mathematics teaching and learning. **Part IV: Assessment as Reasoning from Evidence** offers a range of perspectives and interesting examples of gathering high-quality evidence and using such evidence to make valid inferences that guide mathematics teaching and learning. The volume concludes with a chapter by Dylan Wiliam that sets the ideas presented in this volume within the full and complex assessment landscape, recognizing the interplay of beliefs, theory, and practice; teaching, learning, and assessment; and assessment purpose, evidence, and inference.

The chapters in this 2015 volume of APME represent assessment practices and issues that attend to current policies and practices but also rise above them in bringing relevance beyond a specific context. In other words, the ideas and issues presented move beyond a specific set of standards, curriculum, set of assessments, or policy. For instance, while several of the chapters deal with current contexts such as the Common Core State Standards for Mathematics (CCSSM), the ideas presented in the chapters, such as how to assess mathematical practices, have relevance beyond CCSSM. Similarly, discussions of inferences made from the National Assessment of Educational Progress (NAEP) may apply to other large-scale assessments in other jurisdictions.

The diversity and broad relevance of the ideas presented in the chapters is further evidenced by the international set of authors represented. Ideas come not only from classrooms in the United States but also from the professional learning and assessment practices of countries such as Canada, Korea, and New Zealand. These chapters help readers recognize that practices and issues related to assessment to enhance mathematics teaching and learning are not confined to the United States but are part of the global educational context, and much can be learned by sharing across countries.

In Appreciation

A comprehensive volume such as this one cannot be put together without the contributions of many people. We are grateful for the long hours, considered attention, and commitment to quality from all involved in bringing this volume to fruition. First, we would like to thank the chapter authors, as it is their work that helped to shape this volume. Their initial thought-provoking manuscripts and their responsive revisions helped to allow this volume to be published in a timely fashion.

The Editorial Panel members—Ann Arden, Melissa Boston, Sandra Crespo, Nicole Rigelman, Edward Silver, Denisse Thompson, and Dylan Wiliam—provided work that was crucial to creating a high-quality volume. Their expertise and dedication are greatly appreciated. They read many chapters multiple times, and they gave detailed comments, edits, and direction. They also helped to shape the volume into sections, and each was responsible for authoring a section introduction or concluding commentary.

We also would like to acknowledge the contributions and guidance from NCTM Headquarters staff and members. Those supporting the production of the volume included Ken Krehbiel, associate executive director for communications; Joanne Hodges, senior director of publications; Larry Shea, copy and production editor; Randy White, production manager; Kathe Richardson, meeting planner; and many others who worked behind the scenes in completing this volume. In addition, NCTM members who provided guidance and input on the volume and on the purpose of APME included Rick Hudson (Educational Materials Committee [EMC] Chair during the production of this volume), EMC committee members, as well as many other NCTM members who were willing to share their ideas.

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References

National Council of Teachers of Mathematics (NCTM). *Curriculum and Evaluation Standards for School Mathematics*. Reston, Va.: NCTM, 1989.

———. *Assessment in the Mathematics Classroom*. 1993 Yearbook of the National Council of Teachers of Mathematics, edited by Norman L. Webb. Reston, Va.: NCTM, 1993.

———. *Assessment Standards for School Mathematics*. Reston, Va.: NCTM, 1995.

———. *Principles and Standards for School Mathematics*. Reston, Va.: NCTM, 2000.

———. *Principles to Actions: Ensuring Mathematical Success for All*. Reston, Va.: NCTM, 2014.

National Governors Association Center for Best Practices and Council of Chief State School Officers (NGA Center and CCSSO). *Common Core State Standards for Mathematics*. Washington, D.C.: NGA Center and CCSSO, 2010.