

# PREFACE

In April 2014, the National Council of Teachers of Mathematics published *Principles to Actions: Ensuring Mathematical Success for All*. The purpose of that book is to provide support to teachers, schools, and districts in creating learning environments that support the mathematics learning of each and every student.

*Principles to Actions* articulates a set of six guiding principles for school mathematics—Teaching and Learning, Access and Equity, Curriculum, Tools and Technology, Assessment, and Professionalism. These principles describe a “system of essential elements of excellent mathematics programs” (NCTM 2014, p. 59). The overarching message of *Principles to Actions* is that “effective teaching is the nonnegotiable core that ensures that all students learn mathematics at high levels and that such teaching requires a range of actions at the state or provincial, district, school, and classroom levels” (p. 4). The eight “effective mathematics teaching practices” delineated in the “Teaching and Learning Principle” (see chapter 1 of this book) are intended to guide and focus the teaching of mathematics across grade levels and content areas. Decades of empirical research in mathematics classrooms support these teaching practices.

Following the publication of *Principles to Actions*, NCTM president Diane Briars appointed a working group to develop the *Principles to Actions Professional Learning Toolkit* (<http://www.nctm.org/ptatoolkit/>) to support teacher learning of the eight effective mathematics teaching practices. The professional development resources in the Toolkit consist of grade-band modules that engage teachers in analyzing artifacts of teaching (e.g., mathematical tasks, narrative and video cases, student work samples). The Toolkit modules use a “practice-based” approach to professional development, in which materials taken from real classrooms give teachers opportunities to explore, critique, and examine new practices (Ball and Cohen 1999; Smith 2001).

The Toolkit represents a collaborative effort between the National Council of Teachers of Mathematics and the Institute for Learning (IFL) at the University of Pittsburgh. The Institute

for Learning (IFL) is an outreach of the University of Pittsburgh’s Learning Research and Development Center (LRDC) and has worked to improve teaching and learning in large urban school districts for more than twenty years. Through this partnership, the IFL made available to the working group a library of classroom videos featuring teachers engaged in ambitious teaching. These videos, a key component of many of the modules in the Toolkit, offer positive narratives of ambitious teaching in urban classrooms.

The Taking Action series includes three grade-band books: grades K–5, grades 6–8, and grades 9–12. These books draw on the Toolkit modules but go far beyond the modules in several important ways. Each book presents a coherent set of professional learning experiences, with the specific goal of fostering teachers’ development of the effective mathematics teaching practices. The authors intentionally sequenced the chapters to scaffold teachers’ exploration of the eight teaching practices using practice-based materials, including additional tasks, instructional episodes, and student work to extend the range of mathematical content and instructional practices featured in each book, thus providing a richer set of experiences to bring the practices to life. Although each Toolkit module affords an opportunity to investigate an effective teaching practice, the books provide materials for extended learning experiences around an individual teaching practice and across the set of eight effective practices as a whole. The books also give connections to resources in research and equity. In fact, a central element of the book is the attention to issues of equity, access, and identity, with each chapter identifying how the focal effective teaching practice supports equitable mathematics teaching and learning. Each chapter features key ideas and literature surrounding ambitious and equitable mathematics instruction to support the focal practice and provides pathways for teachers’ further investigation.

We hope this book will become a valuable resource to classroom teachers and those who support them in strengthening mathematics teaching and learning.

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