

Preface

The increasingly political environment of educational reform—motivated by concerns about U.S. students’ lagging performance on international comparisons, the push for national learning standards, and stricter accountability measures—has subjected mathematics teachers and mathematics teaching practice to intense scrutiny by policymakers, educational researchers, and much of the general public.

In one way or another, teachers are being told that they are responsible for the poor mathematics performance of students. They are made to feel this responsibility on the local level, for students’ performance in schools, and on national and international levels, for the perceived drop in U.S. international competitiveness. They are being told that they lack the requisite mathematics content knowledge to teach students effectively. For many teachers, determinations of their effectiveness and the quality of their teaching have now become solely dependent on whether they can raise their students’ test scores.

Much of the discourse generated about teachers and teacher practice has been top-down, focused primarily on curriculum and content, and generated by voices far from the classroom. Often absent from this discourse are teachers’ own reflections on their work and the demands placed on them. Teaching is complex professional work that requires ongoing reflection on curriculum and content, as well as self-reflection—reflection about children and families, reflection about the role of mathematics in the lives of children and families, and even reflection about routine, everyday practice.

This book focuses on teacher reflection. Our goal is not to generate discourse *about* teachers. Instead, it is to engage in conversations *with* teachers, raising issues that we have seen in our individual and collective classroom experiences and that many teachers will recognize from their own experiences.

We have chosen to focus on teacher reflection and practice in the context of mathematics learning and identity development. That is, we have chosen to focus on understanding how teachers help students become powerful learners of mathematics and how students come to see themselves in relationship to mathematics learning, both inside and outside the classroom. Our commitment to teacher reflection is grounded in our desire to help teachers understand, appreciate, and draw on the backgrounds of students as strengths to further students’ mathematical development—especially those students who have not had equitable access or opportunity to learn mathematics.

We acknowledge the dual role that mathematics has played as gatekeeper and gateway to various opportunities in society, and we recognize that mathematics has often been used to make judgments about intelligence. We call on teachers to reflect on these uses of mathematics. Further, because students do not come to school without the influences of their homes, communities, and cultures, we ask teachers to reflect on how the multiple identities that students are developing can influence their mathematics learning. Yet, we do not confine the conversation on mathematics learning to students. We ask teachers to reflect on their own learning experiences and how those experiences have shaped their senses of themselves as doers of mathematics and how their views of themselves as mathematics learners affect their classroom practice.

We also frame our conversation with teachers around issues of equity, focusing on fair and just treatment and a recognition of each child’s needs that allows every child to

develop as a powerful mathematics learner and affirms his or her intellectual, cultural, racial, ethnic, and linguistic background. The concerns for equity in this book also include fair and just treatment and recognition of teachers and the highly skilled activity of teaching. We respect and understand the critical roles that teachers play in helping students learn, as well as the constraints that often have an impact on their work.

This book, which consists of eight chapters divided into three parts, is designed to help teachers move beyond an awareness of the need to reflect on their teaching to a commitment to transform their teaching to include equity-based practices. An epilogue offers final reflections. A list of discussion questions appears at the end of each chapter to promote further dialogue and self-reflection. Readers can also use the access code on the title page to find specific reflection tools and activities at NCTM's More4U website (www.nctm.org/more4u).

Part 1 focuses on mathematics learning and identity. Chapter 1 addresses important themes related to the purposes of learning mathematics, equity, and shifts needed to attend to learning and identity. Chapter 2 discusses the connection between mathematics learning and student identity. This chapter discusses why teachers need to attend to this linkage to empower young mathematical minds. Chapter 3 shifts that identity focus to teachers, calling for reflection on the impact of one's own mathematics learning identity on instructional beliefs and classroom practice. Teacher identity is inextricably linked with instructional vision and practice, which in turn shape the mathematics experience of students.

Part 2 describes five equity-based instructional practices designed to strengthen mathematics learning and positive mathematics identity:

- Going deep with mathematics
- Leveraging multiple mathematical competencies
- Affirming mathematics learners' identities
- Challenging spaces of marginality
- Drawing on multiple resources of knowledge

The chapters in this part use classroom vignettes to bring these practices to life. Chapter 4 describes a middle school mathematics teacher's practice that cultivates mathematical agency and empowers students to examine claims by using mathematical evidence. Chapter 5 focuses on the way that an elementary teacher builds on students' strengths to foster their engagement with mathematics and thus support their learning of mathematics. Chapter 6 shines the spotlight on assessment. Drawing on the five equity practices, this chapter specifically discusses the role of meaningful feedback on typical classroom "tests"—feedback that can deepen students' learning and help develop their sense of themselves as mathematics learners. This discussion also highlights ways that teachers can learn to recognize various experiences and knowledge that students bring to bear on assessments and that demonstrate what they know and can do.

Part 3 focuses on the importance of engaging families and communities as true partners in supporting mathematics learning and positive mathematics identity development. Chapter 7 discusses routine strategies such as family newsletters and parent-teacher conferences, which can be enhanced to strengthen relationships with parents and effectively communicate the teacher's mathematics vision and the students' progress.

Chapter 8 moves beyond the classroom walls to highlight ways in which teachers and schools can partner with parents and communities to support mathematics learning and provide complementary resources to help children learn mathematics.

The epilogue offers final reflections about important ideas in the book and ways for teachers to continue deepening their equity-based practices to strengthen mathematics learning and positive mathematics identity development for children.

In writing this book, we have drawn on our own experiences in K–8 classrooms; our experiences with parents, teachers, and children; our experiences as teachers in various contexts and as teacher educators in preservice and in-service contexts; and, for two of us (Julia Aguirre and Karen Mayfield-Ingram), our experiences as parents of school-aged children. Each of us has a lifelong history of commitment to issues of equity in mathematics education, focusing on historically marginalized students and families. Our professional experiences and practices have been devoted to empowering students with mathematics to help them realize a full range of educational and life opportunities.

Our own journeys in mathematics, including being identified by teachers for accelerated tracks in mathematics, participating in academic enrichment programs for minorities and women, experiencing undergraduate and graduate study in mathematics and education, and being mentored in the areas of mathematics and mathematics education, have also shaped the writing of this book. We have known firsthand the impact of teachers on our lives in relation to mathematics learning.

Moreover, the writing of this book has been shaped by our own racial and cultural identities as well as the ways that we have come to see ourselves as learners and doers of mathematics as a result of those identities. Racially, ethnically, and culturally, for example, we self-identify with particular social categories (African American, Latina, multilingual, multiethnic, biracial) that have been marginalized in societal and school settings, especially with respect to mathematics. These social categories are both personal and political and have evolving histories and meanings, and we acknowledge the sociopolitical and power implications of these identifications.

We acknowledge that these categories and others—for instance, “white,” “black,” “Asian,” and “Native American”—are negotiated, and each of us makes our own sense of what these terms mean and whether we choose to make them our own. We also acknowledge the shared history and experiences of group members despite different labels. For example, we use the labels “African American” and “black” to encompass the diverse ways that group members of the African diaspora self-identify and are identified by others. We use “Latina/o” as a pan-ethnic label to express the cultural and political solidarities of people who are descendants of or natives of a Western hemisphere country south of the United States, including Mexico and the countries of Central and South America and the Caribbean (Hurtado and Gurin 2004). “Latina/o” acknowledges Indigenous, African, and European ancestries that the label “Hispanic” does not. The categories “white” and “Asian” also include multiple identifications. In this book, we ask educators to recognize and critically reflect on how all of these terms are used in school discourses related to mathematics.

We hope that this book, in which we bring to bear our professional and personal experiences, will be an essential resource for teachers, teacher educators, and education researchers interested in teacher development, equity, learning, and identity. We trust that it will also prove useful to parents and school administrators who wish to support teachers in the teaching of mathematics. Most important, we hope that we have succeeded in shaping this book in such a way that it will push our collective thinking and

practice to give our nation's youth a better preparation for learning mathematics and developing positive mathematics identities that will advance their own educational, career, and life opportunities. We hope that the examples presented in this book will resonate with teachers and provide opportunities for them to reflect critically on their beliefs and practices.

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We dedicate this book to all young students, past, present, and future, who continually teach us what is necessary to help them learn and grow mathematically and to the educators, families, and communities who, in the face of many challenges, demonstrate their dedication, love, and support for young people.