

# Foreword

Math teachers can be an ornery lot. I should know, as I am one. We have seen scores of initiatives come and go, each implying that our previous practices have been woefully misdirected and that if only we had the insights and wisdom of the latest fad, we could restore student performance and regain our professional competence. Therefore, if math teachers are sometimes seen as the leading skeptics of the faculty, we have good reason for this reputation. What we would like, as Aretha Franklin famously said, is a little respect. Kanold and Larson deliver not only respect for teachers but also practical guidelines for the harried classroom professional, along with abundant evidence to satisfy the skeptic. This book is a gift to the profession, and it comes precisely when we need it. As you contemplate the pages that follow, I would like to advance four arguments to set the context for the work that lies ahead.

First, mathematics is not merely an academic issue but one of citizenship. While the Common Core State Standards and their associated assessments provide the current impetus for paying attention to the mathematical skills of students, the biggest question, rather than how students perform on a test, is how they exercise their rights as citizens in a democracy that depends on critical thinking. When politicians use charts, graphs, averages, and other representations of data to argue a point, our students must be prepared to ask probing questions that challenge prevailing wisdom. Our future physicians, mechanics, therapists, entrepreneurs, and teachers, along with those who will work in fields we cannot even contemplate, will require mathematical reasoning to succeed. Our students must confront profoundly complex issues ranging from national budget deficits to underfunded pension liabilities to personal and family financial planning, all of which necessitate mathematical skills and critical thinking. Our job is not to develop students who merely know the right answers but rather to develop citizens who ask the right questions.

Second, the teaching of mathematics must become more collaborative. Kanold and Larson identify seven distinct phases of teacher collaboration, and we ignore this nuanced process at our peril. Collaboration does not occur with an administratively mandated meeting or with the application of the phrase *professional learning community* to relabel previous practices. Genuine collaboration requires conversation, reflection, adaption, experimentation, and personal accountability for results. This imperative for teacher-to-teacher collaboration is particularly true in the discipline of mathematics, where faculty members almost always have greater subject matter expertise than school and district administrators. Our monopoly on expertise is a double-edged sword. We can genuinely value teacher leadership, creating a model for the entire school community. On the other hand, it is too easy to fake collaboration when we are the only people in the

faculty meeting who can do recreational calculus. Expertise carries a serious responsibility to our peers and, most of all, to our students. If we accept that mathematics is about more than passing tests and developing short-lived and little-used formulae—that it is about developing critical-thinking skills that must be used in every class, not just for school but for a lifetime—then we bear a heavy responsibility for the care with which we nurture and improve our best teaching practices.

Third, excellence in the teaching and learning of mathematics depends on great leadership from the classroom to the boardroom. This does not mean that every school administrator, superintendent, and board member must attain mathematical expertise. It does, however, require administrative and policy leaders to allocate time and resources for classrooms, as well as for teachers in mathematics and other disciplines to conduct active inquiries about the impact of their teaching on student performance. Leaders must understand that excellence in mathematics instruction is not about “delivery,” where, at the end of a lecture, everyone knows that the teacher is the smartest person in the room, or at the very least, the person in the room most acquainted with the textbook. Rather, excellence depends on a continuous cycle of challenge, inquiry, analysis, experimentation, feedback, and reflection. Leaders do not need to understand multivariate analysis, but they do need to understand that teaching, like life, is multivariate. Teaching and learning are complex endeavors, and the multiple variables include student background, home language, prior knowledge, opportunity to practice, willingness to ask for assistance, and a host of other social, cultural, and educational factors. Leaders who only exhort teachers to have *higher* scores are no more helpful than those who make excuses for low performance based on the demographic characteristics of their students. The best instructional leaders will help all teachers by ensuring they have access to data as well as the time and opportunity to analyze the data, test new instructional hypotheses, and reflect on the results.

Fourth, students will watch what we do in the classroom, comparing our actions to our claims. Students’ critical-reasoning skills are rarely more finely honed than when applied to parents and teachers. Students will have little regard for what we say or for the words that district, state, or national documents contain. Thus, Kanold and Larson wisely focus on the daily activities of classroom teachers. Assessments, feedback, homework, and grading systems are the real stuff of which student-teacher interactions are made. While I endorse the Common Core State Standards, the greatest flaw in those documents is the claim that we can divorce the *what* of teaching from the *how* of daily practice. As the authors of this book suggest, the content of the Common Core and successful teaching methods are inseparable.

Perhaps the most notable feature of this book is not merely the competence of the content but the underlying spirit of commitment to equity that pervades every page. The authors understand that we cannot outsource mathematical proficiency as we have outsourced manufacturing; to do so would be to outsource our responsibility as educators and as citizens. Their most inspiring guidance confronts the issue every teacher has

faced: What do we do when students don't get it? How do we respond to failure? In too many schools, the response to failure in mathematics has been the acquiescence to failure, leading to the resegregation of schools to a level not seen since *Brown v. Board of Education*. Crudely put, even in schools that pride themselves on a commitment to social justice and equity, white kids take calculus and statistics, and minority kids take remedial math. It is no different than if they had attended schools on opposite sides of the tracks half a century ago. If we are to confront this challenge, then we must heed the counsel that Tim Kanold and Matt Larson offer. Our response to failure cannot be a continuation of divergent opportunities based on student background but rather must be a commitment to equity that will prepare our students to think critically and lead boldly.

—Douglas B. Reeves