Foreword

EDUCATIONAL TECHNOLOGY AND THE COMMON CORE MATHEMATICS STANDARDS

In 1958 I jumped into a mid-year assignment of teaching General Mathematics and Algebra I to students 3 to 5 years younger than me in rural Kansas. It was a marvelous adventure. There were no Common Core State Standards and no electronic technology to guide my students and me. We just had some textbooks, some common sense, and a mutual enthusiasm for school mathematics as we were experiencing it. Our technology was a chalkboard, pencils, and paper. It was the Sputnik era, and there was a media frenzy leading people to believe that whatever we were doing was totally inadequate. My students and I were rather untouched by all of that, however, and we went about doing the best we could with what we had and what we knew. I think we turned out pretty well.

Today, we have Common Core State Standards for mathematics, wonderful technology, and loads of advice from experts on what school mathematics should be. Are we better off? Of course. I would never want to go back to what we had before. What is the SAME, however, is that mathematics for students happens in the classroom when teacher and students make the most of what they have and use what they know to do their best. Common Core standards are great, but the political machine that created them and the state boards of education who adopted them are NOT in the classroom. It will be a teacher who makes sense of them with students. Likewise, computers, SMART boards, and calculators are wonderful, but it is up to teachers and their students to find appropriate uses for the technology to enable better learning of mathematics.

Mathematics educators for the most part have embraced the Common Core State Standards in mathematics – the grade level content standards and the eight standards for mathematical practices. Many mathematics educators have been active in exploring ways to assist teachers in implementing the standards. There is a recognition that education technologies appropriately used cannot only support the implementation of the content standards and standards of practice, but also that technology is modifying the mathematics we know and what it means to know mathematics.

This is a book about educational technology and the Common Core State Standards in Mathematics. It has come into being as professionals in mathematics education and educational technology as well as classroom teachers, professional development specialists, and developers of curriculum materials have worked to understand the standards, what it means to implement them, and ways that technology can lead to better mathematics experiences for students. It is a carefully crafted set of chapters by over 30 professionals to build a foundation for helping all of us in mathematics education navigate a shifting terrain of mathematics standards, technology innovations, and assessments. It is a welcome guide for helping us develop our own knowledge about the standards and how technology can facilitate implementation

of the standards. Indeed, as we bring collective exploration of these issues it can help us move toward improved mathematics experiences for our students.

So, why am I writing the Foreword for this book? My journey with mathematics study and mathematics teaching has been going on for a long time and it has been interlaced with technology in a variety of ways. My courses on Mathematics with Technology[1] at the University of Georgia have helped prepare hundreds of teachers to incorporate technology into the mathematics explorations they do with their students. My course on Mathematics Problem Solving and its Website[2] is an evolving thing and quite consistent with CCSS mathematics standards. The InterMath Project with its Website[3] is also widely known for its integration of mathematical explorations and the use of technology.

Drew Polly, the editor, comes from a different background than me, but we share a similar vision of mathematics learned by doing, of technology becoming an integral part of the mathematics we learn, and of mathematics making sense for students in well-chosen tasks and activities. More important, Dr. Polly does not just relax in his ivory tower at the university. Rather, he spends a lot of time in classrooms working with the teachers he is guiding. That is, he goes to their workspace and works with them. Out of that has come the vision of this book as a tool to help teachers explore the use of technology, the common core state standards in mathematics, and doing mathematics with the students. This has led him to solicit and collect these various presentations in the book from people who share his sense of urgency for helping teachers and seeing the tremendous potential of various technologies.

To the audience and benefactors of this book, I suggest you have here the elements of a vision of what school mathematics classrooms could become with the enhanced understanding of mathematics using technology. The hard work is yet to be done, but this book gives a lot of useful direction for further work. There are challenges here for researchers, teacher educators, curriculum specialists, professional development specialists, and classroom teachers. Ultimately, it must culminate when teachers make sense of the CSSS, the technology, and the mathematics in classrooms where teachers and their students go about doing the best they can with what they have and what they know. This book is a start of that journey. Let the journey continue.

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James W. Wilson *is a Professor of Mathematics Education at the University of Georgia. His mathematics education interests include mathematics problem solving, mathematics explorations with technology, mathematics teacher education, and mathematics assessment. He served as editor of the Journal for Research in Mathematics Education from 1977 to 1982 and was elected to the NCTM Board of Directors 1978 to 1981. In 2001, he received the NCTM Lifetime Achievement Award. He began teaching 55 years ago and is still excited about going to work each day. There have been 54 doctoral students to complete their doctorates at UGa with Jim as the major professor and still a few more to follow.*

ENDNOTES

1 See http://Jwilson.coe.uga.edu/EMT668/EMT668.html
2 See http://Jwilson.coe.uga.edu/EMT725/EMT725.html
3 See http://InterMath.coe.uga.edu