

Preface

Many significant events have shaped K–12 mathematics education over the past five decades (since the mid-1960s). Among them are the “new mathematics” era, the rise and decline (several different times) of the “back-to-basics” agenda, the minimal standards competency movement, promotion of an emphasis on problem solving (*An Agenda for Action* 1980), launching of K–12 curriculum standards by the National Council of Teachers of Mathematics (NCTM; *Curriculum and Evaluation Standards for School Mathematics*, 1989; *Principles and Standards for School Mathematics*, 2000), and more recently the Common Core State Standards Initiative resulting in the *Common Core State Standards for Language Arts and Mathematics for Grades K–12* (2010). This same time period has witnessed two other major factors influencing school mathematics: the unprecedented growth and availability of increasingly sophisticated technology to investigate mathematics, perform calculations, and deliver instruction and greater accountability for learning via student assessment and teacher evaluation.

Many voices have supported and challenged these events over the years, but few contemporary mathematics educators have witnessed and participated in these events throughout their professional career. Furthermore, even fewer have the talent and willingness to offer opinions and guidance to inform improvement efforts. One such person is Zalman Usiskin, currently professor emeritus, University of Chicago. Throughout this time period he has contributed significantly to the professional dialogue through published articles, chapters, newsletters, as well as numerous presentations. During his career, Zal has been a prolific writer and contributor to the mathematics education community. Over this time period he has consistently published and spoken to teachers, mathematics educators, and the broader educational community throughout the world. In addition, he has devoted a significant portion of his career to writing and developing mathematics curriculum materials, including the University of Chicago School Mathematics Project, that have been used by thousands of mathematics teachers and millions of students.

This volume is an effort to capture some of the significant work and perspectives of Zal over his professional career. It includes selected articles and papers reflecting a few of his presentations. In the case of the latter, the presentations have been slightly adapted to better fit the form of this volume. While it is impossible to capture the actual dynamics of his persona in the papers, they do present clear, insightful presentations of his ideas and perspectives on school mathematics.

During the past five decades, Zal’s publications and presentations have addressed many different topics and issues. Among them are mathematics curriculum, mathematics content, applications, mathematical modeling, technology (from four-function calculators to dynamic tools and computer algebra systems), testing, assessment, the standards movement, motivation, ethics, and policy. It is not possible in a single volume to do justice to the range of topics he has addressed. So a decision was made to focus on mathematics curriculum. This provides a broad umbrella and seems appropriate, since mathematics curriculum has been central to his work throughout his career as a mathematics educator.

We have selected from a wide array of publications and presentations for inclusion in this volume. Some entries appeared in NCTM yearbooks, most in major peer-reviewed journals, and a few in

newsletters that may have limited readership. Some were published over forty years ago, yet were futuristic in the ideas that were offered. Some provide thoughtful reflections on what is happening along with recommendations for courses of action. All were designed to inform and stimulate intellectual discourse. Anyone knowing, reading, or listening to Zal realizes that he has opinions that are based on professional experience, research, and current data. He is committed to examining historical trends and using this knowledge to understand current contexts. His writings are focused and conveyed in a clear and direct manner. He does not hedge or hold back, but provides his honest assessment of what has been happening or what should happen. You may not always agree with him, but cogent rationales are always provided to support his arguments and recommendations.

This volume makes available a unique resource. It is organized into six sections, and the papers within each section are organized chronologically. He has provided a brief introduction to each section that provides a context and background for the entries within the section. The source of each publication and presentation is provided, because the general time frame provides a context in which his thoughts were originally crafted and shared.

We are honored to have been a part of this effort to capture and preserve a few of the significant contributions of Zalman Usiskin in this volume. We are pleased that the Educational Materials Committee of NCTM recommended this volume be published, as it provides a valuable resource to the mathematics education community and also recognizes some contributions from one of the giants in the field of mathematics education.

We are delighted that another giant in mathematics education, Jeremy Kilpatrick, University of Georgia, prepared a foreword for this publication. We should note that about fifty years ago, Jeremy worked with J. Fred Weaver to assemble the papers of William Brownell (another giant in mathematics education) into two volumes that were published by the School Mathematics Study Group. That work served as a model for the development of this volume.

Our hope is that this volume will inform and stimulate discussion and reflection among all members of the mathematics education community. It serves as a reminder that while change is happening all the time, we need to learn from our past as we move forward to improving K–12 school mathematics for everyone. This resource offers a step in that direction.

On behalf of the Center for the Study of Mathematics Curriculum, where we have worked closely with Zal for the past ten years, we encourage readers to explore, examine, and be enriched by his work that we have reproduced here.

Barbara Reys
Curators' Professor and Lois Knowles Faculty Fellow, Mathematics Education
University of Missouri, Columbia

Robert Reys
Curators' Professor Emeritus, Mathematics Education
University of Missouri, Columbia