

Telegraphic Reviews

Developing Thinking in Geometry. Sue Johnston-Wilder & John Mason (Eds.). (2005). London, England: The Open University Press with Paul Chapman Publishing (Sage). 288 pp. + xiii. ISBN 9781412911689 \$79.95 (hc); ISBN 9781412911696 \$37.95 (pb).

This is not a book to be read on a 17-hour airplane flight (which is the way this reviewer approached the task originally). The book is highly interactive, intriguing, and at times challenging, intended to foster deep reflection not only about geometric ideas and spatial visualization but also about how one comes to learn such concepts. The book is best approached slowly; taking one's time; preferably sitting on the floor, keeping card, scissors, and tape ready because the reader will return to ideas that build on one another as the book progresses. Having a computer readily available would also be helpful, because a helpful interactive CD-ROM is provided.

The authors, Andy Begg, Geoff Faux, Sue Johnston-Wilder, Francis Lopez-Real, John Mason, and Geoff Wake, are not cited individually in the chapters. However, their cumulative expertise has provided a treasure trove of ideas that are designed to enhance the teaching and learning of geometry and early trigonometry (viewed broadly as measurement of the earth and triangles, respectively) at school level and beyond. I see the book as being particularly valuable for prospective teachers of geometry in the middle grades and high school, because mathematics and pedagogy are integrated in the approach. Indeed, *connections* are a recurring theme in the book, and anyone who works through the tasks conscientiously and thoughtfully will come away with a deeper appreciation of the amazing unity of geometry, both in abstract reasoning and proof, and in the spatial aspects of the world around us. The book is structured in four blocks, each of which addresses invariance, language and points of view, reasoning, visualizing, and representing. Although pedagogic perspectives are implicit in the injunctions to monitor one's own learning, they are explicit in sections at the end of chapters. Euclidean geometry, transformations, and solid geometry are included in such a way that these areas are not treated compartmentally, and yet a sense of their depth and applicability is fostered. A useful attention to language and the meaning and derivation of geometric terms are also enlightening.

I agree wholeheartedly with the statement on the back cover: "Anyone who wishes to create an understanding and enthusiasm for geometry, based upon firm research and effective practice, will enjoy this book."

International Perspectives on Social Justice in Mathematics Education, Monograph 1, The Montana Mathematics Enthusiast. Bharath Sriraman (Ed.). (2007). University of Montana and the Montana Council of Teachers of Mathematics. 185 pp. ISSN 1551-3440 \$20 (pb). (To order: <http://www.math.umt.edu/TMME/Monograph1/>)

With a foreword and a chapter by Ubiratan D'Ambrosio, who has dedicated much of his life to issues of social justice through the evolution of *ethnomathematics* as a program of research, this monograph is concerned with important questions concerning equity in mathematics education. Although six of the fourteen articles are by authors in the United States, the monograph does provide international perspectives, as the name implies. Many of the "American" authors (including the editor) came to the United States from other countries, enabling them to contribute wider perspectives. The quality of the writing is uneven, and some articles are still in need of small editorial changes. Nevertheless, the issues are real, and interested readers will find a treasure trove of perspectives on social justice as well as numerous examples of projects that have the purpose of serving this worthy goal.

The first chapter, by Bharath Sriraman, lays a philosophical foundation for the other chapters by describing origins of the notion of social justice in the writings of Paolo Freire, Karl

Marx, and Vivekananda, among others. A useful historical context is provided for empowerment and “the problem of individual liberation” (p. 5) through the centuries. Several chapters describe projects that in one way or another attempt to address the issues of equity that are implicit in social justice applied to mathematics education. For instance, Merrilyn Goos, Tom Lowrie, and Lesley Jolly describe a framework for analyzing key features of partnerships among families, schools, and communities in Australian numeracy education. Andrew Noyes contrasts the social milieu experienced by two 10-year-olds who attend the same English school but live in different worlds. Iben Maj Christiansen contributes a thoughtful and exploratory chapter based on her experiences introducing mathematical ideas to university students in South Africa and Denmark through social data that highlight inequity. Her analysis leads her to the startling question, “Does our insistence on these ‘critical examples’ end up being ‘imposition of emancipation’?”

Robyn Zevenbergen and Steve Flavel describe an “archeological dig” in an Australian mathematics classroom, and Miriam Amit, Michael Fried, and Mohammed Abu-Naja analyze the impact of a mathematics club in Israel. Tod Shockey and Ravin Rustafson contribute information about the positive influence of a culturally appropriate curriculum for Native Americans in Maine. Libby Knott explores issues of status and values in the professional development of mathematics teachers in Montana. Eric Gutstein provides a companion piece to his recent influential book on social justice in a Chicago school classroom (a review of the book will be in *JRME*). “Statistical empathy” is fostered by Swapna Mukhopadhyay and Brian Greer through discussions of numbers of fatalities in various social tragedies. Following Kristin Bjarnadóttir’s analysis of Icelandic mathematics education in a historical account of predominantly rural practices that precluded breaking away from the dominance of Denmark, Ole Skovsmose, Helle Alrø, and Paola Valero from Denmark describe the “foregrounds” (i.e., perceptions of their future possibilities in life) of Brazilian Indian students. Finally, Olof Björg Steinhorsdóttir and Bharath Sriraman return to Iceland for an emancipatory interpretation of PISA 2003 results as these pertain to mathematical education of rural and urban girls.

From this brief survey, the interested reader will see that this monograph contributes useful empirical and theoretical ideas to the ongoing conversation about social justice in mathematics education. Particularly valuable are the practical examples of projects that address social justice in one way or another.

Researching Mathematics Education in South Africa: Perspectives, Practices and Possibilities. Renuka Vithal, Jill Adler, & Christine Keitel (Eds.). (2005). Cape Town, South Africa: Human Sciences Research Council Press. 359 pp. + viii. ISBN 0-7969-2047-8 R10 (South African Rands) (pb).

What is the international significance of a book that reports on some aspects of research carried out in South Africa and reported in the *Proceedings of the Southern African Association for Research in Mathematics and Science Education* (SAARMSE)? (SAARMSE is now SAARMSTE—the Southern African Association for Research in Mathematics Science and Technology Education.) As Christine Keitel reports in the final chapter, she was invited to become a “regular staff member” at the University of Durban-Westville (UDW) from October 1999 to March 2001, under a Humboldt-South African Research Award, for the purpose of supporting South African colleagues in “an ambitious project to design a publication on research in mathematics education in the new South Africa” (p. 335). The significance of the book is in the issues that are international in scope. These issues are highlighted in sharp relief in attempts to come to grips with the complexity (rather than complications—chapter 9 by Chris Breen) of a society scarred by apartheid, designing mathematics curricula that aim to promote equity and integration in a broad sense, taking into account the political dimensions of mathematics education. Keitel sums up this significance as follows:

In contrast to mainstream research, studies were reported that investigate what role, if any, mathematics education could have in educating for a democratic South Africa, for example through

discussions of critical mathematics education, ethnomathematics, gender, race and class issues in mathematics teaching and learning, and the South African People's Mathematics project. (p. 336)

The first chapter, by Renuka Vithal and John Volmink, makes a few claims that will have a strange ring to American ears in light of the angst in the United States concerning TIMSS results: "International studies such as TIMSS, whose research designs are negotiated by developed nations, are set up to favour the most dominant countries framing the research and those with the most resources to conduct such studies" (p. 20) and the *problem centered approach* is a "euphemism" for constructivism (pp. 6–7). However, the necessity of recognizing connections between pedagogy and epistemology is a valuable theme in this chapter, which is elaborated on in other chapters (e.g., chapters 7, 8, and 12), along with critical investigations of preservice and in-service teacher education and subsequent practice in mathematics classrooms. The use of language in multicultural classrooms, assessment, and connections with the lived realities of learners are all themes in the book that are international in scope. With regard to the horizontal and vertical mathematization discussed in a sociological framework in chapter 11 (using Bernstein's constructs), authors Paula Ensor and Jaarmiah Galant do not make connections with the relevant work done in the Realistic Mathematics Education tradition in The Netherlands. However, this reviewer found the theoretical framework developed in this chapter, elaborating Dowling's distinctions between esoteric and expressive, descriptive and public, domains of mathematical discourse (p. 292), to be particularly insightful and potentially powerful. Dowling's construct of a "mathematical gaze" is reminiscent of Krutetskii's (1976) insight that deep mathematical insight enables learners to view the world through mathematical eyes. All in all, the book is thought-provoking and has much to contribute regarding international concerns in mathematics education.

Using Statistics Effectively in Mathematics Education Research. Working Group on Statistics in Mathematics Education Research. (2007). Alexandria, VA: American Statistical Association (ASA). 56 pp. Available from the ASA Web site, http://www.amstat.org/research_grants/pdfs/SMERReport.pdf.

This report was produced by a group of 20 statisticians and researchers in mathematics education, chaired by Richard Scheaffer, that met in three National Science Foundation-funded workshops over 2 years to discuss the contribution that statistics might make to improving the quality of mathematics education research. The main portion of the report consists of guidelines for the components of a high-quality research program. Three appendixes deal with (a) a model for research in mathematics education in light of a medical model for clinical trials; (b) technical issues of measurement, units of randomization, experiments vs. observations, and gain scores as they relate to scientifically based research; and (c) critical areas for cooperation between statistics and mathematics education research, including qualitative vs. quantitative research, educating graduate students and keeping mathematics education faculty current in education research, statistics practices and methodologies, and building partnerships and collaboratives.

Correction

The March 2007 issue of *JRME* contained incorrect affiliations for two members of the NCTM Research Committee, listed on page 108.

Michael T. Battista teaches at Michigan State University (not Purdue University), and Karen D. King teaches at New York University (not Michigan State University).