

Hoyles, C; Morgan, C.; Woodhouse, G. (Eds.):

Rethinking the mathematics curriculum

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Currently the mathematics education community around the world is wrestling with calls and recommendations to change the school mathematics curriculum. This book contains nineteen papers, authored by 30 persons, that address some of the critical issues about the nature and possibilities of such change. The chapters were written by participants following a conference “Mathematics for the New Millennium”, sponsored by the Nuffield Foundation and held at the University of London in October 1996. Thus, they not only reflect the author’s, or authors’, points of view, but in most cases their reflections growing out of the deliberations at the conference.

The contributed papers have been organized into four categories. The five chapters in the first section *What is mathematics and what is it for?* reflect some of the differences between mathematicians, mathematics educators, and users of mathematics when responding to this question. In the initial chapter Johnston Anderson, after tracing some of the history of the discipline during this century, poses the critical problem underlying these questions – How can school mathematics “cater for the needs of the minority who will eventually become professional mathematicians, and at the same time equip the generally educated citizen and tax-payer with both the mathematical skills they will need and an appreciation of the role, place and power of mathematics as a discipline in its own right” (p. 17). The next three chapters present the case that school mathematics should and can equip the majority of students with tools to help them make sense of tasks that they are likely to face as adults in the emerging technologically challenging world. Each chapter presents evidence about the mathematics needed by persons working in information technology, design-oriented work, and in such occupations as nursing, data analysis, and banking. In spite of this evidence Anderson’s problem is not directly addressed in these chapters. In fact, it is still implicit in too many chapters in this book that the primary purpose of school mathematics is to prepare students for university courses.

The seven chapters in the second section *Curriculum and classrooms for the future* are a disparate collection of papers that fail to give this reader a vision of future mathematics classrooms. The first three chapters address issues being faced in a somewhat parochial manner in the United Kingdom. A chapter on mathematical modeling follows these chapters. Then, two chapters describe the kind of mathematics that is typically used in science courses. It is important to remind the mathematics education community about such science teachers’ expectations, but I would have liked a more forward-looking discussion about

such needs. In contrast, in the final chapter Jim Kaput and Jeremy Roschelle look well beyond current conceptions of mathematical content by discussing the evolution of representations, the transformative potential of new media, and the long-term social consequences of such ideas.

Three of the four chapters in the third section *Thinking about change* I found particularly interesting. H. Brian Griffiths argues that mathematics education needs to develop a disciplined framework and language to counter the naïve notions about this field held by both practitioners and others. He briefly traces the British reform efforts during the 20th Century and their problems, and proposes a “dialectical” approach to curriculum construction. William Higginson argues that “the record of mathematics education in the 20th century has largely been that of failure” (p. 184). Furthermore, he states “the single most important reason for this failure is the implicit acceptance of a Russellian view of the nature of mathematics and the development of ways of teaching the subject which are consistent with this view” (185). He concludes by strongly recommending “a reconsideration of the educational ideas of Alfred North Whitehead as a source of renewal for mathematics education as we approach the new century” (p. 192). Kenneth Ruthven concludes this section with a thoughtful chapter on professional judgement and the needed shift from notions of “good practice” toward “warranted practice.”

The three chapters in the final section *Learning from the Pacific Rim* are interesting, but seem out of place when contrasted with the rest of the book. The first two chapters address national issues in Korea (good skills but poor ability to use those skills to solve problems) and Taiwan (test obsession). In the final chapter, by Frederick Leung, he presents an interesting discussion of the Confucian view of education, and its value-laden implications for mathematics education are given.

In summary, like any collection of papers derived from a conference, the chapters in this volume vary in quality. The reader will find some interesting and thoughtful contributions on the theme of the conference - what should be the shape and nature of the mathematics curriculum in the new millennium? The collection is somewhat parochial in that the majority of the papers are set in a British context. When examining the papers I became curious about two features. First, the three papers by authors from North America have copious references to other works while the other chapters have few references, and even one has no references. I assume this reflects cultural differences about scholarly contributions submitted for publication. The second feature I wondered about is the lack of references throughout the book to the recent literature on the issues about school mathematics and reform, e.g. the chapters in the *Handbook of Research in Mathematics Education* (Grouws, 1992), or in *Handbook of Research on Curriculum* (Jackson, 1992) or the examples of projects from around the world described in the three volumes of *Bold Ventures* (Raizen & Britton, 1997).

Nevertheless, this document makes it clear that the issues surrounding the questions: what mathematics should be included in the school curriculum?, what should be

emphasized for whom?, how it should be taught?, and so forth do not have simple answers. Policy makers, scholars in other fields, and the public at large too often see mathematics as a long settled body of knowledge with little disagreement as to the answers to these questions. This document makes the complexity surrounding any attempt to answer the questions, and in turn to reform school mathematics, problematic.

References

- Grouws, D. A. (Ed.) (1992): Handbook of research on mathematics teaching and learning. – New York: Macmillan
 Jackson, P. W. (Ed.) (1992): Handbook of research on curriculum. – New York: Macmillan
 Raizen, S. A.; Britton, E. D. (Eds.) (1997): Bold Ventures. Dordrecht: Kluwer

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