

Foreword

WHEN MATHEMATICS EDUCATION appeared as an academic field in European and North American universities at the end of the nineteenth century, it aimed at becoming a science. Its parents were two disciplines: mathematics itself (the queen of the sciences) and psychology (the so-called master science of the school). Mathematicians such as Felix Klein, E. H. Moore, and Henri Poincaré were arguing for livelier instruction and a more practical and intuitive treatment of mathematical topics; psychologists such as Alfred Binet, Max Wertheimer, and Edward L. Thorndike were attempting to study, develop, and assess mathematical ability. School mathematics beyond the elementary school grades was being built on the mathematics of the academy; educational psychology was being built on the thinking of the individual learner.

During the twentieth century, the contributions of the parental disciplines changed. Mathematics came increasingly to be seen as a human construction, with historical and cultural dimensions, and school mathematics began to reflect the interests, experience, and practices of the participants in instruction. Researchers in mathematics education started to deal with the thinking and learning of groups as well as individuals, and the field drew more heavily on other social sciences—such as sociology, anthropology, linguistics, and communication—to complement the contributions of psychology. Rather than relying almost exclusively on memorization, teachers began to involve learners in the exploration of mathematical ideas. The positivist orientation of mathematics education at the beginning of the century had been replaced by the end of the century by a largely interpretivist orientation.

As the field of mathematics education moved away from its early empirical-analytic approaches modeled on those used in the natural sciences, it began to make greater efforts to achieve an understanding of the meanings that mathematics teaching and learning have for those engaged in the process. What it has not yet done, at least not very much in North America, is to adopt a critical stance toward school mathematics so that those involved—teachers and learners alike—can gain greater freedom and autonomy in their work.

In recognition of the increased interaction between mathematics education and educational policies, the Sixth International Congress on Mathematical Education in Budapest in 1988 devoted an entire day to the topic of “Mathematics, Education, and Society.” That effort was followed by a series of International Conferences on Mathematics Education and Society as well as several on the Political Dimensions of Mathematics Education. At these meetings and elsewhere, proponents of so-called critical theory have argued that mathematics teachers should aim their instruction at the promotion of social change and, in particular, the

promotion of greater social justice. Despite the growing popularity of these ideas, however, they have yet to take center stage in school mathematics. Why not?

A major reason undoubtedly has to do with the conservatism of the teaching force. Those who enter teaching have more or less successfully navigated the educational system as it is; why should they be interested in changing it? Asked why they are not promoting social justice when they teach, they might easily reply: “I was hired to be a mathematics teacher, not a teacher of social justice. In my personal life, I can work for a more just society, but as a professional, it’s not part of my job.”

Moreover, teachers of mathematics may derive considerable status from presiding over a subject that others find difficult or even impenetrable. Why should they lower it from its elite pedestal? Teaching mathematics for social justice demands changes in teachers and in the mathematics they teach. Entangling mathematics with efforts to change the world requires that teachers reject a view of their subject that may have been a mainstay of their scholarly identity. They would have to give up the comfortable role of shrine curator to become drum majors for justice. School mathematics instruction would need to abandon arbitrary associations and puzzling riddles in favor of the mathematics students could use to overcome injustices they face daily.

To an outside observer, today might seem an especially inopportune time to seek a more equitable school mathematics. Public education and the common school ideal are under attack from all sides; schools are increasingly labeled as “failing” and teachers as “incompetent”; students’ performance in mathematics is deemed inadequate to meet the demands of the twenty-first century. Why rock a sinking boat?

The authors of the chapters in the present volume are under no illusions that teaching mathematics for social justice is simple or easy. But for them, now is certainly the time for critical mathematics to enter the mainstream. Read their chapters, and see if you don’t agree.

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