Why Are Mathematics Textbooks So Bad?

Textbooks are terrible. Publishers are polluting the minds of our children with dumbed down instructional materials designed to appeal to the lowest common denominator of teacher and pupil. And standardized tests have been made easier and re-normed to hide this deterioration.

The media, politicians, distinguished national and state commissions, and others who have recently examined education all seem to be conveying the same message.

Just how bad are textbooks? Mathematics textbooks are not a whole lot worse than they have been at any other time during the century. Unfortunately, most of them are not much better. The century opened with mathematicians and psychologists calling for more emphasis on the role of mathematics in solving everyday problems and greater use of psychological theory to teach mathematics. In 1918, textbooks were identified as being the ‘new arithmetic’ if and only if they satisfied those two criteria.

Since then, we have experienced several revolutions (or at least attempted coups d’etat) including the new math and back-to-basics movements. Still, textbooks have changed little. Certain words, rules, or sets of problems have been added or deleted. But the basic pedagogy, content, and format of the books remain unchanged. A teacher could feel comfortable knowing that, despite cosmetic changes, the fundamental stuff remained the same and there was no need to learn anything substantially new.

Today, the ability to think mathematically is as important to our collective and individual futures as literacy has been in the past. We can no longer afford a population that is largely ignorant of and afraid of mathematics. During the past decade leaders in mathematics and mathematics education have been virtually unanimous in calling for programs with a problem-solving focus — programs that derive mathematics from practical experience and constantly relate it back to that experience. Such programs should include more and earlier work with data analysis, functions and graphs, estimation, geometry and measurement, probability, rational numbers (using decimals as well as fractions), calculators, and computers. The goal is to encourage both mathematical thinking and a positive attitude toward mathematical thinking.

Textbook series for such purposes are available, but they account for less than 2 percent of the annual sales. When California and Texas adopted guidelines that favored one of these programs the major publishers rushed to satisfy the letter — but not the spirit — of those guidelines. They produced supplementary booklets on problem solving and inserted whole chapters and sections of chapters on problem solving but left their textbooks essentially untouched.

Is this a conspiracy on the part of the major publishers to foist inadequate instructional materials on innocent children and their teachers? Of course not. It is the natural response of business people trying to sell a product. And as long as purchasers of textbooks continue to buy thinly disguised, unchallenging, and uninteresting intellectual junk food, the publishers will continue to produce it.

The Instructional Issues Advisory Committee of the National Council of Teachers of Mathematics recently completed a survey of mathematics textbook adoption procedures. Some of the remarkable practices they uncovered include the following:

- A large city adoption, carefully conducted by competent faculty and staff members, was modified by the school board, purportedly because the sales representative for a company whose books were not included on the original list was socially connected with several of the school board members.
- A letter condemning publishers for not producing books satisfying the recommendations of professional organizations was written by the mathematics supervisor of a community that had just rejected a textbook series that does satisfy those recommendations in favor of a series with more traditional format that does not satisfy the recommendations.
- Large numbers of school districts make final decisions about which textbooks to adopt by a vote of the entire faculty, with virtually no attempt to educate the faculty about recent developments in mathematics education or the demonstrable strengths and weaknesses of the available textbooks. In some cases, teachers who voted had not even seen the textbooks on which they were passing judgment.
- A few textbook adoption committees at state and local levels did not have a single member who could be described as a specialist in mathematics or mathematics education.

In response to these and many other counterproductive practices, the committee produced a set of Professional Standards for Selection and Implementation of Instructional Materials. These guidelines suggest that sufficient time and support ought to be

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provided for a competent review and that the final decision should be made by knowledgeable people who are familiar with professional recommendations and who have studied the candidate textbooks and available information about their effects on learners. Such adoption should be followed, according to the standards, by appropriate inservice preparation of teachers and supervisors and by formal evaluation of the results of the adoption.

If people at all levels who evaluate textbooks would conform to these standards, the quality of textbooks would improve miraculously. But even if state and district decision makers abide by these standards, they will have precious little effect if final purchasing decisions in schools are made without regard for standards, primarily as a result of political or social pressure.

ROBERT J. KRAJEWSKI

Supervising Excellence

A few months ago I attended a U. S. Department of Education conference at which 24 junior and senior high schools from seven midwestern states were honored. I was particularly interested in the supervision-evaluation program of these schools but discovered that, for the most part, the schools were recognized for aspects of their programs other than teacher supervision-evaluation.

Some, however, had excellent programs. Ames (Iowa) High School, for example, a member of ASCD's network on Redefining General Education, had the principal, department coordinators, and individual teachers identify needs to provide the impetus for a wide variety of staff development activities. The district's formal procedure for evaluating teachers includes several opportunities each year for specific feedback through preconferences with teachers, class visitation/observation, and post-visit-conference evaluations. Evaluation is based on 32 criteria determined by teachers and administrators and approved by the board of education. If either a teacher or an administrator requests it, outside supervisory assistance is available to any teacher.

For information, contact Ralph Fararr, Principal, Ames High School, 20th and Ridgewood, Ames, Iowa 50010.

Evaluation For the Future

Using the talents of the community, staff members, and students, the Millard school board, Omaha, Nebraska, developed a vision statement of its schools' future. The first two of its six goals involve extending both the excellence of learning in all educational programs and the quality of professionalism.

The Millard South High School evaluation program "Improving Instructional Assessment and Performance Through Supervision and Evaluation" includes input by department heads, the assistant principal for instruction/curriculum, and the principal. In Millard's six-step clinical supervision program, teacher observation is based on years of service: first- and second-year teachers are observed three times each year; third-year teachers twice each year; and all others once each year.

The district preconference format has five specific elements; the detailed observation checklist consists of nine teaching skills areas and varied subareas, five coordination factors areas/subareas, and three credibility factors areas. Teacher comments are solicited and plans for improvement are included in the teacher-supervision conference statement. The sixth step, a summative evaluation, is completed by June 1 each year. Additional procedures are required if summative recommendation is for conditional re-election or dismissal.

For information, contact John A. Lammel, Principal, Millard South High School, 14905 Q Street, Omaha, Nebraska 68137.

Change for the Better

Another extensive supervision plan was reported by Adams Junior High School, Rochester, Minnesota. The supervisory program at Adams is part of a staff development plan designed to increase the instructional skills of staff members and to reinforce excellent instruction. The underlying philosophy is that clinical supervision is the best way to reinforce positive things the staff does. But it wasn't always that way.

Traditionally, Adams' administrators visited classes and conferenced with the teachers without providing much...
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