

# Trends:

## Mathematics

STEPHEN S. WILLOUGHBY

### New Hope for Textbooks

In March 1985 the California State Board of Education approved a *Mathematics Framework for California Public Schools*. This remarkable 95-page document redefines the purposes of mathematics education and spells out criteria for textbook content and design. For example:

Textbooks must be restructured to include all strands and to integrate problem solving, mental arithmetic, estimation, use of calculators, and appropriate reinforcement into each strand. Major concepts from every strand—number, measurement, geometry, patterns and functions, statistics and probability, logic, and algebra—must be incorporated and interwoven throughout the text for each grade level. The new criteria . . . can be met only by texts that foster understanding and the ability to use mathematics (p. 13).

These criteria clearly cannot be satisfied by simply annexing problem-solving sections (however good) or discussions of manipulative materials to a "back-to-basics" or "new math" series. Almost all publishers will need to develop completely new textbooks.

The California State Board of Education is to be commended for this courageous and intellectually sound action. This step is very much in line with all recommendations made by major mathematics and mathematics

education organizations since 1975. But the California *Framework* has teeth. If textbooks don't satisfy the *Framework's* criteria, presumably they will not be adopted in California.

California has the attention of the publishers. The actual performance of the publishers and California's response will go far in determining the quality of textbooks in California and the nation. To write a coherent series of textbooks for grades K-8 based on a set of principles essentially different from previous books requires a long time. To test such materials with teachers and children in real classrooms, to observe what happens in the classrooms, and then to change the many things that do not work the way the authors hoped they would take even longer.

California has already postponed its deadline for submission of books (and therefore for *selection* of books) twice—presumably to give publishers more time to try to meet the *Framework* criteria. When California school districts finally decide which mathematics textbooks to use, publishers will be watching with great interest. Will California adopt texts that were thrown together quickly with all the right words and platitudes but with no evidence of internal consistency or

external verification? Will California accept old "back-to-basics" or "new math" programs that have had problem-solving sections written by a new set of authors and teachers' guides written by still a different set of authors? If so, the *Framework* will have little positive impact on the teaching of mathematics.

If the California State Board of Education has the courage to stick to its guns and adopt only well-conceived and thoroughly tested programs that meet the spirit and the letter of the *Framework*, the effect on mathematics education (and education generally) is likely to be profound. The board showed its courage and commitment to quality with junior high science textbooks. Our expectations are high for California's effect on mathematics education. □

### Reference

*Mathematics Framework for California Public Schools*. Sacramento: California State Board of Education, 1985.

**Stephen S. Willoughby** is past president, National Council of Teachers of Mathematics, Reston, Virginia, and professor, Mathematics and Mathematics Education, New York University, New York, NY 10003.

## Social Studies

WALTER C. PARKER

### New Curriculum Scholarship

A different way of thinking about social studies education may foretell curriculum reforms to come. No mere "swing

of the pendulum" in reaction to the minimum competencies movement, this development actually predates that movement by more than a decade.

And, unlike it, the new scholarship is too disparate to be called a "movement." Drawing from a variety of scholarly traditions, it nearly defies

characterization. Nevertheless, I will attempt a brief description.

*The Social Construction of Knowledge.* A number of contours can be discerned. Perhaps chief among them is a way of thinking about truth that considers social knowledge as a social construction rather than as the outcome of objective "discoveries." From this perspective, advances in knowledge are stunted, not promoted, when students (and their teachers) are asked to be the dutiful recipients of "official knowledge" handed down from "experts." It follows that this "official knowledge" is really a *claim*—an assertion about what is true—and, hence, is open to debate. As an interpretation of truth, a knowledge claim is necessarily entangled in the social values and prejudices of the interpreters, however "objective" and "scientific" they may try to be. Because interpreters may differ, argument, not obedience, advances truth.

If this strikes you as an odd way of thinking about knowledge, remember that it is quite like the way we are already accustomed to thinking in the arts. For example, criticism has been a staple in the field of literature for years. A teacher who requires students to accept a particular interpretation of, say, *Animal Farm* would surely (we hope!) be considered to be depriving learners of intellectual growth by not weighing competing claims. Just as a literature teacher explores multiple interpretations of a particular novel or poem, so too is it appropriate for social studies curriculum developers and teachers to explore with students more than one interpretation of a social event. Otherwise they offer students only a currently favored interpretation of the event as though it were both complete and true. If stu-

dents are to participate in advancing knowledge, they need to construct and criticize diverse knowledge claims.

*Emancipatory Pedagogy.* Applying this view of knowledge to curriculum, these scholars emphasize that curriculum development is inherently value-laden and, therefore, political; that is, because knowledge is entangled in values, curriculum work inevitably will promote some values at the expense of others.<sup>1</sup> Thus, curriculum developers ought to be explicit about the values they choose to endorse. Taking their own advice, these writers explicitly endorse what they call "emancipatory curriculum and instruction." Their pedagogy seeks the full development of individuals by engaging students in the social construction and criticism of claims to knowledge; thus it frees them from the intellectually passive spell cast by the traditional "official knowledge" pedagogy.

*Practical Competence.* A closely related contour in the new scholarship is a concern to distinguish between *praxis* and *techné*. *Praxis* means practical competence in the Aristotelian sense: an everyday, thoughtful action that is committed to advance the good and just life of the community. Contrast this with the modern idea of competence as technical know-how. Aristotle called this narrow meaning of competence *techné*. He pointed out that, while humankind needs *techné* to sustain the economy and produce predetermined results, it is worthless, even harmful, without *praxis*. Why? Because methods cannot be used to answer questions of purpose; because skill is not the same as moral wisdom.

These curriculum theorists claim that social studies has focused on *techné*, exemplified by the abiding

emphasis on social studies "skills"—whether map skills, so-called "life" skills, or even thinking skills. This technical preoccupation continues at the expense of *praxis*, which is concerned with the appropriate use of skills. Without deliberating the *nature* of a task, its "skillful performance" is utterly meaningless. That is, "Where there is no basis for determining the task to be accomplished, *the most incompetent solution may be reached by accurate execution of an inappropriate algorithm.*"<sup>2</sup>

A brief sketch can only hint at the richness and complexity of this new curriculum theory. These scholars would not suggest that it is particularly easy to construct a pedagogy concerned with emancipation: the construction and criticism of claims to knowledge and moral purpose. They would consider the uncritical transmission of selected claims to truth and a narrow focus on skills, however, to be harmful both to students and to the communities we expect them to create.<sup>3</sup>□

1. A more rigorous treatment of the relationship of knowledge to values is found in the work of Jurgen Habermas. See Thomas McCarthy's *The Critical Theory of Jurgen Habermas* (Cambridge: Polity Press, 1978).

2. Tony Whitson, "Truth or Competencies" (paper delivered at the Bergamo Conference on Curriculum Theory and Practice, Dayton, Ohio, October 1985).

3. A readable sampling of the new scholarship, particularly as it applies to social studies, can be found under "The New Criticism" in *Social Education* 49 (May 1985).

**Walter C. Parker** is assistant professor, College of Education, University of Washington, Seattle, WA 98195.

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