

comments and letters from well-known figures ranging from E. B. White to Arthur Ashe. The elementary-level booklet, *P.S. Write Soon!*, stresses activ-

ities for younger children—round-robin messages, original greeting cards, and letters to relatives. Both books are 64 pages in length and are available (\$2.50

single copy; class sets of 20 or more, \$1.50 each) through NCTE, 1111 Kenyon Rd., Urbana, IL 61801.

Curriculum Trends: Mathematics

STEPHEN S. WILLOUGHBY

The New Basics

For years, mathematics educators and various groups of mathematicians and educators have advocated a change in emphasis in the K-12 mathematics curriculum. The latest in this long line of recommendations comes from the Conference Board of Mathematical Sciences (CBMS). In its report, the CBMS recommends that calculators and computers be introduced into the mathematics classroom as early as possible, that more emphasis be placed on mental arithmetic, estimation, and approximation, and that less emphasis be placed on pencil-and-paper arithmetic. The CBMS report also advocates more emphasis on statistics and probability at all levels.

Copies of *The Mathematical Sciences Curriculum K-12: What Is Still Fundamental and What Is Not* (Report to the National Science Board Commission on Precollege Education in Mathematics, Science, and Technology) are available from the Commission on Precollege Education in Mathematics, Science, and Technology, National Science Foundation, 18th and G Sts., N.W., Washington, DC 20550. Single copies are available without charge.

NAEP Mathematics Results Mixed

The results of the 1982 National Assessment of Educational Progress (NAEP) in mathematics showed some improvements over previous years, but unfortunately, the improvements were mostly limited to lower-order skills, such as simple computation and the recall of facts—the very things that omnipresent calculators and computers can do more efficiently than human beings.

Thirteen-year-olds and those students traditionally thought to be "disadvantaged" made the greatest gains. Encour-

aging results were seen in students' ability to compute with decimals, increased proficiency with the metric system (and a corresponding decrease in proficiency with traditional measures), and access to computers (which doubled between 1978 and 1982).

Mathematics educators who commented on the results were distressed by the apparent confirmation that the "back to basics" movement seems to have produced improvements in precisely those abilities that are least important in a rapidly changing technological society. The National Council of Teachers of Mathematics, for example, recommends that "problem solving in mathematics be defined to encompass more than computational facility."

One example that seems to show that we are failing to teach children to use their intelligence to solve problems is this:

Problem: An army bus holds 36 soldiers. If 1,128 soldiers are being bused to their training site, how many buses are needed? Without a calculator, 23.9 percent of 13-year-olds got the right answer, but with a calculator, only 7.1 percent of 13-year-olds arrived at the right answer. In both cases more students proposed a fractional or decimal answer than proposed the correct whole-number answer. Those who used a calculator were far more likely to use the

wrong operation than those who did not use calculators, and they were also more likely to round down rather than up.

The Third National Mathematics Assessment: Results, Trends, and Issues, No. 13-MA-01, is available at \$9 a copy from the Distribution Center, Education Commission of the States, Suite 300, 1860 Lincoln St., Denver, CO 80295. *An Agenda for Action: Recommendations for School Mathematics of the 1980s* is available at \$1 per copy (80¢ for NCTM members) from the National Council of Teachers of Mathematics, 1906 Association Dr., Reston, VA 22091.

Qualified Mathematics Teachers Needed

The shortage of qualified teachers of mathematics has been attracting national attention through statements by the President, members of Congress, and various national commissions. Although the shortage has existed for four decades in varying degrees of severity, it has become much worse in the past ten years. Since 1972 there has been a 77 percent decline in the number of people prepared to teach secondary-level mathematics, and only about 55 percent of those who are prepared actually become teachers. Almost five times as many mathematics and science teachers leave the teaching profession for other employment as leave to retire.

Bills being considered by Congress would provide more than \$400 million to begin to reduce the negative impact of the shortage. Some of the money would be allocated to increase the number of teachers prepared, some for equipment, some for upgrading the education of inservice teachers, and some for various other activities to help improve mathematics and science edu-

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Letters

THE ART OF . . .

Elliot Eisner's (January 1983) essay on the art of teaching was thought-provoking and insightful. In arguing his case, Eisner also demonstrated his masterful command of the art of writing.

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The January 1983 issue on the art of teaching was fantastic! I've read it over several times and thoroughly enjoyed it from cover to cover. It rekindled some ideas I've thought about for years. Nice job.

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GETTING THE MESSAGE TO THE PEOPLE

John Goodlad's *Study of Schooling* ("What Some Schools and Classrooms Teach," April 1983) is a phenomenal work. The results are dispiriting, yet right on target.

For teachers as well as students, the cards, as Goodlad says, "are stacked against innovation and deviation." Thus, the situation drives many a bright, creative teacher into other fields—leaving bright, creative students to struggle through alone. Somehow, the cycle must be broken. Newly selected teachers should be encouraged to explore learning environments directly, in a "discovery oasis of some sort." Doing one's practice teaching in existing schools serves only to perpetuate present models.

Although educational journals provide Goodlad's findings with a highly professional, interested audience, a study of this magnitude requires and deserves a broader audience to achieve action. Tonight the headlines in my local newspaper read "T.V. Transforms Sports Into Big Leagues." Isn't it possible for television to transform educational research into the minor leagues at least? If, for instance, the PBS "Nova"

series were to turn *A Study of Schooling* into one or more segments, it could be brought to national attention and to the attention of teachers—the majority of whom, it is my hunch, do not read educational journals.

If reform on even a small scale is to result in significant change, then John Goodlad and other noted researchers must get their message to the people.

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THE THIRD WORLD RELOCATED?

While the sentiment may be commendable, I found several flaws in the description of John and Kathrynne Favors' strategy to help Third World students ("Education for Pluralism," March 1983).

My first objection is to the use of the term Third World when referring to black students. Those students are Americans, unless the U.S. has suddenly become a Third World country. Labeling students Third World will certainly not correct their learning disabilities or raise their self-esteem. The term Third World has terrible connotations: poverty, hunger, disease, and underdeveloped minds that result from those conditions. Such a label can only reinforce the segregationist tendencies that already exist in this country; it cannot make minority students feel more "at home." Home is the United States.

Second, where did the Favors get the idea that only black students have a strong need to talk and interact while learning? I have attended both an all-black school and a predominantly white school, and I could see little difference in the students' needs to talk and interact in class. (I personally have no need to do so, but perhaps I'm the exception; I don't speak Ebonics, either.) Another term for this need is hyperactivity or lack of discipline, which does not stem from a cultural trait. It stems from a lax system that allows for such "needs" by referring to them as cultural traits that

cation. Although the amount of money is a drop in the bucket given the magnitude of the problem, the bills do show that some of our national leaders recognize the need for a national commitment to education.

One particularly negative "solution" to the problem has been for states and localities to lower their standards for becoming a mathematics teacher and to recertify teachers of other subjects to teach mathematics even when they are clearly not qualified. In New York City, for example, one contract to retrain teachers of other subjects to teach mathematics was awarded to a local community college. Can you imagine the outcry that would have resulted if a contract to retrain proctologists to be brain surgeons had been awarded to a community college? Surely, if teaching is to be taken seriously as a profession we ought to expect prospective teachers to study content and methods above the sophomore level of college.

The National Council of Teachers of Mathematics has taken the stand that students at all levels should be taught by fully qualified teachers whose professional preparation meets or exceeds that of regularly certified teachers. The NCTM also supports innovative strategies for dealing with the shortage such as bonuses, industry-sponsored fellowships, and others.

Copies of "Mathematics Teacher Shortage: The Facts," and "Position Statement on the Mathematics Teacher Shortage and Retraining Programs" are available at no cost from the National Council of Teachers of Mathematics, 1906 Association Dr., Reston VA 22091. Copies of *Guidelines for the Preparation of Teachers of Mathematics* are available from the same source for \$3.10 a copy (\$2.48 for NCTM members).

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