

NCTM Adopts Position Statements

Computers in the Classroom

NCTM's Instructional Affairs Committee recently prepared the following statement, which has been approved by the Board of Directors:

Although computers have become an essential tool of our society, their diverse and sustained effects on all of us are frequently overlooked. The astounding computational power of the computer has altered priorities in the mathematics curriculum with respect to both content and instructional practices. Improvements in computer technology continue to make computers, minicomputers, and programmable calculators increasingly accessible to greater numbers of students at reasonable cost.

An essential outcome of contemporary education is computer literacy. Every student should have firsthand experiences with both the capabilities and the limitations of computers through contemporary applications. Although the study of computers is intrinsically valuable, educators should also develop an awareness of the advantages of computers both in interdisciplinary problem solving and as an instructional aid. Educational decision makers, including classroom teachers, should seek to make computers readily available as an integral part of the educational program.

Statement on Basic Skills

The National Council of Teachers of Mathematics is encouraged by the current public concern for universal competence in the basic computational skills. The Council supports strong school programs that promote computational competence within a good mathematics program, and we urge all teachers of mathematics to respond to this concern in positive ways.

We are deeply distressed, however, by the danger that the "back to basics" movement might eliminate teaching for mathematical understanding. It will do citizens no good to have the ability to compute if they do not know what computations to perform when they meet a problem. The use of the hand-held calculator emphasizes this need for understanding; one must know when to push what button.

Consider in this regard a disturbing result of one recent national examination. Students were asked to determine 70 percent of the 4200 votes cast in an election. Almost half of the thirteen-year-olds and one out of five of the seventeen-year-olds applied the wrong arithmetic process. Some divided, some added, and some subtracted! Computational skills in isolation are not enough; the student must know *when* as well as *how* to multiply. We must address skills, but we must address them within a total mathematics program.

In a total mathematics program, students need more than arithmetic skill and understanding. They need to develop geometric intuition as an aid to problem solving. They must be able to interpret data. Without these and many other mathematical understandings, citizens are not mathematically functional.

Yes, let us stress basics, but let us stress them in the context of total mathematics instruction.

Recommendations On Competency-based Teacher Education

The NCTM is convinced that there are good and bad competency-based teacher-education (CBTE) programs just as there are good and bad non-CBTE programs. Any assessment of teacher performance must recognize that the teacher functions as an integrated whole, and the identification and assessment of competencies necessary for the successful teaching of mathematics require the skills of those working in the discipline. Some regions have mandated an approach to certification without specifying the need to include representatives from the fields of mathematics education. (The Council's document, "Guidelines for the Preparation of Teachers of Mathematics," is an effort to delineate better the competencies needed by the beginning mathematics teacher.) Therefore, to reach the need to encourage a variety of creative approaches to the complex problem of teacher education, the Council makes the following five recommendations:

1. That CBTE, however defined locally, not be used exclusively by certification bodies until more research and evaluation of its outcomes are available.
2. That the competencies identified in the "Guidelines" be used as baseline competencies for purposes of teacher education and that efforts to identify and assess additional competencies, in particular those observable only in the classroom, be encouraged.
3. That evaluation in teacher-education programs be characterized by systematic assessment of all competencies over a period of time to identify consistent and effective performance.
4. That the identification and assessment of performance related to mathematics teaching be chiefly the responsibility of professionals in the field of mathematics education: college professors of mathematics and of mathematics education, school mathematics teachers, and mathematics supervisors.
5. That representatives from the mathematics education community be involved in the development of competencies and assessment procedures related to mathematics teaching and that if NCTM affiliates in these areas have prepared guidelines, those guidelines be used as a framework against which proposals can be judged, and if such guidelines are not available, the NCTM's "Guidelines" be used.

These recommendations were developed by NCTM's Commission on the Education of Teachers of Mathematics. Copies are available free on request from the Reston office, including a more comprehensive statement of support.