



## CSSP ISSUE: FEDERAL SUPPORT OF SCIENCE & MATHEMATICS EDUCATION RESEARCH

**CSSP POSITION: SUBSTANTIAL INCREASES IN FEDERAL SUPPORT OF EDUCATIONAL RESEARCH AND ITS APPLICATIONS IN IMPROVING THE EDUCATION OF STUDENTS ARE CRUCIAL TO PROVIDE A GOOD MATHEMATICS AND SCIENCE EDUCATION TO THE NATION'S CHILDREN. THIS MUST BE A TOP NATIONAL PRIORITY.**

To remain competitive in a global economy and to ensure our nation's economic security and social well-being, the US needs a populace that is well schooled in science and mathematics and a citizenry that is science and mathematics literate. In an increasingly technological world, where the work place demands advanced skills to solve complex problems, and where public policies must be based on an understanding of science and technology, access to a world-class education in mathematics and science is essential for all citizens. The US also needs superbly educated students who will become our future scientists and mathematicians.

- **Americans overwhelmingly agree that science and technology occupy key places on the national agenda.** Seven of eight (88%) say that the US should be the world leader in technological progress. Four of five (80%) concur that the education of our children should be a top national priority. Yet, in 1996, 40% of high school seniors failed to reach minimum competence in science, and only 27% were proficient in mathematics.
- **Poor achievement is threatening our 21st century leadership:** In major international studies (TIMSS), US students graduate high school at the bottom of the world's children in math and science achievement
- **Effective, educational research based on sound scholarship will help teachers and parents understand which teaching methods work and which ones do not.** Research is needed in all aspects of education, from the preparation of new teachers to early childhood learning, and this research must be merit reviewed and ultimately directed to improving measurable learning outcomes. From state superintendents to classroom teachers -all must keep abreast of ongoing quality educational research, know how to use it and be committed to doing so.
- **Without a coherent, research-based vision for mathematics and science education, many independent efforts at curriculum reform have a scattershot effect.** The nation has developed Professional Teaching Standards, Curriculum and Evaluation Standards for School Mathematics and National Science Education Standards. These new standards are the basis for needed improvements in teaching, curriculum, pedagogy, assessments of educational progress, and in school systems. The effective implementation of these, and future research-based standards, must be a national priority.
- **Research in education and educational standards is a proper federal role.** With federal support, expanded research on how to improve the teaching and learning of science and mathematics will catalyze improvements at state and local levels. The priorities for educational research adopted by the Dept. of Education's National Educational Research Policy and Priorities Board and by CSSP member organizations are appropriate guidelines for such increased investment. The September 1997 President's Committee of Advisors on Science and Technology (PCAST) recommendation of an added \$1 billion/yr in federal educational research is a clarion call to action.

**CSSP CONCLUSION: *Federal investment in mathematics and science educational research must be increased very substantially over the next decade; the results of this research must be put into practice quickly and effectively.***

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