



STEM EDUCATION RESEARCH NEEDS STRONG FEDERAL SUPPORT

CSSP POSITION: PROVIDING A STRONG STEM EDUCATION REQUIRES SUBSTANTIAL INCREASES IN FEDERAL SUPPORT FOR EDUCATIONAL RESEARCH AND RESEARCH DOCUMENTING IMPROVEMENTS TO STUDENT STEM OUTCOMES.

Global Competitiveness: To remain competitive in a global economy and to ensure our nation's economic security and social well-being, the US needs a workforce literate in science, technology, engineering and math (STEM). In an increasingly technological world the workplace demands advanced skills to solve complex problems. Public scientific literacy is essential because policies are increasingly based on science and technology.

Science and technology are important to the nation. 79% of Americans say the world is improved because of science and technology. 71% of Americans support basic science funding and 72% support funding for engineering and technology¹. 85% percent feel that scientific research is necessary and should be government-supported. More than 59% want more support for scientific research; 74% say there more support for education is needed. 68% cite education as a top priority for the government.

Poor achievement threatens our global leadership: In major international studies², U.S. students graduated from high school near the bottom of the world in math and science achievement. U.S. students place 19th in science and 37th in mathematics. Only 38% of elementary, 34% of middle grades, and 27% of high school students scored proficient or above in science; with similar results in math³.

Effective, educational research will guide methods for teachers and parents. Peer-reviewed, outcome-based research is needed in all aspects of education, from the preparation of new teachers to early childhood learning. STEM educators must be committed to the application of current education research.

Research-based STEM education will make educational reform effective. Professional organizations and state education departments have developed professional teaching standards and innovative curricula. Next Generation Science Standards, based on educational research, represent the most recent approach to teaching and learning. They should be the basis for improvements in teaching, curriculum, and future research-based standards.

Government is key to education research. Federal support for research on improving teaching and learning in STEM will catalyze improvements at state and local levels. Priorities for educational research cited by federal agencies and professional organizations are appropriate guidelines for such increased investment. A recent White House report⁴ proposes recommendations for stakeholders to collaborate and coordinate their funding efforts for research in STEM education to advance the knowledge base and implement significant improvements for STEM education for all students.

CSSP CONCLUSION: *Federal investment in STEM educational research must be increased substantially over the next decade; the results of this research must be put into practice quickly and effectively to meet the needs of the U.S. as a productive society and ensure a world leadership role in science, technology, engineering and mathematics.*

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¹ Perceptions of Science in American, A Report from the Public Face of Science Initiative, 2018. American Academy of Arts and Sciences. www.publicfaceofscience.org

² Trends in International Mathematics and Science Study (TIMSS), 2018. www.nces.ed.gov/timss/; Program for International Student Assessment (PISA), 2018. www.nces.ed.gov/surveys/pisa/

³ National Assessment of Educational Progress (NAEP), 2018. www.nationsreportcard.gov/math; www.nationsreportcard.gov/science

⁴ Charting a Course for Success: America's Strategy for STEM Education, 2018. www.whitehouse.gov/ostp/nstc