

News from Triangle Coalition

U.S. Chamber Report Card on Education Says States Failing Students

According to the U.S. Chamber of Commerce, their recent bipartisan report on state educational effectiveness shows that America's K-12 schools are failing their students and putting America's future competitiveness at risk. "We are not making the grade when it comes to preparing students for their future," said Tom Donohue, Chamber president and CEO. "Without real leadership in education reform, our economic future and prosperity are at risk. If companies were run like many education systems, they wouldn't last a week." "Leaders and Laggards: A State-by-State Report Card on Educational Effectiveness" graded all 50 states and Washington, DC, on nine broad categories including academic achievement, return on investment, truth in advertising, rigor of standards, and data quality. The report and accompanying recommendations for reform were prepared with John Podesta, CEO of the Center for American Progress and former Clinton White House chief of staff, and Frederick M. Hess, director of education policy at the American Enterprise Institute. They are available online at (<http://www.uschamber.com/reportcard>). Among the findings and points discussed in the report:

- Return on investment varies greatly across states.
- Certain states with a large percentage of low-income and minority students score far better than others on achievement tests.
- States could do much more to ensure a 21st century teaching workforce.
- Truth in advertising is inconsistent. Many states systematically paint a much rosier picture of how their schools are doing than is actually the case.
- State standards are too often inadequate.
- Forward-looking states are fostering innovation.
- High school graduation rates and college preparation levels are much higher in some states than others.
- States have begun to improve data collection efforts.

In response to the report, U.S. Secretary of Education Margaret Spellings made the following comments: "With this report, the U.S. Chamber of Commerce and the Center for American Progress add an important voice to the ongoing dialogue on strengthening our nation's education system -- how to improve student achievement, get the best teachers into the most challenging classrooms, and improve the data quality to further customize instruction. Bottom line: we need to pick up the pace. We have a lot of work to do."

(Editor's Note: The foregoing was excerpted from the Triangle Coalition Electronic Bulletin for 15 March 2007, reprinted with permission.)

ITEA Produces Technological Literacy Standards Briefings

Triangle Coalition member, the International Technology Education Association (ITEA), has prepared a new set of ten videos on one compact disk that explains the *ITEA Standards for Technological Literacy* (STL), *Advancing Excellence in Technological Literacy* (AETL), the

four *Addenda* publications to STL and AETL, and other topics relevant to the standards. These are called the *Technological Literacy Standards Briefings*. The videos on the CD are personal, one-on-one presentations by experienced education professionals that were developed for teacher candidates, practicing teachers, supervisors/administrators, curriculum specialists, or anyone who wants to learn more about standards-based resources or marketing programs. Each video lasts approximately 15 minutes. The format includes a split screen, which shows both a presenter and a text screen. For more details, visit (<http://www.iteaconnect.org/>). All of the *Briefings* may be viewed at the ITEA website by selecting the Technological Literacy Standards link.

The International Technology Education Association is a professional organization for technology, innovation, design, and engineering educators. Their mission is to promote technological literacy for all by supporting the teaching of technology and promoting the professionalism of those engaged in this pursuit. ITEA strengthens the profession through leadership, professional development, membership services, publications, and classroom activities.

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10,000 Teachers, 10 Million Minds Bill Passes

The U.S. House of Representatives voted April 24 to pass the 10,000 Teachers, 10 Million Minds Bill (H.R. 362) introduced by Science Committee Chairman Bart Gordon (D-TN). The legislation creates several new programs and expands existing programs at the National Science Foundation (NSF). The Bill would revise requirements for the Robert Noyce Scholarship program, which provides scholarships, stipends, and teacher training to science, mathematics, and engineering students. It would expand the use of funds to include summer internships for freshmen students. It would also increase the minimum yearly scholarship amount and reduce the recipients obligation to serve in a high need area.

H.R. 362 also revised the requirements for the Mathematics and Science Education Partnerships program at NSF, requiring: (1) prioritizing applications that focus on teacher training; (2) requiring the availability of master's degree programs for in-service teachers; and (3) allowing teacher training for AP courses. The Bill would also revise the STEM Talent Expansion Program and provide funds for a pilot Laboratory Science Program to encourage the improvement of laboratories and provide equipment and training to teachers. In addition it requires that grants awarded under this program be made to a partnership that: (1) includes an institution of higher education or a community college; (2) includes a high-need local educational agency; (3) includes a business or eligible nonprofit organization; and (5) may include a state educational agency, other public agency, national laboratory, or community-based organization. The full text of the report on H.R. 362 can be found online at ([http://thomas.loc.gov/cgi-bin/cpquery/R?cp110:FLD010:@1\(hr085\)](http://thomas.loc.gov/cgi-bin/cpquery/R?cp110:FLD010:@1(hr085))).

New Study Points to Gap Between U.S. High School Curriculum and College Expectations

A new study by ACT points to a gap between what U.S. high schools are teaching in their core college preparatory courses, and what colleges want incoming students to know in order for them to succeed in first-year courses. The findings of the ACT National Curriculum Survey suggest that colleges generally want all incoming students to attain an in-depth understanding of a selected number of fundamental skills and knowledge in their high school courses, while high schools tend to provide less in-depth instruction of a broader range of skills and topics. ACT has been conducting surveys of this nature for roughly 30 years. Data from the organization's research has helped establish the most widely recognized definition of college readiness in the United States. College instructors take a dim view of the effectiveness of their state's learning standards. Nearly two-thirds (65%), overall, say their state standards prepare students "poorly" or "very poorly" for college-level work in their subject area. This is quite contrary to what high school teachers believe, with most saying their state standards prepare students "well" or "very well" for college coursework. Differences between what high schools are teaching, and what colleges want incoming students to know, exist across the curriculum. In mathematics, high school teachers tend to give advanced content greater importance than do college instructors. College instructors rate a rigorous understanding of math fundamentals as being more important than brief exposure to advanced content. In science, high school teachers consistently rate knowledge of content (specific facts and information) as more important than an understanding of science process and inquiry skills. College instructors, in contrast, rate these skills in the opposite way -- science process skills are more important for students to possess when they enter college, they say, than knowledge of specific content. ACT conducts its National Curriculum Survey every three to four years to determine what skills and knowledge postsecondary institutions expect of their entering students and how these expectations compare to what is being taught in high school core preparatory courses. The full report is available online at (<http://www.act.org/path/policy/pdf/NationalCurriculumSurvey2006.pdf>).

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Senate Passes "America COMPETES Act"

On 25 April 2007, the United States Senate passed the "America COMPETES Act" (S.761) by a vote of 88-8. Senator Ted Stevens (R-AK) along with Majority Leader Harry Reid (D-NV), Republican Leader Mitch McConnell (R-KY), Senator Daniel Inouye (D-HI), Senator John Ensign (R-NV), Senator Kay Bailey Hutchison (R-TX), Senator Lisa Murkowski (R-AK), Senator Lamar Alexander (R-TN), and Senator Pete Domenici (R-NM) introduced the bill earlier this year. The measure would increase American investment in basic research and seeks to improve the teaching of math, science, and engineering. "If we are to maintain our competitive edge, we must improve the education our students receive in science, technology, engineering, and mathematics," said Senator Stevens. "We must equip our teachers with the resources and skills that they need." The "America COMPETES Act" is a bipartisan legislative response to recommendations contained in the National Academies' "Rising Above the Gathering Storm" report and the Council on Competitiveness' "Innovate America" report. The

legislation focuses on three primary areas of importance to maintain and improve America's innovation in the 21st Century: (1) increasing research investment; (2) strengthening educational opportunities in science, technology, engineering, and mathematics from elementary through graduate school; and (3) developing an innovation infrastructure. More details are online at (<http://thomas.loc.gov/cgi-bin/bdquery/z?d110:SN761:>).

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Little Scientific Evidence Backs Federally-Funded Math and Science Education Programs

U.S. Secretary of Education Margaret Spellings has released the findings of the Academic Competitiveness Council (ACC) and its recommendations to integrate and coordinate federal education programs in science, technology, engineering, and mathematics (STEM). The Deficit Reduction Act, signed into law by President Bush in February 2006, established the Academic Competitiveness Council, led by Secretary Spellings, to review all federal programs with a focus on math and science education and to report its findings to Congress. The Council's review revealed that, despite decades of significant federal investment in science and math education, there is a general dearth of evidence of effective practices and activities in STEM education. When these recommendations are implemented, our knowledge of effective math and science education practices will grow, American students will benefit and the nation's overall competitiveness will be strengthened. Based on its analysis, the Council is making the following recommendations:

1. The ACC program inventory and goals and metrics should be living resources, updated regularly, and used to facilitate stronger interagency coordination.
2. Agencies and the federal government at large should foster knowledge of effective practices through improved evaluation and/or implementation of proven-effective, research-based instructional materials and methods.
3. Federal agencies should improve the coordination of their K-12 STEM education programs with states and local school systems.
4. Federal agencies should adjust program designs and operations so that programs can be assessed and measurable results can be achieved, consistent with the programs' goals.
5. Funding for federal STEM education programs designed to improve STEM education outcomes should not increase unless a plan for rigorous, independent evaluation is in place, appropriate to the types of activities funded.
6. Agencies with STEM education programs should collaborate on implementing ACC recommendations under the auspices of the National Science and Technology Council (NSTC). Visit (<http://www.ed.gov/about/inits/ed/competitiveness/acc-mathscience>) for more information about the American Competitiveness Initiative and STEM education programs.

(Editor's Note: The foregoing was excerpted from the Triangle Coalition Electronic Bulletin for 24 May 2007, reprinted with permission.)

House Passes Holt Bill for National STEM Scholarship Database

The U.S. House of Representatives has passed legislation introduced by Rep. Rush Holt (D-NJ) that would establish a national database on financial assistance for the study of science, technology, engineering, and mathematics on the post-secondary and post-baccalaureate levels. "The future of our economy and competitiveness as a nation is directly related to our capacity to support young scientists, engineers, and mathematicians," said Rep. Holt. "As the cost of higher education continues to rise, we must do more to help students access public and private financial assistance, scholarships, fellowships, and other forms of aid."

The National STEM Scholarship Database Act (H.R. 1051) would direct the Secretary of Education to establish a web database of information on public and private programs of financial assistance for the study of postsecondary and graduate science, technology, engineering, and mathematics (STEM) programs. This database would be organized by field of study, searchable by category, and provide searchers with contact information and links for further information. The cost of higher education is a significant obstacle that many students must overcome to obtain a college degree. Rep. Holt's legislation creating a one-stop web portal listing all available financial aid opportunities for students pursuing STEM fields would help students overcome that obstacle. "No student should be denied higher education because of the cost," said Holt. "By making financial assistance opportunities easily accessible for the scientists, engineers, and mathematicians of the future, we are investing in our innovative capacity and our economic competitiveness." More details on the bill are online at (<http://thomas.loc.gov/cgi-bin/bdquery/z?d110:h.r.01051>).

Report Shows High School Students Taking More Advanced Coursework

High school students in the United States are taking more courses in mathematics and science, as well as social studies, the arts, and foreign languages, according to The Condition of Education 2007 report released recently by the U.S. Department of Education's National Center for Education Statistics (NCES). The general increases in credits earned since the early 1980's are, in large part, a product of more graduates taking more advanced courses. "The recent emphasis on mathematics and science in the high school curriculum has raised some concerns that growth in these and other high priority subject areas has squeezed out courses in other areas, such as the arts and history," said Mark Schneider, NCES Commissioner. "We have not found this to be the case. In fact, credits earned in other subjects have increased at the same time."

The Condition of Education is a congressionally mandated report that provides an annual statistical portrait of education in the United States. The 48 indicators included in the report cover all aspects of education, from student achievement to school environment and from early childhood through postsecondary education. The report shows that enrollment in U.S. public schools is becoming increasingly diverse. In addition, more individuals are enrolling in post secondary education, and more bachelors degrees have been awarded than in the past. Among the reports other findings:

- The average number of credits earned by high school graduates increased from 21.7 credits in 1982 to 25.8 credits in 2004.
- Comparing 1982 and 2004, graduates earned an average of 2.7 versus 3.6 credits in

mathematics, and 2.2 versus 3.2 credits in science.

- In 2004, Asian/Pacific Islander graduates were more likely than graduates of any other race/ethnicity to have completed advanced coursework in science, mathematics, English, and foreign language.
- Adults ages 25-34 with a bachelors degree or higher have higher median earnings than their peers with less education, and these earnings differences increased from 1980 to 2005.

NCES is the statistical center of the Institute of Education Sciences in the U.S. Department of Education. The full text of The Condition of Education 2007 along with related data tables and indicators from previous years can be viewed online at (<http://nces.ed.gov/programs/coe>).

High School Courses Lack Rigor According to ACT

U.S. high school core courses too often lack the rigor they need to adequately prepare students for college-level work, according to a new report from ACT, Inc. The research report, "Rigor at Risk," suggests that even students who take the recommended college preparatory curriculum in high school are often ill-prepared to handle college material. The findings also suggest that many students lose academic momentum during their last two years of high school. "We've been urging college-bound students to take the core curriculum in high school for many years," said Cynthia B. Schmeiser, president and chief operating officer of ACT's education division. "But now it is clear that just taking the right number of courses is no longer enough to ensure that students will be ready for college when they graduate. Students must take a number of additional higher-level courses in high school to have a reasonable chance of succeeding in college courses, and even that does not guarantee success."

Rather than simply accepting the fact that students must take more and more courses in high school to prepare themselves for college, ACT recommends that schools improve the quality and rigor of their core course offerings. The core curriculum recommended by ACT is based on recommendations made in the influential 1983 federal report, A Nation at Risk. The ACT-recommended curriculum consists of four years of English and three years each of math (Algebra I and higher), science, and social studies. ACT test score results have consistently shown that students who take this core curriculum are much more likely than those who don't to be prepared for college. The report also suggests that some students progress toward college readiness in high school, but many lose momentum during their last two years there. The report is available online at (<http://www.act.org/path/policy/reports/rigor.html>).

Leaving Gifted Children Behind

When the No Child Left Behind Act (NCLB) was introduced in 2001, its purpose was to set goals for improved test scores in low-performing elementary and secondary schools. With the program entering its seventh year, researchers and educators are finding improvements in some schools, but several educators are arguing that the NCLB leaves high-performing students behind. Dr. Barbara Marinak, Millersville University of Pennsylvania Professor of Elementary Education, says that attention is being focused on students who are less than proficient in reading and mathematics, leaving gifted students unchallenged. "The trends we are seeing that impact gifted education include less time being available for curricular variety and individualization,"

said Marinak. "As schools feel increasingly pressured to meet the demands of the current NCLB, opportunities beneficial to gifted students are disappearing. An additional problem is that districts are seeing lower test scores of gifted students. We are seeing erosion in scores from advanced to proficient or from proficient to basic."

The solution for gifted students in all socio-economic areas? Dr. Carol Welsh, Millersville Professor of Educational Foundations, suggests that schools move beyond normal standardized testing. "Create a system where gifted students can take the test with older grade levels and complete the tests as soon as they have mastered the grade 11 test. This would allow them to work on research projects in the available time," she said. Beginning this fall Millersville University will become the only public institution of higher education in Pennsylvania to offer a master's of education degree in gifted education. Find out more about the master's program online at (<http://muweb.millersville.edu/~eled/MoEDiG.html>). Additional resources for gifted children are found at the National Association for Gifted Children's website, (<http://www.nagc.org/>) .

(*Editor's Note:* The foregoing was excerpted from the *Triangle Coalition Electronic Bulletin* for 7 June 2007, reprinted with permission.)

The following was excerpted from the 23 May 2007 *Triangle Coalition Legislative Update* and reprinted with permission:

House Merges S&T Legislation to Mirror Senate Bill

On Monday, 21 May 2007, the House Science and Technology Committee merged the Committee's previous S&T legislation into a new bill, H.R. 2272, to mirror comprehensive legislation passed by the Senate. The House S&T Committee's bills, as five separate pieces of legislation, would have been at a disadvantage in conference committee when compared to the Senate's single, inclusive America COMPETES Act (S. 761, see below). H.R. 2272 only includes programs at the National Science Foundation and the Department of Energy, as the House has yet to pass authorizing legislation for STEM programs in the Department of Education. The House Education and Labor Committee, which has jurisdiction over the Department of Education, is preoccupied with No Child Left Behind reauthorization (see below). The original bills had passed with large, bipartisan majorities; the composite bill passed by a voice vote.

The aggregated legislation, as related to STEM education, includes:

- 10,000 Teachers, 10 Million Minds (Previously H.R. 362): The act expands funding and relaxes requirements for the Robert Noyce Scholarship Program at NSF, which supports undergraduates who agree to teach K-12 science upon graduation; creates a new component of the Noyce Program that gives scholarships to STEM professionals enrolled in teacher certification programs; directs the STEM Talent Expansion Program to sponsor research into undergraduate STEM curriculum and teaching; initiates a pilot program to introduce laboratory science to secondary schools; and revises the Math and Science Partnership program at NSF to prioritize applications that focus on teacher training and to require that the program fund

partnerships to develop master's programs in STEM education for in-service teachers.

- Sowing the Seeds Through Science and Engineering Act of 2007 (Previously H.R. 363): The act authorizes grants to early-career scientists and engineers through the NSF and Department of Energy. It also authorizes at more than \$30 million, an NSF scholarship program for undergraduate STEM scholars, to be called US-STEM.

H.R. 2272 also incorporates the House authorizations for the NSF and NIST, both of which put research funding on pace to double within ten years. The text of the act can be found <<http://thomas.loc.gov/cgi-bin/bdquery/z?d110:HR02272>> online.

Authorizing legislation does not provide actual funding for the programs; rather, it sets upper limits for later appropriations. Although the House has expressed strong, bipartisan support for STEM education this session and has increased authorized funding levels, historically many of these programs have been funded below authorized levels. The appropriations process should begin in June and future Legislative Updates will include more information on appropriation.

Senate passes America COMPETES Act; addresses STEM policy with single, multi-faceted bill

On 25 April 2007, the Senate passed the America COMPETES Act, Senate Bill S. 761, by a vote of 88-8; the legislation had 69 co-sponsors. It is the Senate's response to a series of reports, such as the National Academies' "Rising Above the Gathering Storm" report, that call for a reinvestment in science and technology innovation and education. "If we are to maintain our competitive edge, we must improve the education our students receive in science, technology, engineering, and mathematics," said Senator Ted Stevens (R-AK). "We must equip our teachers with the resources and skills that they need." The act addresses STEM education in programs at the Department of Energy, the Department of Education, and the National Science Foundation (NSF). A summary of the larger provisions relating to education is as follows:

- In the Department of Energy, S. 761 creates the position of Director of Mathematics, Science, and Engineering Education; authorizes grants for states to establish or expand public, statewide schools specializing in STEM; and requires that each national laboratory establish: a summer internship program for middle and secondary students, an internship program for teachers, and a "STEM Center of Excellence" partnership with a high-need local education agency.
- In the Department of Education, S. 761 authorizes grants for programs that award simultaneous degrees in STEM fields and education; expands scholarships for teachers to study for master's degrees in STEM education; encourages the teaching of AP and IB curriculum in high-need schools; authorizes the Department to contract with the National Academy of Sciences to convene a national panel on best practices in STEM education; creates a Math Now program to provide grants for improving math teaching in elementary and middle schools; and authorizes grants for states to create P-16 councils to coordinate, integrate and improve STEM education from preschool through college.
- At the National Science Foundation, S. 761 authorizes grants to facilitate creation of master's degree programs at four-year institutions of higher education; authorizes the STEM Talent Expansion program but does not expand its mission like H.R. 2272; and expands the Robert Noyce Teacher Program similarly to H.R. 2272. S. 761 would double NSF funding in five years.

The text of the act can be read at <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:s.00761:> online.