

The Importance of Science, Technology, Engineering, and Mathematics (STEM) to America's Future

When President Obama addressed the State of the Union earlier this year, he discussed the challenges America faces at the beginning of the 21st century. He was optimistic that we will meet those challenges, but he did not minimize the difficulty of so doing. "We know what it takes to compete for the jobs and industries of our time. We need to out-innovate, out-educate, and out-build the rest of the world." A key factor in our ability to out-innovate and out-build the rest of the world is our ability to out-educate the rest of the world, and by this criterion, the president noted, our nation has a great deal to do. "Over the next 10 years, nearly half of all new jobs will require education that goes beyond a high school education. And yet, as many as a quarter of our students aren't even finishing high school. The quality of our math and science education lags behind many other nations. America has fallen to ninth in the proportion of young people with a college degree." Finding these results unacceptable, the president has set the goal that the United States will have the highest proportion of college graduates in the world by 2020.

This is a formidable challenge. In addition to educating those high school graduates who currently are projected to enroll in and succeed in college, the United States will have to educate millions of students, college dropouts, and adults who never attended college who are not currently in the college-going pipeline.

College dropouts and those adults who never attended college will be challenged by the demands of postsecondary education and the economy of the 21st century. The country faces additional educational challenges. For example, consider these findings from a recent ACT estimate: 78 percent of high school graduates did not meet the readiness benchmark levels for one or more entry-level college courses in mathematics, science, reading, and English; by the year 2000 the number of foreign students studying physical sciences and engineering in the United States graduate schools for the first time surpassed the number of U.S. students studying physical sciences and engineering; and many American students in the fifth through eighth grades are taught mathematics and physical sciences by a teacher without a degree or certificate in mathematics and physical sciences.

These problems and their consequences are discussed in detail in *Rising Above the Gathering Storm, Revisited*, a 2010 report of the National Academy of Sciences (NAS) (www.nap.edu), and a variety of other reports and scholarly articles on the NAS website. In future issues of *OVAE Connection*, the importance of and deficiencies in U.S. education in science, technology, engineering, and mathematics (STEM) will be addressed as an ongoing series.

The Literacy Information and Communication System (LINCS) Collection Adds New English Language Acquisition (ELA) Resources

[English Language Acquisition \(ELA\) resources](#) have recently been added to the [LINCS Workforce Competitiveness Resource Collection](#). The first of these resources, [Promoting Learner Engagement when Working with Adult English Language Learners](#), highlights [three instructional approaches](#)—task-based learning, problem-based learning, and project based learning—as well as a classroom-based assessment. The author provides background, rationale, descriptions, and a concrete application for these ways of engaging learners. A second resource, [Reflection and Action in ESOL Classrooms](#), provides a detailed plan for carrying out action research and reflective practices as teachers participate in a research project. These two resources can be used by teachers in helping adults who are English language learners develop and build English language skills.

ETA Announces Links for State and Local Employment Projections

The U.S. Department of Labor, Employment and Training Administration (ETA), Office of Workforce Investment, has issued [Internet Links for State and Local Employment Projections](#) (www.doleta.gov/business/projections). It is designed to help a broad audience, including educators, trainers and career counselors, and can be easily customized by the user.

Employment projections are the most frequently-requested type of workforce statistic besides the unemployment rate. Projections are used for career counseling; for education planning and training programs; as supporting documentation to apply for federal grants; as well as other purposes.

This new resource includes direct links to:

- all published industry and occupational projections for the 50 states, plus the District of Columbia and Puerto Rico;
- long-term (usually 10 years) and short-term projections (usually two years), including the dates of the projections;
- statewide and local projections, including an explanation of the type of locality;
- each state's employment projections web page (if available);
- a statistical table summarizing the availability of different types of projections;
- each state's primary labor market information website; and
- key Bureau of Labor Statistics employment projections websites.