



Views You Can Use

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While educators are pleased to anticipate an infusion of federal economic stimulus dollars, these one-time funds will be only a partial and temporary solution to the fiscal challenges facing districts and schools as they seek to improve the performance of all students.

We have created the Efficiency and Effectiveness Framework (E/E Framework) to guide school and districts in allocating their limited resources to those tools, strategies, and procedures that will result in the most efficient and effective use of dollars. The E/E Framework compares the efficiency (cost) and effectiveness (student performance) of a wide variety of tools, strategies, professional development programs, organizational configurations, and procedural decisions that schools make.

You can learn more about the E/E Framework at www.leadered.com/MaximizingResources.html.

Here you will find:

- free white papers about its application
- best practices for improving effectiveness and efficiency
- information about how the International Center can support you in improving student performance while maximizing your current resources

Sincerely,
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Education Trends

Engaging with More Hands-On Projects

A Purdue University study has found that the best way to get students interested in science, engineering, and technology at an early age is to focus less on textbooks and more on interactive, problem-solving design projects.

The study of 126 eighth graders from 10 science classes was conducted in a rural, racially diverse Indiana middle school, with 57% of the student population receiving free or reduced-price lunches. The students studied water quality as part of the standard Indiana science curriculum. Half of the students were taught using traditional methods that included textbooks, and half were given an assignment to build a water purification device that demonstrated their grasp of the concepts. "In every area we tested, the students who were involved in a hands-on project learned more and demonstrated a deeper understanding of the issues than the traditional group," said Melissa Dark, assistant dean for strategic planning in Purdue's College of Technology.

Source: <http://news.uns.purdue.edu/x/2009a/090128DarkStudy.html>

Student engagement is a critical component of the learning process no matter what subject is being taught. The International Center's Student Engagement: Creating a Culture of Academic Achievement, assists school leaders and teachers in the complex task of increasing student engagement. The Student Engagement — Teacher Handbook has just been published also. [Professional Development workshops](#) are an engaging opportunity for staff as well.

Recession Means Going Back to School

The economic downturn has spurred a marked increase in enrollment at community and technical colleges, as people prepare for a potentially shaky future by upgrading their skills and turning to what they see as more stable careers in health care and technology fields and even as truck drivers. Enrollment also has increased in four-year colleges, although the percentages are not as high as at community colleges and technical schools, where tuition typically is lower and many programs relate directly to finding a job. Houston Community College has reported a 10.5% enrollment increase last fall, and preliminary spring 2009 figures show a 16.9% increase over last spring. Enrollment at Texas State Technical College, which provides training in fields ranging from nursing and welding to wind energy technology, increased 20% last fall. At Macomb Community College in Warren, Mich., enrollment has increased 10% from last year.

Sources: www.chron.com/dispatch/story.mpl/metropolitan/6230093.html
www.nytimes.com/2009/01/25/business/25safe.html?_r=1&pagewanted=2&partner=rss&emc=rss

Global Trends

U.S. Still Leads in Innovation

Despite the recession, the United States remains the world's most innovative economy, according to a new study released by the Paris-based business school INSEAD and the Confederation of Indian Industry. The Global Innovation Index study based its rankings on technological sophistication, human capacity, and infrastructure. Germany, Sweden, and the United Kingdom placed in the next three slots respectively, with China ranking 37 and India 41. The study found that innovation is correlated with income levels in a country.

"The presence of the U.S. at the top of the rankings ... should not be a surprise. American businesses have long been highly customer orientated, have invested in business process reengineering, and have aggressively invested in new technologies when needed," the study stated.

Sources: www.insead.edu/facultyresearch/centres/elab/documents/GIIFinal0809.pdf
www.ft.com/cms/s/0/ffc3fc02-dc09-11dd-b07e-000077b07658.html

China Demand for U.S. Debt Weakening

In the wake of a global economic downturn and the prediction that the United States' trillion-dollar deficit will remain for years to come, China has hinted that it has become less interested in buying up American debt. In the last five years, China has spent as much as 14% of its entire

economic output buying foreign debt, mostly American debt through short-term Treasuries. This has helped keep U.S. interest rates low for homebuyers and other borrowers.

But now China is seeking to pay for its own \$600 billion economic stimulus package. Until recently, China had bankrolled its large reserves by mandating that the country's banking sector, which is state controlled, take nearly 20% of its deposits and hand them to the central bank. The central bank, in turn, used the money to buy foreign bonds. Now the central bank is rapidly reducing this mandate and instead pushing banks to lend more money to small- and medium-sized businesses, as well as to local governments for new infrastructure.

Source: www.iht.com/articles/2009/01/07/business/yuan.php

Biotechnology Trends

Better Biofuel for Airplanes

Major airlines have picked up the pace in the race to develop biofuels that do not negatively impact the environment. In early January, Continental became the first U.S. airline to test a jet biofuel with a blend of oils from the jatropha tree and algae with 50% regular jet fuel. The flight lasted 90 minutes. Jatropha is a drought-resistant tree that can be grown in areas not suited for conventional food crops. The algae, scraped off a pond in Hawaii, have been called by some researchers the "green bullet" because they have a high energy yield and do not compete with cropland. In late December, Air New Zealand was the first airliner to test jatropha oil as a biofuel in a 50/50 mix with conventional jet fuel. The successful flight lasted about two hours.

Roy Beckford, an agricultural scientist with the University of Florida, said that China, India, and Brazil have planted millions of acres of jatropha, but the United States has yet to make a similar investment. Existing biofuels, notably those made from corn and soybeans, increasingly have come under scrutiny for their potential impact on the environment, grocery store prices, and people's health.

Source: www.airnewzealand.co.nz/aboutus/biofuel-test/default.htm
www.greenaironline.com/news.php?viewStory=187

The International Center is cosponsoring a Science Summit - Best Practices in STEM Education on April 19-20 in NC. The Summit will focus on the importance of a systemic approach to STEM education and highlight the nation's most innovative models and successful practices. Please visit <http://www.leadered.com/ncstem.html> for more information.

Cells for Better Sensors

Researchers at the Massachusetts Institute of Technology (MIT) have created a cell-based sensing device that can detect airborne pathogens such as SARS (severe acute respiratory syndrome), anthrax, and smallpox faster than what is available on the market now. The device, called PANTHER (for PATHogen Notification for THreatening Environmental Releases), has the potential to revolutionize biowarfare defense, medical diagnostics, and food- and water-quality monitoring.

Current sensing devices take at least 20 minutes to detect harmful viruses and bacteria, but PANTHER can detect them in less than three minutes. The device, which is about a cubic foot

in size and weighs 37 pounds, can be used in buildings, subways, and other public areas. The technology, licensed to Innovative Biosensors, uses a cell-based sensor, also developed by MIT researchers, which incorporates mouse white blood cells that are genetically engineered with a jellyfish gene that produces a protein which allows the jellyfish to glow. The cells emit light within seconds after being exposed to a particular pathogen. Detectors measure the photons' wavelengths and interpret the pathogens the wavelengths represent on a computer readout.

Sources: <http://web.mit.edu/newsoffice/2003/sensors.html>
www.ll.mit.edu/news/panthersensor.html

By the Numbers

To highlight Black History Month, celebrated in February, the U.S. Bureau of Labor Statistics provides on its website an economic and education snapshot of African-Americans in the United States today.

- In 2008, there were 17.7 million African-Americans in the workforce — accounting for 11% of all Americans aged 16 years and older who were employed or looking for work. (About 16 million were actually employed in 2008.)
- The African-American workforce is younger than the total workforce, with 64% under age 45, compared to 59% of all workforce participants.
- More African-Americans worked in the education and health services sector than in any other industry sector. In 2008, there were about 4.5 million African-Americans — more than one in four in the labor force — working in education and health services.
- More than half of the African-Americans in the workforce in 1970 had less than a high school diploma. By 2008, that figure had declined to about one in 10.
- The percentage of African-Americans in the workforce educated beyond the high school level increased from 16% in 1970 to 54% in 2008.
- Unemployment rates fall as education attainment increases. In 2008, the unemployment rate for African-Americans 25 years and older without a high school diploma was nearly 15%, while the jobless rate for college graduates was 4%.

Source: www.bls.gov/spotlight/2009/african_american_history