



Views You Can Use

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Education Trends

Sweeping Cutbacks Continue to Disrupt Schools

Despite stimulus money flowing into districts across the country, schools are still in dire straits, laying off thousands of teachers and shuffling others into unfamiliar grade levels. The result has been increasing class sizes and a lack of effective instruction.

Hundreds of districts across California laid off a total of more than 20,000 teachers, according to the California Teachers Association. Los Angeles Unified, the nation's second largest district, cut 2,150 teachers, counselors, and administrators. The district had originally sent layoff notices to 8,850 staff members, but stimulus money allowed the district to rehire about 6,700. The average number of students per teacher in Los Angeles this year is more than 40. Schools in some states, such as Arizona, have as many as 50 students per teacher. In Michigan, 29 Detroit schools were closed, leaving 1,000 teachers and 700 other staff members out of work.

Source: www.nytimes.com/2009/09/08/education/08school.html?pagewanted=2

U.S. Students Need More Math and Science to Compete Globally

A special report, released by the U.S. Department of Education, confirms what many educators already know: American students need more and better science and math instruction if they are to compete successfully in the global market. The report compares 15-year-old U.S. students with peers from other countries in the Organization for Economic Development. In math, U.S. high school students were in the bottom quarter of the countries that participated, behind such countries as Finland, China, and Estonia. According to the report, the U.S. math scores were not measurably different in 2006 from 2003. While other countries have improved, the United States has remained stagnant. In science, the United States ranks behind such countries as Canada, Japan, and the Czech Republic.

Education Secretary Arne Duncan said the U.S. status quo in math and science education will hamper the nation's ability to rebuild its economy. "I think as a real economic imperative we have to educate our way to a better economy," he stated.

Source: www.cnn.com/2009/US/08/25/students.science.math/index.html

Biotechnology

"Teachable" Software Diagnoses Heart Infection

Mayo Clinic researchers have developed "teachable" software designed to mimic the human brain to help them diagnose cardiac infection without an invasive exam. Patients implanted with

medical heart devices risk infection in the valves and chambers of the heart, which can be deadly. Diagnosis of such an infection, called endocarditis, usually requires inserting an endoscope down the esophagus, a procedure that has its own risks.

But researchers say the invasive procedure may soon no longer be necessary with the new artificial intelligence software, called Artificial Neural Network (ANN). The software mimics the brain's cognitive function, determining answers to situations depending on its accumulated knowledge. That knowledge, or "training," is provided by researchers, similar to how a person would "train" a computer to play chess, by introducing it to as many situations as possible. In this case, ANN underwent three separate trainings to learn how to evaluate the symptoms it would be considering. When tested retrospectively on cases with known diagnoses of endocarditis, the best-trained ANN was correct nearly all of the time (72 of 73 implant-related infections and 12 of 13 endocarditis cases).

Source:

http://medgadget.com/archives/2009/09/mayo_clinic_utilizes_neural_networks_to_diagnose_endocarditis_1.html

Brain Research Trends

Multitasking Brings New Meaning to Irrelevancy

People who multitask in a variety of media, such as texting, instant messaging, online video watching, talking on the phone, and word processing, do worse on tests in which they need to switch attention from one task to another than people who rarely multitask in this way, according to a new study by Stanford University. One reason, according to the findings, is that heavy multitaskers are more easily distracted by irrelevant information than people who aren't constantly in a multimedia frenzy. "They're suckers for irrelevancy," said Clifford Nass, professor of communications and one of the study's authors. "Everything distracts them."

The researchers gave 262 college students a questionnaire about what types of media they used and how often they used them simultaneously. The participants then took a series of tests in which they had to categorize words, evaluate the position of red triangles on a computer screen (while ignoring blue ones), switch back and forth between classifying letters and numbers, or press a button when there was a match between two letters presented at different times. Compared with those who rarely used more than one type of media at a time, heavy multitaskers had slower response times, most often because they were more distracted by unrelated information and because they retained that useless information in their short-term memory, the study found.

Sources: www.cnn.com/2009/HEALTH/08/25/multitasking.harmful/index.html

<http://news.stanford.edu/news/2009/august24/multitask-research-study-082409.html>

Technology Trends

Rover Brings Bottom of the Sea Up Close

A new robot that was deployed on the deep seafloor just off the coast of California is helping scientists answer some key oceanography questions and document in real time the effects of climate change on the bottom of the ocean. The Benthic Rover was built at the Monterey Bay

Aquarium Research Institute. About the size of a compact car, the Benthic Rover moves slowly across the seafloor, photographing animals and sediment in its path and taking measurements of various organisms. During its month-long journey in July, the robot was connected by a long extension cord to a new underwater observatory. The connection provided power for the robot and a high-speed data link back to shore in real time, allowing researchers to control the vehicle.

Building the Benthic Rover presented challenges, including designing it to survive where the seawater pressure is about 6,000 pounds per square inch. To keep the 3,000-pound rover from sinking into the mud, the engineers outfitted it with large yellow blocks of buoyant foam so that it weighs only 100 pounds in seawater.

Source: www.mbari.org/news/news_releases/2009/rover/rover-release.html

Global Trends

Global Cooperation Needed to Combat Global Destruction

The world faces a compounding series of crises driven by human activity, which governments and other institutions are increasingly powerless to manage, according to a warning issued by an international group of eminent environmental scientists and economists in a recent paper published in the journal *Science*. Saying that nations alone are unable to resolve the sorts of planetwide challenges now arising, the researchers are calling for countries to work together to develop a new order of cooperative international institutions capable of dealing with issues, such as climate change, energy and water crises, declining fisheries, and emerging diseases. While there are signs of emerging global action on issues such as climate change, there is widespread inaction on others, such as the destruction of the world's forests to grow biofuels or the emergence of pandemic flu.

Source: www.physorg.com/news171883610.html

By the Numbers

Latest back-to-school figures available from the U.S. Census Bureau include the following:

- Number of K-12 students expected to have enrolled this fall — 56 million
- Private schools' share of the elementary to high school enrollment — 11%
- Minority makeup of K-12 student population as of 2007 — 42%
- Number of children ages 5-17 who speak a language other than English at home — 10.9 million
- Average number of children each month in the national school lunch program in 2008 — 31 million
- Number of public schools in 2006-07 — 98,793
- Number of public charter schools in 2006-07 — 3,970
- National average teacher's salary in 2006-07 — \$50,758
- Number of classroom computers in 2005-06 — 14.2 million
- Average per-pupil spending on public elementary and secondary education nationally in 2007 — \$9,666

Source: Scholastic Intranet News, Sept. 8, 2009

The International Center has just published a resource kit to help schools and districts educate their English language learners, *Closing the ELL Achievement Gap — A Leader's Guide to Making Schools Effective for Culturally and Linguistically Diverse Students*.