



Views You Can Use

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Dear

In working with some of the best schools in the nation, we have found that they do not attribute their success to one defining initiative or program, but to an unrelenting passion and persistence in developing a culture to support rigor, relevance, and relationships for all students. We have collected models of exemplary schools that reflect such a commitment to excellence in two new resource kits: *Elementary School Profiles of Successful Programs* and *Middle Grades Profiles of Successful Programs*. Both kits, which are additions to the previously published *America's Most Successful High Schools — Case Studies and Resources on Best Practices*, detail successful schools and what makes them work, with examples of best practices from the schools. For more information, please visit <http://store.leadere.com/>

In the rest of this briefing memo, I share research on trends and technologies that will have an impact on education, learning, and life.

Sincerely,

Bill Daggett

Information Technology Trends

Note-Taking Goes High Tech with “Smart” Pen

The world's first “smart” pen could revolutionize how students, journalists, physicians, and others take notes. Pulse, essentially a computer in a pen developed by the startup company LiveScribe, holds a microprocessor, two gigabytes of memory to capture handwriting, a microphone that records sound, and a speaker with voice technology for feedback. The pen is used on special paper embedded with a dot positioning system. The notes can be stored and uploaded on a computer or they can be played back as voice audio when the note-taker taps on the ink on the dotted paper.

Pulse is a more advanced version of the LeapFrog Fly Pentop Computer, which is for children. With the LeapFrog technology, users can draw a calculator on paper and make it work by tapping the keys with the pen. A speaker in the pen plays back the results. Users also can draw a piano and play a tune on it.

Source: *The New York Times*, May 30, 2007

Biotechnology Trends

Computerized Pegboard for Brain Injury Recovery

A simple computerized pegboard has helped brain-injury patients rebuild their motor functions. Automated Pegboard gives the user a set of instructions to move shapes across a puzzle board and fit

them into specific spots. The computer monitors the time it takes for the user to process the instructions and then execute them. Software engineer Diego Guillen, who created the computer “game,” said it works because patients have to use their minds and bodies simultaneously, which is how all people learn motor functions as children.

Ramon Sanchez, a retired Army colonel, was one of the first patients to use the device after brain damage from a stroke that left him with memory lost, a limp, and debilitating pain across half his face and body. Since using the device, Sanchez, who underwent hundreds of hours of physical therapy and took numerous medications, said that he has regained much of his balance and the pain in his face has subsided.

Source: www.abqtrib.com/news/2007/aug/13/device-helps-those-brain-injuries-reclaim-their-li

The International Center has two new resource kits coming out this summer on applying brain research in elementary and secondary instruction.

Nanobiotechnology Trends

Taking the Side Effects Out of Chemotherapy

Researchers increasingly are becoming engaged in nanobiotechnology, a field of science that combines nanofabrication (the method of creating small-scale structures) with biology to create multifunctional devices at the subcellular and molecular levels. Far-reaching effects from this multidisciplinary work are expected to be seen in the not-so-far future, from new drug-delivery mechanisms to DNA-based computers. For example, in focusing on reducing toxic side effects of chemotherapy drugs, nanobiotechnology researchers at the Washington University School of Medicine have found a way to administer such drugs at doses that are a fraction of what are now used.

Fumagillin, a fungal toxin, recently has been seen as an effective cancer treatment in combination with other anticancer drugs. However, human trials have shown fumagillin to have neurotoxic side effects at the high doses required by standard methods. In their work, the researchers coated nanoscopic beads (500 times smaller than the width of a human hair) of an inert oily compound used in artificial blood with doses of fumagillin that were 1,000 times less than what typically is used. The amount appeared to be as effective as the conventional dosage, but with no adverse effects on lab animals. Clinical trials are expected to begin this year.

Source: www.medicalnewstoday.com/articles/102631.php

Battery Power as Thin as Plastic Wrap

Researchers at the Massachusetts Institute of Technology have “grown” the first biologically based nanoscale rechargeable battery that is as thin as plastic wrap and water resistant. The battery could end the era of short-lived cell phones and other computerized hand-held devices that often must be replaced if they drop on the ground or become submerged in water. The battery is composed of a virus engineered to latch itself to cobalt oxide, an element used in glass and ceramics industries. The researchers say the clear thin-film battery could one day be “painted” onto the object it is powering. The research could lead to small ultra-thin computer chips, fuel cells, and “smart” nanocrystal sensors.

Source: <http://web.mit.edu/newsoffice/2008/print/eureka-march-0311-print.html>

Education Trends

A Virtual Classroom for a New Generation of Engineers

Today's college engineering students have virtually no tinkering background, says Don Millard, Director of the Academy of Electronic Media at Rensselaer Polytechnic Institute. "Instead of taking apart circuits and building things with erector sets as I did, they manipulate computer software." To address this issue of "playing" to learn and to create a more flexible learning environment, Millard created the Mobile Studio, which combines lecture and lab work and allows students to work anywhere on or off campus.

The mobile studio is based on a combination of hardware and software that gives students functionality similar to a lab full of test equipment but in a package they can carry with them. Much like an iPod, the Mobile Studio is USB-based and gets its power from the computer. The hardware is a printed circuit board containing the components needed to implement a scope, function generator, spectrum analyzer, voltmeter, and digital I/O. The software, which runs on a standard PC, provides an output display. Equipment for the Mobile Lab costs about \$100.

Source: *EETimes*, Sept. 24, 2007

Students Flock Online to Take College Courses

Online college courses are becoming ever more popular, according to a 2007 report published by the Sloan Consortium, an online education association based at Babson College in Massachusetts. The study found that almost 3.5 million students were taking at least one online course during fall 2006. The trend is being set largely by community colleges that cater to nontraditional students who need a more flexible way to earn degrees. Discussion boards, reading material, e-mail, and audio lectures usually characterize Web-based courses at these community colleges. Many traditional universities also have added online courses in recent years, particularly in graduate programs geared toward working professionals. See "By the Numbers" for related statistics.

Source: http://seattlepi.nwsourc.com/local/348198_online22.html

International Center partner Penn Foster is one of the largest distance learning institutions in the world. Its new Online High School Diploma Program is accredited by Middle States Commission on Secondary Schools and the Accrediting Commission of the Distance Education and Training Council. To learn more, visit <http://penn-foster.com/highschool.html>

By the Numbers

Demand for online courses continues to grow.

- During fall 2006, nearly 20% of all college students in the country took at least one online course.
- Two-year schools account for more than half of the online enrollment, but students also are enrolling at online universities such as the University of Phoenix and Capella University in Minnesota.
- Proof of this growing demand for distance learning can be seen in Washington State, where the number of students taking online courses has jumped 75% in the last four years.

- In that state, there were almost 70,000 community college students enrolled in online courses during the 2006-2007 academic year. Just four years before that, there were fewer than 40,000 students taking classes online.

Source: http://seattlepi.nwsource.com/local/348198_online22.html