



Views You Can Use

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As noted under the “Education Trends” and “By the Numbers” sections, a new documentary details how students in the United States are falling behind China and India when it comes to education and economic opportunity in today’s global climate. Moreover, thousands of baby boomers are eligible for retirement beginning this year and it doesn’t appear that there will be enough younger workers, particularly in the field of information technology, to replace them (see “Information Technology” section). I will be talking about these and other critical topics — and what schools can do to turn the tide — at the 2008 Model Schools Conference on June 22-25 at the Walt Disney World Swan and Dolphin Resort in Orlando. For more information, please visit www.modelschoolsconference.com. I hope to see you there.

Sincerely,

Bill Daggett

Education Trends

From a Nation at Risk to a Nation Behind

The United States, considered “a nation at risk” in the 1983 government report of the same name, continues to fall fast behind other nations in education and economic opportunity, according to a new documentary. Titled *Two Million Minutes*, the film takes a look at how U.S. students allocate their high school years (approximately four years or two million minutes) compared with students in India and China. The documentary demonstrates that students in the U.S. spend much less time on education and thinking about career opportunities than their global peers in India and China. It examines the implications this may have on the future of the United States in the 21st century global economy. The film documents the lives of two students from each of the three countries to compose a global snapshot of education from the viewpoint of the students preparing for their future.

Conceived by high-tech entrepreneur and venture capitalist Robert Compton, the documentary is part of the ED in ’08 Campaign, which aims to push the federal government toward big changes in U.S. schools. Backers include the Bill & Melinda Gates Foundation. Film crews recorded high school seniors in the U.S., India, and China in 2005-06.

Source: <http://2mminutes.com/pressblog6.html>

The International Center’s forthcoming resource kit, Making Grade 12 Meaningful, will help schools with one area that contributes to the problem: what amounts to a wasted year for many students.

Nanobiotechnology Trends

Nanogel for Spinal Cord Injuries

After a spinal cord injury, nerve fibers that have the capacity to regenerate don't because they are blocked by scar tissue that develops around the injury. This often leads to permanent paralysis. Northwestern University researchers have developed a nano-engineered gel that inhibits the formation of scar tissue at the injury site and enables the severed spinal cord fibers to regenerate and grow. The gel, injected into the spinal cord, self-assembles into a scaffold that penetrates the site of the injury and supports the new nerve fibers as they grow up and down the spinal cord. When the gel was tested on mice with a spinal cord injury, after six weeks the animals had a greatly enhanced ability to use their hind legs.

Source: www.northwestern.edu/newscenter/stories/2008/04/SpinalCordInjury.html

Nanomaterial Provides Adaptability for Medical Applications

A team of researchers has created an adaptable nanomaterial that can switch from a hard plastic to a soft rubber-like material. The nanomaterial could have many bioengineering and medical applications, including improving electrode devices that are implanted in the brains of patients suffering from Parkinson's disease and other neurological disorders in an effort to restore functions. One current difficulty of such experimental treatments is that, although the electrodes need to be hard to be inserted in the brain correctly, the stiff material can create scarring, which impedes the electrical signals over time.

The team used cellulose nanofibers in a polymer matrix in which hydrogen bonds hold together the fibers, making a stiff plastic. But after water is added, the nanofibers become unglued to form a soft rubbery substance. The researchers, from the Case School of Engineering and the Louis Stokes Cleveland Department of Veterans Affairs Medical Center, were inspired by the sea cucumber, whose soft skin quickly becomes hard in the face of danger. The animal's skin consists of tiny fibers of collagen embedded in a softer matrix. When the animal secretes certain chemicals, the fibers form bonds and the skin stiffens.

Sources: www.nytimes.com/2008/03/11/science/11obcuke.html?pagewanted=print
www.sciam.com/article.cfm?id=deep-sea-denizen-inspires&sc=rss

Information Technology Trends

The Brain Drain and Retiring Baby Boomers — What's the Connection?

This year, the oldest baby boomers are eligible for retirement, meaning that the number of people leaving the workforce will soon surpass the number of those just starting out. Particularly in information technology, there is not a big influx of new talent. According to the Computing Research Association, computer science enrollments dropped 14% each year between 2004-06. Yet, many IT businesses are not taking seriously what many experts see as a "brain drain" of technology knowledge and skills.

In a 2006 survey of 488 companies conducted by Buck Consultants LLC, less than half (42%) of the respondents said that the aging workforce was a significant issue and 29% said it had little or no significance. In a nationwide study of 550 human resources managers conducted by Monster.com last summer, only 12% of the respondents said they consider knowledge retention a high priority within their companies, even though one-third said they expect at least 20% of their workforce to retire in the next decade.

One reason for the lack of worry about the IT worker exodus is that there isn't a very large population of older IT workers, says Peter Capelli, author of *Talent on Demand: Managing Talent in the Age of Uncertainty*. "It's mostly a young person's game," he says. Still, he adds, companies are doing little to plan for and then meet their demands for talent.

Sources:

www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9073358&pageNumber=3

www.amazon.com/gp/reader/1422104478/ref=sib_dp_pt#reader-link

New Venue for Selling Music: Video Games

Record companies have one more reason to embrace digital downloading as the future of the music industry: video games. Video games as a channel for selling music has been around for a few years, with music-based games, such as Rock Band and Guitar Hero III, selling millions of songs that players can download for a fee to play the games. But, in those games, purchased songs can be used only for the games themselves. They can't be transferred to an MP3 player or stored in users' digital music files.

Enter Grand Theft Auto IV, a video game with an interactive storyline that features a soundtrack of more than 200 songs. It is one of the latest video games that include a “buy button” feature that allows players to click on any song in the soundtrack to receive more information about the title and artist, as well as store songs in a custom playlist on a digital music store for later purchase.

Source: <http://uk.reuters.com/articlePrint?articleId=UKN0430077120080505>

Brain Research Trends

Imaging Technology Debunks the 10% Brain Theory

The increasing use of imaging technologies to map the brain's various regions and functions has given scientist ample ammunition to debunk the popular myth that people only use 10% of their brains. In fact, we use virtually every part of our brains and nearly every part of the brain is active most of the time, according to Barry Gordon, neurologist at Johns Hopkins School of Medicine. Although it's true that at any given moment all of the brain's regions are not firing concurrently, brain researchers using imaging technology have shown that, like the body's muscles, most are continually active over a 24-hour period, even in sleep.

Source: *Scientific American*, Feb. 7, 2008

Three experts in brain research and education will be presenting at the 2008 Model Schools Conference: Paul D. Nussbaum, clinical neuropsychologist; Susan Kovalik, founder of the Center for Effective Learning; and CEL associate Linda Jordan.

Economic Trends

Food vs. Fuel

As food prices steadily climb throughout much of the world — and out of control in some countries — some see the culprit as the makers of biofuel, which increasingly are vying for more of a share of corn crops. The higher demand for ethanol has driven up the price of corn, which has a domino effect on several other agricultural products. The demand encourages farmers to plant more corn and less of other crops, which then become more expensive. Livestock producers who rely on grain to feed their animals see their expenses rise and raise meat prices.

Some members of the U.S. Congress are calling for the EPA to roll back the Renewable Fuels Standards, which calls for fuel companies to blend nine billion gallons of corn ethanol this year. The amount is expected to increase to 15 billion gallons by 2015. Some lawmakers, however, say the connection between fuel and food is not valid. The cause of high food costs, they say, has more to do with rising costs of oil and worldwide drought conditions.

Source:

www.redorbit.com/news/science/1375786/food_vs_fuel_debate_heats_up_in_washington/index.html#

By the Numbers

According to a new documentary, *2 Million Minutes*, lack of focus on education is putting the U.S. in jeopardy when it comes to global competition.

- Less than 40% of U.S. students take a science course that is more rigorous than general biology.
- Only 18% take advanced classes in physics, chemistry, or biology.
- Only 45% take math coursework beyond two years of algebra and one year of geometry.
- 50% of all college freshmen require remedial coursework.
- Compared to the U.S., China now produces eight times more scientists and engineers, while India prepares three times as many as the U.S.

Source: <http://2mminutes.com/pressblog6.html>

A PreConference and a featured session at the Model Schools Conference will focus on issues related to science, technology, engineering, and math.