



Views You Can Use

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As you will see in the “By the Numbers” section, individuals with advanced degrees earn four times more than those with less than a high school diploma, according to the U.S. Census Bureau. Yet, every day nearly 2,500 students drop out of high school, according to federal Department of Education estimates. At the International Center’s 16th Annual Model Schools Conference, on June 22-25 at the Walt Disney World Swan & Dolphin Resort in Orlando, you will hear from schools that have engaged students in a rigorous and relevant education that has kept them on track to graduation and guided them toward a successful future. For more information, visit www.modelschoolsconference.com

Sincerely,

Bill Daggett

Biotechnology Trends

Testing Service to Determine Risk of Developing Alzheimer’s Disease

This spring, Smart Genetics plans to launch Alzheimer's Mirror, a genetic testing service to help people determine their risk of developing late-onset Alzheimer's disease. The Philadelphia-based company will mail customers a test kit with a container to spit in. The kit is then sent to a lab for analysis, which focuses on the presence of APOE ε4, a form of the APOE gene that increases the lifetime risk of getting late-onset Alzheimer’s. On the other hand, inheriting the APOE ε2 gene form decreases the lifetime risk. The service, which will cost \$399, also will involve access to education, genetic counseling, and support services.

Sources: www.msnbc.msn.com/id/23383581/, www.alzheimersmirror.com/home.php

Activating Protein to Kill Tumor Cells

University of Michigan researchers have designed a small molecule, called MI-219, that activates a certain protein to kill tumor cells. Protein p53, which normally helps suppress tumors, is inactivated in almost all human cancers. About half the time, p53 does not do its job because the gene that holds the protein is mutated or missing altogether. The rest of the time, another protein, called human MDM2, is the culprit. It binds to p53, inhibiting the tumor suppressor function and promoting cancer development.

Traditional cancer drugs also activate p53 but they do so by causing DNA damage. They kill not only tumor cells, but also normal cells, resulting in severe side effects. The molecule targets only cancer growth. The molecule is ideal for drug development because it can be incorporated into a pill, and it appears to be safe for use in animals, according to the researchers. The university has filed a patent application for MI-219 and its related molecules.

Source: www.med.umich.edu/opm/newspage/2008/cancerid.htm

Using Wii Technology to Connect Cognition and Movement

Researchers at the University of Memphis have integrated the motion sensing technology of Nintendo's Wii with a laboratory computer to extract new information about the connection between cognition and action. Interested in how arm movement changes as people become better at a task, the researchers demonstrated that body movements changed systematically along with change in mental processing as the task was being learned. While individuals typically get better at moving in tasks that require intricate motion (such as learning to use chopsticks), these results suggest that body movements are related to learning other information as well.

In the lab experiment, the researchers continuously tracked the position and acceleration of participants' arms and other body movements as they learned to match unfamiliar symbols into pairs. As the participants learned, their bodies reflected the confidence of that learning. The results suggest that when the body accompanies more complex learning experiences in school or at work, it can reflect that underlying process of learning. The research could lead to adaptive computer technologies that extract information about a user by focusing on body dynamics.

Source: www.sciencedaily.com/releases/2008/03/080304200905.htm

Information Technology Trends

Trust Any Computer, Anywhere, Anytime

Australian researchers have developed technology that minimizes the risk associated with performing transactions in unknown computing environments. Trust Extension Device (TED), developed by the Commonwealth Scientific and Industry Research Organisation (CSIRO), combines new software with a portable storage device, such as a USB memory stick or cell phone. The prototype demonstrates that people can use TED to undertake trusted transactions over the Internet from any computer.

The concept behind TED is that an enterprise issues a trusted customer a portable device containing a small operating system, as well as a set of applications and encrypted data. The technology provides a way to facilitate trusted transactions and provide authorized people, such as doctors and company executives, with access to confidential information. "The problem is that trust is currently tied to specific, well-known computing environments," says CSIRO researcher John Zic. "TED makes that trust portable, opening the way for secure transactions to be undertaken anywhere, even in an Internet café."

Sources: www.csiro.au/resources/ps3x4.html, www.medicalnewstoday.com/articles/97988.php

Global Trends

Clean Coal Agreement Between China and Australia

Australia and China signed a formal international agreement in March that focuses on clean coal research. China's Thermal Power Research Institute will install, commission, and operate a post combustion capture (PCC) power plant in Beijing as part of a research program initiated by Australia's Commonwealth Scientific and Industry Research Organisation.

The PCC process uses a liquid to capture carbon dioxide from power station flue gases. It is a key technology that can potentially reduce carbon dioxide emissions from existing and future coal-fired power stations by more than 85%. Flue gases leaving a power station are cooled and then pass through an absorbing solution, which contains a chemical that captures carbon dioxide. The carbon dioxide is removed from the absorbing solution by steam, allowing the absorber to be reused. The carbon dioxide is then compressed and cooled to form a liquid, which can be buried underground. The process is designed to capture 3,000 tons of carbon dioxide from the power plant per year.

Source: www.csiro.au/news/AgreementWithChina.html

Record Low Child Mortality Worldwide

Child mortality around the globe has reached a record low, according to *The State of the World's Children* report released by the United Nations Children's Fund, or UNICEF. The number of child deaths for 2006 has fallen below 10 million for the first time in recent history. The drop is attributed to vaccines, health education, mosquito nets, and vitamin A. Progress has been made in countries in every region of the world, according to the report. Since 1990, China's mortality rate for children under 5 has declined from 45 deaths for every 1,000 live births to 24 per 1,000, a 47% reduction. India's mortality rate for children under 5 has declined by 34%. The overall rates in six countries – Bangladesh, Bhutan, Bolivia, Eritrea, the Lao People's Democratic Republic, and Nepal – were reduced by 50% or more since 1990, although the under-5 mortality rates in these countries remain high. Ethiopia achieved a nearly 40% reduction since 1990. Almost 75% of the 62 countries that made little or no progress in this area, largely due to HIV and AIDS, are on the African continent.

Source: www.unicef.org/sowc08/docs/sowc08.pdf

Education Trends

Neuroscience Can Play an Important Role in Teaching, Educators Say

Although teacher training programs generally omit the science of how people learn, a majority of educators in the United Kingdom say neuroscience could make an important contribution in key educational areas, according to a survey, *Perceptions of the Role of Neuroscience in Education*, commissioned by The Innovation Unit, an education and children's services agency based in London, and carried out by Bristol University.

More than 85% of teachers and other educators said they thought it was important to consider the workings of the brain in education practice. Teachers believed that both mainstream and special education teaching could benefit from the neuroscientific insights emerging from modern scanning techniques, such as functional magnetic resonance imaging (fMRI).

Source: www.bristol.ac.uk/news/2007/5668.html

By the Numbers

People with advanced degrees earn four times more than those with less than a high school diploma, according to the most up-to-date data from the U.S. Census Bureau. Related statistics include:

- Adults 18 and older with a master's, professional, or doctoral degree earned an average of \$79,946, while people with less than a high school diploma earned an average of \$19,915.
- Adults with a bachelor's degree earned an average of \$54,689 in 2005, while those with a high school diploma earned an average of \$29,448.
- In 2006, 86% of all adults 25 and older reported they had completed at least high school. Of that percentage, 28% said they had attained at least a bachelor's degree.
- High school graduation rates for women and men who are 25 and older are 86% and 85%, respectively. However, a slightly larger proportion of men held a bachelor's degree or higher (29% compared with 27% of women).
- Non-Hispanic whites had the highest proportion of adults with a high school diploma or higher (91%), followed by Asians (87%), blacks (81%), and Hispanics (59%).
- Minnesota and Alaska had the highest proportions of people 25 and older with a high school diploma or higher (93%).
- The District of Columbia had the highest proportion of people 25 and older with a bachelor's degree or higher (49%).

Source: www.census.gov/apsd/techdoc/cps/cpsmar06.pdf