



## Views You Can Use

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Our K-8 Math Academy has reached capacity; therefore, registration is now closed. This is the fifth International Center event in a row that has sold out. We anticipate the same will happen with the 2007 Model Schools Conference, June 30-July 3 in Washington, D.C., so I encourage you not to delay in registering and making your hotel reservations. The Model Schools Conference marks our 15<sup>th</sup> year of bringing together the best models of school improvement, the nation's leading educators, and the most successful practices to make a difference in K-12 education. Please see the link on the navigation bar on the right. Online registration is available.

Sincerely,  
Bill Daggett

## Education Trends

**Focusing on What Is Truly Essential.** Recent pronouncements by the National Council of Teachers of Mathematics and the National Research Council call for more emphasis on a smaller number of "significant... targets" and "core ideas" in K-8 curricula. In states such as Indiana and Wyoming education leaders are working to provide more direction on what is considered essential versus nice- to-know content.

Source: *Education Week*, Oct. 16, 2006.

**Language-Rich Environment Key to Academic Development.** As the debates over NCLB requirements and the achievement gap continue, a recent article in *The New York Times Magazine* recalled research by Betty Hart and Todd Risley started in the mid-1960s that studied the preschool language development of children from various socioeconomic backgrounds. The study indicated that the amount and type of talking, coupled with vocabulary-rich home environments and socially engaging conversations (how often the discussion toggles back and forth between parent and child), appeared to increase the linguistic, social, and cognitive development of children regardless of socioeconomic differences.

Source: *The New York Times Magazine*, November 26, 2006, and [www.childrenofthecode.org/interviews/risley.htm](http://www.childrenofthecode.org/interviews/risley.htm).

## Information Technology Trends

**Multitasking in the Digital Age.** The Internet generation's capacity to conduct multiple Instant Messenger conversations while listening to an iPod, using Google to research a PowerPoint presentation, shuffling among multiple open screens in Windows, talking on a cell phone, e-mailing a Word file to a colleague, all while watching this week's episode of "The Office" on TV, is taking multitasking and attention spans to unprecedented levels. Scientists at organizations such as the Institute for Neurological Disorders and Stroke are studying the impact on multitaskers' cognitive abilities, social skills, creativity, downtime, and general perceptions of the world around them. Some researchers regard the new era of digital multitasking as an advantage while others warn that such cognitive juggling could lead to loss of the ability to concentrate and cause mental restlessness.

Source: "The Multitasking Generation." TIME.com Sunday, March 19, 2006.

**The Library of Knowledge Housed in Cyberspace.** The Royal Library of Alexandria in Egypt, built around 300 BCE, housed a significant percentage of the world's then-recorded knowledge on perhaps hundreds of thousands of scrolls. Google gave life to a similar vision when it announced plans in 1994 to scan the collections of five of the world's greatest libraries. The endeavor, an ongoing partnership with several universities and other libraries, includes scanning in items in the public domain — an estimated 32 million books, 750 million articles and essays, 25 million songs, 500 million images, 500,000 movies, and an uncounted number of Web pages. The project eventually will entail extracting, indexing, and linking all of the collected works so the database becomes a seamless network of human letters and creativity.

Source: "Scan This Book!" *The New York Times Magazine*, May 14, 2006, 42ff

## Biotechnology Trends

**What Is a Disease?** Defined five years ago, metabolic syndrome is considered a disease; symptoms include high blood pressure, high blood sugar, high triglycerides, low HDL ("good" cholesterol), and, most significantly, obesity. Critics suggest that the condition is a "manufactured disease" devised by drug companies that see obesity as a huge growth market. Although major health organizations, such as the World Health Organization and the National Institutes of Health, officially recognize the condition, there are significant disagreements about the numbers of Americans afflicted with metabolic syndrome, from a low of 42 million to as many as 84 million. Skeptics, such as the American Diabetes Association, question the legitimacy of this syndrome, saying it could be merely a lifestyle issue that medical professionals already know how to treat.

Source: *Wired*, October, 2006, p. 152ff

**New Stems of Hope.** Finding alternative sources of embryonic stem (ES) cells for genetic research has become a major focus of biotechnology research. When ES cells are removed from blastocyst (the structure formed in the early stages of embryo development in mammals), that structure loses its ability to develop into a placenta and embryo. This interruption of normal cell development is the reason why some people object to the use of such cells in medical research. One alternative researchers are exploring to establish ES cell lines is using a single-cell biopsy technique similar to that used in the diagnosis of genetic defects. In initial laboratory experiments, the process of removing a single cell from the blastocyst does not cause the host structure to lose its genetic "markers" and so does not inhibit continuing growth

and development. Yet, the process produces a line of ES cells that appear to retain their ability to form derivative cells and that, therefore, potentially can be used in stem cell research.

Source: *Nature* 439, 216-219, January 12, 2006.

[www.nature.com/nature/journal/v439/n7073/abs/nature04277.html](http://www.nature.com/nature/journal/v439/n7073/abs/nature04277.html)

**Your Move.** Scientists are building DNA molecules that mimic the logic operations performed in silicon-based computers. Hairpin-shaped strands of DNA, called gates, have been designed to respond "yes" or "no" to specific inputs. One result is a simple device made of DNA housed in test tubes that can win a game of tic-tac-toe. The device demonstrates the increasing sophistication of DNA computing, which could lead to advanced biomedical detectors or drugs that can recognize certain pathogens or cells.

Source: <http://www.newscientisttech.com/article/dn10310-dna-computer-is-unbeatable-at-tictactoe.html>

## Nanotechnology Trends

**Have a Nanotech Holiday Season.** Nanotechnology research has been ongoing for 20 years and has found commercial application in electronic, cosmetic, recreational, automotive, and medical products. Now, just in time for holiday shopping, the nanotechnology advocacy group Project on Emerging Technologies has compiled an inventory of 200 nanotech commercial products. The inventory includes the new AccuFLEX Evolution line of golf clubs, the first-ever shaft to be incorporated with nanocomposite (a combination of nanomaterials) technology. To quote the manufacturer, the nanotechnology employed in these clubs "increases the surface area of the shaft thereby creating a tighter molecular structure, allowing fewer voids in the fiber, tighter tolerances and lighter weight with more fiber density. Nanocomposite shafts are ... stronger, [and] have faster recovery with less shaft deformation while transmitting better feel." View the complete nanoproduct inventory, including air purifiers, antibacterial socks, cosmetics, and a wireless mouse at [www.nanotechproject.org/index.php?id=44&action=view](http://www.nanotechproject.org/index.php?id=44&action=view)

**High Tech for High Touch.** Chemists at the Massachusetts Institute of Technology have developed a coating that reportedly destroys the flu virus on touch. The experimental bristly polymer substance, which is applied like a paint, could have uses in public spaces such as hospitals and airplanes that attract bacteria, including *E. coli* and *Staphylococcus aureus*. Such bacteria collect on doorknobs and other high-touch surfaces.

Source: *Proceedings of the National Academy of Sciences USA*, November 13, 2006

## Economic Trends

**A Not-So-Good Mortgage Rate.** Mortgage debt has become an American addiction, according to some critics of current lending and borrowing habits. In exchange for "easy money," far too many consumers are willing to trade off a lifetime of debt against assets that may have diminishing value. Since 2003, mortgages have accounted for more than 50 percent of bank loans in the U.S. — about \$300 billion in 2005 alone. Almost half of all people buying their first home last year did so with no down payment, and many with "interest only" loans or worse. This has amounted to an \$11.8 trillion debt in outstanding mortgages in a market that has seen median house prices inflate to almost double since 1995. The result is potentially an artificially high-priced housing market with overall negative equity, a condition that could ultimately result in severely depressed housing values.

Source: *Fortune*, Sept. 4, 2006, pp. 130ff.

**Chinese Food for Thought.** Some globalists describe emerging Asian economic powers such as China with awe and even envy, but a closer look at China's economic dynamics adds perspective and balance. Although the country now has more than 300,000 millionaires (in U.S. dollar amounts), it also is home to more than 400 million people living on less than \$2 a day. Chinese gross domestic product per capita was \$1,700 in 2005, compared to \$42,000 in the U.S.

Only about 15 percent of China's land is arable. The country also has 16 of the world's most polluted cities. Complicating China's demographics are a falling total fertility rate (down to 1.8 per woman in 2002 from 6.1 in 1949; 2.1 is considered sustaining) and rising longevity (the U.N. projects that by 2040, 28 percent of the total Chinese population will be over 60, which will represent one quarter of the world's then over-60 population). Moreover, China lacks an effective pension system.

Source: *China: The Balance Sheet* © Center for Strategic and international Studies. Public Affairs/Perseus Books Group (New York, 2006).

## **By the Numbers**

The ten largest U.S. universities in terms of undergraduate and graduate enrollments on a single campus as of fall 2006 were:

1. 51,818: Ohio State University - Columbus
2. 51,234: Arizona State University - Tempe
3. 50,785: University of Florida - Gainesville
4. 50,402: University of Minnesota Twin Cities - Minneapolis/St. Paul
5. 49,738: University of Texas at Austin - Austin
6. 46,719: University of Central Florida - Orlando
7. 45,487: Texas A&M University - College Station
8. 45,166: Michigan State University - East Lansing
9. 44,038: University of South Florida - Tampa
10. 42,914: Pennsylvania State University - University Park

Sources: [http://en.wikipedia.org/wiki/List\\_of\\_largest\\_US\\_universities\\_by\\_enrollment](http://en.wikipedia.org/wiki/List_of_largest_US_universities_by_enrollment)