



## Views You Can Use

### Vol. VI No. 2

In this monthly briefing memo, which you have requested, my colleagues at the International Center for Leadership in Education and I share with you our research on trends and technologies that will have an impact on education, learning, and life.

Sincerely,  
*Bill Daggett*

### Health Trends

**“Hunger Hormone” Vaccine Could Help Prevent Obesity.** Findings that support a new approach to weight loss were published on July 31 by the Proceedings of the National Academy of Sciences. In clinical trials on rats, scientists have found that administering a vaccine against a “hunger hormone” named ghrelin allows the rats to eat as much of what they want without gaining weight.

More research on the vaccine is needed before it can be tested on humans. Dr. Kim Janda of the Scripps Research Institute in La Jolla, California, notes that human body’s control of hunger, metabolism, and weight is a complex system that involves the brain, nerves, and hormones.

If and when the vaccine becomes available for use on humans, it would likely be aimed at helping obese individuals whose weight “yo-yos” through periods of diet and exercise.

Source: Amy Norton, “Scientists Take Step Toward Obesity Vaccine,” *Reuters*, August 1, 2006.

[http://news.yahoo.com/s/nm/20060801/hl\\_nm/obesity\\_vaccine\\_dc](http://news.yahoo.com/s/nm/20060801/hl_nm/obesity_vaccine_dc)

Source: Proceedings of the National Academy of Sciences Early Edition, online July 31, 2006.

**The Future of Medicine.** The August 2006 issue of *Popular Science* identifies six health care ideas that are poised to revolutionize the field of medicine. These ideas are radically different from one another except in one respect: they are being researched and developed at the cellular level, which is ground zero for disease. Following is a brief description of each. Click on the link below to access the article Web page and then click the “View Photos” icon for more detail.

1. “Precision-Guided Tumor Killers” – Particles containing miniscule amounts of chemotherapy drugs target only cancer cells, leaving healthy bystander cells unscathed. Available around the year 2014.
2. “The Nano-Knitters” – Chain-like strands of amino acids have shown the ability to bridge the gap between severed nerve cells. Could allow sufferers of paralysis, stroke, and brain trauma to recover their motor functions. Available around 2010.
3. “Kryptonite for Flu” – M2 is a protein on the surface of nearly every known strain of influenza. Scientists say that an M2 vaccine would kick in a robust immune response that would weaken even the most virulent strains. Trials could begin in 2007.

4. “Brain Boosters” – Ampakines are a new class of drugs that may be able to improve the lives of Alzheimer’s patients and ward off the disease in others at risk. Clinical trials begin around 2009.
5. “The Genetic Slicer ‘N’ Dicer” – Another potential breakthrough in controlling obesity in humans involves a simple injection that could target and suppress the genetic material that fuels weight gain and coerce cells to burn more fat. Not available before 2010.
6. “Custom-Made Organs to Go” – Scientists at Wake Forest University announced in April the first custom-built bladders to be successfully transplanted into recipients. Their next goal is to grow viable kidneys, one of the most intricate organs in the human body. Available around 2016.

Source: Gregory Mone and Elizabeth Svoboda, “The [6] Biggest Ideas in Medicine,” *Popular Science*, August 2006.

<http://www.popsci.com/popsci/medicine/4b2ec6f39986c010vgnvcm1000004eecbccdrerd.html>

## Biotechnology Trends

**Final Human Chromosome is Mapped.** Human chromosome 1, the largest single unit of genetic material in the human genome and the final chromosome to be completely sequenced has been mapped by a team of British and American scientists. The sequencing of chromosome 1 took about 10 years to complete and was spearheaded by researchers at the Wellcome Trust Sanger Institute and Duke University Medical Center.

"Armed with this new information, researchers now have new tools for probing fundamental biological questions and examining the genetic factors involved in a range of diseases and medical conditions, including Alzheimer's disease, Parkinson's disease, cancer, autism and mental retardation," said Simon G. Gregory, Ph.D., assistant professor at the Duke Center for Human Genetics and lead investigator on the study. Human health and well-being is highly dependent on chromosome 1, genetic mutations to which more than 350 human diseases have been linked.

Researchers have also discovered that the regions of the chromosome with the highest concentrations of genes also have higher rates of recombination, which will help scientists to better understand the processes that contribute to genetic diversity among human populations.

Source: “Genetic Mapping Of Human Chromosome 1 Completed, Offering Insights Into Human Health,” *Duke University Medical Center*, May 17, 2006.

<http://www.dukemednews.duke.edu/news/article.php?id=9661>

## Globalization Trends

**The Fragility of China’s Economy.** China’s economy grew 11.3 percent in the second quarter of 2006, continuing its white-hot ascension in the global market. Even so, China’s position is fragile and if it were to “overheat” and begin spiraling into crisis it could make Asia’s 1997 meltdown seem small in comparison. China’s good fortune does not come without challenges, some of which are very similar to the ones Asia faced nine years ago. Because of these similarities, investors are concerned about the quality of Chinese growth. In reality, China’s economic expansion is powered by public spending and by investment from abroad. Just like Asia in 1997, there is little about China’s boom that’s self-sustaining.

It is widely believed that if China were to slow its growth, a crisis situation would be avoided and the rest of the world would be better off for it. The United States, for one, has a big stake in a Chinese soft

landing. U.S. corporations have found China's cheap labor and resources very profitable. China's central bank also holds \$326 billion of Treasuries, keeping U.S. interest rates low and consumer confidence high.

Source: William Pesek Jr., "It's Feeling Eerily Like 1997 in China's Economy," *Bloomberg.com*, August 11, 2006.

[http://www.bloomberg.com/apps/news?pid=20601039&refer=columnist\\_pesek&sid=a0ooVrkNLYR8](http://www.bloomberg.com/apps/news?pid=20601039&refer=columnist_pesek&sid=a0ooVrkNLYR8)

## Education Trends

### **New Report: Poor and Minority Students Not Getting Their Share of Qualified Teachers.**

The Education Trust, an advocating group for poor and minority children, has concluded in a recent study that underprivileged and minority children have a disproportionate number of teachers who are unqualified, inexperienced or teaching unfamiliar topics. These findings indicate a violation of the No Child Left Behind law aimed to protect such students. The Education Trust reviewed new plans from every state and the District of Columbia. The report contends that states submitted incomplete data, weak strategies for fixing inequities across schools, and immeasurable goals. "We cannot close achievement gaps if we don't close gaps in teacher quality," said Ross Wiener, policy director of The Education Trust.

Following are some of the findings by Education Trust researchers:

- 40 states did not analyze whether minority students were being shortchanged.
- 18 states did not report whether poor kids get an unfair share of unqualified teachers.
- Virtually no state reported on whether poor or minority students had larger shares of "inexperienced" teachers. The law uses that term but leaves it open as to how to define it.
- Only three states reported complete data on the quality of teachers assigned to poor and minority kids. They are Ohio, Nevada and Tennessee. The report commends those states for steps they take to get quality, experienced teachers into at-risk schools.

The U.S. Education Department will release its own review of the state plans next week.

Source: Ben Feller, "Report Faults State Educators," *Associated Press*, August 10, 2006.

[http://news.yahoo.com/s/ap/20060810/ap\\_on\\_go\\_ca\\_st\\_pe/teacher\\_quality\\_1](http://news.yahoo.com/s/ap/20060810/ap_on_go_ca_st_pe/teacher_quality_1)

## *By the Numbers - Graduation Rates*

### **U.S. Gender Gap**

Males are consistently less likely to graduate from high school with a diploma than female students.

	<b>Graduation-Rate Percentage</b>					
	All Students	American Indian	Black	Hispanic	White	Asian
<b>Male Students</b>	65.2	42.7	44.3	50.1	72.4	73.1

<b>Female Students</b>	72.7	47.5	57.8	59.9	77.9	79.6
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### **Graduation Rates Depend On Community**

Students in urban districts are significantly less likely to graduate from high school.

<b>District Context</b>	<b>Graduation-Rate Percentage</b>
All Districts	69.6
Urban	60.0
Suburban	74.4
Town	70.5
Rural	73.1

### **When Are Students Lost?**

Nationally, more than one-third of students are lost from high school after 9<sup>th</sup> grade and significantly more so in high-poverty districts.

<b>Grade After Which Students Are Lost</b>	<b>Percentage of Student Loss</b>		
	<b>All Districts</b>	<b>Low-Poverty Districts</b>	<b>High-Poverty Districts</b>
9 <sup>th</sup> Grade	35	27	40
10 <sup>th</sup> Grade	28	24	27
11 <sup>th</sup> Grade	20	22	19
12 <sup>th</sup> Grade	17	27	14

Original Source: EPE Research Center, 2006

Secondary Source: "The Graduation Project, 2006," *Education Week*, June 22, 2006.