Views You Can Use

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Education Trends

Quality, Not Quantity, Is Key to Academic Excellence

To better prepare students for college and careers, high schools should focus on providing in-depth instruction of fundamental knowledge and essential skills rather than covering a large number of skills in less depth, according to the 2009 ACT National Curriculum Survey® findings. The findings suggest that U.S. high school learning standards are still not sufficiently aligned with postsecondary expectations. The skills and knowledge that college instructors expect entering students to have are more focused and specific than those that high school teachers view as important.

The ACT National Curriculum Survey, conducted every three to five years, collects data about what entering college students should know and be able to do to be ready for college-level coursework in writing, math, reading, and science. The results are used to help inform ACT's curriculum-based assessments (including EXPLORE, PLAN, and the ACT) to ensure that they meet the needs of college and career readiness.

The recently released Common Core Standards for College and Career Readiness developed by the National Governors Association and Council of Chief State School Officers are designed to help states provide a rigorous and relevant curriculum for every child. States applying for federal Race to the Top funding must demonstrate their commitment to four "assurances," the first of which is "Adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy."

The International Center has monitored the development of Common Core Standards closely and is committed to working with states and districts to implement them. Our Curriculum Matrix and National Essential Skills Study (NESS) data, as well as our Lexile and Quantile research, will be instructive to states in reviewing and integrating the new Common Core Standards. For more information, contact Dr. Carolyn Love carolyn@spnet.us

Sources: www.ednetnews.com/story-4090-3.html
www.act.org/research/curricsurvey.html.

http://www2.ed.gov/news/pressreleases/2010/03/03042010.html

APA: Asperger's and Autism One and the Same

Under guidelines proposed by the American Psychiatric Association (APA), Asperger's syndrome would no longer be a separate diagnosis. Instead it would be listed as part of the larger spectrum of autism disorders. The proposed change, up for public comment until April 20, would be included in the revised edition of the *Diagnostic and Statistical Manual of Mental Disorders*, which is used by health professionals and others. Asperger's is considered by most experts to be on the mild end of the autism spectrum, which is characterized by poor social

skills and restricted and repetitive patterns of behavior and interests. The APA lists Asperger's as a separate disorder in the current manual, published in 1994, because people with the disorder typically exhibit high language function and adapt well in mainstream society. Also, many children diagnosed with Asperger's are considered highly intelligent, or even gifted, and their parents don't want them labeled on the autism scale, which ranges from high functioning to severely disabled.

In making the change, the APA has said that Asperger's symptoms are part of the continuum of autism disorders and should therefore go under the same umbrella. Moreover, the APA said a separate diagnosis may prevent some children from receiving the assistance they need at school. Currently, states including California and Texas provide services to children with autism but not those with Asperger's.The proposed revisions also include new classifications for learning disorders. The new category "learning disabilities" will have the subcategories of dyslexia, a reading disorder, and dyscalculia, a math disorder. The manual is expected to be released in 2013.

Sources: www.cnn.com/2010/HEALTH/02/11/aspergers.autism.dsm.v/index.html
www.npr.org/templates/story/story.php?storyId=123527833

Girls and Minorities Underrepresented in STEM

A recent survey gave the U.S. K-12 education system an overall grade of D for doing a poor job in encouraging girls and minorities to study STEM (science, technology, engineering, mathematics) subjects. According to *The Bayer Facts of Science Education XIV* survey, the top three reasons for underrepresentation in STEM were a lack of quality science and math education programs in poorer school districts, persistent stereotypes that say STEM isn't for girls or minorities, and financial issues related to the cost of education. "If we want to achieve true diversity in America's STEM workforce, we must first understand the root causes of underrepresentation and the ongoing challenges these groups face," said Greg Babe, President and CEO of Bayer Corporation, which commissioned the survey. "We want to knock down barriers. If we can do that, we'll be able to develop the attitudes, behaviors, opportunities, and resources that lead to success."

The survey polled 1,226 chemists and chemical engineers: Caucasian, Hispanic, African-American, and Native American women and Hispanic, African-American, and Native American men. (See the "By the Numbers" section for more statistics related to the study.)

The International Center is co-hosting a STEM Conference in Wisconsin in August and ran a similar event in North Carolina in 2009. We are also working closely with NASA on piloting its expanded Explorer School program.

Sources: http://bayerfactsofscience.online-pressroom.com/
www.edweek.org/ew/articles/2010/03/22/27stem.h29.html?tkn=YWNFusE1skBr3KB72boAxO0iYIDnGbhhzD%2Ff&cmp=clp-edweek

Nanotechnology Trends

The Power Is on Your Sleeve

Researchers at Georgia Institute of Technology are developing a "power shirt" that can generate electricity through body motion. The energy generated in a prototype shirt is enough to power small electronic devices for soldiers in the field, hikers, and others. Researchers have detailed how pairs of textile fibers covered with zinc oxide nanowires can generate electrical current through the piezoelectric effect. The effect happens as particles acquire a charge when compressed, twisted, or otherwise distorted. The fibers also could be woven into curtains, tents, or other structures to capture energy from wind motion or sound vibration.

Source: http://gtresearchnews.gatech.edu/newsrelease/power-shirt.htm

Self-Cleaning Windows and Solar Panels

Using self-assembling protein-based nanotubes, scientists at Tel Aviv University have developed a material that could be used to make self-cleaning glass and solar panels. The discovery was made while conducting research on a cure for Alzheimer's. The researchers were experimenting on ways to control peptide (protein links) atoms and molecules in the plaque that forms in the brains of people with Alzheimer's. The researchers found a way to get peptides to self-assemble into an array of nanotubes, which look like a grass lawn at the nanoscale, in a vacuum. The resulting coating, which repels dust and water, would be useful for protecting windows and desert solar arrays from debris and also could be used as a supercapacitor, resulting in better lithium batteries.

Sources: http://www.infoniac.com/hi-tech/latest-invention-nanotechnology-to-help-create-self-cleaning-solar-panels.html
http://www.aftau.org/site/News2?page=NewsArticle&id=11125
http://news.discovery.com/tech/dust-be-gone-with-self-cleaning-solar.html

Technology Trends

Internet Enhances Human Intelligence

Most technology experts believe that the use of the Internet enhances and augments human intelligence, according to the *Future of the Internet IV* survey. The web-based survey gathered opinions from nearly 900 prominent scientists, business leaders, consultants, writers, and technology developers. More than 65% of respondents said that the use of the Internet has improved people's reading and writing ability. More than 75% agreed with the statement: “By 2020, people’s use of the Internet has enhanced human intelligence. As people are allowed unprecedented access to more information, they become smarter and make better choices." The survey is part of a series of Internet expert studies conducted by the Imagining the Internet Center at Elon University and the Pew Research Center’s Internet & American Life Project.

Source: http://pewinternet.org/Reports/2010/Future-of-the-Internet-IV/Overview.aspx?r=1

By the Numbers

Following are some additional statistics related to the survey that gave the K-12 school system poor marks in promoting STEM interest among girls and minorities. For the full story, please see the "Education Trends" section.

- Regardless of gender, race, or ethnicity, interest in science begins in early childhood. Nearly 60% of the survey respondents said they first became interested in science by age 11.

- More than 75% of the respondents said significant numbers of women and underrepresented minorities are missing from the U.S. STEM workforce today because they were not identified, encouraged, or nurtured to pursue STEM studies early on.

- During the elementary school years, 70% of the respondents said teachers have the most influence in stimulating and sustaining student interest. During high school, 88% said that teachers do.

- U.S. colleges were cited as the leading place in American education where discouraging an interest in STEM happens (60%). College professors were seen as the individuals most likely responsible for the discouragement (44%).