

## Education Trends

### ARRA Provides Funds for Parental Involvement

Part of the *American Recovery and Reinvestment Act of 2009* are guidelines for Title 1 funds aimed at getting parents more involved in their children's education. According to the U.S. Department of Education, parental involvement is a key component of every Title I program. With this in mind, about \$145 million has been set aside for programs that " support, incentivize, and help expand district-level, evidence-based parental involvement practices."

Such funds may be used for a range of activities designed to build the capacity of parents and school staff to work together to improve student achievement. For example, after providing an opportunity for parent input, a school may use Title I, Part A, ARRA funds to offer weekly courses to parents on strategies and materials they can use at home to help their children improve their reading skills. Other ways include expanding a parent resource room to increase the amount of bilingual materials, installing computers that parents can use to access online instructional materials, and making books and other materials available that parents can use to work with their children at home.

Sources: [www.examiner.com/x-36525-Chicago-K12-Examiner~y2010m5d5-Changes-in-ESEA-parent-involvement-programs](http://www.examiner.com/x-36525-Chicago-K12-Examiner~y2010m5d5-Changes-in-ESEA-parent-involvement-programs)  
[www2.ed.gov/policy/gen/leg/recovery/guidance/titlei-reform.pdf](http://www2.ed.gov/policy/gen/leg/recovery/guidance/titlei-reform.pdf)

*Research overwhelmingly shows that students whose parents are involved in their education are much more successful academically and throughout their lives. The International Center offers two resource kits to help schools increase parent involvement. Parent Involvement Action Packets for K-12 Schools, just published, provides 20 activities that schools can easily implement to increase parent involvement. Every packet contains step-by-step instructions, flyers for parents, and recordkeeping forms. If a school does not have a team in place to conduct these activities, Reaching the Hardest-to-Involve Parents (2004) is the place to start to establish a team.*

### Perceptions of Technology-Use in the Classroom

The more that K–12 teachers use technology, the more they recognize and value its positive effects on student learning and engagement. That is according to the *Educators, Technology, and 21<sup>st</sup> Century Skills: Dispelling Five Myths*, a report released by the Riley College of Education and Leadership. The college commissioned the survey of more than 1,000 U.S. K-12 teachers and school administrators to determine whether they believe that using technology benefits their students. The overall answer was yes, with the following findings, which sometimes appear contradictory.

Younger teachers newer to the profession were no more likely to use technology than teachers with 10 or more years of experience. Both teachers and administrators believe that technology helps them engage many different types of students, including high-achieving students,

students with academic needs, and English language learners. Most teachers do not believe that their preservice programs prepared them well in either technology or 21<sup>st</sup> century skills.

Still, according to the findings, there appears to be a disparity between teachers' overall positive view of using technology as an instructional tool and the amount of time that they spend using it. A lack of access wasn't the main reason why teachers don't use technology in their instruction. Nearly 50% said that the technology in question wasn't necessary for their lessons. There was also disparity between teachers and administrators' perception of technology use in the classroom. Administrators believe that teachers are using technology to support learning more than teachers report that they actually do. (Please see "By the Numbers" for more statistics.)

Sources: [www.eschoolnews.com/2010/06/29/research-dispels-common-ed-tech-myths](http://www.eschoolnews.com/2010/06/29/research-dispels-common-ed-tech-myths)  
[www.waldenu.edu/Degree-Programs/Masters/36427.htm](http://www.waldenu.edu/Degree-Programs/Masters/36427.htm)

*The International Center recently released a white paper titled, "Preparing Children for Their Technological Future." To view the paper, authored by Bill Daggett, please visit [www.leadered.com/pdf/Preparing%20Students%20for%20Tech%20Future%20white%20paper.pdf](http://www.leadered.com/pdf/Preparing%20Students%20for%20Tech%20Future%20white%20paper.pdf).*

## Technology

### FAA Approves First "Flying Car" for Registered Road Use

A lightweight aircraft that can convert into a car may take "stranded" out of the airport experience. With the new Transition Roadable Aircraft, otherwise known as the "flying car," one can simply land at the airport, fold up the aircraft's wings, and drive home. The flying car, developed by Massachusetts-based engineering firm Terrafugia, is set to go into production after being given the green light by the Federal Aviation Administration (FAA). Although there is, for example, an airplane that can change into a boat, the flying car is the first of its kind to be operated alongside other road-registered vehicles.

The FAA approved the flying car with a special exemption that will allow a maximum takeoff weight of 1,430 pounds, the same allowance made for aircraft designed to operate on water. Other planes in the class, called light sport aircraft, are limited to a maximum takeoff weight of 1,320 pounds. The additional weight of the flying car is for more safety features, such as a protective safety cage, air bags, and an energy absorbing crumple zone. The two-seat convertible aircraft, which can carry 450 pounds and has a range of about 460 miles, can cruise in the air at about 100 mph and travel as a car at highway speeds of 65-70 mph. The company already has 70 orders for the \$200,000 flying car.

Sources: [www.cnn.com/2010/TRAVEL/06/30/transition.flying.car/index.html?hpt=T2](http://www.cnn.com/2010/TRAVEL/06/30/transition.flying.car/index.html?hpt=T2)  
<http://www.india-server.com/news/worlds-first-flying-car-transition-15956.html>

### Need a New App? — Create Your Own

In an effort to promote and improve the functionality of its Android smartphones, Google has released an open-code application device, called the Google App Inventor for Android, so that the average person can customize new phone apps. Google hopes that by putting the free technology into the public domain, its products will become more user-friendly and diversified. "The goal is to enable people to become creators, not just consumers, in this mobile world," said

Harold Abelson, a computer scientist at the Massachusetts Institute of Technology who is on sabbatical at Google and led the project.

Users don't have to have a college degree in computer programming to use the web-based tool, which works by dragging and dropping blocks of code shown as graphic images. For the app tool to work, the phone must be connected to a computer with a USB link. Testing groups included middle and high school students, as well as nursing students and other noncomputer science majors. Examples of how the application tool has already been used include an automatic reply to text messages created by a college student. The message stated: "Please don't send me text messages. I'm driving." Another student used the phone's location sensor to create a program to let a select list of friends know where he is every 15 minutes.

The free application tool works only for phones that run Android software, and users must have a Google Gmail account. Google has also released two other tools — the Compatibility Definition Document and the Compatibility Test Suite — to help device manufacturers build compatible devices.

Sources:

[www.nytimes.com/2010/07/12/technology/12google.html?th=&emc=th&pagewanted=print](http://www.nytimes.com/2010/07/12/technology/12google.html?th=&emc=th&pagewanted=print)  
<http://source.android.com/>  
[http://en.wikipedia.org/wiki/Android\\_\(operating\\_system\)](http://en.wikipedia.org/wiki/Android_(operating_system))

## **Brain Research**

### **Cultured Brain Cells Taught to Keep Time**

The ability to tell and keep time plays an integral role in what we do every day — from recognizing speech patterns to creating music. Yet, no one knows how the brain keeps time. Researchers at the University of California, Los Angeles, have begun to unravel the mystery by showing that a network of neurons kept alive in a petri dish could be "trained" to keep time. The research will enhance understanding of how the brain works and how certain conditions that have resulted in time-keeping deficits, such as dyslexia, could be treated.

The neurons, derived from the brain of a rat, were trained to fire for specific amounts of time, depending on how long they were stimulated by electric current. The team stimulated two sets of neurons with simple patterns, which consisted of electric stimuli separated by different intervals lasting from a 20<sup>th</sup> of a second up to half a second. After two hours of electric stimulation, the scientists tested to see how each cell responded to just a single electrical pulse. In the networks trained with a short interval, the activity lasted for a short period of time. Conversely, in the networks trained with a long interval, network activity lasted for a longer amount of time. Based on the three-year study, scientists have hypothesized that the ability to distinguish time is more generalized in the brain, meaning that pockets of neurons throughout the brain are capable of keeping time on their own without tapping into a centralized area.

Sources:

<http://esciencenews.com/articles/2010/06/15/ucla.scientists.teach.cultured.brain.cells.keep.time>  
[www.livescience.com/health/brain-cells-keep-time-100618.html](http://www.livescience.com/health/brain-cells-keep-time-100618.html)

*Clinical neuropsychologist Paul Nussbaum is an International Center advisor and keynoter who covers the area of brain health lifestyle. An expert in neuroanatomy and human behavior, he*

has authored several books, including *What Brain Research Teaches about Rigor, Relevance, and Relationships*, co-authored with Bill Daggett and published by the International Center in 2008. For information on the book, please visit <http://store.leadered.com>. For information on Dr. Nussbaum as a keynote speaker, please contact [Lindsay@LeaderEd.com](mailto:Lindsay@LeaderEd.com).

## Nanotechnology Trends

### Hydrogen Fuel Cell Gets Boost with New Nanomaterial Development

Hydrogen is high in energy and produces almost no pollution. Yet, researchers have not been able to find a cheap and efficient way to store the gas, presenting a major obstacle in advancing hydrogen fuel cells for cars and other applications. Now researchers at Rensselaer Polytechnic Institute in upstate New York have developed a simple method for producing large quantities of graphene, a promising nanomaterial that could be used for such fuel cells.

Since graphene's discovery in 2004, researchers have been searching for an easy method to produce the atom-thick sheets of carbon arranged in a honeycomb structure in bulk quantities. By submerging graphite in a mixture of dilute organic acid, alcohol, and water, and then exposing it to ultrasonic sound, the Rensselaer team discovered that the acid works as a "molecular wedge," which separates sheets of graphene from the parent graphite. The process results in the creation of large quantities of undamaged high-quality graphene dispersed in water. The researchers used the graphene to build an ultra-thin energy-storage device. The material can store 14% of hydrogen by weight at room temperature, more than any other known material. It beats the U.S. Department of Energy's target of a material that can store hydrogen at 9% by weight.

Source: <http://news.rpi.edu/update.do?artcenterkey=2742>

### By the Numbers

The following statistics come from *Educators, Technology, and 21<sup>st</sup> Century Skills: Dispelling Five Myths*, released by the Riley College of Education and Leadership. (Please see "Education Trends" for the full story.)

- Of the classroom teachers surveyed, 22% said they use technology frequently (meaning 31% or more of class time); 17% said they were moderate users (21- 30% of the time); 26% were sporadic users (11-20% of the time); and 34% were infrequent users (10% or less).
- Elementary school teachers were less likely than secondary teachers to be frequent technology users: 15% of elementary teachers were frequent users and 43% were infrequent users, compared to 27% and 29% of secondary teachers, respectively.
- Among secondary teachers, social studies teachers were most likely to be frequent technology users (33%), while English teachers were least likely (16%).
- Of the teachers, 29% who said they used specific technology devices less than once a week in their classrooms cited lack of access as the primary reason, while 49% said the devices in question weren't necessary for their lessons.

Sources: [www.eschoolnews.com/2010/06/29/research-dispels-common-ed-tech-myths](http://www.eschoolnews.com/2010/06/29/research-dispels-common-ed-tech-myths)

[www.waldenu.edu/Degree-Programs/Masters/36427.htm](http://www.waldenu.edu/Degree-Programs/Masters/36427.htm)

*The International Center's upcoming K-12 School Reinvention Symposium – Where Best Practices Meet Next Practices, October 22-24, in Washington, D.C., will show how educators can utilize technology as a true teaching and learning tool.*