

Marshall Memo 244

A Weekly Round-up of Important Ideas and Research in K-12 Education
July 21, 2008

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Quotes of the Week

“While Asian kids are cramming at ‘exam cram schools’ and European youngsters are smoking Gitanes in sidewalk cafes, our students are engaged in [extracurricular] activities that give them the confidence to achieve in myriad ways – a taste of achievement they then carry into the world of work.”

Michael Petrilli (see item #3)

“How many unengaged students have you seen on the school newspaper staff or the debate team? In the chess club or the concert choir? Engagement occurs when students have choices in what they participate in and how, when they can interact in a goal-oriented environment with like-minded students, and when they are able to use authentic problem-solving, interpersonal skills, and creative learning strategies.”

Joseph Renzulli (see item #2)

“The instruction [struggling] children receive is often designed to determine what they can’t do, don’t like to do, and see no reason for doing. Then their teachers are told to focus on beating them to death with it.”

Joseph Renzulli (*ibid.*)

“I’m such a numbskull. I don’t think I could pass fourth-grade math.”

Allison Pennell, a Brooklyn, NY parent on her son’s homework (see item #7)

[T]he best part of mediation is seeing people who could be enemies be friends.”

A Rhode Island high-school student mediator (see item #5)

1. The Art of Nudging: Improving Decisions by Wise “Choice Architecture”

In this intriguing *Wharton Leadership Digest* article, Iowa-based business researcher Mark Hanna summarizes and reviews a new book by Richard Thaler and Cass Sunstein: *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Yale University Press 2008). Right up front, there’s a K-12 education example. The food-services director of a large public school system decided to experiment with displaying items in the cafeteria line in different sequences. By placing desserts first in the line, or placing fries or carrot sticks at eye level, she found that she could increase or decrease an item’s consumption by as much as 25 percent. Nobody told students what foods they should eat, and there wasn’t any overt coercion, but by manipulating the “choice architecture”, adults were able to have a marked impact on what students ended up eating.

The term that Thaler and Sunstein use in their book is “nudge”, which they define as “any aspect of the choice architecture that alters people’s behaviors in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a nudge, the intervention must be easy and cheap to avoid.” That’s the neutral definition. Taking it a step further, shouldn’t the school cafeteria manager *nudge* students in the direction of healthier foods? Most students have been taught that apples are better for them than chocolate cake, but they need a nudge to make the choice they know is best. Tilting the choice architecture in the direction of a “good” outcome is what Thaler and Sunstein call “nudge paternalism” – structuring or manipulating choices to get people to do what they know in their hearts is the right thing – but might not do on their own.

Paternalism has a negative ring to it, and so does manipulation, but Thaler and Sunstein make three points to persuade us that nudging can be good. First, people don’t always make decisions that are in their own best interests. This is especially true in contexts where people are inexperienced and poorly informed and where feedback is slow or infrequent. Second, choice architecture is never completely neutral. The food in a cafeteria line needs to be organized in some kind of sequence, and whatever decisions are made will favor certain foods over others. Third, paternalism needn’t involve coercion, as was clear in the cafeteria experiment. “Some types of paternalism should be acceptable even to those who most embrace freedom of choice,” say the *Nudge* authors. The responsibility of choice architects is to nudge people in ways that are most likely to help and least likely to harm – in other words, to provide “helpful guidance with a light touch.”

Here's an example: Americans have very low personal saving rates, and many people have little or no money squirreled away for retirement. In most businesses, the default choice for new employees is *non*-enrollment in the savings and retirement plan, which means people have to do some work to get enrolled. Using this choice architecture, about 20 percent of employees enroll in the company's plan after three months on the job, and the figure gradually increases to 65 percent over three years. But if the default is changed to *automatic* enrollment in the plan (affirmative steps are needed in order not to enroll), 90 percent of new employees enroll in the savings and retirement plan, and that increases to 98 percent over three years. This is a major difference from a small change in the choice architecture.

How does this apply to school leadership (and teaching)? Thaler and Sunstein argue that leaders should be thoughtful and ethical choice architects for their colleagues (and students) by:

- Setting defaults so people are guided to more prudent choices;
- Structuring complex choices so they are easier for people to understand;
- Providing explicit feedback so people know when they are doing well and when they are making mistakes;
- Helping people map out the links between their options and choices that will actually make them better off;
- Designing incentives so that losses and gains are made more salient;
- Designing "forgiving" systems that incorporate the fact that people will make mistakes.

"The Art of Nudging: Helping People Make Better Choices" by Mark Hanna in the *Wharton Leadership Digest*, July/August 2008 (Vol. 12, #8-9), <http://leadership.wharton.upenn.edu/digest/index.shtml>

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2. Bringing "Gifted" Education to the Masses

In this trenchant *Education Week* article, gifted-education expert Joseph Renzulli bemoans the fact that many struggling students are subjected to ineffective, drill-and-practice, remedial pedagogy that actually widens the achievement gap. "The instruction these children receive is often designed to determine what they can't do, don't like to do, and see no reason for doing," he says. "Then their teachers are told to focus on beating them to death with it."

"Isn't it time to explore a counter, perhaps even counterintuitive, approach based on pedagogy radically different from what Pavlov used to train his dogs?" asks Renzulli.

"Accountability for truly educated minds in today's knowledge-driven economy should consider high-end learning skills." He suggests that all students need to be able to do the following:

- Plan a task and consider alternatives;
- Monitor understanding and the need for additional information;
- Identify patterns, relationships, and discrepancies;
- Generate reasonable arguments, explanations, hypotheses, and ideas;
- Draw comparisons to other problems;

- Formulate meaningful questions;
- Transform factual information into usable knowledge;
- Rapidly and efficiently access information;
- Extend their thinking;
- Detect bias, make comparisons, draw conclusions, and predict outcomes;
- Apply knowledge and problem-solving strategies to real-world problems;
- Work and communicate effectively with others;
- Derive enjoyment from active engagement in learning;
- Creatively solve problems and produce new ideas.

“These learner-centered skills,” says Renzulli, “help develop young minds and promote genuine student engagement, thus increasing achievement.”

And where do students most often learn and use these skills? Not in regular classrooms but in extracurricular activities. “How many unengaged students have you seen on the school newspaper staff or the debate team?” asks Renzulli. “In the chess club or the concert choir? Engagement occurs when students have choices in what they participate in and how, when they can interact in a goal-oriented environment with like-minded students, and when they are able to use authentic problem-solving, interpersonal skills, and creative learning strategies. Engagement comes when they have the opportunity to produce a product, service, or performance, or to develop work for intended audiences.”

The trap that many NCLB-era educators are falling into, contends Renzulli, is subjecting lower-achieving students to more and more didactic, deductive, prescriptive, drill-and-kill pedagogy in the mistaken belief that it will improve their test scores. “This has turned many schools into joyless places that generate mind-numbing boredom, a lack of genuine student and teacher engagement, absenteeism, and increased dropout rates,” he says. What struggling students need is pedagogy at the other end of the spectrum – inductive, investigative, inquiry-based. This is what will get all students involved, learning basic skills, and stretching themselves to higher-level achievement.

The good news, says Renzulli, is that technology is making it much easier to teach all students well. Through the Internet, each teacher has “the equivalent of a dozen teaching assistants”, making it possible to assess students’ interests, learning styles, and preferred modes of expression and match them to engaging learning resources. “When technology does some of the hard work,” he says, “true differentiation can occur.”

It’s therefore doubly tragic, Renzulli concludes, that so many teachers use technology to serve up the pablum of electronic worksheets and online encyclopedias to students who desperately need something better. “We need the courage to explore bolder, more innovative alternatives,” he says, “so that we can provide all students with highly engaging experiences – the kind of instruction available in the nation’s best public and private schools.”

“Engagement is the Answer” by Joseph Renzulli in *Education Week*, July 16, 2008 (Vol. 27, #43, p. 30-31), available to subscribers only

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3. Are Extracurricular Activities the Secret Weapon of American Schools?

In this *Education Gadfly* article, Mike Petrilli argues that extracurricular activities in American schools explain the fact that, despite our students' mediocre test-score performance on international comparisons, U.S. economic growth is still impressive. "That's right," says Petrilli, "Our athletic programs, student councils, debate clubs, school newspapers, orchestras, theater troupes, Future Farmers of America, [Girl Scouts, Boy Scouts, church youth groups], and the rest of the panoply of after-school activities might be boosting America's economic output. While Asian kids are cramming at 'exam cram schools' and European youngsters are smoking Gitanes in sidewalk cafes, our students are engaged in activities that give them the confidence to achieve in myriad ways – a taste of achievement they then carry into the world of work."

There isn't much research to support this theory, admits Petrilli, but he points to indirect evidence that extracurricular activities correlate with stronger social self-concept and increased cultural capital. "This is no secret," he writes; "It's why elite colleges want to see extracurricular activities on applicants' resumes – fueling an extracurricular arms race in some elite high schools."

As further proof, Petrilli asks us to conduct a thought experiment. "Think of the skills you use on a daily basis in your job... Now ponder: back in high school, did you get to practice these skills more often during class time or during extracurricular activities? I strongly suspect it was the latter." Here's his list:

- Setting goals and working toward them
- Collaborating with colleagues
- Speaking publicly
- Organizing time effectively
- Designing and leading projects and project teams
- Listening to the concerns of others
- Competing against other organizations
- Juggling multiple duties.

All the more reason not to cut extracurricular activities in lean budget times, concludes Petrilli. And all the more reason for small schools, which can't afford as many extras, to team up with other schools or universities to make sure students have access to the broadest possible range of enriching choices.

"The Genius of American Education" by Mike Petrilli in *The Education Gadfly*, July 17, 2008 (Vol. 8, #27, p. 2-4) <http://www.edexcellence.net/gadfly/index.cfm>

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4. More Debunking of Myths about Male-Female Brain Differences

In this *Boston Globe* article, Boston University professor Caryl Rivers and Brandeis professor Rosalind Barnett attack the notion that boys and girls have different kinds of brains, learn in different ways, and should be taught in ways tailored to their gender. The authors

believe that the 360-plus single-gender classrooms in U.S. public schools are way out in front of solid scientific evidence and run the risk of miseducating many students who don't fall into oversimplified gender stereotypes.

The bulk of the article by Rivers and Barnett is devoted to debunking various theories on male-female brain differences:

- Victorian-era scientists believed that because men had larger brains, they were more intelligent. Twentieth-century science showed that brain size is proportional to body size and absolute size doesn't matter. Thus, a seven-foot man is not smarter than a five-foot woman.

- In the 1990s, a number of books advanced the idea that women are innately more caring than men when making moral decisions and that boys are hard-wired to be better at math and science (among the books were *Why Men Don't Listen and Women Can't Read Maps* by Barbara and Allan Pease and *Men are From Mars and Women are from Venus* by John Gray). But the neurological research behind these books was weak, say Rivers and Barnett, and in one case there was so much variation among individuals that it was impossible to draw conclusions about boys and girls. True, boys outnumber girls among top SAT scorers in math and science (although the gap is narrowing every year), but boys also outnumber girls among the lowest scorers – and average scores are nearly identical. Other studies have found the supposed male-female differences in these areas are inconsequential.

- A 2003 study of 100 infants claimed that boys are biologically programmed to focus on objects, predisposing them to excelling in math and understanding systems, while girls are programmed to focus on people. But this study has been attacked for its lack of experimental controls, and in fact, say Rivers and Barnett, “there is a vast scientific literature showing that male and female infants respond equally to people and objects.”

- In a 2006 bestseller, *The Female Brain*, Louann Brizendine contended that boys are inherently less verbal than girls, claiming that a woman uses 20,000 words a day while a man uses only 7,000. These figures, say Rivers and Barnett, were “completely bogus”, apparently drawn from a blog called Language Log and lacking a real research source. A more recent study of word use found men and women were in a statistical dead heat, with women using 16,215 words a day and men using 15,599.

“Of course, it would be naïve and even harmful to pretend that there are no differences between boys and girls,” say Rivers and Barnett. “Boys, for example, are more vulnerable to autism and dyslexia – and teachers and parents need to be alert to that fact. But there's a mountain of evidence to show that gender is the wrong lens through which to view education policies and practices. Some kids learn best visually, others verbally; some do best in ‘boot-camp’ type settings, while others thrive in informal classrooms with lots of freedom. But science and aptitude surveys tell us that gender isn't a helpful way to sort students into those groups.”

We must resist the tendency to let “neurological factoids” influence important decisions about how children are educated, they contend. “Science shouldn't be enlisted as an excuse for believing what we want to believe. Rather, it should be seen as part of a long series of steps that can lead to fresh understandings of the world.”

“What we can hope,” conclude Rivers and Barnett, “is that eventually, good science drives out bad, and that facts, by their sheer heft, ultimately crush the factoids. But we have to pay attention to make sure this happens. Otherwise, we will end up trusting our kids’ futures to ideas and programs that – ironically – rely on science to shore up some of society’s most unscientific prejudices.”

“The Difference Myth” by Caryl Rivers and Rosalind Barnett in *The Boston Globe*, Oct. 28, 2007 (P. F1-3)

http://www.boston.com/news/globe/ideas/articles/2007/10/28/the_difference_myth/

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5. Peer Mediation At Work in a Rhode Island High School

In this *Providence Journal* article, Rhode Island consultant Julia Steiny describes a one-hour conflict resolution meeting that she was allowed to observe at Shea High School in Pawtucket. Three girls, whom Steiny privately dubbed Storm Cloud (for her sullen and victimized demeanor), Spoilt (who proudly described herself as spoiled and hot-headed), and Third Party (who barely knew the other two) had been involved in an escalating series of verbal confrontations, fed by comments helpfully passed on by other girls. The three disputants were assigned seats at a table by three student mediators – two girls and a boy – who had been trained by the school’s social worker. Before this meeting, each of the antagonists had been interviewed separately by the social worker to make sure they would be safe rehashing the issues, but just in case, they were asked to sit apart from one another in the mediation room.

The lead mediator started the session by announcing four ground rules: Don’t stand up, don’t interrupt, respect one other, and keep what happens in this meeting confidential. “Do you agree?” she asked. The girls said they did. Each was then given a chance to tell her side of the dispute without interruption.

Third Party led off, telling a story “so convoluted,” says Steiny, “that I was utterly lost.” The mediators took notes as Third Party described the role of various other girls fanning the flames of the “trash talking” that had taken place. Someone was talking about someone else, and they said such and such, and that information resulted in a confrontation, which produced more talk, more bad information, and more confrontations. The word got out that Third Party said that Storm Cloud was threatening to fight Spoilt after school, so she confronted Third Party, which Third Party “did not appreciate.”

The mediators listened intently and all three girls had a chance to be fully heard and understood. Then the lead mediator, striving to remain neutral, asked follow-up questions to find out what really mattered to each girl – the essence of their concerns. It became clear that before the blow-up, Storm Cloud and Spoilt were striking up a friendship, which was important to socially-isolated Storm Cloud. Was this the big issue underlying the whole kerfuffle?

When the cross-talk between the antagonists got heated, the lead mediator put up her hands and said, “Okay. So everyone ‘heard’ something. Are you guys getting this? You ‘heard.’ That’s it. Nothing happened. Everyone just ‘heard.’” All three girls heatedly challenged this statement, and the lead mediator stopped them again: “It’s a sad story, but

people around this school want to see fights. You guys are friends, or you were. So is it worth it to give up a friendship so others can fight? Is it?”

“No,” said the girls.

“Good,” said the lead mediator, and began to draft an agreement, which the girls ended up signing. They agreed to speak directly to one another from then on and to respect each other. Storm Cloud and Spoilt agreed to remain friends. The air was clearing. Storm Cloud came out of her self-protective crouch and sat up straighter. All three girls asked how they could become mediators themselves.

Reflecting on the session afterwards, the lead mediator said, “I think we’ve prevented a lot of fights. In Shea, people want to see a fight. We have a lot of ‘he said/she said.’ So basically, we go back and get the story point by point. We hear them out and see that they have a peaceful conversation... [T]he best part of mediation is seeing people who could be enemies be friends.”

“Every kid needs listening and conflict-resolution skills,” concludes Steiny. “Every kid deserves to have mediation available for arguments he can’t resolve without a fight or feeling victimized. When schools create a culture that expects everyone to solve problems together, they can quit punishing kids for fighting.”

“Julia Steiny Catches a Rare Moment of Conflict Management” by Julia Steiny in *The Providence Journal*, July 13, 2008 (spotted in *Education News*, July 15, 2008)

http://www.projo.com/education/juliasteiny/content/se_educationwatch13_07-13-08_J6AS1MR_v7.29e5cef.html . Steiny can be reached at juliasteiny@cox.net.

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6. Braille Makes a Comeback

In this *Education Week* article, Christina Samuels reports on Braille’s resurgence in the education of students with visual impairments. A few decades ago, 50-60 percent of blind people in the U.S. knew Braille; today the literacy rate has fallen to about 10 percent of the 58,000 U.S. children and adults listed as blind or visually impaired by the American Printing House for the Blind. This decline was driven by the assumption that students could use newly developed print-to-speech and speech-to-print devices to communicate and get access to most materials. Some argued that learning Braille would make children more handicapped.

But Braille supporters say that listening and speaking don’t constitute full literacy; students need to be able to read, spell, punctuate, and write. Visually impaired students need to learn Braille even if they have some eyesight, they say, because often vision loss is progressive. Advocates also cite research showing that adults who are literate in Braille have significantly higher employment rates than those who do not. New technology makes Braille easier to use in classrooms settings – blind students can type notes on portable devices similar to laptops and read them back through a Braille display. And new software is reducing the amount of time it takes to produce Braille editions of textbooks and other reading materials. This approach to Braille is supported by the 1997 and 2004 reauthorizations of IDEA, which requires that blind and visually impaired children be taught Braille unless the IEP team agrees

that it's not appropriate. Thirty-three states have passed similar laws. "There's no reason you shouldn't learn Braille, just like there's no reason for sighted kids not to learn print," says Joshua Pearson, a 16-year-old Massachusetts high-school junior. "There's no reason to be illiterate."

FYI, there are two levels of Braille: Uncontracted Braille has a pattern of raised dots for each letter of the alphabet and punctuation mark; Grade 2 Braille uses dozens of contractions to represent common letter combinations, prefixes, and suffixes. Grade 2 Braille is used in elevators and other public spaces and in the "translation" of print materials – but it still takes considerably more space than conventional print. For example, the Braille version of *Harry Potter and the Deathly Hallows* has 1,100 pages versus 759 in the regular edition.

"Braille Makes a Comeback" by Christina Samuels in *Education Week*, July 16, 2008 (Vol. 27, #43, p. 27-29), http://www.edweek.org/ew/articles/2008/07/16/43braille_ep.h27.html

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7. Teachers, Parents, and the "Math Wars"

In this *USA Today* story, Jocelyn Noveck reports on the ongoing saga of parents who don't understand and in some cases second-guess their children's math homework. "I am a rebel," confesses Victoria Morey, a Brooklyn, NY mother who teaches her fourth-grade son the old-fashioned approach to long division. She believes it's quick, reliable, even soothing – and so does her son. "Would you want to go to a doctor who's learned about the concepts but never done the surgery?" asks Morey. "Would you want your doctor to say I had the right *idea* when I removed your appendix, though I took out the wrong one?"

Other parents are willing to give teachers the benefit of the doubt about concept-based math, but feel confused and inadequate when it comes to helping with homework. "Sometimes I'll meet up with another parent, and we'll say, 'What *was* that homework last night?'" says Birgitta Stone, mother of a third grader in Ridgefield, CT. "Sometimes I can't even understand the instructions." Allison Pennell, a college-educated mother back in Brooklyn, is equally flummoxed by her son's homework. "I'm such a numbskull," she exclaims. "I don't think I could pass fourth-grade math."

The problem, says Pat Cooney, a math coordinator in Ridgefield, is that many parents were brought up believing that there is only one way to solve a problem, that math is a cut-and-dried set of procedures, not a method of reasoning. "We're saying that there's more than one way," she explains. "The outcome will be the same, but how we get there will be different." Take the problem $88 \times 5 = \underline{\quad}$. Most parents will solve it by stacking up the numbers, multiplying 5 times 8, putting down the 0 and carrying the 4, and so on. But a student schooled in the new approach might reason that 5 is half of 10, and 88 times 10 is 880, so 88 times 5 will be half of that, which is 440. Like magic, no pen, no paper!

Cooney and other math educators hope that the "Math Wars" can be solved by good communication between teachers and parents. "You don't want a kid pitted between parent and teacher," says Hank Kepner, president of the National Council of Teachers of Mathematics. "I

would hope there would be an open conversation, involving the teacher.” But in the end, he says, “the more adults a kid sees talking about math, the better.”

“Parents Teaching ‘Old Math’ on the Sly” by Jocelyn Noveck in *USA Today*, July 15, 2008, http://www.usatoday.com/news/education/2008-07-15-old-math_N.htm , spotted in *Education News*, July 16, 2008

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8. Getting Middle-School Students on Track for College

(Originally titled “Opening Doors for More Students”)

In this article in ASCD’s *Education Update*, Kathy Checkley cites some depressing news from the Education Trust website (<http://www2.edtrust.org/edtrust/>):

- 9 percent of low-income students earn a bachelor’s degree by age 24;
- 75 percent of high-income students do.

According to the National Center for Education Statistics report, *The Condition of Education 2006*, these were the percentages of 25-29-year olds who had completed at least some college

- 33 percent of Hispanics;
- 49 percent of African-Americans;
- 64 percent of whites.

Checkley uses these statistics to argue for aggressive college-preparation programs in *middle* schools, including rigorous coursework, caring adults and expert guidance counselors to steer students toward college, advice on scholarships and other funding, and visits to colleges where students can see people who look like them succeeding and opening doors to adult opportunity.

“Opening Doors for More Students” by Kathy Checkley in *Education Update*, July 2008 (Vol. 50, #7, p. 1, 5-7); this article can be purchased for \$3.00 at <http://www.ascd.org/infocon/>.

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9. Free Curriculum Websites – The Wave of the Future?

In this *Education Week* article, Andrew Trotter reports on the small but growing number of teachers using free online curriculum materials in place of textbooks. The advantages include, obviously, cost savings, but also, say proponents, more up-to-date information, more student involvement (in Wiki-type sites), and access to a wider variety of materials. Trotter lists several sites:

- BioQUEST Curriculum Consortium for high-school and college biology students, which gets students posing and solving problems and communicating with peers, just as real scientists do: <http://www.bioquest.org/index.php>
- Creative Commons, which allows the content creator to tell others which rights they reserve and which they waive for the benefit of other creators: <http://creativecommons.org/>
- FreeReading, designed for early literacy teachers, provides a 40-week scope and sequence of concepts and activities: http://free-reading.net/index.php?title=Main_Page

- Kids' Open Dictionary Builder invites educators worldwide to contribute simplified definitions to an online dictionary geared to students' language levels and readability levels:

<http://dictionary.k12opened.com/>

- Math Open Reference is a free interactive math textbook covering high-school geometry, with plans to expand to other areas of math: <http://www.mathopenref.com/>

- Open Educational Resources Commons is a comprehensive open-learning network where Pre-K through higher-education teachers can share course materials and collaborate with each other: <http://www.oercommons.org/>

“Educators Assess ‘Open Content’ Movement” by Andrew Trotter in *Education Week*, July 16, 2008 (Vol. 27, # 43, p. 8-9),

http://www.edweek.org/ew/articles/2008/07/16/43opencontent_ep.h27.html

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10. “Clickers” As Achievement Boosters and Gender Gap-Closers

This *Science Daily* article reports on two important findings from recent research at Ohio State University on the use of “clickers” (wireless audience response devices) in college physics lecture classes. First, students in classes that used “clickers” improved their final examination grades by 10 percentage points, or a full letter grade, compared to students in classes not using clickers. Second, males and females had almost identical gain scores in clicker classes, whereas in non-clicker classes, males outperformed females by a wide margin.

Physics professors at Ohio State pose multiple-choice clicker questions at regular intervals during lectures, testing students' understanding of the underlying concepts of the material just presented. Often they pose three questions in quick succession on the same concept (for example, Faraday's Law), each with different wording and structure. This reveals if students are picking the right answer for the wrong reasons and illuminates common misconceptions. If students don't understand something, professors re-explain it in a different way or encourage peer teaching to clarify the point.

Clicker questions and follow-up discussions typically take 20 percent of each class. Students aren't required to use the clickers, but around 90 percent do – and when small incentives are introduced (for example, extra credit for answering clicker questions), participation climbs to 98 percent. Quarterly student opinion surveys show that more than 90 percent enthusiastically favor the use of clickers.

Researchers are unsure why the clickers have such a positive impact on the achievement of female students. Their best guess is that being able to answer questions anonymously is a key factor for students who suffer from “stereotype threat” and are unsure of their ability in a subject, allowing them to test their understanding and get immediate feedback that guides them to proficiency.

“Students Who Use ‘Clickers’ Score Better on Physics Tests” in *Science Daily*, July 18, 2008, <http://www.sciencedaily.com/releases/2008/07/080717092033.htm> . Spotted in *ASCD SmartBrief*, July 21, 2008. This research was first reported in the *American Journal of Physics*

earlier this year, and additional results appeared in the June 2008 issue of *Physical Review Special Topics, Physics Education Research*.

[See Marshall Memo 241 for a lengthier description of clickers in Harvard physics classes – and access to numerous physics clicker questions.]

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Do you have feedback? Is anything missing?

If you have comments or suggestions, if you saw an article or web item in the last week that you think should have been summarized, or if you would like to suggest additional publications that should be covered by the Marshall Memo, please e-mail: kim.marshall8@verizon.net

About the Marshall Memo

Mission and focus:

This weekly memo is designed to keep principals, teachers, superintendents, and others very well-informed on current research and effective practices in K-12 education. Kim Marshall, drawing on 37 years' experience as a teacher, principal, central office administrator, and writer, lightens the load of busy educators by serving as their "designated reader."

To produce the Marshall Memo, Kim subscribes to 44 carefully-chosen publications (see list to the right), sifts through more than a hundred articles each week, and selects 5-10 that have the greatest potential to improve teaching, leadership, and learning. He then writes a brief summary of each article, pulls out several striking quotes, provides e-links to full articles when available, and e-mails the Memo to subscribers every Monday evening (with occasional breaks; there are about 50 issues a year).

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- How to change access e-mail or password

Publications covered

Those read this week are underlined.

American Educator
American School Board Journal
ASCD, CEC SmartBriefs, Daily EdNews
Atlantic Monthly
Catalyst Chicago
Commonwealth Magazine
Ed. Magazine
EDge
Education Digest
Education Gadfly
Education Next
Education Week
Educational Leadership
Educational Researcher
Edutopia
Elementary School Journal
Essential Teacher (TESOL)
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Harvard Education Letter
Harvard Educational Review
JESPAR
Journal of Staff Development
Language Learner (NABE)
Middle Ground
Middle School Journal
New York Times
New Yorker
Newsweek
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