A Union of Professionals

VOL. 36, NO. 3 | FALL 2012
www.aft.org/ae

AMERICAN Educator

A QUARTERLY JOURNAL OF EDUCATIONAL RESEARCH AND IDEAS

Measured Approach or Magical Elixir?

DANIEL T. WILLINGHAM EXPLAINS HOW TO TELL GOOD SCIENCE FROM BAD IN EDUCATION

We're Here to Help

Great teachers never stop honing their craft—and *American Educator* is here to help. Almost all of the articles from the last 10-plus years are available for free on our website: **www.aft.org/ae**.

Be the first to know when a new *American Educator* is online. Sign up for an e-mail notification at **www.aft.org/subscribe**.

In addition to links to each issue, there's a Subject Index to help you easily find the information you need. Articles are grouped by topics such as curriculum, early childhood, English language learners, history, math, and vocabulary.

Looking for an article by Diane Ravitch, Daniel Willingham, or any of the hundreds of other prominent educators and researchers who have written for *American Educator*? Visit our Authors Index.

AMERICAN Educator
VOL. 36, NO. 3 | FALL 2012
www.aft.org/ae

AMERICAN EDUCATOR (USPS 008-462) is published quarterly by the American Federation of Teachers, 555 New Jersey Ave. NW, Washington, DC 20001-2079
Phone: 202-879-4400
www.aft.org

Letters to the editor may be sent to the address above or to **amered@aft.org**.

AMERICAN EDUCATOR cannot assume responsibility for unsolicited manuscripts.

Please allow a minimum of four weeks for copyright permission requests.

Signed articles do not necessarily represent the viewpoints or policies of the AFT.

Although advertisements are screened as carefully as possible, acceptance of an advertisement does not imply AFT endorsement of the product or service.

AMERICAN EDUCATOR is mailed to all AFT teacher and higher education members as a benefit of membership. Subscriptions represent $2.50 of annual dues. Non-AFT members may subscribe by mailing $10 per year by check or money order to the address on the left.

MEMBERS: To change your address or subscription, notify your local union treasurer.

POSTMASTER: Send address changes to American Educator, 555 New Jersey Ave. NW, Washington, DC 20001-2079.

Periodicals postage paid at Washington, DC, and additional mailing offices.

ADVERTISERS: Contact Karen Dorne Media Sales, 319 Harrison Ave., Westfield, NJ 07090
Phone: 908-233-6075
Fax: 908-233-6081

Fostering a Can-Do Attitude

WHEN TEACHERS HELP students develop the positive attitudes and behaviors that characterize effective learners, they can increase students' chances of succeeding in school and in life, according to *Teaching Adolescents to Become Learners—The Role of Noncognitive Factors in Shaping School Performance: A Critical Literature Review*, published by the Consortium on Chicago School Research at the University of Chicago. "Students who come to class and complete their work are likely to have developed the kind of work habits they will need in college as well as in the workforce," the authors write. To that end, this report examines the specific behaviors, skills, attitudes, and strategies that good students rely on "to successfully manage new environments and meet new academic and social demands."

The report identifies the following five factors as important for success:

- Academic behaviors, like regularly attending class and paying attention;
- Academic perseverance, including completing assignments;
- Academic mindsets, which are the beliefs students hold about themselves in relation to academic work;
- Learning strategies, which are the processes students employ to make sure they understand material; and
- Social skills, such as cooperating with others and acting responsibly.

Of these, "academic mindsets" and "learning strategies" are the most malleable factors, so the authors suggest that teachers focus on those in helping students reach their potential. The report is available at www.bit.ly/MLR5s0.

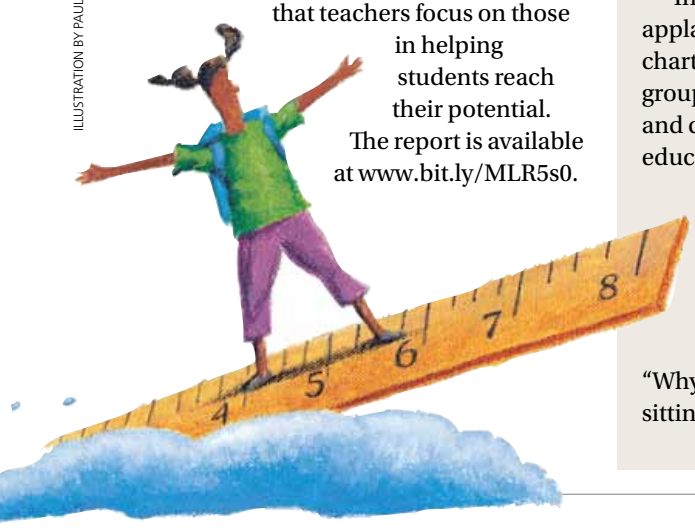


ILLUSTRATION BY PAUL ZWOLAK

Child Poverty Higher and Deeper in U.S.

AT 23.1 PERCENT, child poverty is dramatically higher in the United States than in countries considered to be its peers, according to an analysis of Census Bureau statistics conducted by the Economic Policy Institute. Among 25 developed nations, the average child poverty rate is 9.8 percent. The U.S. rate is nearly five times greater than that of Iceland, which achieved the lowest rate of child poverty at 4.7 percent.

The analysis also found that the child poverty gap—the difference between the poverty line and the median household income of children below the poverty line—is also greater in the United States than in peer countries. This means, as the authors explain, that poor children in the United States "face higher relative deprivation than impoverished children in other developed countries." The full report is available at www.bit.ly/MbQqq8.

Diane Ravitch Stands Up for Teachers

AMID THE ATTACKS on teachers and their unions, Diane Ravitch continues to take on the countless conservatives seeking to privatize public schools. In her blog at dianeravitch.net, the education historian and author of *The Death and Life of the Great American School System* offers her perspective on how high-stakes tests and the proliferation of charter schools are undermining public education.

In two posts from June 29, she applauds a judge's rejection of a cyber charter school application from a group with a dismal education record, and criticizes investors in for-profit education who planned to hold a conference at a private club and charge $1,195 for admission for the day.

"I don't want to see the for-profit corporations taking over more schools," she writes. "Why are our top education leaders sitting back and letting this happen without a squawk? I think we should all squawk."

Besides her own commentary, Ravitch's blog features e-mails from teachers. Many thank her for speaking out against the fixation on testing and the hollow reforms that plague the profession. Her blog has become a kind of forum for teachers. "For whatever reason the public is continuing to scapegoat us perhaps because they do not want to look at the realities of poverty and the price tag of really saving our country's children," writes one teacher in a post dated August 2. "We need to be able to speak the truth—express ourselves about our work with children, about our perspectives on education and what is really happening in our communities and in our schools."

Like many educators, this teacher reads Ravitch's blog to fill a void in her professional life. "I know it is one way for me to get that injection of support."

Khan Academy: The Hype and the Reality

By Karim Kai Ani

IN A PROFILE in *Time* magazine, Sal Khan, founder of the popular Khan Academy, explains how he prepares for each of his video lessons. He doesn't use a script. In fact, he admits, "I don't know what I'm going to say half the time."

During a recent address to Washington, D.C.-area educators, Secretary of Education Arne Duncan highlighted the importance of teacher education and professional development, and urged that we as a country provide teachers with more time to collaborate and plan lessons for their students. He then turned and praised Khan as a leading innovator transforming education for millions of students around the country.

The highest-ranking official in American education says that effective teaching requires training and planning, and then holds up as his archetype someone who openly admits to showing up to class every day unprepared. If a teacher said that, he or she would be fired. And yet, in the past year, Sal Khan has been hailed as the savior for everything that ails public education.

The narrative surrounding Khan Academy has gotten a bit out of hand.

It's not Sal's fault. He didn't set out to become one of the biggest celebrities in education but simply to help his cousins with their math homework. But Ann Doerr, wife of venture capitalist John Doerr, picked up on it. Then Bill Gates. Then the *San Jose Mercury News*, *60 Minutes*, the *New York Times* ... and all of a sudden Khan Academy, a collection of low-res videos offering step-by-step instructions for how to solve math problems, was being hailed as the Next Big Thing in education.

And big it is: Khan Academy boasts almost 3,300 videos that have been viewed more than 160 million times. That's a heroic achievement. But there's a problem: the videos aren't very good.

Take Khan's explanation of slope, which he defines as "rise over run." An effective math teacher will point out that "rise over run" isn't the definition of slope but merely a way to calculate it. In fact, slope is a rate that describes how two variables change in relation to one another: how a car's distance changes over time (miles per additional hour); how the price of an iPod changes as you buy more memory (dollars per additional gigabyte).

To the layperson, this may seem like a trivial distinction, but slope is one of the most fundamental concepts in secondary math. If students don't understand slope at the conceptual level, they won't understand functions. If they don't understand functions, they won't understand algebra. And if they don't understand algebra, they can't understand calculus. It's that simple.

Or rather, it's not. Because effective teaching is incredibly complex. It requires planning. It requires reflection. And it certainly requires more than just "two minutes of research on Google," which is how Khan describes his own pre-lesson routine.

As a result, experienced educators have begun to push back. In June, two professors created their own video in which they pointed out errors in Khan's lesson on negative numbers: not things they disagreed with, but things he got plain wrong (see www.wapo.st/S9NdX1). To his credit, Khan did replace the video. However, instead of using this as an opportunity to engage educators and improve his teaching, he dismissed the criticism.

"It's kind of weird," Khan explained, "when people are nitpicking about multiplying negative numbers."

When asked why so many teachers have such adverse reactions to Khan Academy, Khan suggests it's because they're jealous. "It'd piss me off, too, if I had been teaching for 30 years and suddenly this ex-hedge-fund guy is hailed as the world's teacher."

Of course, teachers aren't "pissed off" because Sal Khan is the world's teacher. They're concerned that he's a bad teacher who people think is great, one who describes the precise explanation of mathematical concepts as mere "nitpicking." Experienced educators are concerned that when bad teaching happens in the classroom, it's a crisis; but when it happens on YouTube, it's a "revolution."

The truth is that there's nothing revolutionary about Khan Academy at all. In fact, Khan's style of instruction is identical to what students have seen for generations: a do this, then do this approach to teaching that presents mathematics as a meaningless series of steps. Khan himself says that "math is not just random things to memorize and regurgitate," yet that's exactly how his videos present it.

Khan has done something remarkable in creating such a vast library, and he deserves to be recognized. His commitment to making the site free is a rare and selfless act, and he deserves to be praised. He is a good guy with a good mission. What he's not, though, is a good teacher.

Unfortunately, the media hype surrounding Khan Academy has created a level of expectation far beyond what any person could ever reasonably deliver.

The real problem with Khan Academy is that we believe the promise of silver bullets—of simple solutions to complex problems—and in so doing become deaf to what really needs to be done.

As Duncan said, we need to invest in professional development and provide teachers with the support and resources they need. We need to give them time to collaborate and create content that engages students and develops not just rote skills but also conceptual understanding. We have to help new teachers figure out classroom management—to reach the student who shows up late to class every day and never brings a pencil—and free up veteran teachers to mentor less-experienced colleagues.

We face challenges in K–12 education, and they will not be solved with just a Wacom tablet and a YouTube account. Instead, they'll be solved by teachers who understand their content and how children learn, who walk into the classroom every day and think, "I know exactly what I'm going to say, because that's what teaching means." □

Karim Kai Ani, a former middle school teacher and math coach, wrote a longer version of this commentary for Valerie Strauss's The Answer Sheet, *a* Washington Post *blog. To read the original, go to www.wapo.st/My6i4i.*

Measured Approach or Magical Elixir?

How to Tell Good Science from Bad

ILLUSTRATIONS BY JAMES YANG

By Daniel T. Willingham

Bernhard Dohrmann is a businessman and entrepreneur of wide-ranging interests. Unfortunately, he has also had his share of legal problems. In 1975, he was convicted of securities fraud for selling railroad cars that did not exist. In 1982, he was charged by the Federal Trade Commission with misrepresenting the prices of investment diamonds. The case was settled out of court, with Dohrmann's company returning $6.7 million to investors. In 1991, Dohrmann was charged by the U.S. attorney's office with 16 counts of criminal contempt; it seems he lied about his company's sales figures when selling bonds to investors. He was sentenced to prison for this crime in November 1995.[1]

With such a history of legal problems, what's a troubled businessman to do? Why, go into the educational software business, of course!

Dohrmann started a company called Life Success Academy that marketed (and continues to market) Super Teaching. Super Teaching consists of a system that projects images to three screens; the central screen shows whatever images a teacher typically uses in a lesson plan. The flanking screens show "seemingly random" images of nature, or real-time footage of the teacher or the students. This practice is said to be consistent with "whole brain learning."[2] Systems initially were to sell for $160,000 *per classroom*;[3] the current price is down to $29,500.[4]

Although Super Teaching had been around since at least 2002, things started to look really promising for the Life Success Academy in December 2007, when the company signed an agreement with the University of Alabama in Huntsville. The university would help test and refine the Super Teaching method and would in

---

Daniel T. Willingham is a professor of cognitive psychology at the University of Virginia and the author of numerous articles, including his regular "Ask the Cognitive Scientist" column for American Educator. *To read more of his work on education, go to www.danielwillingham.com. This article is excerpted from his new book,* When Can You Trust the Experts? How to Tell Good Science from Bad in Education, **

return share in profits from future sales. In early October 2008, the university unveiled Super Teaching with a ribbon-cutting ceremony. The president of the university attended, but the honor of cutting the ribbon went—not inappropriately—to Tony Robbins, motivational speaker and late-night infomercial pitchman.[5]

A year and a half later, the University of Alabama in Huntsville dissolved its relationship with Dohrmann and the Life Success Academy.[6] Things had heated up six months earlier. A blog that covers Alabama politics had posted a lengthy summary of Dohrmann's criminal past, provocatively headlined "Why Is UAH Involved with 'a Very Dangerous Con Man'?"[7] A month later, the university's student newspaper published an article titled "Learning at the Speed of Con."[8]

This may be an extreme example, but it's hardly news that an educational reform idea attracted serious attention despite the fact that there was no evidence supporting it. If that were uncommon, I would have had no reason to write this article or the book from which it is drawn: *When Can You Trust the Experts? How to Tell Good Science from Bad in Education*. The field of education is awash in conflicting goals, research "wars," and profiteers. The goal of my new book is to help you evaluate new ideas related to education so that you are less likely to be persuaded by bad evidence, in particular, evidence that proponents claim is scientific.

The field of education is awash in conflicting goals, research "wars," and profiteers. My goal is to help you evaluate evidence that proponents claim is scientific.

Unfortunately, distinguishing between good and bad science is not easy. Evaluating whether or not a claim really is supported by good research is like buying a car. There's an optimal solution to the problem, which is to read and digest all of the relevant research, but most of us don't have time to execute the optimal solution. What we need is a good shortcut.

The shortcut I've developed is composed of four steps: strip it and flip it, trace it, analyze it, and make your decision about whether to adopt it.

"Strip it" means to lay the claim bare, devoid of the emotional language and other ornamentation that people use to cloak the actual scientific claim. Examining the claim in its simplest form can make many problems plain to you: the claim is true but self-evident, or the promised outcome is vague, or no one specifies the connection between what you're supposed to do and what is supposed to improve. "Flip it" addresses the fact that how we perceive the promised outcome is sensitive to the description provided; for example, saying that ham is "90 percent fat free!" sounds quite different than saying it is "10 percent fat!"

"Trace it" is applied not to the educational claim or program but to its inventor. Most of us use this step already and, in fact, overuse it. It means to pay attention to the qualifications and motivations of the person trying to persuade us. We are most convinced by people who are knowledgeable and impartial. Unfortunately, it's hard to judge whether or not someone is knowledgeable about a subject unless we ourselves have some expertise. We tend, therefore, to rely on credentials. We believe doctors when they speak about medicine, and electricians when they talk about our fuse box. Credentials can be faked, but even when they are genuine, credentials are not a reliable guide to believability in education. In fact, this most commonly used earmark of credibility is the *least* useful.

"Analyze it," the third step of the shortcut, means to consider why you are being asked to believe something. If the claims about an education product fly in the face of what you know to be true, there is a problem. At the same time, your experience is not an infallible guide. If it were, there would be no need for scientific research. So, "analyze it" also means to apply some simple guidelines to evaluate research claims. The point of the shortcut is to save you from having to evaluate research, so I don't suggest getting too technical here. But there are some useful rules of thumb to apply (like making sure a study that purports to show a program's effectiveness has both a treatment group that used the program and a comparison group that used something else).

After evaluating an idea's scientific merit, you need to decide whether or not it should be adopted. Although I'm advocating for a shortcut, I'm not advocating that a decision be rash. Nor am I saying that one should never adopt an educational program that lacks scientific support: most lack such support. What I'm arguing for is adopting a program only when you have all of the relevant information before you.

The shortcut is designed to help you evaluate the likely scientific soundness of a proposed curriculum, teaching strategy, textbook—anything that is purported to help children learn. Note that I said the *likely* scientific soundness. I freely admit—no, I emphasize—that what I'm recommending is not a substitute for a thoughtful evaluation by a knowledgeable scientist. Rather, it's a workaround, a cheat. As such, it's imperfect. The great advantage

is that it doesn't require a knowledgeable scientist.

In this article, I'll provide some detail on the first of the four steps: strip it and flip it. As a shorthand, I'm going to use the term *change* to refer to a new curriculum or teaching strategy or software package or school restructuring plan—generically, anything that someone is urging you to try as a way to better educate kids. I will use the term *persuader* to refer to any person who is urging you to try the change, whether he or she is a teacher, administrator, salesperson, or the president of the United States. To get started, you need to be very clear on three points: (1) precisely what change is being suggested, (2) precisely what outcome is promised as a consequence of that change, and (3) the probability that the promised outcome will actually happen if you undertake the change. All other considerations are secondary at this point and should be considered distractions.

This self-evident solution—take what works one place and implement it elsewhere—is a notorious flop. Successes depend on many factors that are hard to replicate.

Strip It

To strip a claim to its essentials, I suggest that you construct a sentence with the form "If I do X, then there is a Y percent chance that Z will happen." For example, "If my child uses this reading software an hour each day for five weeks, there is a 50 percent chance that she will double her reading speed." Of course, the agents might vary: the person doing X might be a student, a parent, a teacher, or an administrator, and the person affected by the outcome (Z) might be any of those. Note that the value of Y (the chance that the desired outcome will actually happen) is often not specified. That's fine. Right now all you're trying to do is be clear about the claim made by the persuader, and if she has left Y out, she's left Y out.

The purpose of stripping a claim is to remove cues that might be persuasive, even if they don't provide any real information. One such cue is an emotional appeal.

Stripping Emotion

The "If X, then Y percent chance of Z" formula will eliminate emotional appeals, which can be very powerful, indeed.

Emotional stories may add personal texture to a problem that we understood only abstractly, or make a problem seem more urgent, but they don't provide compelling reasons to do any particular thing. Why? Because emotional appeals don't provide evidence that a particular solution will work.

Persuaders in education seek to rouse different emotions, depending on their audience. For administrators and policymakers, it's most often fear. For example, consider these quotations from a column written by *New York Times* columnist Thomas L. Friedman in 2009:[9]

> Just a quick review: In the 1950s and 1960s, the U.S. dominated the world in K–12 education. We also dominated economically. In the 1970s and 1980s, we still had a lead, albeit smaller, in educating our population through secondary school, and America continued to lead the world economically, albeit with other big economies, like China, closing in.
>
> There are millions of kids who are in modern suburban schools "who don't realize how far behind they are," said Matt Miller, one of the authors [of a recent study]. "They are being prepared for $12-an-hour jobs—not $40 to $50 an hour."
>
> We urgently need to invest the money and energy to take those schools and best practices that are working from islands of excellence to a new national norm.

The persuader refers to broad economic trends and extrapolates a dark picture to the near future. Foreign, better-educated kids are in America's rearview mirror, gaining fast, and economic ruin will follow when they pass us. Fear makes us more open to suggestion: "That sounds terrible! Quick—tell me how to fix it!" But in fact, the message mentions a solution only briefly—invest money to take best practices from one school and put them in another—and provides no supporting evidence that this measure will work. In fact, this self-evident solution—take what works one place and implement it elsewhere—is a notorious flop among those who know the history of education policy. Successes depend on many factors that are hard to identify, let alone replicate.

When persuaders target teachers, they more often use emotional appeals centering on hope, not fear. Most teachers are optimists. They believe that all children can learn and that all children have something to offer the classroom. Teachers are also optimistic about the possibility that they can help children fulfill their potential. But teachers are not optimists to the point that they are out of touch with reality. A teacher knows when there is a child with whom she is not connecting. She knows if some aspect of her teaching has become grooved, familiar, and a little stale. When they talk to teachers, persuaders offer a change as a way finally to reach that unreachable child or to put the passion back into the teaching.

Administrators often try to sell teachers on an idea by dangling hope before them. Administrators know that "buy-in" is vital—if teachers don't believe a change is a good idea, they won't implement it in their classroom. Thus, administrators see a need not merely to persuade teachers, but to inculcate zeal for the change.

Fear does not encourage zeal. It encourages grudging compliance. Hope breeds zeal. That is why professional development sessions sometimes feel like evangelical revival meetings. But hope, like fear, is not a reason to believe that a change will work.

Stripping Claims that the Persuader Is "Like You"

When you change a persuader's claim to "If I do X, then there is a Y percent chance that Z will happen," the emotional language ought to vanish. So too should another set of irrelevant cues that might nudge you to believe something: those primed to make you think the persuader is *like you*, because we are, indeed, more likely to believe people we think are similar to us. Many websites and professional development marketers will claim quite directly, "I know what it's like…" The developer of the product will go to some pains to make clear that she's a teacher or a mom. Consider this example, from a website touting a treatment for attention deficit hyperactivity disorder (ADHD): "Your friends think he just needs consistency. Your doctor wants to medicate him. Your husband doesn't see why you can't control him. Your mom thinks he just needs a good spanking." By predicting the reactions of friends and family—reactions that would make a mom feel guilty or inadequate—the author signals, "I know what it's like to be you."

But being "like me" doesn't really increase the chances that you've got a solution to the problem I face. Lots of people "know what it's like" and haven't found an easy path to reading comprehension or a way to motivate frustrated kids or a method to help children with autism connect with other kids. And let's face it: being similar to your audience is an easy credential to inflate. I once attended a professional development seminar in which the speaker told story after story of his experiences in the classroom, all of which were, in turn, funny or poignant, and all of which showed that he "got" teachers. I later learned that he had been a classroom teacher for one year, 20 years earlier. He'd been doing professional development ever since, telling, I suppose, the same set of classroom stories.

Stripping Analogies

Stripping claims also removes the potentially powerful and often misleading role of analogies. When analogies are suggested to us, we tend to use them. That's why politicians so frequently offer analogies to defend their policies. For example, analogies were rampant in the United States during the buildup to the Persian Gulf War. Those who favored intervention drew an analogy between Saddam Hussein and Adolf Hitler: both were dictators of militaristic countries with regional aspirations who invaded weaker neighbors. Most Americans think that earlier action against Hitler could have saved many lives, so if Saddam is like Hitler, military action seems to make sense. But other politicians countered with a different analogy. Iraq is like Vietnam. Both were distant lands that did not directly threaten the United States. Most Americans regret the Vietnam War, so this analogy suggests *not* undertaking military action.

You would think that people would not be taken in. Surely we make judgments based on the merits of the case, not based on a rather shallow analogy suggested by a politician. But experimental data show otherwise. In one study, subjects read a fictional description of a foreign conflict and were asked how the United States should respond, using a scale from 1 (stay out of it) to 7 (intervene militarily).[10] The description they read did not explicitly offer an analogy, but instead dropped hints that were to make subjects associate the scenario with either World War II or Vietnam: for example, the president was said to be "from New York, the same state as Franklin Delano Roosevelt," or "from Texas, the same state as Lyndon Johnson." Later, they were asked to judge how similar the fictional scenario was to each of these conflicts.

There were two fascinating results in this study. First, people *were* influenced by the hints. People who read the story with the World War II hints favored intervention more than people who read the same story with the Vietnam hints. Second, people *thought* that they weren't taken in by the analogy. Both groups said that the story they read was not very similar to World War II and not very similar to Vietnam. In short, people thought, "I see how you're trying to influence me, but I'm too smart for you. The analogy you're suggesting doesn't really apply." But their judgments of how to respond showed that they were influenced nevertheless.

Analogies are sometimes offered in discussions of education, and that's another reason to strip claims. Consider this snippet adapted from a talk to a school board, similar to many that I've heard in the last five years.* The speaker was there to talk about the role of new technologies in education. Students today carry phones with more computing power than the desktop machines of 10 years ago. Many students are in contact with friends via social networking sites and text messages literally during every waking hour. What do those facts imply for education? Here's the nub of the speaker's argument:

> Let's consider what these new technologies have meant for various industries. Magazine publishing is almost defunct, and newspapers are desperately playing catch-up, trying to figure out a way to adapt. Remember those drive-up places to get your film developed? Remember stores that rented movies? Those are gone. People no longer use travel agents. They no longer use maps.
>
> All of these industries are obsolete, unnecessary. And they all have something in common; each was based on the delivery of information. These industries no longer exist because the Internet offers personalized, immediate access to almost limitless information.
>
> So what does that mean for schools? *Education is in the business of delivering information*. The pattern in other businesses has been for information delivery to become more mobile, real-time, and collaborative, and also to be more personalized. The question for teachers and administrators is, "How are you going to adapt?"

The speaker's message was clearly emotional—he was quite literally suggesting that everyone in the audience was going to be as obsolete as a VHS video player, and soon. But this suggestion was by analogy. Obviously, he's right when he says that various industries have been rendered irrelevant by new technology. But it's not obvious that every industry that delivers information is doomed. Education differs from these other industries in that a personal relationship (between teacher and student) is known to

*This example, like many I use, was inspired by a real talk, but I've changed it enough that it's not clearly attributable to the original speaker.

be central.[11] I don't need a personal relationship with the person who makes my airline reservation.

Other peripheral cues will also disappear when you strip a claim. Persuaders naturally want to appear authoritative. They will brag about academic degrees (if they have them). They will claim associations, however tenuous, with universities, especially prestigious ones, or they will claim to have consulted with Fortune 500 companies. They will boast about the authorship of books and articles; they will boast about speaking engagements. These are all indirect ways of saying, "Other people think I'm smart." They are not claims about the efficacy of the change, but rather are claims about the persuader. I go into greater detail about how to evaluate the persuader in my book, but here's a preview: characteristics of the persuader are a very weak indicator of scientific credibility. Stripping the claim will help you ignore them.

Flip It

Psychologists have long been interested in how people make decisions. We might bet that decision making is a complex cognitive process, but we'd also bet that certain things about that process can be taken for granted—for example, that the particular way you describe the decision I have to make shouldn't influence what I decide to do, provided that both descriptions are clear. That perfectly reasonable assumption turns out to be incorrect. People *are* affected by the description of the choice they are to make.

Flip Outcomes

Consider this: in one study, subjects were asked to sample cooked ground beef and were told either that it was "75 percent fat free" or that it was "25 percent fat." Subjects in the former group rated the beef as better tasting and less greasy.[12] This is one example of a large family of phenomena psychologists call *framing effects*. In framing effects, the way a problem or question is described influences the solution or answer we provide. This is why when you hear about an outcome (that's Z in our strip it formula), it's worth thinking about flipping it.

How might this be relevant to education? Just as a grocer would prefer to tell you how lean beef is rather than how fat it is, a persuader would rather tell you how many children will be reading on grade level if you adopt her change, and would rather not talk about the converse—how many will not. Although such framing seems like an obvious ruse, experiments show that providing information about success rates rather than failure rates actually makes people rate programs as more successful.[13] So when you hear that a curriculum promises "85 percent of children will be reading on grade level," flip it. Recognize that 15 percent won't. This failure rate may seem acceptable, but it's worth having it clear in your mind (especially since, if you implement this program, you'll need to find something else that is likely to be effective with the remaining 15 percent of children).

Flip What You're to Do

Another somewhat obvious framing effect doesn't concern the outcome (Z in our strip it formula) but rather concerns what you're asked to do (X in the strip it formula). Sometimes a problem is presented as though it is inevitable that we must take action. After all, there's a problem! Something must be done! But inaction is not always the worst possible choice. Years ago, a dentist told my father that his teeth were in terrible shape. He took about five minutes frightening my dad with all the details, and then another five describing an elaborate set of measures he might take to delay the inevitable, ending with, "Now if I do all that, I think you can keep your teeth for another ten years." So Dad asked, "Okay, what if I don't do any of that stuff. How long would my teeth last?" The dentist was taken aback that anyone would consider such a plan, but Dad persevered, and finally squeezed an answer out of him: "I don't know. Ten years, maybe?"

There are many problems in education with a similar profile: they are real problems, but there is no proven method of dealing with them. Thumping the table and insisting "Something must be done!" misses the point. Yes, lots of kids don't know as much civics as they ought to.[14] That doesn't mean we should plunge ahead with any civics program that we happen to lay hands on. Do we have some reason to believe that the new program will not make things worse? Is there reason to think that things might get better if we were to take no action? Or perhaps the "cure" being offered will avoid some problems but make others still worse. For example, some critics argue that children with ADHD should not be given medication. I understand the drawbacks: medications can have side effects, and the child may feel labeled by the diagnosis. Stopping the medication may solve those problems, but it incurs other costs; kids with untreated ADHD are at greater risk for dropping out of school, teen pregnancy, drug abuse, clinical depression, and personality disorders.[15] So here's another way to flip the persuader's claim: ask yourself, "What happens if I *don't* do X?"

Flip Both

A final framing effect is somewhat less obvious; to counteract it, you need to combine the two flips we've discussed. This won't seem as complex once we make it concrete, so let's start with an adapted version of the problem used in the classic experiment on this phenomenon.[16] Imagine that an island nation of 600 people is preparing for the outbreak of a deadly disease. There are two alternative medicines that can be used to fight the disease, but the constraints of time and money mean that the islanders can select only one. The scientific estimates of the medicines are as follows:

> **Medicine A**: 200 people will be saved.
>
> **Medicine B**: there is a one-third probability that 600 people will be saved, and a two-thirds probability that no people will be saved.

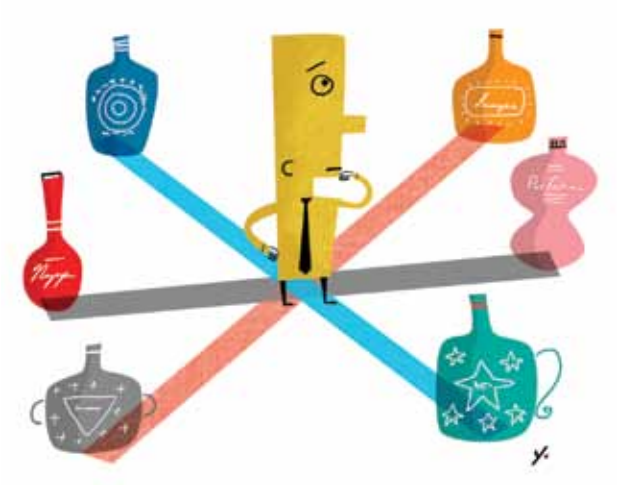
Which of the two programs would you favor? Before you answer, you should know that in this experiment, some subjects saw the version above, while others saw the same problem, but with a different description of the medicines:

> **Medicine A**: 400 people will die.
>
> **Medicine B**: there is a one-third probability that no people will die, and a two-thirds probability that 600 people will die.

Notice that medicines A and B have the same consequences in the two versions of the problem; "200 people will be saved" is the same outcome as "400 people will die." So now, like the hamburger situation (lean versus fat), we vary the description of the outcome (people saved versus deaths); but unlike the hamburger

situation, there's a choice to be made (rather than just rating the appeal of the burger).

The findings were striking. When offered the first description—which emphasizes the people saved—72 percent chose medicine A. But when offered the second description, which emphasizes deaths, just 28 percent chose medicine A. Why? Most psychologists interpret this as part of a very general bias in how we think about risk and outcomes. We are *risk averse* for gains, and *risk seeking* for losses. That means that when we must make a choice between two good outcomes (where we stand to gain something), we like a sure thing. Hence, when the medicines are described in terms of lives saved, we go for the sure thing—100 percent chance that 200 people will be saved. But, when losses are salient, suddenly we're ready to take risks to reduce the loss. Hence, in the second problem description, people are apt to choose medicine B, hoping for the outcome where no one dies.



Now let's put this into the strip it formula. In the first flip, I asked you to think about whether there is another way to describe the outcome (Z)—that's the lean versus fat hamburger business. In the second flip, I asked you to compare the outcome of adopting the change (X) to the outcome when you do nothing (not X), as in my dad's dentistry experience. In the island disease problem, we've combined them. Everyone was asked to consider a choice of what to do (X), but the outcome was described positively or negatively (Z).

Let's put this into an education context. Suppose you're a school principal and the central office in your district closely monitors the percentage of kids who read at grade level, as defined by a state-mandated test. With your current reading program, 34 percent of kids in your school are reading at or above grade level and 66 percent are not. If you adopt a new reading program, there is some chance that it will work well and things will improve. But there is also some chance that things will get worse—teachers will be unfamiliar with the new program and so won't implement it effectively, or the program just may not be as good as what you're doing now. We can frame this choice in terms of losses:

> **Choice A** (keep doing what you've been doing): 66 percent of kids read below grade level.
>
> **Choice B** (adopt new program): there's a two-thirds chance that 90 percent of kids read below grade level, and a one-third chance that 10 percent of kids will read below grade level.

Or we can frame the choice in terms of gains:

> **Choice A** (keep doing what you've been doing): 34 percent of kids read at or above grade level.
>
> **Choice B** (adopt new program): there's a two-thirds chance that 10 percent of kids read at or above grade level, and a one-third chance that 90 percent of kids read at or above grade level.

Naturally, I've fabricated the figures in these choices, but I'm sure you get the point. When we think about adopting a change, we understand that there's some chance that it will help, but there is also some chance that it will not work or even make things worse. We can frame these possible outcomes either as gains or losses. *When things are described as losses, we are more likely to take a risk*. So when a persuader emphasizes again and again that things are really bad, what is she really saying? She's saying that the current situation means a certain loss! The persuader is egging you on to take a risk. When the island problem was described in terms of losses (deaths), people were more ready to go for a risky solution to try to minimize the losses. If the persuader instead emphasized *gains*, you would be more likely to stick with what you're doing—where your gains are certain—rather than taking a risk to try to increase your gains.

> The particular way you describe the decision I have to make shouldn't influence what I decide to do, but people *are* affected by the description of the choice they are to make.

Whether or not the risk is worth it is, of course, a matter of the odds of the gains and losses, as well as how good the gains seem to you and how bad the losses seem. I'm emphasizing that you should look at these outcomes from all possible angles, because your willingness to try something risky is influenced by whether you think of yourself as trying to get something good or trying to avoid something bad.

Stripped, Flipped, and Clearly Not Worth Your Time

This first step in the shortcut—strip it and flip it—is meant to be devoid of evaluation. You are simply to gain clarity on the claim. One benefit of gaining clarity is that you can see that some claims are unworthy of attention. Once stripped and flipped, some claims are familiar, some are unacceptably vague, and some are so extravagant as to be unlikely to affect students. Let's look at each of these.

Familiar Stuff

One possibility is that the claim, once stripped of fluff, is revealed as something humdrum because it is already familiar. This phenomenon is especially prevalent in so-called brain-based education. Neuroscientific terms seem so impressive, so unimpeachably *scientific*, that it may not occur to you that the findings, though perfectly true, don't really change anything. The table below shows some neuroscientific findings that I have seen emphasized in books and blogs.

Neuroscientific Finding	Stripped
Dopamine, a neurotransmitter associated with both learning and pleasure, is also released during video gaming. Video games may be an ideal vehicle through which to deliver educational content.	Kids like games, so if we could make learning more like games, kids would like learning.
Although the brain weighs just three pounds, it commandeers about 20 percent of the body's glucose—the sugar in the bloodstream that provides energy. When glucose in the brain is depleted, neural firing is compromised, especially in the hippocampus, a structure vital to the formation of new memories.	A hungry child won't learn very well.
The prefrontal cortex of the brain is associated with the highest levels of decision making and rational thought. It is also the last part of the brain to be myelinated—that is, to be coated in the insulation essential to effective neural functioning. The prefrontal cortex may not be fully myelinated until 20 years of age.	Sometimes teenagers do impulsive things.
There is massive brain plasticity during the early years of life. Brain plasticity is the process by which the physical structure of the brain changes, based on experience. New networks are formed, and unused networks are "pruned" away—that is, are lost.	Little kids learn a lot.

Vague Stuff

Some claims, while far from mundane, are very hard to size up because they don't yield to your best efforts to put the claims into the format "If I do X, then there is a Y percent chance that Z will happen." In other words, you can't quite figure out either what you're supposed to do (X) or what is supposed to happen after you do it (Z). That problem ought to strike you as quite serious. You are embarking on this educational change because you think it's going to do some good. If you don't have it clear in your mind what Z is supposed to be, then you can't know whether or not the change is working. And if you don't have X clear in your mind, that means you're not sure whether you're doing the right thing to make Z happen.

Take, for example, the change of placing an interactive whiteboard* in a classroom. It would seem that this tool could be quite useful in a classroom. For starters, the teacher can capitalize on all of the software on the web. The United Kingdom invested heavily in interactive whiteboards, and today virtually every UK school has at least one. But the impact on student achievement has been minimal. It turns out that the presence of an interactive whiteboard in the classroom does not necessarily change teaching for the better, or even change teaching at all.[17] Teachers need not only the whiteboard but also substantive training in its use, expert advice about how to exploit it in lesson plans, and time to gain expertise and confidence (all of which, if it were provided, would fill in X in our formula).

It's not just technological changes that are underspecified. Many changes that urge project learning or group learning have this characteristic. Just as dropping an interactive whiteboard into a classroom is not enough to ensure that students will learn, assigning group work is not enough to ensure that students will learn how to work well in groups. These pedagogical approaches call for much more independence on the part of students, and therefore they depend on the teacher having strong relationships with the students and a good understanding of the existing relationships between students. The teacher uses this knowledge in hundreds of moment-to-moment decisions that guide the groups in the work without micromanaging them. Thus, changes that suggest lots of group work in the classroom are almost always underspecified. The methods are terrific when they work well—in fact, I think that for some types of learning they are probably ideal—but they are very difficult to implement well, and I seldom see a persuader acknowledge this difficulty.

The clarity of the outcome is just as important as the clarity of what you are supposed to change. For example, suppose that my son's first-grade teacher has told me that he's struggling with reading, and I notice that he shows no interest in reading at home. I hear about a technique called Language Experience[18] that is supposed to help struggling readers, and I decide to give it a try. Language Experience is quite specific about what you're supposed to do:

1. You have the student dictate something to you (a story, a description, anything that the student would like to relate).
2. You write down what the student says, periodically stopping and reading aloud to the child what you have written so far.
3. When the child is finished, you read the whole piece aloud to him or her.
4. You save the piece so that the child can reread it himself or herself.

The method is clear enough. The outcome, less so. It's supposed to help make reluctant readers more interested in reading. Okay, but how are you to know that's happening?

Knowing what a change is supposed to do is not quite the same as being able to evaluate whether or not it's actually happening. If a persuader promises that a change will make kids like reading more, how will I know that they do? I could just ask them: "Do you like reading more than you did six weeks ago?" But then again, maybe children's memory for that sort of thing is not that accurate. Then too, if the child says, "Yes, I like reading more," but then seems just as miserable during reading time at school, should I be persuaded by what she says, or by how she seems to act? If I am to evaluate whether a change is working, I need something concrete, and something that is well matched to what I was hoping the change would do. For example, perhaps I was prompted to look for a reading program because my child complained about reading in school and seldom read books at home; I could see

*An interactive whiteboard is used as a screen on which one can project an image from a computer. The screen is touch sensitive, so the teacher (or student) can interact with the computer by touching the screen.

whether the change prompts less complaining and more reading.

I also need some idea of what constitutes "success." Suppose that in the week before my son starts this new reading program, he doesn't pick up a book once. If, three weeks into the program, he is looking at books once each week, am I satisfied? Or does that change seem too small? In addition, I need to know when to expect that the good outcome will have happened. For example, you'd think it pretty odd if I told you that I had been using a reading program for two years with no sign of it helping, but I was still hopeful that eventually it would do some good. Okay, so two years without results is too long. What's more reasonable? Two weeks? Two months?

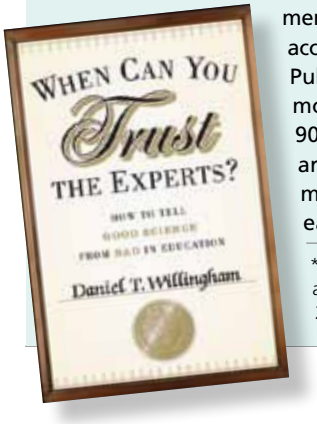
Once you've invested your time, you're likely to persuade yourself that the program is working, even if you're grasping at straws.

It's important to define the signs of success *before* you embark on the change. Once you're committed, your judgment of how it's working is all too likely to be affected by cognitive dissonance. "Cognitive dissonance" refers to discomfort that is a consequence of holding two conflicting beliefs simultaneously—and it may make it hard to evaluate how an educational change is working. Once you have been embarked on a change for a while, you've invested your time and that of the students or your child, and you may have a financial investment. Thus, if the change isn't really working that well, you will hold two incompatible thoughts in mind: (1) I invested heavily in this program, and (2) this program brings no benefits. It's hard to rewrite history and pretend that you *haven't* invested in the program, so you are likely to seek out reasons to persuade yourself that the program is working, even if you're grasping at straws.

The best way to protect yourself from this profitless self-delusion is to write down your expectations before you start the program: how big a change you're expecting, when you expect to see it, and how you'll know the change is happening. Writing down these expectations makes it difficult for you to persuade yourself that something is working when it's not, because you have already defined for yourself what it means for the change to be "working."

When Can You Trust the Experts?

Suppose you're a doctor. You go through medical school and residency, learning the most up-to-date techniques and treatments. Then you go into family practice, and you're an awesome doctor. But science doesn't stand still once you've finished your training. You were up to date the year you graduated, but researchers keep discovering new things. How can you possibly keep up with the latest developments when, according to PubMed.gov, more than 900,000 articles are published in medical journals each year?*



*PubMed.gov, accessed June 10, 2011.

Medicine has solved this problem for practitioners by publishing annual summaries of research that boil down the findings to recommendations for changes in practice. Physicians can buy summary volumes that let them know whether there is substantial scientific evidence indicating that they ought to change their treatment of a particular condition. In other words, the profession does not expect that practitioners will keep up with the research literature themselves. That job goes to a small set of people who can devote the time needed to it.

In education, there are no federal or state laws protecting consumers from bad educational practices. And education researchers have never united as a field to agree on methods or curricula or practices that have sound scientific backing. That makes it very difficult for the nonexpert simply to look to a panel of experts for the state of the art in education research. There are no universally acknowledged experts. Every parent, administrator, and teacher is on his or her own. That's why I wrote this book.

This book will not turn you into a research expert. Indeed, the point of the book is to obviate the need for expertise. And the shortcut I offer is imperfect, like all heuristics. You might apply these methods and still draw the wrong conclusion. But I can promise this. Whatever your current level of research sophistication, this book will help you ask better questions about the research base behind a product, and it will help you think through the wisdom of purchasing and using a product in your classroom, school district, or home.

–D.T.W.

Extravagant Stuff

Some claims about changes are neither familiar nor vague; they are too extravagant. From a cognitive perspective, if a persuader makes either of the following two promises, they are very unlikely to be kept: (1) that a change will help with *all* school subjects, or (2) that a change will help *all* kids with a particular problem. Let's consider each in turn.

Suppose that instead of being tutored in academic subjects, students performed a set of exercises tapping basic mental processes that underlie *all* cognition. You don't just tutor the student in history; instead, you make memory work better, or you improve critical thinking. Many of the "brain games" software packages and cognitive training centers make such claims.

The problem is not just that you can't train basic cognitive processes like working memory. The problem is that when you practice a cognitive skill—critical thinking, say, or problem solving—the newly acquired skill tends to cling to the domain in which you practiced it. That is, learning how to think critically about science doesn't give you much of an edge in thinking critically about mathematics. There are two reasons that critical thinking sticks to subject matter: sometimes you need subject knowledge to recognize what the problem is in the first place, and sometimes you need subject knowledge to know how to use a critical-thinking skill.[19] So when I see a change promise to improve a skill (such as "critical thinking") and it makes no mention of the need for knowledge to go with it, I'm suspicious.

The second type of across-the-board claim that ought to make you leery does not cut across the cognitive abilities of one child, but rather concerns a single ability in many children. I am suspicious of changes that promise to remediate a problem in *any* child. Why? Because each of the outcomes we care about for schooling is complex. Lots of cognitive and noncognitive processes contribute. Put another way, if a child is having problems with reading, there are many possible reasons for that. Thus, a change might help with reading difficulties that are due to a problem in processing sounds, but that's not going to work for a child who has a problem with visual processing. Hence, when a persuader claims that a change will help *any* child with a reading difficulty, the needle on my nonsense detector flutters close to the red zone.

We've covered the first of four steps in my shortcut for evaluating claims about educational changes. The table below summarizes all of the subcomponents of step one: strip it and flip it.

I urge you not simply to think about the actions in the table below but to write down your thoughts about them when you are considering a change. Forcing yourself to write things down will

(Continued on page 40)

Summary of Strip It and Flip It

Suggested Action	Why You're Doing This
Strip to the form "If I do X, then there is a Y percent chance that Z will happen."	To get rid of emotional appeals, peripheral cues, and proffered analogies that may influence your belief. The scientific method is supposed to be evidenced based and uninfluenced by these factors.
Consider whether the outcome (Z) has an inverse; if so, restate the stripped version of the claim using the inverse.	To be sure that you appreciate all the consequences of the action—for example, that an "85 percent pass rate" implies a "15 percent failure rate." We are subject to framing effects; we think something is better if the positive aspects are emphasized rather than the negative.
Consider the outcome if you fail to take action X.	To ensure that the promised outcome if you do X seems much better than if you don't do X. When there is a problem, it's tempting to lunge toward any action because it makes you feel that you are taking some action rather than standing idle.
Consider the outcome if you fail to take action, this time using the inverse of Z as the outcome.	To ensure that doing something versus doing nothing looks just as appealing when you think about good outcomes as when you think about bad outcomes. People are generally less willing to take risks to increase their gains—they would rather have a sure thing (even if the certain gain is small). But they are willing to take risks to minimize losses.
Evaluate whether the stripped promise is something you already know.	To be sure that what's being sold to you is something you can't do yourself. Technical talk—especially neuroscientific talk—can make old ideas seem cutting edge.
Evaluate whether the change (X) is clear; "clear" means that you feel confident that you know what to do and how the change will affect students' minds.	To ensure that the change is implemented as intended. Changes that sound good can go awry if they are not implemented in the classroom as intended or if students don't do what you're hoping they will do.
Evaluate whether the outcome (Z) is clear; "clear" means that there is some reasonably objective measure of whatever outcome you expect, how big the increase (or decrease) in the outcome will be, and when it will happen.	To be sure you will be able to tell whether or not the promised outcome is happening.
Check the outcome against this list of frequently claimed but extravagant and unlikely-to-work promises.	To be sure that claims are not unfeasible from a cognitive perspective—for example: an improvement in all cognitive processes, an improvement in a specific cognitive process (for example, critical thinking) irrespective of material, or an improvement for all students who struggle with a complex skill such as reading.

Worlds Apart

One City, Two Libraries, and Ten Years of Watching Inequality Grow

By Susan B. Neuman and Donna C. Celano

Like a bright beacon on the hill, the Lillian Marrero public library rises majestically above the deserted buildings and bulldozed voids below on Germantown Avenue. Here in the heart of what is known as the Philadelphia Badlands, makeshift garbage dumps line the sidewalks. The tall grass that surrounds abandoned lots does nothing to obscure the stacks of tires, worn stuffed chairs, and piles of bottles, bags, and takeout containers indicative of the profound decline in the economy of this part of the city since its heyday in the mid-20th century. Although it's a stunningly beautiful summer day, one that normally draws you outdoors, there's not a seat to be had in the library. By 10:15 a.m., you can hear the hum of dozens of people speaking in hushed tones, groups gathered around the computers, and some 40 others scattered throughout the library, browsing the stacks or reading quietly at one of its nine tables. Every 15 minutes or so, a library staff member sweeps through the room tucking in the vacated chairs, picking up trash and discarded books, and readying the room for the continuing onslaught of new patrons.

Grabbing the #23 bus, and traveling just 6.6 miles from the Badlands, you'll find a strikingly similar scene at the graceful Chestnut Hill library, next to the old trolley turnaround. Here too, the library is bustling with about 20 adults at the computers or selecting books. On this fine warm day, more than 20 preschoolers are cuddled along an architect's replica of a trolley, filled with

Susan B. Neuman is a professor in educational studies specializing in early literacy development. Previously, she served as the U.S. assistant secretary for elementary and secondary education. In her role as assistant secretary, she established the Early Reading First program, developed the Early Childhood Educator Professional Development Program, and was responsible for all activities in Title I of the Elementary and Secondary Education Act. She has directed the Center for the Improvement of Early Reading Achievement and currently directs the Michigan Research Program on Ready to Learn. She has written over 100 articles, and authored and edited 11 books. Donna C. Celano is an assistant professor of communication at La Salle University in Philadelphia, where she focuses on low- and middle-income children's access to and use of information resources. *This article is adapted with permission from* Giving Our Children a Fighting Chance: Poverty, Literacy, and the Development of Information Capital *by Susan B. Neuman and Donna C. Celano, copyright 2012 by Teachers College Press.*

ILLUSTRATIONS BY ENRIQUE MORERO

benches and murals, that harkens back to the day when trolleys were the primary means of public transit on this avenue.

"Cut," an enterprising young videographer might say at this point, for this is where the parallels end. Although there are remarkable similarities in the number of people who use these libraries, the nature of the activities within them could not look more different. There is Aquanette at the Lillian Marrero library, who is struggling to use the computer, looking for Section 8 housing after being told that she must vacate her residence immediately. There is Christian, totally engrossed in reading the *Hazardous Materials Endorsement Renewal Manual*, hoping to renew his commercial driver's license from the Pennsylvania Department of Transportation. Several pages of copious notes by his side offer evidence of just how seriously he takes his study, while a thick pamphlet, "Purgatory and Prayer," hints at what sustains him. There is Michelle, watching her only child, Theo, play on the computer, recognizing that her own computer illiteracy will limit the potential for academic achievement of her unusually inquisitive child.

It would be easy to attribute Reynaldo's problems to personality: he was irresponsible or lazy. But we see him daily at the *library*.

In the Chestnut Hill library, there is the mother dutifully looking for guided leveled readers, coaching her 6-year-old so that he's ready to zip right through to grade-level 3. There's little 2-year-old Phoebe, whose mother can't seem to resist giving an informal vocabulary lesson while she reads a story: "It says he has a puzzled expression. What do you think 'puzzled' means?" And there is Beth with her two children in tow, grabbing the latest John Sandford and Jeffrey Archer mysteries for herself along with a couple of Peggy Rathmann and Judith Viorst books, which apparently are always winners with her young girls.

The underpinnings of desperation so palpable in the Lillian Marrero library result from a confluence of circumstances hardly imaginable in Chestnut Hill: Poverty. Segregation. Environments where joblessness and lost hope are the norm. While many of us may vaguely recognize the ghettoization of poverty, few can appreciate how it concentrates in environments that are isolated geographically, socially, economically, and educationally.

This spatial concentration of poverty and affluence—in this case *within the same school district*—virtually guarantees the intergenerational transmission of class position. Poor children barely have a chance to succeed. Rich children have little option not to.

You can see how social geography works against human capital formation at the Lillian Marrero library in the Badlands. Reynaldo, a young Latino man, 22 and out of work, spends time at the library every day trying to learn more about anime, a form of film animation that originated in Japan. He dreams of being a film director or a screenwriter, an interest he developed thanks to his English teacher in middle school. But due to family problems, he dropped out of school in the 11th grade.

Chris, 25, also a regular at the library, enjoys the quiet air-conditioned setting to support his interest in poetry—mostly Langston Hughes. He also studiously works on learning another language, and occasionally uses the Rosetta Stone software on the library's computer. But he, too, dropped out of school. "I enjoyed math at one point, then it all fell apart." As he describes his experience at the local high school, the brightness in his eyes now dims. Until now, Chris had been sitting tall, leaning slightly forward, animated in describing his interests. Now he leans back and slumps down, his body language divulging volumes.

It would be easy to attribute Reynaldo's and Chris's problems to some personality or dispositional factors: they were irresponsible, lazy, or lacked the desire to excel in school. Such designations reflect a characteristic feature in social psychology known as the *fundamental attribution error*,[1] which is the general tendency for people to overestimate individual factors and underestimate situational factors. But the very fact that we see them and their friends daily at the *library*, not at a bar or a pool hall, indicates that situational characteristics are at work. It is not that Reynaldo and Chris have few aspirations; it is that neither has been born into a social position with the resources that could give them a fighting chance.

Same City, Different Paths

"Picture perfect" is how you might describe the gentrified neighborhood of Chestnut Hill. As you stroll down Germantown Avenue, the community's main thoroughfare, you will find a

streetscape that is beautifully maintained and full of pedestrians enjoying it. The quaint mile-long business strip along the tree-lined main street is home to a range of stores—everything from an independent pharmacy and a shoe repair to art galleries, day spas, antiques dealers, restaurants, banks, and much more. The sidewalks and streets are swept clear of debris, expensively wrought metal waste receptacles are emptied before they get full, and meticulously designed window boxes, sidewalk planters, and hanging baskets add a homey splash of color. A wide variety of 19th- and early 20th-century residential buildings have been preserved, owned nowadays by attorneys, business executives, and other professionals. Although a growing number of professional African American and Hispanic families have moved into the area, with a fair number of recent immigrants from South America and Eastern Europe, nearly 80 percent of the population is white.

Inviting and calm, pleasant and clean, it's tempting to stay and hang out for a while in one of Chestnut Hill's outdoor cafés. The determined traveler, however, has only to catch the bus down Germantown Avenue, and within the span of four or five songs on your iPod, you soon come to another world.

Here, as we turn off Germantown Avenue onto Allegheny Avenue, is the heart of the Philadelphia Badlands. Again we find historic buildings, but the churches and residences are now skeletons of their former grandeur. Row houses are boarded up. A large school stands abandoned. Graffiti adorns high walls. The few businesses operating here close their doors early each day, shuttered behind high iron gates. Families strolling down Lehigh Avenue face what looks like a war zone. Trash is everywhere: mounding up on sidewalks, floating across streets, and hiding under cars. Young men hang out on street corners brazenly selling drugs. Gang activity is a constant. Communication among groups often breaks down. About 53 percent of the families speak English at home while 46 percent speak Spanish as their primary language. Nearly all children born here live in households below the poverty line.

These contrasting ecologies of affluence and poverty have become the source of increasing racial prejudice, growing class stratification, and widely different opportunities to become well educated. To break down these barriers, a number of major foundations in the city have focused their funding on creating comprehensive community-based initiatives, rooted in the belief that institutions can serve as key leverage points for stimulating social change. One such initiative came from the William Penn Foundation. Starting in 1996, the foundation launched a $20 million effort to transform 32 neighborhood branch libraries in the city into a technologically modern urban library system. Its goal was to enhance access to print and technology for all children and families in Philadelphia.

Could libraries serve as a fulcrum for leveling the playing field? Might they serve to promote reading and the development of information capital? The foundation asked us to examine these and other questions. In each community, stunning Carnegie libraries—Chestnut Hill's in Georgian Revival style and the Badlands' in white limestone Grecian style—stood as their center. From this vantage point, we could study how each of these communities engaged students in the development of reading and information capital in a context where resources were fairly equal.

We developed a series of studies to examine how these environments influenced individual behaviors and, in turn, how individuals influenced the environment. Along with a multiracial team of 10 doctoral students in urban ethnography from Temple University, we engaged in multiple fieldwork techniques—situated listening, observations, and interviewing. Each study was informed by the previous analyses, giving us a richly detailed understanding of activities and interactions not limited to a single setting, but designed to contrast settings. In all, we conducted 21 different studies over 10 years—roughly 1998 to 2009. Here, we attempt to interweave our data to better understand how children from these two very different communities develop and become educated.

We canvassed each neighborhood, walking the streets, riding the buses, and taking the subways. We visited community institutions in the neighborhoods—child-care centers, elementary schools, and local organizations. Knowing that children learn about print through contact, experiences, and observations of written language used in their everyday lives, we looked at a range of experiences, trying to understand how the environment might either support or deny children's access to print. To better compare and contrast these environmental factors, we counted the quantity and selection of children's books that parents could conceivably purchase in the neighborhood, the public areas where children might observe people reading, the quantity and quality of books in the local child-care centers that children would most likely attend, the quantity and quality of books in the local elementary school libraries, and even the print signs, labels, and logos in the environment. Although each of these influences most likely plays some role, together they play a powerful role in helping to shape young children's entry into print and the world of information.

The contrasting ecologies of affluence and poverty are a source of increasing racial prejudice and widely different opportunities to become well educated.

We found inequities in the number of resources, the range and quality of materials, the availability of public space and places for reading, and the amount and quality of literacy materials in child-care centers and in elementary schools. Differences in the economic circumstances of children who live in these neighborhoods translated into extraordinary differences in the availability of print resources.

But enter the local libraries and you enter another world. Here, resources are close to equal. Book collections at both

branches are extensive, with nonfiction sections full of local culture. You can find an old favorite or something brand-new in the varied fiction collection, and borrow an eclectic assortment of music CDs, audio books, or DVDs. Branch managers are experts about their local communities, knowing many of their patrons by name. Both children's librarians are welcoming, knowledgeable, and never seem to have met a child they couldn't wow with a good book.

In these stately stone buildings with their tall, arched windows and high, high ceilings, there's a natural experiment in the making—an ideal setting to watch how reading patterns compare in these two communities in the one place where the playing field of reading resources is more level. Although the Chestnut Hill branch might boast that it has 34,747 items in its adult/teen collection and 24,306 items in its children's collection compared with Lillian Marrero's 23,489 items for adults/teens and 17,953 items for children, at least to the untrained eye, there's a similar effect. What you see is akin to a candy store of reading choices including newspapers, magazines, and books on every imaginable topic.

Striking similarities initially appear: teens in both libraries spend the same amounts of time reading. It's not until you look below the surface that you find striking differences.

Striking similarities initially appear in the patterns of reading in these two different neighborhoods: adults and teens in both libraries spend almost exactly the same amounts of time reading and in related activities. It's not until you look below the surface that you find an equally striking pattern of differences, reflecting both the immediate effects of the environment and its longer-term impact on the development of information capital.

Let's take a look at the young adult section. Here, the activity in both libraries is dense and active. We tally 157 teenagers, or about 8 teens per hour, at the Lillian Marrero library, and 115, or about 6 per hour, at Chestnut Hill. But when we look closer, we begin to notice a curious pattern: in the Badlands, although students read at their age level about 58 percent of the time, 42 percent is spent reading down. You might see, for example, early teens reading *Highlights* magazines, books from the Dr. Seuss collection, even board books—materials that are far below their age level. Compare this with students from Chestnut Hill: most of their reading is at their age level (93 percent), with a small percentage reading up using above-level materials (7 percent).

Although the amount of time spent reading is almost equivalent in both settings, the challenge level is strikingly different. Given that low-level resources are likely to have limited relevance to their current lives, why would students from the Badlands select materials of lesser challenge? Could it be because these students are poor readers? Does it have something to do with self-efficacy, their perceived beliefs about their reading abilities? Or might it reflect how they are socialized early on about reading and its purposes? We turn to the preschool sections of the libraries to look for the answers.

Same Curiosity, Different Opportunity

In the often-caverned preschool settings, we adjust our strategy: we look at the activity pocket of the setting more globally to understand how children become socialized around books. We conduct our observations in two-hour increments for a total of 20 hours in each setting, attempting to capture interactions with toddlers and preschoolers around books. Additionally, we note the approximate length of stay throughout the visit as well as the family member who generally accompanies the child. Our observations indicate stark differences in attendance, activity, length of stay, and checkouts.

It starts with the adults. In the Chestnut Hill library, children always seem to enter the preschool area accompanied by an adult—most often their mother but occasionally a father, a nanny, or a grandmother. In comparison, in the Badlands, young children almost always enter alone, sometimes with a sibling but very rarely with an adult. Occasionally, an older brother or cousin might help locate a book or read to them. But more often than not, we see short bursts of activity, almost frenetic in nature. With little to do, children wander in and out with relatively little focus. Rarely are books checked out.

For children in Chestnut Hill, the activities are highly routinized. Invariably, the accompanying parent takes charge, suggesting books, videos, or audio books to check out. Sometimes the parent might pull a book down and let the child examine it or ask a child what types of books to look for. But the parents are clearly in charge: in a very authoritative manner, they sometimes note, "That book is too hard for you," "That is too easy," or "This one might be better." Parents steer children to challenging selections, sometimes appeasing them with a video selection as well. Visits are brief, highly focused, and without exception, end with checking out a slew of books and, often, DVDs.

Inside the spacious preschool area at Lillian Marrero, separated from the rest of the library by "castle walls," we find bins and baskets, crates and shelves full of books, and small tables with computers. We watch a father with two children in tow enter. He spreads some papers on a table. "Go sit down! You're in a library!" he says in a loud whisper. "Go get a book," he orders. One child sits in the stroller while the preschooler picks *Henry's 100 Days of Kindergarten*, a brightly illustrated picture book, and starts to page through it. After a few minutes, she turns to her dad and says, "Can you read this? Please?" Looking like he'd much rather finish his work, he gives in. With the child sitting next to him in the little chair, he begins to read haltingly, pointing to each word as he goes. "In February, it sn… sn… um… snows." "In June, Henry likes… ice… cream." He stops, "Hey, ice cream," recognizing the word he just decoded. "I love ice cream, don't you?" The little girl positively beams. He takes about 10 minutes to read the book, studying the pictures and saying each

Dan, the "Science in the Summer" Man

There's something incalculable about developing expertise. It is inherently motivating—even for young children. As intuitive scientific thinkers, they seem to have an instinct for seeking out evidence, noticing patterns, drawing conclusions, and building theories. When they have an opportunity, that is.

We're in the same small room at the Lillian Marrero library that we have visited so many times before. But today, something is different. It's quiet. Here sits a group of 5-year-olds, intently listening to a discussion of combustion and gases. They are wearing safety glasses, like those you would see in a science lab. In front of the room is Dan, the "Science in the Summer" man, dressed in shorts, sneakers, and a lab coat. He reminds us strikingly of "Bill Nye the Science Guy," only without the bow tie. In bright letters on a nearby whiteboard are the words "physical change, chemical change, atom, and element." It seems like pretty heady stuff for 5-year-olds.

Dan has given them a problem to solve. Each child has a piece of paper. He asks, "Can you make paper stretch?" "Nooo!" the group giggles and squeals with delight. "But what if we changed the physical properties of the paper?" Dan asks as he whips out a pair of scissors.

He hands them each a pair of scissors and asks them to solve the puzzle. It's a pretty complicated task, but the kids handle it well. He talks throughout:

Dan: Very good! You are amazing! You figured that out all on your own.
Destiny (about her friend Louis): He's slow!
Dan: It's okay. Everyone goes at their own pace.
Cinai: I messed up!
Dan: In science, we don't call it mistakes. In science, it's just, "Look! I did something new."

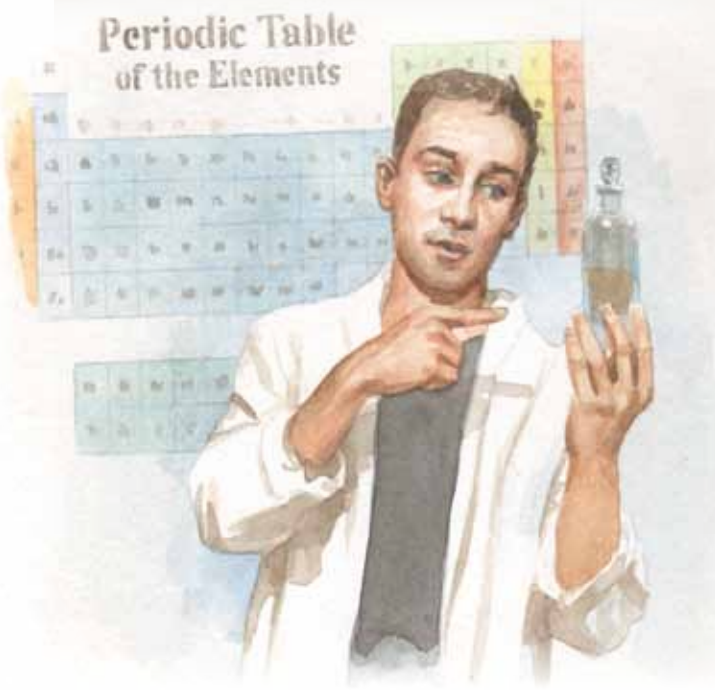
After the kids "stretch" out their papers, Dan says it's time to work on "other kinds of physical changes." He brings out other materials with different physical properties, and then pulls out a cylinder filled with baking soda. He pours vinegar on the baking soda, and the kids do "oohs" and "aahs" over the eruption. They talk about the many uses of baking soda in cooking. Dan explains, "What we just saw was a chemical change. How did it happen?" Louis adds, "I think it's because of the pressure. There is nowhere else for it to go."

To our astonishment, now Dan pulls out the periodic table. He gives each kid a smaller version. He talks about the different symbols and colors: "Orange is for gases, blue is for liquids, white is for...?" "Solids!" the children chime in. He goes on about Au (gold), NaCl (sodium chloride), and all the differences among gases, liquids, and solids, to the children's delight. He then gives them each a penny, a cup of vinegar, and some salt; he asks them what they think will happen. The conversation is lively, not noisy, but energizing as the children try out their ideas in simplified experiments. A solid hour passes before they take a break.

Watching the entire activity, a colleague of ours later on raises some concerns. "It's great that the kids were so engaged, but his material is way over these children's head. Come on… explaining physical properties… to 5-year-olds?" How predictable. If this activity had taken place in the Chestnut Hill library, parents and relatives would be chortling over how their precocious little scientists were learning about the periodic table. Here at Lillian Marrero, there was concern that the material was developmentally inappropriate.

Just about the best empirical evidence of whether something is or is not developmentally appropriate, however, is to watch children's behavior. Throughout the entire hour, they were actively engaged, putting together facts that would enable them to develop their scientific reasoning. They were getting a sense of the different kinds of things scientists do in their professions. Dan was helping them weave together multiple moments of learning into a broader domain. He was supporting their interests and building expertise from everyday activity. To us, he wasn't just another camp counselor. He was a hero.

–S.B.N. and D.C.C.



word slowly as he points. When he's finished, she asks, "Can I take this home?" "Not this time," he answers.

Other parents seem distracted, lost in their own worlds. A mother sits 10 feet away in a chair marking her book with a yellow highlighter while her 6-year-old son explores the stacks alone. He forays several times for books, returning with selections to show his mother for her approval. "No, we've already seen them," she says, sending him back to find something new. He returns several minutes later. Collecting what appears to be one, two, or three items from him, the mother gathers the rest of her belongings. Before she heads for the door, she points to the librarian who is now sitting at her desk. "Say bye to the lady," the mother says to the little boy. "Bye-bye, lady," he dutifully responds.

As you enter the preschool area of the Chestnut Hill library, you are immediately confronted with a bit of a crowd scene—the couplings of parents and children together, poring over books,

making selections or just reading together. In quiet voices, you hear a good deal of "parentese"—the sing-songy set of tones that the mothers and fathers use when they are talking with their young children. A mother will slow down her language and articulate each sound as her child looks at the pictures in a book. In response to her 18-month-old toddler's interest in reading "Pip-Pip," a mother grabs the book *Pippa the Dinosaur* and says, "That's right, it's Pip---pa the Dinosaur."

The parents are highly attentive to their children. Phoebe, age 2, bounds up to her mother with a board book to read. Although her mother is talking to a friend, she stops and instantly turns her attention to her child. She reads the first page, "I've got sunshine on a cloudy day." As the child looks at the picture, her mother adds, "I think this is a song." She turns the page. Phoebe points to the baby in the photo, and the mother asks her, "What is the baby doing? What does this baby have?" Little Phoebe doesn't answer. The mother asks another question, trying to help Phoebe respond. She points to the colorful toy guitar that the child in the picture is holding. "What is that?" No answer. "What does this look like?" the mother gently persists. Phoebe whispers in her ear, "A guitar." "Yes. It's a play guitar, but not like Daddy's. His is made of wood. Who is holding the baby?" Phoebe answers, "A daddy." "Yes, it looks like Daddy." The interaction comes as close as you can get to a textbook example of instructional scaffolding, the kinds of helpful interactions between adult and child that enable the child to go beyond his or her current expertise. The mother clearly defines her expectations and, at the same time, supports Phoebe's ability to negotiate meaning through oral language.

Material resources represent only one kind of support for reading development. There is a more critical factor: class- and culture-based parenting practices.

The paradox of leveling the field is that in equalizing resources, the field is still unequal. Material resources, even when they are comparable in libraries, represent only one kind of support in creating an environment for reading development. We clearly see that there is a more critical factor: class- and culture-based parenting practices. Parents' active monitoring and guiding of their children's activities at Chestnut Hill are examples of "concerted cultivation," the child-rearing strategy identified with middle- to upper-middle-class families.[2] These mothers often have the luxury of part-time employment and/or nannies that allow them to devote "quality time" to their children. In contrast, children in the Badlands are more likely to be raised in a spirit of "natural growth," a child-rearing strategy in which children learn implicitly and explicitly—but not very efficiently—through observation and their own experiences. Many of these parents work long hours at low pay and struggle with ever-changing work shifts. As a result, young children often spend less time in the company of adults such as parents or teachers, and more time with other children in self-directed, open-ended play (for which affluent parents often profess nostalgia these days). The effects of these differing strategies—which are not only a matter of resources but also of beliefs and habits—are to reinforce class divisions.

For early literacy, these differences have profound implications. In the spirit of concerted cultivation, toddlers and preschoolers in Chestnut Hill appear to be carefully mentored in selecting challenging materials; in contrast, those who experience the process of natural growth in the Badlands receive little, if any, coaching. Left on their own, these children resort to playful activity of short bursts, picking books up and putting them down with little discrimination and involvement. In Chestnut Hill, activities are carefully orchestrated to encourage reading for individual growth and development; in the Badlands, no such mentoring is available—the children are on their own.

In our quantitative data, the patterns are clear. In the Chestnut Hill library, for every hour, 47 minutes is spent by an adult reading to a child. Estimating the number of words children would hear within this hour (based on the length of the book and the time spent reading), we calculate about 2,435 words and their referents in print. During the same time period, not one adult entered the preschool area in the Lillian Marrero library. A generous estimate of words the children likely experienced as they flipped through

books is 180, none of which were "read" to the child or decoded. By our estimate, we figured that children in Chestnut Hill hear nearly 14 times more print words read to them than those in Lillian Marrero.

Same Computers, Different Uses

With its small-scale furniture and its sense of detachment from the rest of the library, the early learning computer station at the Lillian Marrero library is a bit of a haven for the younger set—toddlers and preschoolers, their siblings and friends. The computers are standard issue but the keyboards are child-friendly, brightly coded with primary colors to identify the alphabet keys apart from the function keys. On the monitors, icons of a musical keyboard cue children to a host of math and reading choices and other programs. There's the Curious George software featuring a nice reader-friendly voice, the Reader Rabbit learning-to-read series, the Kidspiration software, and book-game sets like *Stellaluna*, *The Cat in the Hat*, and *Green Eggs and Ham*, all seeking children's attention.

The play, however, is not as self-sufficient as it appears. Toddlers and preschoolers, although they appear capable, are not all that intuitive at negotiating the software. Subtle things throughout programs require adult assistance and interpretation. This occurs with both the nomenclature, such as "mouse," a term that doesn't make sense to a small child, as well as the poor choice of words sometimes used to illustrate the lessons, including the letters of the alphabet.

Without help, children can revert to random clicking—similar to the way they flipped through books. We watch as a preschooler, alone, runs her cursor over a few icons, each shouting out its name. Picking *Green Eggs and Ham*, she clicks on it and two options appear: "Read to me" or "Play the game." She starts the game, but can't follow the narrator's directions. Soon she clicks to another program, eventually becoming equally frustrated. She starts clicking away randomly, switching from program to program. In less than two minutes, she clicks, switches, clicks, switches about 20 times. As her frustration grows, she starts pounding on the keys as if they are a piano—until the computer screen freezes.

She needs help, yet behind her, sitting quietly, is her mother, who is watching. She does not offer assistance. There is no interaction between them. Once the program freezes, the child runs off in another direction with her mother trailing behind her.

This is the pattern we would come to document after the technology had been in place for about two years. With little supervision, random clicks would inevitably lead to computer freezes, breakdowns, and frustrations. We reasoned, however, that once the adults became more comfortable with computers, and once the technology glitches were sorted out, patterns would change. And we were right—to a degree. The technology did improve, with computers less susceptible to freezing and breaking down. But the patterns of the adults remained remarkably stable. In the Lillian Marrero library, children were generally on their own.

A few years later, for example, we observe a mom and her four tots, about 3 and 4 years old, all watching the *Green Eggs and Ham* story in the computer area. The children are glued to the screen. It is very much like TV—the words come up on the screen and a narrator tells the story accompanied by sounds and music. The group watches it for about 10 minutes. The parent sits toward the back of the group. She says nothing, and there is no interaction or discussion about the computer activity at all. After the program is over, one of the children pulls up a reading game associated with the story. This game requires the group to become more involved. One child controls the mouse; the others are really lost about what to do. "How do you do this?" one boy asks his mom. She shakes her head and does not offer help. The boy clicks away, obviously lost. Soon an older girl, around 12, comes over and takes over the activity as the other children watch. After a few minutes, the mom gets up. "Come on, it's time to go."

Sometimes we observe parents trying to cheer on their children—but from afar. We watch a small gang of little boys, ages 4 through 9, playing a computer game. We quickly see that the 5-year-old is clearly in charge. An older child tries to take over but has to ask the 5-year-old what to do. Together they play for at least 20 minutes. At various times, the mother calls out encouraging things, such as "Way to go!" and "How about that!" Other than that, she does not comment. She stays in the back the entire time. Children address their questions to the 5-year-old, who "knows more than any of us," said the mother.

In Chestnut Hill, for every hour, 47 minutes is spent by an adult reading to a child. During the same time period, not one adult entered the preschool area in Lillian Marrero.

Without parent support, the computer began to take on a role we had not anticipated in our initial analysis: the video arcade. Despite the carefully crafted phonics lessons, alphabet activities, and well-told stories, most software programs reward children with games. Just like the video arcade, children can move through lessons rather haphazardly—selecting options at random to reach the ultimate reward: fireworks, clanging of bells, and/or shoot-'em-up galleries. Left to fend for themselves, this is exactly the activity we found young toddlers and preschoolers engaged in on the computers at Lillian Marrero.

At the Chestnut Hill library, ambivalence might be the best word to describe parents' reactions to the preschool computers, at least when they first arrived. Frequently parents would steer children away from them, saying, "We're not here for the computers. We're really here for the books!" But especially in the beginning, when children gravitated to the computer anyway, mothers would remain highly involved in the process. Rather than fight it, they soon joined in on these activities.

(Continued on page 22)

Don't Level the Playing Field

Tip It Toward the Underdogs

Our research describes how the contrasting ecologies of affluence and poverty contribute to disparities in the development of information capital. To reverse the growing polarization between the so-called haves and have-nots, here are six policy recommendations, recognizing that they represent only a beginning to a much-needed process of serious thought, reflection, debate, and action.

1. Unlevel the Playing Field: Too many government programs, like Title I, as well as foundation efforts are aimed at "leveling the playing field," giving high-poverty students a leg up by equalizing educational resources with more affluent communities. Today, the "comparability" provisions in federal and state funding programs, for example, are still the tools that officials use to ensure equal educational opportunity among lower- and higher-income students. But as we have seen, equal community-based resources do not create equal opportunity. We need to provide more resources and additional supports to students in poor neighborhoods. As a policy strategy, "resources" are most frequently defined as extra funding. Surely, additional funds targeted to more computer and Internet resources in the Badlands would help make up for the fact that most of the neighborhood students do not have high-speed Internet access at home. However, additional targeted human resources are needed as well. Placing more adult mentors in the preschool area in libraries is just one type of additional support that could have enormous implications in the amount, type, and quality of early shared reading. Using technology specialists to create and guide children through knowledge-centered Internet environments is another type of additional support. Training assistants to craft opportunities for more intensive engagements with resources (no more random flipping and clicking) is crucial for these children's further learning. Whether through mentoring, additional adult involvement, more challenging and culturally relevant learning opportunities, or higher-quality parent-child interactions, the goal should be to compress more experiences and practice into the time available.

2. Parent Involvement Training: Nearly ubiquitous, the story hour in libraries has introduced millions of youngsters to the joys of reading and listening to stories. But the story hour could do more: there is an important role for librarians and teachers to play in training parents in the skills associated with successful reading. In our experience, parents in the Badlands wanted to provide children with a good start; however, they often didn't know what they could do to help.

Helping parents understand which skills and capacities children will need to become successful readers builds social capital. Such knowledge helps parents make judgments about what kinds of language and literacy experiences to look for in preschool and child-care settings, what to look for in initial reading instruction in kindergarten and the early grades, what to ask principals and others who make decisions regarding reading instruction, and whether their child is making adequate progress in reading or needs additional instruction. In short, parent training ought to unlock the mystery of what it takes to ensure children's success in school.

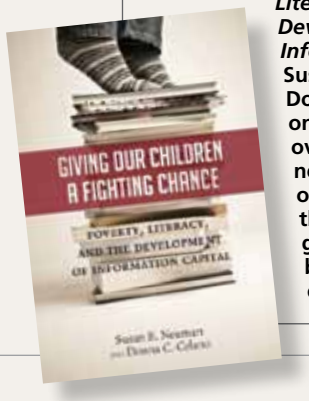
Literacy begins in infancy, with a child's first exposure to language, and then progresses in rather predictable ways through language learning, vocabulary and knowledge accumulation, early exposure to books and to the sounds and symbols of language, experimental play with reading, accurate decoding, and fluent reading, all the way to the most advanced forms of reading to learn and constructing meaning from multiple texts. We need to help parents understand the crucial role they play in children's early lives. Parents are not just disciplinarians, backup teachers, or homework completers; when they have the necessary knowledge and skills, they are supportive coaches and guides as their children learn to read. The informal, everyday literacy lessons they provide for young children—by reading to them, telling them stories, and cheering on their efforts to learn—shape what children know and how they come to see the place of literacy in their own lives. It is imperative that we engage all parents in these endeavors.

3. Computer Training and Assistance: "Googling" has become common parlance to many people. It is not familiar to all, however, particularly those in low-income communities. The digital divide is still an unfortunate byproduct of living in poor areas where Internet access is often limited or unreliable.

If libraries are to provide equal access to resources for all our citizens, we must consider interventions and trainings that strategically provide information navigation skills to adults and their young children to promote more educational uses of the library resources. Recent advances in technology offer extraordinary support for reading development and information gathering. However, as we saw throughout our observations, these resources will not be used to full advantage without training and support. These new technology tools are not self-teaching; pre-readers and beginning readers need the careful scaffolding of an adult who may use the clever animations and multimedia characteristics in ways that turn the work of reading into play. Even the most comprehensive software cannot substitute for the power of adult guidance and support for enhancing student learning.

Equal community-based resources do not create equal opportunity. We need to provide more resources to students in poor neighborhoods.

The main article and this sidebar are excerpted from *Giving Our Children a Fighting Chance: Poverty, Literacy, and the Development of Information Capital* by Susan B. Neuman and Donna C. Celano. Based on 21 studies conducted over 10 years in two neighborhoods, it offers a new lens on the achievement gap—and the need for both school and community solutions.



4. Access to Information: It seemed like a yearly ritual: throughout our 10 years of studies, city budget allocations for libraries would be on the cutting block. Particularly in the poorest neighborhoods, budgets would be slashed, and libraries even threatened with closure. Supposedly saving precious taxpayer dollars, hours of operation would be curtailed, weekends limited, and librarians inevitably asked to do more with less. In essence, access to information for poor families and their children was seen as expendable.

It seems as if we have forgotten how valuable libraries are to our society. We expect much of them—from helping us perform our civic duties to understanding our fundamental rights in a democracy—but often we give little in return in terms of public support. Nevertheless, the library as an institution has continued to serve its mission: to support the virtues of information and reading, to offer people opportunities to read what they choose rather than what is chosen for them. Unlike school, the public library has no predetermined curriculum or pedagogical emphasis; rather, it is designed as neutral space available to all. Historically, this institution has helped to reduce inequity by making information readily accessible to the community at large. Today, it is serving this role as nearly the sole safety net for those who lack access to print and other technologies.

Library closures, limited hours, and diminished services do great harm to all citizens, but especially those in poor neighborhoods. Instead of closing them down, we need to recognize their central role in revitalizing communities and support them with greater funding. Libraries in our neediest communities should be open longer, with a greater number of resources and services. They serve as a lifeline of information to their local citizens.

5. Engage Students' Minds: Far too often, people underestimate the capabilities of students who live in poor neighborhoods, equating poverty with low ability. In reality, these students are eager to learn and develop greater expertise if given opportunities to do so. It is so rare, unfortunately, that such opportunities are offered to them.

In the Badlands, there are few preschool options; the Head Start and Even Start federal programs offer high quality but limited hours of care. More than likely, a child here will go to a local church-based program or be raised by a relative, such as a grandmother. The unsettling work patterns and varying shift schedules makes stability in child care nearly impossible. One or two decrepit playgrounds offer children a place to play. A few community organizations proudly exist, but their focus is on keeping the impinging ills that accompany poverty—joblessness, drug use, teen pregnancy—in check, rather than providing an enriching environment for children. Observing summer programs, we saw students treated to a pabulum of mind-numbing activities that merely filled up the hours until the summer was over.

Students come to expect less and give less in return. They perceive themselves as poor learners and seek avoidance strategies, including dropping out mentally or physically from school. These students need adults who believe in their abilities and trust that they are capable learners. They need programs that help to develop their expertise in domains of interest and offer immersion in communities of practice, recognizing that enculturation lies at the heart of learning. When we give students opportunities to become involved in cognitively stimulating topics that spark their interests and imaginations, we begin to tap their extraordinary potential.

6. Economic Integration: Schools today reflect their neighborhoods. In geographically concentrated neighborhoods of poverty, children will attend schools in which over 90 percent of the students are poor. Similarly, in geographically concentrated neighborhoods of affluence, children will attend schools in which over 90 percent of students are affluent. Throughout our country this pattern persists: schools are economically segregated, further exacerbating the problems of inequality.

If we are truly committed to improving the education of poor children, we will have to get them away from learning environments smothered in poverty. Schools in poor areas typically struggle for many reasons, but among the most prominent are their rotating faculty of inexperienced teachers, low-level curricula, and ineffectual administrators. In contrast, schools in affluent areas, on average, are more stable, with more highly trained teachers, more rigorous curricula, fewer discipline problems, and more support from volunteers.

Studies have shown that economically integrating schools can be a feasible strategy for changing this scenario.[1] This is being done in some places with impressive results. An important study conducted in Montgomery County, Maryland, showed that low-income students who were enrolled in affluent elementary schools performed far better than similarly low-income students in higher-poverty schools in the county—even when the higher-poverty schools were given extra resources.[2] After seven years, low-income students in affluent neighborhood schools cut the large initial gap with middle-class students by half in math and by one-third in reading. Students performed at almost half a standard deviation better than comparable low-income students in higher-poverty schools. Further, achievement scores for the middle-class students did not decline or show evidence of any negative effects.

–S.B.N. and D.C.C.

Endnotes

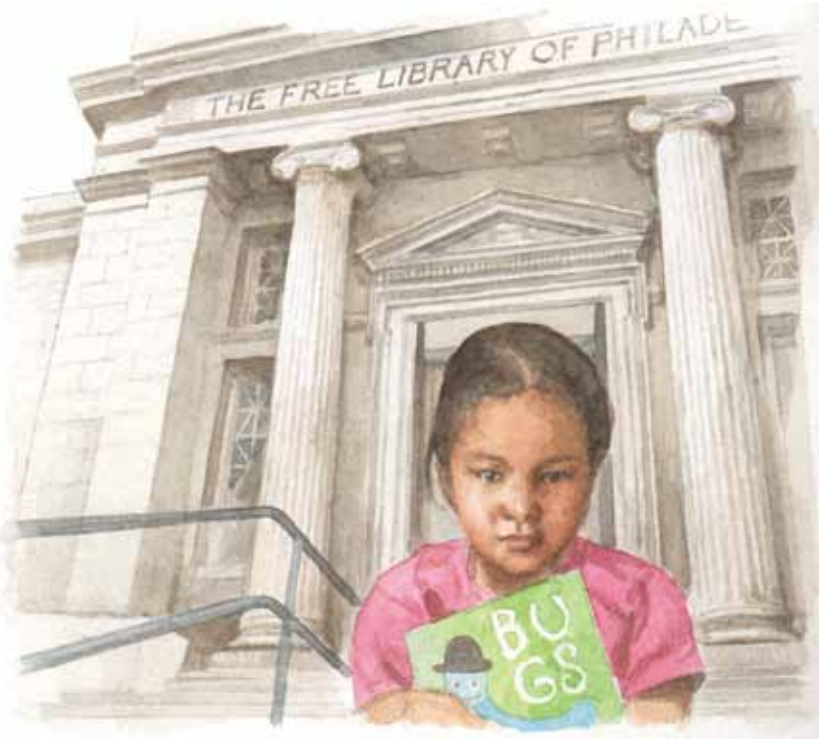
1. Richard D. Kahlenberg, *All Together Now: Creating Middle-Class Schools through Public School Choice* (Washington, DC: Brookings Institution Press, 2001).

2. Richard D. Kahlenberg, ed., *The Future of School Integration: Socioeconomic Diversity as an Education Reform Strategy* (New York: Century Foundation, 2012).

(Continued from page 19)

Four-year-old Scott and his mother are having a great time playing Millie's Math House. He is using the mouse and generally doing okay. His mother gives him directions, encouragement, and suggestions on how to play. She is very involved, laughing when something amusing happens on the screen and rubbing his back when he does something right. She is seated very close to him and very close to the screen. "See that one has seven jellybeans, but you need five jellybeans for it to go into the #5 slot. So what do you need to do?" Scott clicks on the appropriate thing, and his mother rubs his back saying, "Good job!" He stays with this activity for a while—about 10 minutes—while his mother continues to sit with him.

Although borrowing books might be the focus of these parent visits, the computers are the children's. Responding to children's interests, parents will put their books aside to assist them. One mother, already with a pile of picture books, runs after her toddler, Ava, who sees Reader Rabbit Toddler on the computer screen. Immediately, it becomes a teaching lesson. "Okay, Ava, you need to match the 'J' to the 'J' train.... That's right, 'D' is for door! Okay, you have the 'D,' now get the 'E,' and where's the 'F'? There you go!"



Without parent support, the computer took on a role we had not anticipated: the video arcade.

What might these patterns reveal about the promise of technology for leveling the playing field? We found striking similarities in the patterns of parental behaviors across book reading and computer activities. For parents in Chestnut Hill, computers seem to represent a new competitive tool to drive their young children toward greater competence and achievement. In our observations, it was virtually the norm, not the exception, for parents to use the programs to drill children (through computer play) in letters, sounds, and numbers. For parents in the Badlands, computer use was at the whim of the child and his or her interests. Most often, this would mean either rather frenetic play, with multiple applications attempted, then dropped, or advancing toward the end of the program to reach the games that were designed to serve as rewards for learning. In either case, computers were used as play without their concomitant learning advantages.

Throughout our observations, therefore, we saw pernicious signs that the very tool designed to level the playing field is, in fact, unleveling it.

The Internet may have fundamentally changed how we read, write, and gather information. Nevertheless, these new skills are actually built on some old, foundational literacy skills—the ability to decode and comprehend text. In fact, you could argue that basic literacy skills are even more essential than ever, serving as the entry point for the kinds of sophisticated skills that students will need to use media and complex information systems.

Unlike school texts, texts online are not carefully calibrated to readability levels. Vocabulary, concepts, and content may be dense, and sentences long and complicated. Words can take on specialized meanings (e.g., "operation" has very different meanings in mathematics, medicine, and day-to-day discourse). Getting the meanings of words in these complex contexts, however, is only a precondition of comprehending materials online. The second part is world knowledge. In other words, to make use of the words you are reading, you will also need a threshold of knowledge about a topic.

Same Facilities, Different Results

The William Penn Foundation, in many ways, succeeded in providing greater access to information and technology. In five years, it transformed Philadelphia's neighborhood libraries, 32 in all, into technology-rich centers. Today, visiting a neighborhood library, you are likely to find collections that reflect the local culture backed by murals that typify its history and specially designed architectural features that allow for the intimacy of independent reading, as well as Internet areas, an abundance of current resources, and throngs of people using its services.

At the same time, despite this enormous effort, the initiative fell short of its goal to close the disparities in resources among communities. What became clear during our analysis is that while the initiative could greatly improve access to material resources, it could not make up for the intangible social and psychological resources—the parents and other adults who make the many pathways to reading and information-seeking meaningful and

important to children.

In their very early years, children were initiated into reading and library activities in different ways. In Chestnut Hill, parents were ever vigilant and seemed to take pride in their scaffolding role, offering help, instruction, and encouragement to their children. Expectations for performance were high but so were the rewards for progress. On the other hand, parents in the Badlands appeared to support their children's independent explorations, bringing them to the library to find resources on their own and, occasionally, receive instruction from others. These activities appeared to establish a pattern of print and media preferences and habits, with one group of students reading up and increasingly using media for information and challenging purposes, while the other group was reading down and seeking media for entertainment. Soon we began to see a pattern of what we called "the more the more, the less the less," with students who were able to read fluently reading more and acquiring more information, while other students seemed to develop avoidance strategies, merely tolerating reading without the cognitive involvement associated with reading for comprehension.

Children who get a fast start in reading are more likely to read more—and reading develops vocabulary, general knowledge, and information capital.

Over the 10 years we spent in these two libraries, the gap in the amount of time adolescents spent reading increased substantially. Regardless of technology (books or computers), reading tends to predominate in Chestnut Hill but not in Lillian Marrero. After years of technology improvements, there is now a larger gap between these two communities in the amount of time spent reading than before. In fact, our rough estimates indicate that 10- to 12-year-olds at Chestnut Hill were reading more than twice as many words as their peers at Lillian Marrero.

As our research clearly shows, print and media habits established in the formative years result in differential practice with reading and create differences in the speed of information gathering and knowledge acquisition. As the information flow increases, it will be harder and harder for those who lack reading fluency and are not developing broad knowledge to keep up. Consequently, the patterns we see in Chestnut Hill and the Philadelphia Badlands act like an invisible wall, keeping each group insulated from one another, slowly creating a divide that becomes more and more difficult to cross over.

Today, the prosperity of companies and nations has come to demand high-level human and information capital—knowledge workers—who can mobilize their skills and talents to promote innovation and greater productivity.[3] Information capital is comprised of two modes of reasoning. The first and most common mode is knowledge based.[4] This sort of reasoning is rapid, extensive, and automatic, and powerfully increases as the cumulative product of a person's experiences with words and the concepts to which they refer. The second mode of reasoning is slow, conscious, and rule based, and involves logical, analytic thought.[5] Both forms of information capital accrue through first- and secondhand experiences. Young children frequently acquire knowledge about the world through firsthand experience. Everyday play activities and conversations with adults and their peers provide many initial opportunities for building knowledge. However, much of the information they will need as they grow older will not be available through conversations and experience. They will need to rely on a second source of information: print. Reading represents a unique interface with the environment, providing access to the cumulative wisdom and knowledge built by current and previous generations.[6]

Reading has cognitive consequences that extend beyond the immediate task of understanding particular texts.[7] Studies have shown that avid readers—regardless of general ability—tend to know more than those who read little. Further, those who know more are likely to learn more, and to do so faster; in other words, knowledge begets more knowledge.[8] This is a stunning finding because it means that children who get off to a fast start in reading are more likely to read more over the years—and this very act of reading develops vocabulary, general knowledge, and information capital. Consequently, children's earliest experiences with print will establish a trajectory of learning that is reciprocal and exponential in nature—spiraling either upward or downward, carrying profound implications for the development of information capital.

Throughout our work, we have seen how the spatial distribution of poverty and privilege influences students' educational opportunities and, ultimately, their aspirations. Affluent people increasingly live, interact, and are educated with other affluent people, while the poor increasingly live, interact, and are educated with other poor people. This new political geography divorces the interests of the rich from the welfare of the poor, creating a more polarized and rigid society. The solution is to break down these barriers, and we'd like to start not by leveling the playing field, but by tipping it toward the underdogs. □

Endnotes

1. Lee Ross, "The Intuitive Psychologist and His Shortcomings: Distortions in the Attribution Process," *Advances in Experimental Social Psychology* 10 (1977): 173–220.

2. Annette Lareau, *Unequal Childhoods: Class, Race, and Family Life* (Berkeley: University of California Press, 2003).

3. Frank Levy and Richard J. Murnane, *The New Division of Labor: How Computers Are Creating the Next Job Market* (Princeton, NJ: Princeton University Press, 2004).

4. E. D. Hirsch, Jr., *Cultural Literacy: What Every American Needs to Know* (Boston: Houghton-Mifflin, 1987).

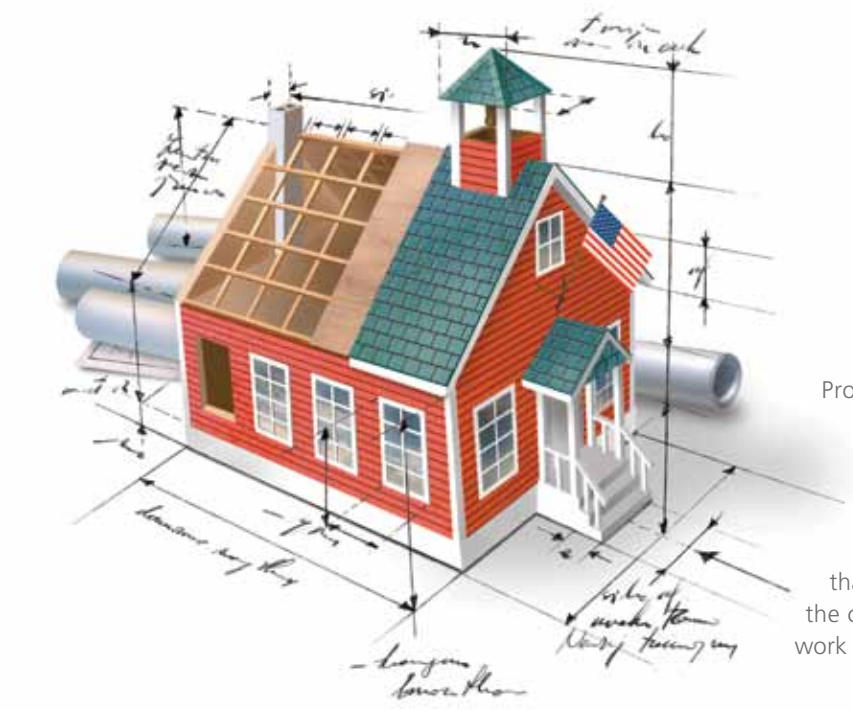
5. Carl Bereiter, *Education and Mind in the Knowledge Age* (Mahwah, NJ: Lawrence Erlbaum, 2002).

6. Sylvia Scribner and Michael Cole, *The Psychology of Literacy* (Cambridge, MA: Harvard University Press, 1981).

7. Keith E. Stanovich, "Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy," *Reading Research Quarterly* 21 (1986): 360–407.

8. Daniel T. Willingham, "How Knowledge Helps: It Speeds and Strengthens Reading Comprehension, Learning—and Thinking," *American Educator* 30, no. 1 (Spring 2006): 30–37.

Leading for Learning



Professional educators—in the classroom, library, counseling center, or anywhere in between—share one overarching goal: ensuring all students receive the rich, well-rounded education they need to be productive, engaged citizens. In this regular feature, we explore the work of professional educators—their accomplishments and their challenges—so that the lessons they have learned can benefit students across the country. After all, listening to the professionals who do this work every day is a blueprint for success.

I first began identifying schools with high-achieving children of color and children from low-income families seven years ago, when I began working at The Education Trust. My job was to find high-performing and rapidly improving high-poverty and high-minority schools and write about what made them successful.*

Early on in my quest, I visited a school in Boston where the principal, Mary Russo, had led a lot of improvement, and I remarked to her that many people believe schools can't be expected to overcome the barriers of poverty and racial isolation. "They say this work can't be done," I said. She replied, "It's being done." I spent the next several years writing about her school and more than two dozen others that proved her right, and in her honor I began thinking of them as "It's Being Done" schools.

Over the years, I found that although the schools shared many characteristics and core practices, the most important constant among all of them was that they had highly effective principals.

But that is too facile a conclusion. If leadership is key to the success of schools, what does that mean? Are highly successful leaders superheroes who drop in to save schools with a series of magic tricks only to disappear later? If so, we have no hope of helping all schools become high performing; we cannot expect an entire profession to be filled with magical superheroes.

When I talked with the principals, however, they didn't seem like superheroes. They seemed like—well, principals. Listening to them made running schools seem like more a matter of common sense than derring-do. And yet, judging from their results, what they were doing was clearly quite special.

When I was at their schools, I would see teachers laugh at their quirks and argue with them over the best ways to do things. But those same teachers would conspiratorially corner me in hallways to whisper that the success of their school was all due to their principals. They would tell me stories of how their principals helped them through the bad days and challenged them to improve on the good days; how their principals had created the atmosphere and the culture that allowed teachers to do the hard work of teaching and made teachers want to come to work every day. Anyone who has hung around schools knows this is not the way most teachers talk about their principals.

Clearly, I needed to write about leadership as a key element of school success, but I struggled with how to do so.

It seemed to me that I needed to do something that combined storytelling and systematic research, and so I asked my colleague Christina Theokas, who is the director of research at Ed Trust, to help me tell the stories of these school leaders in a systematic, meth-

*To learn about The Education Trust, go to www.edtrust.org.

ILLUSTRATIONS BY NENAD JAKESEVIC

odologically rigorous way. A partnership was born. The result is Getting It Done: Leading Academic Success in Unexpected Schools*, the book on which this article is based.*

–*Karin Chenoweth*

By Karin Chenoweth and Christina Theokas

Does anyone still hold to the notion that our public schools are the crucible of our democracy, ensuring the vast majority of our fellow citizens develop the intellectual wherewithal and integrity to be reliable partners in building a future? Listening to the national debates about school reform and accountability, it is easy to despair that such an idea exists anywhere.

The good news: that idea is out there, kept alive by countless educators who believe it is their job to figure out how to teach all kids.

The *really* good news: some of them have succeeded. Administrators and teachers have done it together by creating a professional, collaborative culture that empowers teachers to do great work.

Take, for example, Molly Bensinger-Lacy, former principal of Graham Road Elementary School in Fairfax, Virginia.† Graham Road serves mostly the children of low-income, recent immigrants, and when Bensinger-Lacy arrived in 2004, it was one of the lowest-performing schools in the district. By the time she retired in 2009, almost all students met state standards and many exceeded them, making the school's achievement data look like data from what Bensinger-Lacy calls "country club schools."

Bensinger-Lacy is one of 33 principals we studied to find out how their schools do what many think impossible: educate all kids. Despite the fact that their schools have tremendous challenges (on average, 75 percent of students are from low-income families and 73 percent are children of color), they achieve at levels equal to or even higher than the middle-class schools in their states. We call them "It's Being Done" schools.

Like the other principals in our study, Bensinger-Lacy credits the hard work of the teachers and the staff coming together around a shared goal for the improvement of her school. Teachers at Graham Road, in turn, credit her with helping them become better teachers and creating the kind of school where their hard work pays off.

In far too many schools, the hard work of teachers does not pay off, which is why a couple of the questions we wanted to answer were: What about these leaders guides their schools to success? What beliefs and competencies do they bring to the job, and what actions do they take that help their teachers teach and their students learn?

The answers add up to a rather complicated story, but one we think holds a lot of hope for the field of education.

To begin with, these principals are deeply steeped in the classroom and the world of instruction. Most were teachers for huge chunks of their careers (on average, more than 11 years), and many had special training, such as in special education or English for speakers of other languages. Bensinger-Lacy falls into this category, and she said she learned from her teaching experience that her students "were capable of learning anything I was capable of teaching them."

Valarie Lewis, principal of P.S. 124 in Queens, New York, is another example. When she first began as a teacher at the school, she was given an oversized class of children who were behind, including several children with learning disabilities. At the end of that year, several of them were able to transition out of special education services. "Don't tell me what a child can't do," she says.

Like many teachers, some of them got into the work because they themselves had been dismissed as children and wanted to make things better for a new generation.

"I don't want it to be the way it was for me," says Mary Haynes-Smith, principal of Mary McLeod Bethune Elementary School in New Orleans. "I was poor, my mother had 11 children, and the teachers told me that I wasn't pretty and wasn't smart. It was horrible." Today, Haynes-Smith and her "team" do everything they can to make sure her school is a haven for their students, who live in a high-poverty, high-crime neighborhood. "We are their mothers, their fathers, their grandparents, their teachers, their cooks, their laundromat—we have to be everything," says Haynes-Smith. Her ultimate goal is for students to have the opportunities that most middle-class students take for granted—to graduate from high school with choices such as college and meaningful work. To reach that goal, the children of Bethune must learn to read well, master a lot of content, and be able to demonstrate their knowledge on tests and elsewhere. To make sure that happens, Haynes-Smith tells her teachers to "teach these children as if they were your own."

These principals are deeply steeped in the classroom and the world of instruction. Most were teachers for huge chunks of their careers.

She and the other principals know the power teachers wield—and they define themselves primarily as teachers. When they took the job of principal, most simply extended the definition to be "teachers of teachers."

So, for example, this is how Ricci Hall, principal of University Park Campus School in Worcester, Massachusetts, defines the job:

> Being a school leader is complicated. More than being about budgets or bottom lines, more than being about evaluations or meeting attendance, being a school leader is about helping to create powerful learning experiences for your staff and faculty and creating the circumstances where teachers can do the same for their kids.

Karin Chenoweth is the writer-in-residence at The Education Trust, where Christina Theokas is the director of research. This article is based on their new book, Getting It Done: Leading Academic Success in Unexpected Schools*, published by Harvard Education Press in 2011 (www.hepg.org/hep/book/147).* Getting It Done *builds on two previous books by Chenoweth,* "It's Being Done": Academic Success in Unexpected Schools *(2007) and* How It's Being Done: Urgent Lessons from Unexpected Schools *(2009), both of which were excerpted in* American Educator.

†Unless otherwise noted, information about the educators and schools was up to date as of the spring of 2012. Since then, staff, programs, student characteristics, achievement levels, etc., may have changed.

This is a far cry from the old model of principal as the person who prevents and manages crises, buffers teachers from parents and school board members, and basically keeps the trains running. It also has little to do with some of the other popular notions of principals, such as the tough baseball-bat-wielding Joe Clark (portrayed in the movie *Lean on Me*) or generic "leaders" brought in from other fields.

It is, in fact, more like the kind of principal teachers want to work for—someone who has walked in their shoes, knows the challenges, and can offer critical feedback and support for improvement.

That does not mean It's Being Done principals make the job of teacher easy—it will never be easy, particularly in schools where many of the students live in poverty—but they support teachers and help them become proficient in their craft. That helps make success possible.

None of these principals define a successful student as one who does well on tests but, rather, as someone who applies himself, loves to learn, and is able to stand up for himself.

So how do they make success possible? Briefly, they:

- set the vision that all students will be successful;
- establish a climate and culture of respect;
- focus their time on instruction;
- manage the building to support instruction; and
- monitor and evaluate continually.

That's a big job description. Let's go through the list one by one.

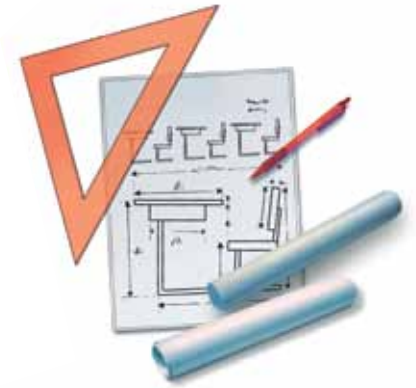
They set the vision that all students will be successful

This is one of those things that sounds simple but is actually quite complex. What does it mean, after all, for a student to be successful? These principals have quite a broad definition, using words like "curiosity," "confidence," and "a sense of joy in learning." Elain Thompson, former principal of P.S. 124, says, "Success for me is to see a child grow physically, emotionally, intellectually, and socially. If I have a child who comes from a shelter, if they can acclimate and can go to their teachers with trust and say, 'I didn't have breakfast this morning,' that confidence will help them become a better student."

The interesting thing here is that these principals were initially identified because of the high test scores of their students. Site visits later confirmed that the schools were doing much more than simply doing well on tests, but the initial screen was test scores. And yet none of these principals define a successful student as one who does well on tests but, rather, more broadly as someone who applies himself, loves to learn, and is able to stand up for himself.

"You know what a successful student is?" asks Bethune Elementary School's Mary Haynes-Smith. "A successful student is one who achieves as much as he is capable of achieving. One who can articulate his feelings, who is not afraid to ask questions, who will challenge you, who will stand up for himself in a positive way.... One who is learning what he is capable of learning—and we know they are all capable of learning."

These principals are determined that their students—even their most isolated, marginalized students—have opportunities that are available to their more privileged peers, and they know that means a lot more than passing reading and math tests. But they also know students who can't pass reading and math tests will not have access to most of the world's opportunities. So they set as a performance standard that every student will meet or exceed state standards, and they expect teachers to have that as their bottom line. Important to these leaders is having a measurable standard against which they can evaluate themselves and teachers can do the same. This



is not for the faint of heart, and it is very different from what most teachers experience and feel comfortable with. It is much easier for teachers to have an individual measuring stick for each student and look for progress over the school year. Understanding state standards and finding ways to teach all children the same material is much more demanding.

The principals do not set that goal out of naiveté. They know that many of their students arrive behind, with limited vocabularies and background knowledge, and have little in the way of family and community support. Sometimes even they quail before the task of ensuring that some students become academically successful. But they also know that to give up on the idea of students mastering state standards is to give up on the idea that they will have opportunities in their future, so they hold fast to the goal—modified only for those very few students with severe cognitive disabilities. "We're in the rescue business," is the way Susan Brooks, former principal of Lockhart Junior High School in Lockhart, Texas, puts it. "We rescue a lot of kids."

They establish a climate and culture of respect

In some ways, this is the toughest job a principal has. Working in schools is difficult; working in high-poverty schools is *very* difficult, and principals have a lot to do with making the climate either hostile or engaging and the culture one of defeatism or can-do resiliency.

A teacher in an It's Being Done school, Laura Bailey, from Jack Britt High School in Fayetteville, North Carolina, indicated just how integrated culture and climate are with school success when she told us:

> [Administrators will] say it's not about them, that "It's not about what I do as a principal; it's about what the teachers do in the classroom." But it all starts with our administration and our principal. They allow us to do our jobs in the classroom. They create the culture. They create the atmosphere of teamwork. If it weren't for that, our school would not be as successful as it is.

But principals can't establish a climate and culture alone. It is something created by all the faculty and staff, and sometimes it requires that teachers be willing to let go of established ways of doing things. That is risky and difficult, but the payoff can be enormous, and it sometimes takes just one teacher to help move the school in this direction.

Core to the culture and climate of these schools is the mission of student success, but at the most basic level, It's Being Done leaders begin with a respect for the abilities of their students to succeed, and they work to ensure that respect permeates throughout their buildings. All of these principals know that many of their students are under great stress at home, and they strive to make school a place where students feel comfortable, safe, and welcome.

Deb Gustafson, who became principal of Ware Elementary at Fort Riley in Kansas in 2001, after it was put "on improvement" because of its low performance, began by telling teachers that she would never "write them up" for anything except speaking disrespectfully to a child. By this she meant not just yelling but also speaking in a sarcastic or demeaning way. Gustafson says some of the teachers bristled; they said they were simply responding to the disrespect shown them by the students. But Gustafson held firm that it is the grownups in a building who establish the climate. "How kids function is an absolute consequence of how adults function," she says.

To help teachers learn how to control their classes without sarcasm and humiliation, she and her assistant principal Jennie Black led book studies, beginning with *Teaching with Love and Logic: Taking Control of the Classroom*, by Jim Fay and David Funk, which gives concrete ways teachers can handle students' misbehavior respectfully.[1] In other words, instead of just insisting that teachers respect students and punishing their way to the goal, they created a process for the staff to work together to develop new ways to interact with students that were in some ways quite different from what they were used to.

They respect teachers as professionals and help them hone their craft and their critical eye to see what is working and what is not.

Another principal, Barbara Adderley, former principal of M. Hall Stanton Elementary in North Philadelphia, tackled the culture by "establishing professional learning communities and daily grade-group meetings, … doing book studies, and changing how we implemented instruction in the classrooms … [including] meetings to talk about how to support failing children." In other words, she built a new kind of professional culture with systems and procedures that supported teachers. This, in turn, built a sense of efficacy among the teachers, making them feel they could get all their students to succeed and giving them the knowledge that if their students struggled, they could get help to figure out what to do differently.

This typifies the way It's Being Done leaders demonstrate their respect not only for students but also for the teachers and staff in their building—by building a professional culture focused on the goal of schools: learning. As Conrad Lopes, former principal of Jack Britt High

School Characteristics

The 33 principals and assistant principals we studied come from 24 schools across the country. The schools, at all grade levels, differ in size and locale. Most are regular neighborhood public schools; one is a charter school. The average free or reduced-price lunch eligibility across these schools is 75 percent, and the average minority student enrollment is 73 percent. All of the schools were, under the leadership of the principal in the study, either high achieving or rapidly improving. Their achievement data put them at least at the level of middle-class schools in their states—in some cases, they are at the top of their states. In the cases of principals who have left, some of the schools have continued improving; others have fallen dramatically.

Level

- Elementary: 62.5%
- Middle: 12.5%
- High: 12.5%
- Combined: 12.5%

Locale

- Urban: 54.2%
- Suburban: 20.8%
- Rural: 25.0%

Composition

- Average school size: 667.1 students
- Average free or reduced-price lunch eligibility: 74.8%
- Average minority student enrollment: 73.0%

–K.C. and C.T.

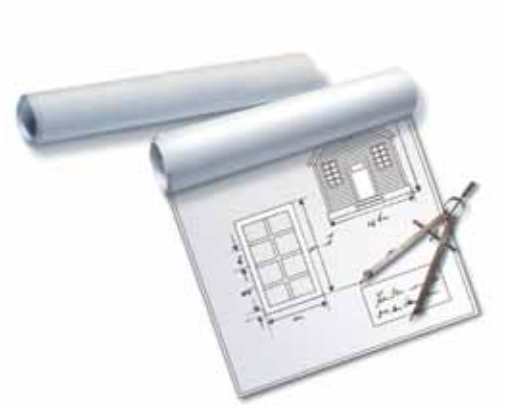
SOURCE: AUTHORS' REVIEW OF COMMON CORE OF DATA, 2009–2010. SEE WWW.NCES.ED.GOV/CCD.

School, says, "It's about people, not programs, or all schools would be successful." These leaders don't come into their schools with a prescribed program and script of interventions; instead, they respect teachers as professionals, and as leaders in their classrooms, and help them hone their craft and their critical eye to see what is working and what is not.

They focus on instruction

Two or three decades ago, no one really expected principals to lead instruction. The old stereotype was that principals were gym teachers with decent behavior management skills and a flair for administration; they made sure purchase orders went out and students registered for classes. Such principals might have taken an interest in teachers at the time of hiring but usually left teachers alone unless kids were disruptive or they got a lot of parent complaints.

Good teachers have always built collaborative relationships with peers, but It's Being Done leaders make this the core of the way their schools work.



It's Being Done leaders believe it is up to them to solve the essential paradox of instruction: reaching all students is highly dependent on expert teachers, yet no teacher can possibly be expert enough to teach all things to all children. It is only by doing what Richard Elmore of Harvard University has called the "de-privatizing" of teaching that schools can have a hope of helping all children succeed academically. They know that ultimately the work of teaching is too complex to be left to individual teachers in isolated classrooms.

Good teachers have always built collaborative relationships with peers when they have been lucky enough to have cooperative colleagues, but It's Being Done school leaders do not leave this to the vagaries of personal interest and opportunity. They make this the core of the way their schools work.

Among other things, this means they help teachers learn to work together to unpack standards, map out a scope and sequence of lessons, develop assessments and assignments, study data together, and work together to improve their content knowledge and teaching techniques by observing each other teach, sharing ideas, and learning new things.

Teachers in It's Being Done schools credit this process for helping them be better teachers, but not all of them welcomed it at first. Nonsense dressed up in important-sounding jargon so plagues the field of education that skepticism has become a survival tool of competent people. Sometimes that skepticism acts as a barrier to improvement. For example, Deb Smith, a veteran teacher at North Godwin Elementary School just outside of Grand Rapids, Michigan, told us that she was very disconcerted when new principal Arelis Diaz first laid out how she expected teachers to work, which included studying assessment data in collaborative meetings. Her first response was that she didn't think assessments were "developmentally appropriate" for first grade. "I told her that I had had several principals before her and would no doubt have several principals after her, and I wasn't going to change the way I worked," Smith says.

Diaz remembers that conversation as well: "She told me it wasn't developmentally appropriate to look at data. But when I asked her which students were successful and which students were low, and why, and what we could do about it, she couldn't tell me."

When Diaz consolidated reading programs in order to send a team of one reading teacher and several trained paraprofessionals into first-grade reading lessons, there was a quick burst of achievement. "Teachers were seeing their kids zoom through these levels that had taken them a whole year to get through," says Diaz. "Every teacher loves to see students learning—that's why we go into teaching."

That early success helped Smith see that Diaz was interested in helping her and her students be successful, and made her more open to give this new way of working a try. Once she saw the value of understanding exactly what students needed to know and tracking their individual progress through data, she became one of the most enthusiastic data trackers in collaboration meetings. She now works with other teachers to get them over the hump of doing something they weren't necessarily trained for in their teacher preparation programs. The principals may be in charge of establishing how the instructional program operates, but teachers give breath to its success.

There's more to instructional leadership than setting up collaborative structures, however. Some of the other elements include:

Hiring carefully: It's Being Done leaders take the opportunity to hire new teachers very seriously. They want to ensure that new teachers understand how much work is involved and the emphasis they place on collaboration with colleagues. Most require prospective teachers to teach model lessons, and many include teachers as observers. They often rely on veteran teachers and teacher leaders to help them assess candidates to see if they will fit in with the needs of the existing teaching staff and students. "Teachers ask much harder questions than I do," said one leader in our study, who requires prospective teachers to incorporate

teachers' critiques of a model lesson by re-teaching it, to see if he or she can work collaboratively.

Training new teachers: It's Being Done leaders know that no new teacher can possibly have all the knowledge and skill necessary to manage a classroom, master a curriculum, design lessons, get to know students and colleagues, and incorporate school routines. Each principal handles this issue in a slightly different way, but in general they assign mentors, send in coaches, and work to get new teachers any other necessary support. Under Susan Brooks's leadership, new teachers at Lockhart Junior High School were handed their first year's worth of lesson plans. Only after a year or two were teachers expected to help develop curriculum and lesson plans with their colleagues.

New teachers were handed their first year's worth of lesson plans. Only after a year or two were teachers expected to help develop lesson plans with their colleagues.

They also use the years until teachers gain tenure as an extended job interview—they want to see that teachers are growing and improving before they are afforded employment protection. "No one drifts into tenure at Elmont," says John Capozzi, the principal of Elmont Memorial Junior-Senior High School in Elmont, New York.

Assigning carefully: In too many schools, the most vulnerable students—the ones who have experienced the most failure and are most behind—are assigned to the newest teachers. Such students often present the most discipline problems, and veteran teachers often try to avoid them (which is understandable in schools where teachers are not well supported). But that means students who arrive behind often fall further behind. In contrast, It's Being Done principals assign their most skilled teachers to the students who need them most. Wendy Tague, for example, is widely acknowledged to be one of the most accomplished English teachers at Elmont. She teaches incoming students who read two or more grade levels behind. In other schools, such an assignment is considered a punishment; at Elmont, it is considered an honor, and Tague says she is thrilled to be able to introduce literature to previously discouraged students who still need to work on basic decoding skills and fluency.

Supervising classroom instruction: It's Being Done leaders consider being in classrooms and collaborative meetings as the core of their work because their primary role is supporting instruction. But they know it is up to the teacher to be the expert in his or her classroom, so they try not to impose their personal preferences. For example, Terri Tomlinson, principal of George Hall Elementary School in Mobile, Alabama, says she prefers a calm, orderly classroom. However, if teachers are getting good results in a classroom that is more lively and disorganized, she doesn't question it. "It's business, not personal," is what she says, meaning that results speak for themselves.

On the other hand, as longtime teachers, they are often able to offer a struggling teacher ideas and help. So, for example, when Barbara Adderley noticed a teacher's class took a full 10 minutes to get together materials for a lesson—leading to some boredom-induced mischief—she was able to suggest the teacher organize the materials in bins ahead of time. He later thanked her for the suggestion, saying it not only saved instructional time but helped in classroom management.

Teachers who are struggling are offered help and support, but if they don't take it and continue to have bad results, It's Being

Done principals are unflinching about letting them know they are falling short. "It is a principal's job to make a marginal teacher uncomfortable," says Jennie Black, one of the assistant principals included in our study. This may sound tough and uncompromising—and it is—but teachers who are doing their best appreciate it. Dannette Collins, a teacher at George Hall Elementary School, says that in other schools in which she has worked, principals would permit some teachers to shirk responsibility; conscientious teachers felt obliged to do not only their own work but the work of their colleagues or risk harm to students. She says she appreciates working somewhere where everyone does their work and the expectations are clear.

Sometimes this uncompromising attitude means that an It's Being Done leader fires a teacher or, more common, helps him or her find a less demanding job.

But It's Being Done leaders do not believe that firing teachers is the way to school improvement. "We can't hire and fire our way out of this," says Barbara Adderley. Rather, they believe it is the job of school leaders to help current teachers lead instruction in their classrooms.

They manage the building to support instruction

Many principals, when told they need to be the kind of instructional leader outlined above, respond that they don't have that kind of time; they have a building to run. For It's Being Done principals, the opposite is true. "It's not my job to run the building," says Diane Scricca of her days as principal of Elmont Memorial Junior-Senior High School, a large comprehensive high school

(Continued on page 32)

Want to Improve Teaching?

Create Collaborative, Supportive Schools

BY ELAINE ALLENSWORTH

Imagine trying to be an effective teacher at a school where the average student misses two months of class time out of nine months of the school year—a common situation in urban high schools. Further, imagine that your fellow teachers and school leaders refuse to work together to prevent students from skipping class or support struggling students in a coordinated way. You may stay, but probably not for long, and not if you have other options. Teachers tend to leave schools where they feel ineffective. At the same time, it's harder to be effective in schools with the lowest levels of student performance, schools that are most in need of effective teaching.

There is a pressing need to improve the quality of instruction in urban schools to reduce long-standing inequities in educational performance by race and economic status. The current policy context acknowledges the importance of teaching quality for student achievement, but the most popular policy strategies for improving teaching focus on individual teachers, using incentives to attract and reward strong teachers, and developing methods to identify and remove those who are weak. The work my colleagues and I have done at the Consortium on Chicago School Research shows that the context in which teachers work sets the stage for them to be effective and want to stay in their school. It does little good to put highly qualified teachers in a weak school if they are unlikely to stay there, or if they are not able to put their skills to good use because of larger problems in that school environment. There is a role for examining individual teachers' performance, and for using performance management to build the professional capacity of a school, but it is unlikely to be effective if it narrowly focuses on individual teachers. Without broader work on the school as an organization, schools serving the most disadvantaged students will face high rates of teacher turnover and little chance of sustained instructional improvement.

In our study on teacher mobility in Chicago, *The Schools Teachers Leave*,[1] we found that the quality of the work environment was strongly predictive of whether teachers remained in their schools. One key element in teacher retention is teachers' perceptions of their colleagues as collaborators. Teachers are more likely to stay in a school if they see themselves as part of a team that is working together toward making their school better, supported by school leadership. Teachers are also more likely to stay in schools where they feel they have influence over their work environment and they trust their principal as an instructional leader.

These are the same elements of schools that are most predictive of improvements in student learning; schools that show the largest improvements in student learning over time are those where teachers work collectively on improving instruction, and where school leadership is inclusive and focused on instruction.[2]

Two further working conditions account for most of the differences in teacher mobility rates by school racial composition. One is teachers' relationships with parents. Especially in elementary schools, teachers are more likely to stay in schools where they feel that parents support their work as partners in educating students. The other, which is particularly critical in high schools, is the learning climate at the school. Teachers are more likely to stay at schools where students feel safe, and where students report that their classroom peers engage in appropriate academic behavior.[3]

Research outside of Chicago has likewise found that working conditions seem to affect whether teachers remain teaching in their school. For example, Susan Moore Johnson, the lead researcher on the Project on the Next Generation of Teachers, found that novice teachers are more likely to stay in their schools when they are engaged in a collaborative way with more experienced colleagues.[4] And a 2008–2009 follow-up study to the U.S. Department of Education's Schools and Staffing Survey found that teachers who changed schools tended to report better working conditions in their new school than their old school: more support from administrators, more opportunities for working with colleagues, better availability of resources and materials, and more influence over workplace policies and practices.[5] Other studies have found that strong principal leadership reduced turnover.[6]

Schools that show the largest improvements are those where teachers work collectively on improving instruction, and where school leadership is inclusive and focused on instruction.

School and Classroom Context

In 2010, my colleagues and I documented the findings from a large study in Chicago that examined the ways in which school practices and school and community conditions promote or inhibit improvements in mathematics and reading.[7] We found that schools that are effective in improving student learning tend to have strong organizational structures across five areas: leadership, professional capacity, partnerships with parents and community, learning climate, and instruction. When examining professional capacity in the

Elaine Allensworth is the interim executive director of the Consortium on Chicago School Research at the University of Chicago, where she previously was the senior director and chief research officer. Currently, she is working on several studies of high school curriculum; she was once a high school Spanish and science teacher. *This article is adapted, with permission, from "Teacher Performance in the Context of Truly Disadvantaged Schools in Chicago" by Elaine Allensworth, which appeared in the Fall 2011 issue of* Voices in Urban Education (*www.annenberginstitute.org/VUE), published by the Annenberg Institute for School Reform at Brown University.*

school, we found that the individual qualifications of teachers were not nearly as important as the ways in which teachers worked together. When tied to strong instructional practices, the extent to which teachers took collective responsibility for the school and formed a professional community were the most important elements for increasing learning gains. Schools with strong collaboration were more effective as a whole than schools with strong individuals but little collaboration.

While a strong professional community

seemed to lead teachers to be more effective than they would be on their own, a poor learning climate limited the effectiveness of even the most qualified teachers. Another study in Chicago found that the association between teacher qualifications and learning gains depended completely on the school context.[8] This study showed that, in general, learning gains were greater the more that the teaching staff had high levels of human capital—higher ACT scores, more teachers who passed the basic skills test on the first try, and full certification. But there was no association between teacher quality and learning gains at schools with poor learning climates—students at these schools were unlikely to show substantial gains regardless of the quality of the teaching staff.

It is difficult to enact high-quality instruction in a disorderly, unsafe environment. But developing a safe, orderly climate is more challenging when a school serves disadvantaged student populations. At the same time, our research shows that schools serving highly disadvantaged students that do manage to develop strong organizational supports for teaching are just as likely to show learning improvements and to hold on to their teaching staff as are schools serving more advantaged student populations.[9]

The Focus on Individual Teachers

Strategies around teaching that focus on the qualities and performance of individual teachers assume that instructional quality is inherent in the teacher. If teachers were working in the same context, this *might* be true, but teachers face very different working conditions in different schools. Teacher evaluation systems that judge teachers without regard to context can further disincentivize teaching in the hardest environments.

Some value-added models consider peer effects or student composition. However, many do not. They often compare students with similar prior performance to each other—this shows which schools and teachers produce the highest learning gains. But they do not adjust for the fact that it is harder to create a strong environment in some contexts than in others. Teacher evaluations based on observations are not any more fair for teachers in the most difficult contexts—commonly used protocols make no adjustments for the types of students being served. Yet, we know that instructional quality is determined not only by the skills teachers bring to the classroom, but by the interaction of those skills with the students being served and the larger school context.[10] If we base incentives and employment decisions entirely on performance, without regard to context, we risk increasing turnover rates in schools that already have little stability. At the same time, it is not fair to students to lower expectations for instructional quality, especially for those with low levels of achievement who most need high-quality instruction. Data on classroom instruction and student performance can be used to drive conversations about practice to structure professional development and build a professional community in the school, focused on the instruction and learning that is occurring in the building.

It seems unlikely that much will be gained from better methods of identifying teacher performance in schools with weak organizational supports. That is why it is so critical to have systems that support teachers around instruction: collaboration can provide insight into methods for better practice. If a teacher is in a school with a poor climate for instruction where she feels she cannot be effective, pointing out that she is ineffective may do little except make her more frustrated. Strategies that focus on individual teachers can only go so far by themselves.

More critical than identifying those few especially effective or ineffective teachers is to develop collaborative relationships among teachers, school leaders, and families. Without improving the school context so that it is a good working environment, teachers who could have been effective are likely to leave. Many schools are stuck in a cycle of teacher loss that is hard to break—teachers leave because of poor school climate and low achievement, but these are hard to improve when there is constant turnover. Unless this cycle is broken, students who have historically underperformed will continue to do so. Schools that struggle with low achievement, especially those serving the most impoverished communities, face extraordinary challenges in developing strong organizations that can maintain a strong teaching staff. But building those organizational supports is what is needed to provide a high-quality instructional environment for all students and improve equity in educational outcomes. □

Endnotes

1. Elaine M. Allensworth, Stephen Ponisciak, and Christopher Mazzeo, *The Schools Teachers Leave: Teacher Mobility in Chicago Public Schools* (Chicago: Consortium on Chicago School Research, 2009).

2. Anthony S. Bryk, Penny Bender Sebring, Elaine M. Allensworth, Stuart Luppescu, and John Q. Easton, *Organizing Schools for Improvement: Lessons from Chicago* (Chicago: University of Chicago Press, 2010).

3. Allensworth, Ponisciak, and Mazzeo, *The Schools Teachers Leave*.

4. Susan Moore Johnson, "How Best to Add Value? Strike a Balance between the Individual and the Organization in School Reform," EPI Briefing Paper #249 (Washington, DC: Economic Policy Institute, 2009).

5. Ashley Keigher and Freddie Cross, *Teacher Attrition and Mobility: Results from the 2008–09 Teacher Follow-Up Survey* (Washington DC: National Center for Education Statistics, 2010).

6. Charles Clotfelter, Elizabeth Glennie, Helen Ladd, and Jacob Vigdor, "Would Higher Salaries Keep Teachers in High-Poverty Schools? Evidence from a Policy Intervention in North Carolina," NBER Working Paper 12285 (Cambridge, MA: National Bureau of Economic Research, 2006); and Jason A. Grissom, "But Do They Stay? Addressing Issues of Teacher Retention through Alternative Certification," in *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education*, ed. Pam Grossman and Susanna Loeb (Cambridge, MA: Harvard Education Press, 2008).

7. Bryk et al., *Organizing Schools for Improvement*.

8. Karen J. DeAngelis and Jennifer B. Presley, "Teacher Qualifications and School Climate: Examining Their Interrelationship for School Improvement," *Leadership and Policy in Schools* 10, no. 1 (2011): 84–120.

9. Bryk et al., *Organizing Schools for Improvement*; and Allensworth, Ponisciak, and Mazzeo, *The Schools Teachers Leave*.

10. It is not just the teacher that determines the quality of instruction in a classroom, but the interaction of the teacher and the students together around the material technologies. See Deborah Loewenberg Ball and David K. Cohen, "Developing Practice, Developing Practitioners: Toward a Practice-Based Theory of Professional Education," in *Teaching as the Learning Profession: Handbook of Policy and Practice*, ed. Linda Darling-Hammond and Gary Sykes (San Francisco: Jossey-Bass, 1999), 3–32.

(Continued from page 29)

with almost 2,000 students. "It's everyone's job."

In these schools, everyone has a job and the authority to make decisions appropriate to their role. For that reason, It's Being Done principals take hiring support staff as seriously as hiring teaching staff. "Most principals don't understand that the support staff can be your undertakers," said Terri Tomlinson, principal of George Hall Elementary. "They can bury you." They can also help you be successful, and the principals expect all staff members not only to be part of creating a culture and climate of excellence but also to take on significant day-to-day problem-solving responsibilities key to running the building.

For this reason, these principals all build leadership teams with direct responsibility for such things as school routines and discipline policies, and work to include any teacher or staff member who is willing to take on additional leadership responsibilities.

There is only one way to get it all done: develop the leadership capacity of every adult in the building and empower all to make decisions appropriate to their jobs.

It's Being Done principals also continue to keep student achievement at the heart of their management chores. So, for example, when they build master schedules, they do so in a way that ensures instruction is uninterrupted and teachers have time during the school day to collaborate. They are on a constant watch for time wasting, which is not a trivial issue: in typical elementary schools, 17 percent of *instructional* time is spent on management of time and materials, and a majority of time is spent on low-level, basic material, often filling in worksheets.[2] These principals are determined to ensure that cannot be said about their schools. "No one has the right to waste a day in the life of a child," is the way Valarie Lewis of P.S. 124 puts it.

They feel equally strongly about staff time not being wasted. Therefore, they work to ensure collaboration meetings are well organized, focused, and agenda-driven, and contain specific expectations. Most of them have had the experience of sitting in meetings listening to someone read a memo, and they don't want that to be the case in any meeting in their schools.

They monitor and evaluate continually

It's all very well to have a vision and set up systems, but that is no guarantee of success or excellence. Teachers around the country tell sad tales of all the highfalutin plans by principals that never really got off the ground because no one followed through. That's why much of the daily work of It's Being Done principals has to do with what Valarie Lewis says is the need to "inspect what you expect." It's Being Done leaders are in data meetings making sure they focus on identifying the instructional needs of individual students and the professional development needs of teachers. They are in classrooms making sure teachers are able to establish respectful classroom routines and give their students high-level instruction. They are in alignment meetings making sure teachers have an aligned curriculum across the grades. They are planning powerful professional development opportunities for staff members who need help, and they are continually reflecting on their own practice for flaws and weaknesses. George Hall Elementary's Terri Tomlinson, for example, has a daily practice of thinking about what went well during the day and what she could have handled better.

They are, in other words, holding everyone accountable for their jobs and helping those who need help to improve. But, more than that, they are helping all their staff members develop an evaluative sense about their work. John Hattie's master work, *Visible Learning*,[3] demonstrates that almost anything teachers do instructionally will help move the needle on student achievement; the trick is to make sure they are doing the things that are most effective, and these principals work to help teachers make sophisticated judgments about this.

So, for example, when the teachers at George Hall realized how far behind their students were and how lacking in vocabulary and background knowledge, they began lobbying to take field trips. As one teacher said, "They live 10 minutes from the bayou, and they've never seen a boat." Teachers wanted to broaden students' experiences in a way that would help them expand their vocabularies and background knowledge.

Initially, principal Terri Tomlinson was wary. She knew how time- and resource-consuming field trips can be, often with little payoff in learning. She required that teachers plan the trips, identify what vocabulary and knowledge would be mastered, and describe what projects, such as essays, would follow. She helped teachers evaluate how the first trips went and whether they led to the kinds of learning gains they had expected. If they hadn't been successful, it wouldn't have been cause for recrimination but for rethinking. It turned out they were successful; today every grade level takes a carefully planned field trip most months in the school year.

One final point to make here is that these are not complacent schools resting on their laurels. Natalie Elder, former principal of Hardy Elementary School in Chattanooga, Tennessee, says, "Goals constantly change as you look at data. Once you've met a goal, you have to institutionalize it and then set new goals. That's when

you know you're actually growing." Monitoring and evaluation are not intended to be punitive, but rather to provide feedback as part of continual improvement. These schools are not perfect; they have flaws and weaknesses. But they know what they are, and they are always trying to improve.

As defined above, this is a huge job, bigger than any one person can handle. So the question is: How do these principals handle it?

They say there is only one way to get it all done: by developing the leadership capacity of every adult in the building, and empowering teachers and staff members to make the decisions appropriate to their jobs. Although the change for staff can be intimidating, these changes make these schools places where teachers want to teach. The job is not easier, but it is more satisfying and professionally challenging, in part because problems are tackled in a community of professionals.

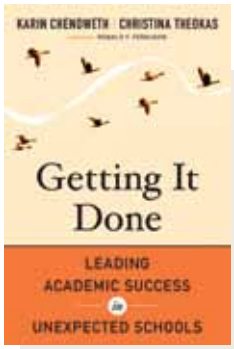
When the creative energy of teachers and other staff members is trained on solving problems—not only individual child and classroom problems but school-wide problems—all jobs, including the school leaders', are made doable. More important, schools that operate in these ways are able to help all their students learn at high levels.

Given all this, many teachers question what they can do when their principal does not support instruction with a clear vision, transparent standards, and respect for all students and staff. This is a difficult situation to be in, but we think there are a couple of possibilities. The first is that teachers in general must expand their expectations of school leaders. Too many teachers seem to express satisfaction with their principals as long as discipline is under control and field trip schedules don't get messed up. Teachers need to understand that principals should be partners, guides, and spurs to improvement. Second, teachers can begin taking the kinds of steps to improve instruction that these leaders take. At Ware Elementary, principal Deb Gustafson was able to build on the work done by some teachers the year before she arrived, when the fourth-grade team had begun to collaborate on standards, curriculum, lessons, assessments, and studying data. That was the only grade that had improved in student achievement that year, and she was able to use their small success to help the other teachers see what was possible.

So teachers can begin the process on their own. There is no question, however, that it is by far the more difficult path. We need more school leaders who understand the ways to build a respectful, professional environment in which all students are helped to succeed. And there is no reason we shouldn't have them, because nothing It's Being Done leaders do is revolutionary or new. All of their practices are rooted in the best research and professional tools of school leadership.

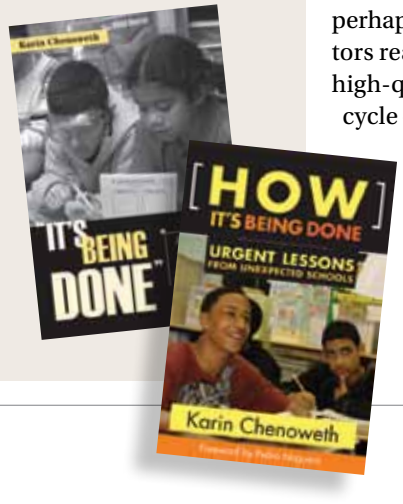
When the creative energy of teachers and staff is trained on solving school-wide problems, all jobs, including the school leaders', are made doable.

What they have managed to do, however, is put together everything called for in the research in a way that makes sense and that is tailored for their individual schools. In doing so, they give us the confidence to say that the work of educating all children can be done. To quote Molly Bensinger-Lacy one last time: "The students living in poverty whom I have served in multiple schools in three states lack all kinds of resources.... And yet there is a place of incredible possibilities within the neighborhoods of these so-called 'disadvantaged' children—their free public schools. And inside those schools, there are educators (us) who have the power and the privilege to develop in our children perhaps the most powerful resource of all—the mind. We educators really do have the knowledge to provide all children with a high-quality education—an education that will help break the cycle of poverty and despair. To do anything else but act on this knowledge is unacceptable." □



Getting It Done builds on two previous books by Karin Chenoweth about high-performing schools with significant populations of children of color and children of poverty:

- *"It's Being Done": Academic Success in Unexpected Schools* (www.hepg.org/hep/Book/65), which profiled 15 schools, as well as one consortium of schools, and identified 25 characteristics they share. To read an excerpt from *"It's Being Done"* in the Summer 2007 issue of *American Educator*, go to www.aft.org/newspubs/periodicals/ae/summer2007/chenoweth1.cfm.
- *How It's Being Done: Urgent Lessons from Unexpected Schools* (www.hepg.org/hep/book/102), which profiled eight high-performing schools and identified five core practices of these schools. To read an excerpt from *How It's Being Done* in the Fall 2009 issue of *American Educator*, go to www.aft.org/pdfs/americaneducator/fall2009/chenoweth.pdf.



Endnotes

1. Jim Fay and David Funk, *Teaching with Love and Logic: Taking Control of the Classroom* (Golden, CO: Love and Logic Press, 1995).
2. Robert C. Pianta, Jay Belsky, Renate Houts, Fred Morrison, and the NICHD Early Child Care Research Network, "Opportunities to Learn in America's Elementary Classrooms," *Science* 315, no. 5820 (March 30, 2007): 1795–1796.
3. John Hattie, *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement* (New York: Routledge, 2009).

More Than Words

An Early Grades Reading Program Builds Skills and Knowledge

By Jennifer Dubin

Joyce Barrett-Walker knew her students could do better. Every month, the principal, then in her second year at P.S. 96 in Queens, a preK–6 neighborhood school, would review samples of their writing to gauge their academic progress. The first-person accounts, full of thoughts and feelings about mundane events, concerned her; the writing was shallow and vacuous. Today, nearly 10 years later, she still remembers one sample that epitomized just how little they were learning: a fourth-grader whose teacher had asked the class to write about a phenomenal experience in their lives wrote about a trip to a local shopping mall.

Jennifer Dubin is the assistant editor of American Educator. *Previously, she was a journalist with the* Chronicle of Higher Education. *The photos above and on the following pages show students and teachers from P.S. 96 and Goldie Maple Academy in Queens, New York, using the Core Knowledge Language Arts Program.*

PHOTOGRAPHS BY BRUCE GILBERT

The school was not challenging students with enough nonfiction, nor was it asking them to write about the few informational texts they had read. As a result, a lack of science and social studies knowledge—which is really knowledge of the world—had left her students, many of whom were low-income, without anything really interesting to write.

Barrett-Walker did not blame her students, their parents, or her teachers. She knew they were not at fault. She blamed the curriculum. The school's Balanced Literacy and Writer's Workshop programs had some fine components, but they did not pay enough attention to the quality and content of the texts children were reading, relied too heavily on reading comprehension strategies (such as finding the main idea and identifying the author's audience), and put more emphasis on the process of writing than on what was being written. Especially in the early grades, very little time was devoted to teaching the broad knowledge and vocabulary that make text understandable and give students engaging topics to write about.

At Barrett-Walker's previous school, where she was an assistant principal, the administration had started to implement Core

Knowledge, a content-rich curriculum for grades K–8 that outlines what to teach in language arts, geography, mathematics, science, and fine arts, but lets teachers decide how to teach these topics. She had also read *The Knowledge Deficit: Closing the Shocking Education Gap for American Children*, by E. D. Hirsch, Jr., Core Knowledge's founder, in which he explains how and why broad knowledge—not reading strategies—builds reading comprehension.

Not long after reading that shopping-mall story, Barrett-Walker sent four teachers at P.S. 96 to a Core Knowledge conference, and they returned excited by what they had learned. "The curriculum had so much substance," she recalls them saying.

What it did not have was a component for explicitly teaching children how to read. Although P.S. 96 adopted the Core Knowledge curriculum, that did not change how teachers taught reading and writing, particularly in the early grades. By third grade, most students had mastered decoding, but many students still struggled with reading comprehension. That all changed in 2008, when P.S. 96 decided to test out Core Knowledge's new early reading program.

Five years ago, as a way to ensure that students not only learn to decode but also understand what they decode, the Core Knowledge Foundation, the nonprofit that publishes the Core Knowledge curriculum, created a language arts program for kindergarten through second grade.* The program includes two 60-minute strands: a "Skills Strand," in which students learn decoding, encoding (writing), spelling, and grammar; and a "Listening and Learning Strand," in which they engage with a wide variety of fiction and nonfiction texts so as to build oral language, knowledge, and vocabulary—the real keys to comprehension.

Beginning in the fall of 2008, P.S. 96 and nine other New York City schools piloted the language arts program for three years. The city released the results last spring: on average, students taught to read using the Core Knowledge program scored higher on reading comprehension, science, and social studies tests than did students in 10 comparison schools that used other reading programs. Just as important, students made these gains in background knowledge without falling behind in learning to decode.

While the conventional wisdom has long held that students first learn to read and then, around the end of third grade, switch to reading to learn, Core Knowledge shows that students in kindergarten through second grade are fully capable of—and benefit from—acquiring both decoding skills and content knowledge at the same time.

The program's Skills Strand, although high quality, is not what makes this program unique. Other early-grades reading programs also do a good job of helping children make the all-important speech-to-print connection through research-based phonics instruction. It's the content knowledge delivered through the Listening and Learning Strand that makes this program stand out—so that's what this article explores.

Visits to two high-poverty schools that piloted the program reveal the sophisticated content that students actually learn:

> Core Knowledge shows that students in kindergarten through second grade can acquire decoding skills and content knowledge at the same time.

presidents and American symbols, astronomy, frontier explorers, and immigration, among other subjects not often found in grades K–2. Such topics enable teachers to build young children's knowledge of the world and prepare them for academic courses in later grades, even as they indeed learn to read.

Learning by Listening

Every day, children listen to complex texts that their teacher reads aloud to increase their oral language comprehension, vocabulary, and knowledge. In each of the program's grades—kindergarten, first, and second—students hear and discuss fiction and nonfiction texts organized in 12 subject-matter domains.† For example, the kindergarten domains are as follows: nursery rhymes and fables, the five senses, stories, plants, farms, Native Americans, kings and queens, seasons and weather, Columbus and the Pilgrims, colonial towns and townspeople, taking care of the Earth, and presidents and American symbols. Grouping texts into

*The Core Knowledge Foundation also developed third-grade language arts materials, which P.S. 96 and four other New York City public schools field tested in the 2011–2012 school year. The New York City Department of Education did not have funding for this field test, so Core Knowledge secured additional funding and will finish revisions to the third-grade materials in December.

†For a complete list of domains, see "Envisioning a Common Core Curriculum," in the Winter 2010–2011 issue of *American Educator*, available at www.aft.org/pdfs/americaneducator/winter1011/CommonCore.pdf.

domains is an effective method for teaching knowledge and vocabulary.* One text on the weather, for instance, can only introduce so many new words and concepts. By being immersed in a domain for two to three weeks, students have time to explore the topic in greater depth, make connections to related topics, and use their new vocabulary enough for the words and concepts to stick. The Core Knowledge program is carefully developed so that concepts and words not only build on each other within each domain, but across domains and grades as well. The repetition gives students multiple opportunities to pick up information they might not have grasped the first time; it also takes advantage of an important finding from cognitive science: the more you know about a topic, the easier it is for you to learn more about it.†

By being immersed in a domain for two to three weeks, students have time to explore the topic in depth, make connections, and use their new vocabulary.

A look at the previously mentioned list of kindergarten domains shows how they reinforce each other. Nursery rhymes and fables include tales such as "Humpty Dumpty" and "The Lion and the Mouse," which introduce students to the word "king," and a king (and queen) sent Columbus to the new world, where he encountered Native Americans, who knew a great deal about taking care of the Earth, etc. The more you think about it, the more connections you'll see—and the better you will grasp how kindergartners who have studied all of these domains, in this order, will have a substantial body of knowledge about our early agrarian society.

In the early domains, the texts that teachers read aloud tend to be quite short, consisting of only a few sentences. The program accounts for the fact that it takes time to build young children's attention spans, so throughout the year the read-alouds grow in length and sophistication. For instance, as the domains progress in kindergarten, and students' capacity to focus and listen improves, read-alouds include anywhere from two to four pages of more complex text.

When a teacher reads aloud a complex text, asking questions along the way and/or afterward, she teaches them specific vocabulary and builds their knowledge of a particular subject. Read-alouds are essential throughout the elementary grades because research has shown that (1) listening comprehension, on average, is greater than reading comprehension until children are 12 to 13 years old,‡ and (2) even elementary written texts are richer and more complex than spoken language.§ So while the ultimate goal is for students to read complex texts independently, a teacher obviously can't start there. She can, however, ask children to listen carefully to a text that she herself reads aloud. Then she can deepen their understanding by discussing it with them at length, as well as asking them to draw pictures and write a few sentences about what they have learned.

To supplement the read-alouds, Core Knowledge provides trade books to share with students. Several are fiction—classics such as "Brer Rabbit" and "Little Red Riding Hood" as well as tales from around the world. The fiction in this program contributes to building students' knowledge not only by enhancing the science and social studies domains (which include fictional works), but

*For a thorough review of the research on how reading comprehension depends on knowledge and vocabulary, and how to teach all three, see the Spring 2006 issue of *American Educator*, available at www.aft.org/newspubs/periodicals/ae/spring2006/index.cfm.

†To learn more, see E. D. Hirsch, Jr.'s article in the Spring 2003 issue of *American Educator*, available at www.aft.org/pdfs/americaneducator/spring2003/Hirsch.pdf.

‡To learn more about listening and reading comprehension, see Andrew Biemiller's article in the Spring 2003 issue of *American Educator*, available at www.aft.org/newspubs/periodicals/ae/spring2003/hirschsboral.cfm.

§For more on why written text is more complex than oral language, see Marilyn Jager Adams's article in the Winter 2010–2011 issue of *American Educator*, available at www.aft.org/pdfs/americaneducator/winter1011/Adams.pdf.

also by including stories and characters that are part of the broader society's shared knowledge. For example, many adults in the United States would understand that a Brer Rabbit–type person is clever and prone to trickery.

There are fewer fictional texts in this program than in many traditional language arts programs, which rely heavily on fiction. But the balance in Core Knowledge nicely aligns with the Common Core State Standards in English Language Arts, which call for roughly equal time to be devoted to literary and informational texts in the elementary grades.**

In fact, this program aligns so well with the standards, which more than 40 states have adopted, that the New York State Education Department has contracted with Core Knowledge to make the program available throughout the state and to develop preschool-level materials. As part of this contract, Core Knowledge will post language arts materials online at www.engageny.org, a New York state website, so that teachers from all over the country can download them for free.††

**Officially, these are the Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects, which are available at www.corestandards.org/ELA-Literacy.

††The Core Knowledge Language Arts Program is not yet widely available, but the Core Knowledge Foundation is in discussions with publishers to make it available to schools.

Materials Let Teachers Teach

Along with P.S. 96, P.S. 333 (Goldie Maple Academy), a preK–8 neighborhood school in Far Rockaway, was also one of the pilot schools for the K–2 language arts program. Only 10 miles apart in Queens, the schools serve mostly low-income students. Of the 305 students enrolled in P.S. 96 in 2010–2011, nearly 70 percent received free or reduced-price meals and roughly half were African American or Hispanic. Also, 10 percent of P.S. 96 students were English language learners (ELLs). Barrett-Walker says that in recent years, families from the Dominican Republic, India, Mexico, Pakistan, Puerto Rico, and Yemen have moved to the neighborhood. Meanwhile, few ELL students attend Goldie Maple; less than 1 percent in 2010–2011. The majority of students that year were African American or Hispanic. Of the 488 students enrolled, roughly 85 percent received free or reduced-price meals.

A Promising Pilot

Before publishing its new Language Arts Program, the Core Knowledge Foundation worked with the New York City Department of Education's Research and Policy Support Group to conduct a three-year pilot study.* Twenty similar schools, all with high percentages of students from low-income families, were selected—10 to implement the new program in kindergarten through second grade, and 10 to serve as comparison schools (without changing their programs or methods). The pilot explored students' progress in learning to read and increasing their knowledge, so students took several different reading and comprehension tests, as well as science and social studies tests.

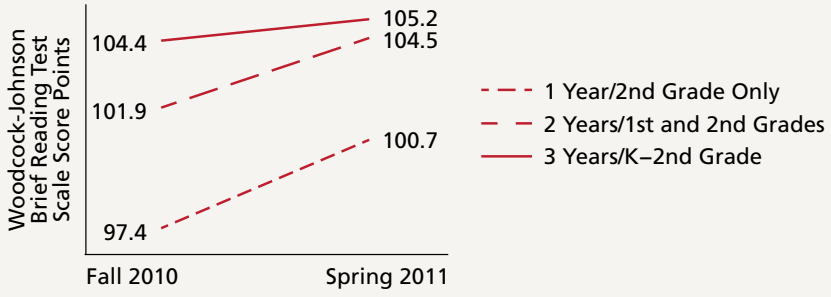
At the end of the third year, the second-graders in the Core Knowledge schools scored higher, on average, on all tests than those in the comparison schools (all results but one were statistically significant). Fall-to-spring testing using the Woodcock-Johnson Brief Reading Test (which includes measures of basic reading skills and oral reading comprehension) found that gains made by second-graders in the Core Knowledge schools were more than double those of their peers in the comparison schools.

Digging a little deeper into the results in the Core Knowledge schools shows both immediate and long-term benefits. As the graph below shows, the largest gains were made by second-graders who had just enrolled in a school piloting the program and thus had experienced only one year of Core Knowledge. The highest overall achievement, however, was attained by students who had been through the complete three-year program.

The results are impressive, but at this stage it's best to think of the program as "promising," not "proven." No one study is ever conclusive, so more studies will need to be done. But the program rests on the best of several decades of research on language development, reading, and comprehension, so we can expect more good results in the future.

—EDITORS

Average fall and spring reading scores in the final year of the three-year pilot, by years in the Core Knowledge Language Arts Program



*All data for the pilot come from "Evaluating the NYC Core Knowledge Early Literacy Pilot: Year 3 Report," by the New York City Department of Education Research and Policy Support Group (March 2012). The report can be found on pages 7–24 of the following document: www.bit.ly/MfAb5F. Data for the chart on the right are from page 15.

Barrett-Walker at P.S. 96, and Angela Logan, the principal of Goldie Maple, say they decided their schools would participate in the pilot because both were already Core Knowledge schools.* But some teachers were apprehensive.

At P.S. 96, Monica Tufano had concerns. "I said to myself, 'How are we going to teach little 5-year-olds to focus and listen to me read?'" says the kindergarten teacher. She wondered if her students would squirm and struggle to pay attention during the more complex read-alouds that last 10 to 15 minutes. Once she started using the program, though, she realized they soaked up the rich content.

A visit to her class reveals just how much students engage with the material during the Listening and Learning Strand. As they sit on the reading carpet in a corner of the room, they gaze at a picture of a farmer holding a bunch of carrots in a field. They listen attentively as Tufano explains that they will learn about crops today.

The lesson is part of the farms domain in which students study agriculture. The domain builds on information students learned in the previous domain, plants, and it sets the stage for the seasons and weather domain they will study later. Vocabulary words such as "crops" and "produce" overlap between the farms and plants domains, while "seedlings" appears in both the plants and the seasons and weather domains, so that students will have multiple exposures to the concepts behind these words and will start using them with ease.

Tufano begins by asking students to name their favorite foods and then explains that "everything we like starts out somewhere else." She tells them to listen to the story she's about to read to learn where their favorite foods come from.

"I have mentioned before that I plant and harvest crops of wheat and corn on my farm, which I feed to my animals," Tufano reads. The "I" refers to Old MacDonald, a character in the story who appears throughout the domain. "I also raise these crops, as well as others—like cucumbers, beans, and carrots—for my family and other people to eat."

Tufano then points to "the pretty picture" of fields of crops now in front of them. To see if students have been listening, she asks what crops Old MacDonald raises. They correctly call out carrots, cucumbers, and beans. She continues reading until she comes to the word "soil," which she explains means dirt.

"The farmer who lives next to me grows potatoes on her farm," Tufano reads as she shows them a picture of a potato field. "But even if you look closely at the picture, you won't see any potatoes," she continues to read. "That's because the potatoes are actually part of the roots of the potato plant! So where do you think the potatoes are?" she asks, continuing to read from the text.

"Underground!" the students call out.

Tufano says that all plants have roots, and that potato plants have edible roots but not all plants' roots are edible. She asks the class to explain what "edible," a bold-faced vocabulary word in the Core Knowledge teacher guidebook she holds in her hands, means. The students remain quiet; they don't know the answer.

"That cake was edible," Tufano says, using the word in another sentence. "'Edible' means I would do what with it?"

The students figure it out. "Eat it," they say.

After the 10-minute read-aloud, she reviews what they have just heard.

"Why do farmers grow crops?" Tufano asks.

One student says so the cows can eat.

"Is it only the cows that eat?" Tufano asks.

Nancy adds that all the animals eat.

"Thank you, Nancy," Tufano says. "What's the second reason? Who else do they grow crops for?"

"People," the students call out.

Tufano says they are now going to sequence what the farmer does to prepare his crops. "What does 'sequence' mean?"

*Core Knowledge schools implement the full Core Knowledge curriculum. To learn more, visit www.coreknowledge.org/about-core-knowledge-schools.

The students say "order."

Tufano then says, "First, he has to dig the dirt, so he has to prepare the…"

"Soil," a boy says.

Together, the class lists the next steps: plowing the soil and planting the seeds. When Nicholas says the farmer then waters the soil, Tufano is pleased. "I love that sentence because he used the word soil instead of dirt," she tells the class. "He's using the vocabulary that we're learning."

Although the Core Knowledge program tells them what to teach, several teachers at both schools say that it doesn't make their teaching feel scripted. After all, no one tells them *how* to deliver the content. They emphasize that they must still prepare for classroom lessons. Not only do they need to become familiar with the vocabulary, guided questions, and explanations of key concepts students will learn, they have to figure out how to teach that rather sophisticated material to their students. The domains do have some overlap of words and concepts, but they are not redundant. Knowledge from previous domains is used and expanded.

Although Core Knowledge tells them what to teach, teachers say it doesn't feel scripted. No one tells them *how* to deliver the content.

As she sits in a rocking chair with her students assembled on the reading carpet before her, it's clear that Jena Peluso, a second-grade teacher at Goldie Maple, has prepared for today's lesson. With the teacher guidebook on immigration—the domain the class is now studying—resting on her lap, Peluso is not merely reciting words from a page during the Listening and Learning Strand. She reads with expression and makes eye contact with students to ensure they pay attention. She tells them about the Pilgrims and explains why they came to the United States.

A few minutes later, to make sure students have been listening, she asks, "Why did the Pilgrims have to come to North America?" The question is one of the "guided questions" from her handbook that teachers are encouraged (but not required) to ask.

"To discover America," a boy says.

Peluso gently corrects him, "America was already discovered," and calls on someone else.

"The people did not let them pray in their own way," another boy says.

"What people?" Peluso asks, trying to jog his memory of an earlier lesson.

Suddenly the class remembers. "England," students call out excitedly.

She prods them to be more precise. "Who's in charge of England?" she asks.

"A king," they say.

An easel covered with words such as "freedom," "immigrant," "immigrate," and "settle" stands next to Peluso. A flipbook with large, colorful pictures that accompanies this domain is also propped against it. As students listen to Peluso, they look at the pictures.

"So, what is an immigrant?" she reads. "An immigrant is someone who comes from another country to settle in a new place." A few sentences later, she explains why "push and pull factors" might prompt people to move. She asks students to repeat the phrase, and little voices echo her.

"Push factors are the problems in one's home country that would 'push' you out of your country, or make you leave," Peluso says. She turns to a page in the flipbook with four pictures: hands begging for food, a crumbling building, a military tank, a flooded street. Peluso explains how these images illustrate dangerous circumstances that would "push" people to leave their homes. Then she defines "pull factors" such as freedom and job opportunities that would encourage people to come to the United States.

After the 15-minute read-aloud and discussion, students draw pictures and write three sentences relating to immigration. Peluso walks around the room to answer questions. "Before you color, I want your sentences written," she reminds them.

The students do not base their writing solely on what they've

heard in this morning's read-aloud. Whether they realize it or not, they also draw on what they've learned from read-alouds in previous grades. Their knowledge of kings and queens, Columbus and the Pilgrims, colonial towns and townspeople, and the birth of our nation has shaped their understanding not only of this particular assignment but of U.S. history in general.

While several students draw pictures of people in houses and American flags, Elizabeth's imagination has led her to illustrate a girl standing on a ship, holding bags in each hand. Beneath her picture she has written: "Immigrants are people that travel from a country to another. They came to America because they wanted a better life and freedom. The Pilgrims moved to America because the King said to worship his way."

For the next few minutes, she and her classmates contentedly color, just one of many ways they will solidify what they have learned.

Although the pilot has ended, P.S. 96 and Goldie Maple will continue to use Core Knowledge's K–2 language arts program. That her school will stick with it is good news to Marta Torres, a first-grade teacher at P.S. 96. She says the program has allowed her to focus on the craft of teaching, not the endless pursuit of instructional materials. Before the pilot, she remembers searching in the library for a book to teach students "author's purpose" and feeling so overwhelmed that she would literally cry, "Which book should I use?" Torres is relieved that she no longer spends her "prep" time looking for books. "This program has everything for you."

Angela Logan, Goldie Maple's principal, credits the program with increasing academic achievement, especially for special needs students, some of whom start kindergarten not knowing any letter sounds. "When you look at the assessments and you see the growth over time, you can see how much they really have internalized," she says.

Linda Bevilacqua, Core Knowledge's president, says the foundation insisted on students with special needs and ELLs being included in the pilot. "The materials as we originally developed them were very supportive of those students," she says. And thanks to teachers' suggestions throughout the pilot, the foundation now includes further supports. It built in more repetition in the Skills Strand and created an assessment and remediation guide—a series of supplemental materials for each grade level so teachers can provide more targeted instruction as needed.

At P.S. 96, Barrett-Walker still reviews students' writing monthly. She beams with pride in discussing the deep knowledge the children convey and how they organize their thoughts and ideas. "We still do the workshop model" for learning to write, she says. "It's easier now because the students have so many different topics they have learned with Core Knowledge."

Students have acquired enough background knowledge in the early grades that, once they are in fourth grade, they no longer need to write about commonplace occurrences such as a visit to a shopping mall. Now, their teachers ask them to pretend they are Roman soldiers and to describe their lives and responsibilities, or to imagine they are immigrants in America at the turn of the 20th century writing a letter to family members back home. Pencils in hand, the words come quickly. Full of meaning, the sentences reveal the rich content that all our students should know. □

Telling Good Science from Bad

(Continued from page 12)

make you take more time with each action, and articulating your thoughts will increase their precision. It's well worth the time now, given that a change usually represents a significant investment of your time, money, and energy, not to mention the time and energy of your kids. If you do take the time, you'll see that many changes do not stand up to being stripped and flipped. As we've discussed, some will be familiar, vague, or too extravagant. Others will lose all appeal once stripped—there was nothing persuasive about them without the emotional appeal or misleading analogy. And still others will not seem impressive enough to be worth the investment once flipped.

I believe that the practice of education would be improved if better use were made of scientific advances, and if educators were better able to discern good science from bad. Will we continue to cheer on education reforms that sound right to us, convinced that the "evidence" supporting them must be strong only because we like the conclusion? Or will we cast a cold eye on our own beliefs, confident that, to paraphrase Francis Bacon, by beginning with doubt, we will end with certainty? If we can do so, our children will be the richer for it. □

Endnotes

1. David Lazarus, "If Nothing Else, Man with Past Is Persistent," *San Francisco Chronicle*, March 10, 2002.

2. B. J. Dohrmann, "Whole Brain Learning," www.superteaching.org/stmind.htm.

3. Gina Hannah, "Bernhard Dohrmann," *Huntsville Times*, April 28, 2002, A9.

4. This figure is according to the Super Teaching purchase order: http://superteaching.org/CEO_ST_purchase_order_v4.pdf (accessed June 13, 2012; this PDF is no longer available).

5. Budd McLaughlin, "'Learning at the Speed of Thought,'" *Huntsville Times*, October 7, 2008, 1A.

6. J. Ramhold, "University Dissolves 'Super Teaching' Partnership," *The Exponent*, April 14, 2010, http://exponent.uah.edu/?p=2538 (accessed July 17, 2011; this web page is no longer available).

7. This blog entry is no longer available from the Flashpoint blog website (www.flashpointblog.com).

8. A. Shavers, "Super Teaching: Learning at the Speed of Con," *The Exponent*, October 21, 2009, http://exponent.uah.edu/?p=1570 (accessed July 17, 2011; this web page is no longer available).

9. Thomas L. Friedman, "Swimming Without a Suit," *New York Times*, April 21, 2009.

10. Thomas Gilovich, "Seeing the Past in the Present: The Effect of Associations to Familiar Events on Judgments and Decisions," *Journal of Personality and Social Psychology* 40, no. 5 (1981): 797–808.

11. See, for example, Bridget K. Hamre and Robert C. Pianta, "Early Teacher-Child Relationship and the Trajectory of Children's School Outcomes through Eighth Grade," *Child Development* 72, no. 2 (2001): 625–638.

12. Irwin P. Levin and Gary J. Gaeth, "How Consumers Are Affected by the Framing of Attribute Information Before and After Consuming the Product," *Journal of Consumer Research* 15, no. 3 (1988): 374–378.

13. See, for example, Mark A. Davis and Philip Bobko, "Contextual Effects on Escalation Processes in Public Sector Decision Making," *Organizational Behavior and Human Decision Processes* 37, no. 1 (1986): 121–138; and Kenneth J. Dunegan, "Image Theory: Testing the Role of Image Compatibility in Progress Decisions," *Organizational Behavior and Human Decision Processes* 62, no. 1 (1995): 79–86.

14. National Center for Education Statistics, *The Nation's Report Card: Civics 2010* (Washington, DC: U.S. Department of Education, 2011).

15. Russell A. Barkley, *Attention-Deficit Hyperactivity Disorder*, 2nd ed. (New York: Guilford Press, 1998).

16. Amos Tversky and Daniel Kahneman, "The Framing of Decisions and the Psychology of Choice," *Science* 211, no. 4481 (Jan. 30, 1981): 453–458.

17. Julia Gillen, Judith Kleine Staarman, Karen Littleton, Neil Mercer, and Alison Twiner, "A 'Learning Revolution'? Investigating Pedagogic Practice Around Interactive Whiteboards in British Primary Classrooms," *Learning, Media and Technology* 32, no. 3 (2007): 243–256.

18. Elements of this technique go back quite far. One of the more influential presentations is Roach Van Allen and Claryce Allen, *Language Experiences in Early Childhood* (Chicago: Encyclopedia Britannica Educational Corporation, 1969).

19. For more on this, see Daniel T. Willingham, "Critical Thinking: Why Is It So Hard to Teach?," *American Educator* 31, no. 2 (Summer 2007): 8–19, www.aft.org/pdfs/americaneducator/summer2007/Crit_Thinking.pdf.