2013

EDUCATION WEEK

SPOTLIGHT

On Using Data to Inform Instruction

Editor's Note: States and districts face many barriers when it comes to putting data in the hands of educators. In this Spotlight, learn from schools developing research-based alliances that put data into practice and see how data is being delivered to improve classroom instruction.

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Published on December 5, 2012, in Education Week

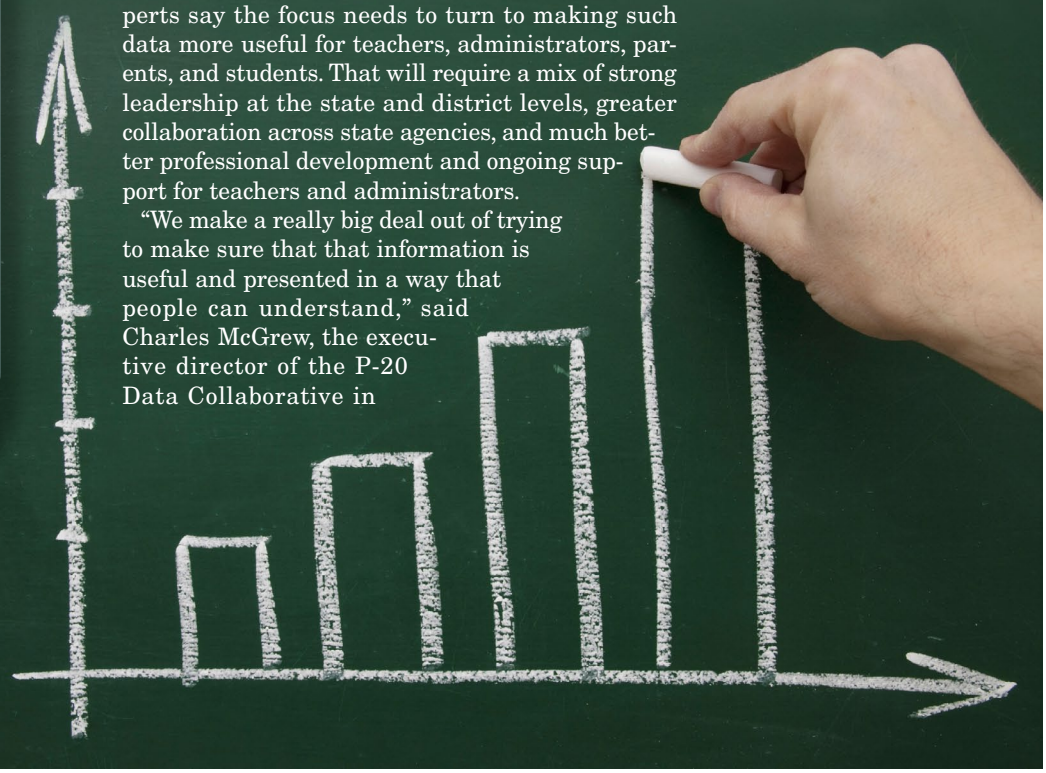
Stronger Focus on People Is Seen as Top Priority For Data Use in Education

By Katie Ash

It's all about the people. That's the message that data evangelists are sending to K-12 educators and policymakers.

Now that the technological foundation for the use of robust systems of longitudinal education data has been laid in most states and school districts, experts say the focus needs to turn to making such data more useful for teachers, administrators, parents, and students. That will require a mix of strong leadership at the state and district levels, greater collaboration across state agencies, and much better professional development and ongoing support for teachers and administrators.

"We make a really big deal out of trying to make sure that that information is useful and presented in a way that people can understand," said Charles McGrew, the executive director of the P-20 Data Collaborative in



ISTOCKPHOTO-Hiob

Kentucky, a state that has made significant progress in recent years in using data to improve education.

The shift in priorities from putting hardware and software in place to figuring out how data are used by actual people is a theme highlighted in a recent report released by the Data Quality Campaign. The Washington-based nonprofit group aims to help schools use data such as graduation rates, standardized-test scores, and attendance to improve student achievement. Encouraging state education departments to make such data more relevant and useful by linking it to other state agencies is a key component of the organization's mission. So is advocating for robust professional development for educators to better understand education data.

"When you look at the actions that are lagging, it's because those are the ones that require the focus on people," said Aimee Guidera, the executive director of the Data Quality Campaign. The infrastructure of data systems has largely been built, she said, but now, "it's not just about collecting the data, but putting a focus on how we make sure that valuable, actionable, contextual information gets into the hands of stakeholders."

In the report, states are evaluated on the basis of 10 actions they are encouraged to take to support effective data use. Those actions fall into three categories: linking data and making sure that the infrastructure and policies are in place to maintain those linkages; making sure that data can be accessed, analyzed, and used; and ensuring that stakeholders have access to the information and know how to use it.

The report says states are lagging in actions to link education data with workforce data, ensure appropriate stakeholders have access to data, provide data-literacy training and professional development for educators, and share K-12 education data with local teacher-preparation programs.

Leading States

While no states have taken all the recommended actions, 10 states now have eight or nine in place, up from four states in 2011.

Kentucky has taken six of the 10 actions defined by the Data Quality Campaign, four more than last year. *(See Education Week "Data-Sharing in Kentucky Drives College Preparation," November 16, 2011.)*

Part of its success can be attributed to leadership that has taken a history of valuing education data, said Mr. McGrew, especially in the state legislature, which has protected the $600,000 in annual funding for building data systems despite holes in the state budget. (The state faced about $360 million in spending cuts in the first year of the 2012-14 biennial budget, on top of cuts that shaved more than 25 percent off the budgets of most state agencies in previous years.) In addition, in 2009, the legislature passed a measure requiring the state to collect, share, and report data to improve postsecondary enrollment and decrease remediation.

As a result, the state has taken a hard look at its high school feedback reports, which provide information about how well students do in postsecondary education after graduating from high school. Thanks in part to the work of the P-20 Data Collaborative, as well as focus groups held by education leaders in the state with K-12 teachers to determine how to make the feedback reports more helpful, the state has seen postsecondary enrollment grow from 50.9 percent in 2004 to 61.4 percent in 2010.

Although that rise cannot be solely credited to the emphasis on better data use, both state and national experts say, having those measures in place certainly helped boost those numbers.

Another state that has made great strides in using data is Oregon, which has completed eight of the 10 actions recommended by the Data Quality Campaign. Leadership in the governor's office was also credited for putting data use high on the priority list.

For instance, the creation by Gov. John Kitzhaber, a Democrat, of the Oregon Education Investment Board in 2011, which pulls together educators and community leaders to create a unified P-20 education system, was instrumental in supporting a robust data system in the state, said Doug Kosty, the assistant superintendent in the office of assessment and information services for the state department of education.

"That was really the push we needed to get where we're at," he said. Because of the education investment board, the state has now started collecting and sharing pre-K data from publicly funded programs and has made strides in incorporating workforce data into the system, he said.

In addition, Oregon has focused on forming sustainable professional-development communities to teach educators what the data mean and how to use the information, he said.

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>
> CHARLES MCGREW
>
> Executive Director, P-20 Data Collaborative

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Published on March 14, 2013, in Education Week

Data Development Drives Change

Districts need to build better information intelligence

By Katie Ash

The fragmented nature of data systems in school districts, a lack of common data standards across states, and the financial challenges of providing professional development to data users in schools combine to leave many districts and states struggling to provide meaningful, real-time data about student performance to educators.

And that reality, experts say, is a major barrier for districts working to transform themselves into organizations that maximize the effectiveness of new technologies.

"It's hard to get machines to talk to one another," says Darrell West, the vice president and director of governance studies and the founding director of the Center for Technology Innovation at the Brookings Institution, in Washington.

"A lot of school data are siloed. You may have academic-performance data in one place, administrative data someplace else, and disciplinary data somewhere else," he says.

Complying with privacy laws around student data, such as the Family Educational Rights and Privacy Act, or FERPA, also presents challenges, he says.

While protecting student information and providing educators with meaningful, timely data are important goals, "right now the balance is skewed very much in favor of privacy over data-sharing, so we're not able to get the benefits that would come from integrating information," he says.

Steps to Sharing

Kathleen Berry, the coordinator of research, evaluation, and assessment for the Monroe County Intermediate School District in Michigan—which provides special education and professional development services to nine districts, two charter schools, and 15 private schools in the county—says her state is a prime example of how hard it can be to share data between districts. That difficulty impedes comparisons of instructional techniques and keeps teachers from accessing records for students who have transferred from elsewhere in the state.

"Through the mid-1990s, each school district really operated independently of each other," says Berry. Because of that local control, districts built their own data systems, creating a hodgepodge of data warehouses, she says.

In 2009, the state received an $11.6 million federal grant under the American Recovery and Reinvestment Act to help bridge the gaps in the data warehouses that districts used and facilitate information-sharing across districts. Under the grant, the districts were broken into eight consortia, each of which held face-to-face meetings with members to talk about the challenges of their different data systems.

The grant specifically focused on districts' assessment-data warehouses, and while it did not provide money for all members of each consortium to switch to the same system, it did help establish such systems in districts that did not have their own assessment-data warehouses previously, says Berry.

"Even though we couldn't share a lot of actual data, the information about what strategies people are using—professional development or user supports—was hugely helpful and has saved some time and money," she says.

The grant also required districts to provide at least four days of professional development over the course of two years for teachers to learn how to interpret and use the data they had access to.

However, when it came to actually facilitating data exchange between districts, not much progress was made, Berry says.

"We found out almost immediately that this would prove to be somewhat challenging" to accomplish district-to-district data-sharing with the amount of money available, she says.

The state has also taken steps on its own to help facilitate information-sharing, says Berry, by creating a school data portal that provides information to the public and—through a password-protected login—more detailed information about individual students to teachers.

But even though Michigan has a set of criteria for data standards, many districts do not have the money for a dedicated data manager, so inputting the data into the system often falls to staff members who do not have formal training in that area, says Berry.

> "It's really hard to get 50 states to come to some sort of agreement on their own...There's going to need to be funding or some tie-in to something that's happening federally."
>
> PAIGE KOWALSKI
> Director, Data Quality Campaign

"They do what they think is right, or what they've always done, and we end up with ten different ways to code an excused absence," she says.

Educators in Texas have similar challenges at the district level, says Melody Parrish, the director of statewide education data systems for the Texas Education Agency.

As the system now stands, teachers have to log in to multiple systems to see different kinds of data, and they can't link the data in one silo to the contents of another, making it difficult to analyze the information in meaningful ways, she says. For example, the system cannot compare attendance data with academic-performance data to predict which students may be at risk of falling behind.

Rolling Out a System

But the state is moving to a new statewide data system that will produce feedback reports that can integrate such data for teachers, Parrish says.

In addition, districts can opt to receive access to teacher dashboards that link educators to a collection of reports about student academic performance, she says.

"We went out and ... gathered information on what teachers and campus administrators and district administrators would need" in order to develop the dashboards, says Parrish. Teachers expressed a desire

for usable, real-time data that would help them be able to group and differentiate instruction for their students, she says.

The system, which is being piloted in a handful of Texas districts, will be rolled out statewide over the next three or four years.

The teacher dashboards have been developed in partnership with the Michael and Susan Dell Foundation, based in Austin, Texas, which rolled out its Ed-Fi data standards in July 2011 to help standardize data across districts and states. Fourteen states have committed to adopting the

The Ed-Fi data standards are aligned to the common education data standards developed by the National Center for Education Statistics, which released the third version of the standards in January 2013. The common education data standards, or CEDS, are helping facilitate data-sharing across districts in Georgia and potentially across states, says Bob Swiggum, the chief information officer for the Georgia education department.

Swiggum has earned recognition in the education data sector for building a data "tunnel" that allows teachers in districts throughout Georgia to access state-level data and reports analyzing data across districts, without ever having to log in to more than one system. The state-level reports provide detailed feedback to teachers about their own classrooms as well as how their students compare with students in other schools and districts in the state.

Before the creation of the tunnel, only 300 out of a potential 150,000 users were engaging with the statewide data system, says Swiggum. Now, that number is about 60,000.

The tunnel automatically transfers the educators' login information to the state system, verifying their credentials and levels of access to data, and allowing those educators to enter the state system without having to go through a second login process.

In addition, the tunnel mirrors the look and feel of the district-level data system so that even though educators leave their district systems to view the state-level reports, it doesn't feel as if they are navigating to an entirely new system, Swiggum says.

To build the tunnel, Swiggum worked with 12 different vendors that provide data services to Georgia districts to add several lines of code to trigger the login authentication and website mirroring.

The state has added tools within its system—based on feedback from educators about what they would find most helpful—to include growth models, longitudinal data, and individualized education programs for students, and tools to link resources to the Common Core State Standards.

Listening to feedback from educators was essential in creating the solution, Swiggum says.

"You have to know who your audience is and listen to your audience to find out what they want," he says.

State Data Connections

Swiggum is also working to connect data between states. The Southeast Education Data Exchange, or SEED, relies on CEDS—the common data standards—to share information in member states.

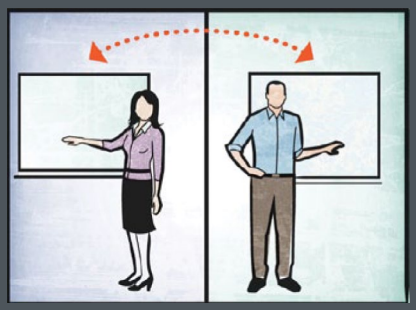
Georgia, Kentucky, and North Carolina are piloting the project, which matches 85 different data fields between states to exchange student information, allowing teachers to retrieve information and records quickly for a student who transfers from a district in one state to a district in another.

Because there are no easy ways to share data across states, educators are not getting a full picture of student performance, says Paige Kowalski, the director of state policy initiatives for the Washington-based Data Quality Campaign, which works to increase the availability of high-quality education data to improve student achievement.

For instance, in many states, a large percentage of students go to college out of state, which means that without linking data between states, the states cannot link K-12 data to those students' postsecondary performance, Kowalski says.

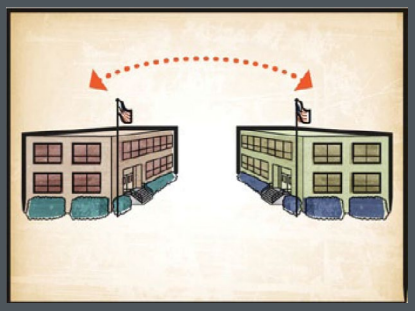
"It's really hard to get 50 states to come to some sort of agreement on their own," she says. "There's going to need to be funding or some tie-in to something that's happening federally" to drive the creation of a cross-state solution.

Data-Sharing



GOALS

Districts share records in real time as students and teachers move across district lines to ensure seamless enrollment, reduced paperwork, and more robust academic records.



Data move efficiently across education sectors to better track individual students' progress over time while providing feedback throughout the system to ensure that all students are on track to succeed.

When students, families, and educators move across state lines, their data move with them to ensure that stakeholders have better information regarding outcomes.

SOURCE: DATA QUALITY CAMPAIGN — Using Data To Improve Student Achievement — www.DataQualityCampaign.org

Published on May 21, 2013, in Education Week Digital Education Blog

Student Data Too Often a Tangled Web for Schools, Report Says

By Sean Cavanagh

Schools are flooded with data these days, but students, parents, teachers, and administrators often lack the ability to make use of it because the systems for collecting, storing, and analyzing that information don't mesh with each other, many officials who work with, or in, K-12 education say.

That lack of "interoperability" between data systems—which results in everything from long lag times in schools receiving useful test results to educators and students having to deal with multiple logins to systems—is the subject of a new report, which calls for a streamlining of those systems, and attempts to offer solutions.

"Transforming Data to Information in Service of Learning," calls on policymakers on all levels to develop long-term plans to increase the capability of technology systems to work together. It also says they need to do so while ensuring student privacy, and calls on state and local officials to demand that private-sector vendors deliver products that are capable of working within a broader tech system full of many parts.

"In spite of the fact that we are awash in useful digital-learning applications and potentially valuable data, the systems we use to collect, manage, analyze, and report on that data are often disconnected and don't work well together," according to the report, produced by the State Educational Technology Directors Association, a nonprofit organization based in Glen Burnie, Md., that represents state tech leaders.

"Most data currently being collected isn't captured to inform instruction; it's used for the purposes of state or federal accountability reporting. Some kinds of data that could give teachers and students immediate insight for personalizing instruction are not being captured at all or not in a systematic fashion.

In other parts of the public and private-sector landscape, such as in health care, law enforcement, the entertainment industry, and transportation, systems typically work in smarter, more seamless ways that handle data with more speed and sophistication than schools often do, the association argues.

Where do the breakdowns in K-12 interoperability occur? The state tech association cites several factors at work. Among them:

- Integrating systems and apps is hard work, and today it often has to be done manually;
- Many of the processes for aligning digital resources to state standards are incompatible and costly;
- Districts and schools are often forced to piece together complex storage solutions, both on-site and through other options, such as cloud computing, to maintain the data churned out by their information systems;
- Confusion abounds about student privacy and legal provisions surrounding where student information is stored and how it can be used;
- Families often don't have a way to access students' personal data, from test results to accommodations for children with special needs, to share that information in secure ways;
- Users have to muddle through lots of logins and passwords to get to classroom resources or compile data, because different systems have different authentication processes; and
- Once student data is compiled, educators and school leaders lack ways to display it in useful, understandable ways.

The report also offers an overview of what it labels 14 "interoperability initiatives," led by organizations that are addressing standards for data and improving how it is shared and used. Those efforts range from "open badges infrastructure," or a standard for issuing and storing microcredentials recognizing student achievements; to InBloom, a system that offers states and districts tech infrastructure to coordinate data, services, and applications. inBloom has run into opposition in some states over privacy concerns. (At an event in Washington introducing the report, Doug Levin, SETDA's executive director, said the overview of initiatives was meant to provide readers with a list of resources, and was not meant as an endorsement of any company or approach.)

One of the event's attendees was Richard Culatta, the acting director of the office of technology at the U.S. Department of Education. He said policymakers and technology experts need to work harder to convey the benefits of creating a "coherent, intertwined, ecosystem," so that digital novices understand the payoff for students and schools.

The difficulty of explaining the technology and its benefits "is not an excuse not to involve them in the conversation," Culatta said, adding, "that's on us to explain it to them."

The report also says that states and districts, through the requests for proposals that they issue, need to require assurances from vendors that new technologies will meet "widely accepted data and interoperability standards," or include plans to do so.

When policymakers consider the costs of procuring new products, they need to take the price tag associated with ensuring interoperability into account, the report says. Even tech products that are offered for free, the authors argue, need to be put through that review.

Published on September 19, 2012, in Education Week

Scholars and Educators Team Up for the Long Haul

By Sarah D. Sparks
Washington

Long-term partnerships, rather than one-off studies, may become the new norm for researchers looking for access and districts looking for answers.

A forthcoming study commissioned by the William T. Grant Foundation, of New York City, finds more districts are developing long-term, structured relationships with researchers. It says the trend is driven by tight local budgets and an increased federal focus on making education research usable.

The study highlights potential bridges between researchers frustrated with low use of their studies by practitioners and district officials who are wary of researchers' use of their data.

Those tensions were evident in 2007, when Vanderbilt University researchers approached the 83,000-student Fort Worth, Texas, district with a research proposal. It took a long time to build trust.

The district needed the help; it was trying to implement a new middle school mathematics curriculum two years after the district had undergone big major budget cuts, said Michael Sorum, Forth Worth's deputy superintendent for leadership, learning, and student support.

"Our curriculum department was basically gutted," he recalled.

The district was already being "bombarded" by researchers wanting to conduct studies in its schools, he said. Most of them shaped their proposals around particular grants, whether or not the planned research really addressed the district's problems, according to Mr. Sorum.

Moreover, many of the proposed studies would have required data collection and other work from the district's teachers, but would not provide any feedback for months or years.

"I had a lot of experience of interacting with external organizations who were working with the district," Mr. Sorum said. "I was left with the taste in my mouth of being seen as an object by a certain number of researchers."

Relevance Needed

Vivien Tseng, a vice president for programs at the Grant Foundation, said that sort of disconnect is common.

"When researchers talk about implementation, they are talking dosage and fidelity," Ms. Tseng said during a Sept. 7 symposium on the study at the fall conference of the Society for

Alliances between researchers and education practitioners are becoming increasingly common in urban districts nationwide. Among them are:

- **The University of Chicago Consortium on Chicago School Research:**

  http://ccsr.uchicago.edu/
  After the city's schools were restructured in 1990 into decentralized governing zones, researchers from the University of Chicago's Urban Education Institute, the Chicago school district, the city's Urban League and Community Trust, and local and national foundations collaborated to support longitudinal study of the schools. The pioneering consortium focuses on Chicago, but its findings have had national application and it is considered a gold standard for research alliances.

- **Research Alliance for New York City Schools:**

  http://steinhardt.nyu.edu/research_alliance/
  Launched in 2008, this collaboration involves researchers from New York University's Steinhardt School of Culture, Education, and Human Development who provide ongoing longitudinal and evaluation research for the New York public schools and help the school system translate research findings into instructional practice.

- **Los Angeles Education Research Institute:**

  http://www.laeri.org/
  Launched in 2011 by University of California, Los Angeles, researchers Meredith Phillips and Kyo Yamashiro, the institute has spent its first year building an alliance with Los Angeles public schools to analyze student-achievement data and develop best practices.

- **Baltimore Education Research Consortium:**

  http://baltimore-berc.org/
  In 2006, researchers from Johns Hopkins University, Morgan State University, and the Baltimore public schools created a network with community nonprofit groups, in part to study and address the city's high dropout rate.

- **Kansas City Area Education Research Consortium:**

  http://www.kcaerc.org/
  A multidisciplinary team of education researchers from four major local universities—Kansas State University, the University of Missouri in Columbia, the University of Missouri–Kansas City, and the University of Kansas in Lawrence—study student achievement and school improvement in several school districts around the Kansas City metropolitan area.

- **San Diego Education Research Alliance:**

  http://sandera.ucsd.edu/
  The school district and the University of California, San Diego's economics department established the alliance in May 2010 to collect longitudinal data and evaluate school policies.

- **Texas Consortium for School Research:**

  http://tcsr.edvanceresearch.com/
  Launched in 2009, this group focuses on research to improve college and career readiness in Texas schools. It includes the Regional Educational Laboratory Southwest at Edvance Research Inc., the University of Texas at Dallas Education Research Center, and more than 30 school districts and charter schools across the state. The Chicago Consortium also partners with these Texas researchers.

Research on Educational Effectiveness, held here. "When practitioners talk about implementation, they are talking about how it fits into existing programs, policies, and practices."

A decade ago, in the early days of the Institute of Education Sciences, an arm of the U.S. Department of Education, federal policymakers focused on improving the overall quality of education research, most famously with the research agency's emphasis on using randomized, controlled trials as a primary study design. The assumption, according to William R. Penuel, a study co-author and an education professor at the University of Colorado at Boulder, was that educators did not act on most education research because it wasn't accurate.

But as the number of experimental-design studies rose, he said, policymakers found "there's a problem of relevance here, too. The reason we hear practitioners aren't using research is because they say it's not really relevant to the problems they face in the field."

Effective partnerships change the way districts and researchers cooperate, Mr. Penuel found. Rather than a researcher approaching administrators to conduct a study or administrators contracting with a researcher to evaluate a specific program, successful alliances are structured from the beginning to be long-term relationships focused on problems of practice. Both sides work on mutually beneficial studies so that neither side feels "used" by the research.

Evolving Relationship

"They're not just repackaging student-achievement data, but doing original analysis that adds value to what the practitioners can learn on their own about how they are doing," Mr. Penuel said.

That's what Mr. Sorum of Fort Worth found. The district agreed—somewhat warily, he said—to join Vanderbilt's Middle School Math and the Instructional Setting of Teaching project, or MIST, a "design-research partnership."

Before coming to the district, researchers from Vanderbilt, located in Nashville, Tenn., studied Fort Worth's achievement data, demographics, and staffing; they recognized the district's black-white achievement gap and problems with teacher professional development.

But rather than simply propose solutions, Mr. Sorum said, the researchers were able to help teachers and administrators "articulate and think about our own work" and come up with suggestions for the most useful curriculum strategies.

"At the end of that first year, as we got our first findings, my eyes really began to open," Mr. Sorum said.

Through the MIST partnership, Fort Worth not only launched its new math curriculum, but also integrated it into science and literacy instruction, he said.

Such design partnerships are one of three emerging models identified by the Grant Foundation study. As part of the model, both researchers and teachers work to design, test, evaluate, and revise a curriculum or intervention in a local context.

In another partnership model, districts, particularly in rural areas, may also create "improvement communities," providing a larger study sample for researchers while being able to quickly test and share best practices among schools with similar demographics or problems.

Those partnerships focus on quick, intensive cycles of research testing and tweaking, which can produce answers to instructional questions in a matter of months rather than years.

In the third model, a permanent research alliance often develops around a particular community, rather than focusing on a given education topic, and it may pull in partners from other government agencies and community nonprofits as well as the school district.

This partnership model has become one of the most common, thanks to the success of the long-running Consortium on Chicago School Research, which has inspired similar partnerships in New York City, San Diego, and Houston.

Adina Lopatin, the deputy chief academic officer for the New York public schools, said the four-year-old Research Alliance for New York City Schools has helped city leaders understand the changing school landscape and community effects of major school improvement efforts, such as Mayor Michael R. Bloomberg's push to break low-performing schools into small schools.

Published July 12, 2012, in Education Week Inside School Research Blog

Study to Gauge Effectiveness of Teacher Data Use

By Sarah D. Sparks

Programs to help teachers "use data to drive instruction" have blossomed in recent years, backed by support for data use in both the federal School Improvement Fund and state improvement systems. Yet there has been remarkably little research on the effectiveness of data-use training to both change educators' teaching practice and boost student achievement, according to researchers speaking at the federal STATS-DC meeting in Washington.

"We think if we get this beautiful, clean report and we have all the data and it's accurate, we'll know what to do, and that just isn't it," said Diana Nunnaley, the director of the Cambridge, Mass.-based science and mathematics education research group TERC. "That's the start of it, not the end of it."

TERC and Linda Cavalluzzo of the Alexandria, Va.-based CNA Education are in the middle of a randomized, controlled trial of Using Data, a professional development program intended to teach educators and administrators to read and interpret their own student data. In a large unnamed Southern urban district with high levels of poverty and high concentrations of minority students, 60 elementary schools—including two schools in "turnaround" status under federal accountability rules—are participating in the study.

The researchers randomly assigned 4th and 5th grade math teachers to either receive the professional development on data-use or the regular district training. Teachers participating in Using Data were divided into 30 five-person data teams, made up of two teachers from each grade plus one data coach. Each team meets weekly to review mathematics student data and attend training on collaborative inquiry, data literacy, identifying student learning problems in data, the use of logic problems and ways to monitor students, Ms. Cavalluzzo said.

"Some teams, when they started really looking at the data they collect, they started asking, 'Do we really need all these data?' and others said, 'Holy Cow, we have all this data and we've never looked at it,'" Ms. Nunnaley said.

Baseline assessments have found more than 60 percent of both the participating and control group teachers say they use data to guide their instruction about once a month. Next summer, after a year of using the program, the researchers will test teachers' data literacy and survey them about their data use and attitudes toward educational data. They will also analyze the performance of those teachers' students on annual state math, reading, and science tests, to look for both direct effects of data use on math instruction and spillover effects to other subjects.

This could provide valuable insight into how teachers can learn to use data and how much policymakers can expect data use to change teacher practice.

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Instructional Leadership and Data

The Greatest Partnership of All Time

By Tony Flach

Tony Flach
Professional Development Associate

Peanut butter and jelly, Tom and Jerry, Fred and Ginger, Laurel and Hardy...

All of these are great partnerships. The relationship is subconscious, automatic, the pair is just a pair and there is no other way to think about it. Schools looking to improve student achievement must develop a partnership that is every bit as tight as these: the partnership between instructional leadership and data.

A Google search for "instructional leadership" provides 12,800,000 results in just 0.29 seconds, ranging from advertisements for online degrees to thousands of books and articles. Anywhere you look you will see how important "instructional leadership" is to school improvement. Confusion or lack of clarity about this phrase is understandable, as it is perhaps one of the most frequently used and poorly defined in education today.

While the importance of the principal quickly emerges as one browses through the Google results, there is still no clear definition for "instructional leadership." *The Roots and Wings of School Leadership* synthesizes a set of common beliefs and behaviors of effective school leaders from diverse education sources as well as multiple researchers from the worlds of business. Some of the key descriptions from this work include statements that principals should:

- describe a vision of academic success
- create a culture and climate that supports student and adult learning
- use data to measure progress of students and adults
- discover and support talent that benefits the organization (Dunkle, C., 2012 pp.8-20)

Seashore Louis, Leithwood, Wahlstrom, and Anderson (2010) conducted one of the most comprehensive studies to date of the impact of leaders on student achievement and found that instructional leadership consists of two complementary sets of actions. Principals shape the instructional climate, defined as the "context in which education takes place." (p. 84) Secondly, principals take "instructional actions" guided by "the goal of enhancing every teacher's practices." (p.85) Instructional actions fall into three categories of ongoing behaviors: knowledge of teaching and learning in their buildings; formatively assessing teaching and learning through "direct and frequent involvement with teachers"; and empowering teacher growth and learning. (pp. 85-86).

Therefore a working definition of instructional leadership might be *the ability of the principal to guide teachers to improve instruction through the creation of favorable learning environments, building of teacher content and pedagogical knowledge, and explicit monitoring of the learning of both teacher and student.*

However, such a definition is misleading or, at best, incomplete. The definition offered above may lead one to believe that a principal can go it alone and realize gains in student achievement. This would be like a PB & J sandwich without the J or like watching "Another Fine Mess" with Laurel but no Hardy. It just doesn't work. The principal is the second highest factor in student achievement behind classroom instruction (Wallace Foundation, 2013, p. 5). Any definition of instructional leadership is unfinished without considering those who are to be led by an effective principal: the teachers. We therefore need to broaden the definition. Simply by removing the reference to principal and changing the word teacher to adult we arrive at a working definition of instructional leadership that is consistent with the most current research in school improvement. The definition of instructional leadership should read:

"the ability to guide adults to improve instruction through the creation of favorable learning environments, building of adult content and pedagogical knowledge, and explicit monitoring of the learning of both adults and students."

This broader definition reflects the reality of the most effective schools: instructional leadership comes from everyone in the building. This is the heart of the collective leadership, or "the extent of influence that organizational members exert on

decisions in their school" (p. 19), described by Seashore Louis, et al. (2010) Good principals focus those decisions on building capacity in order to improve student achievement. Leadership should be a team sport.

Just like Laurel needs Hardy and Fred needs Ginger, instructional leadership teams need data. Reflect back to the definition of instructional leadership offered above. Note the three main components:

- Favorable learning environments
- Building content and pedagogical knowledge
- Monitoring of learning

Implicit in all three of those functions is the need for specific, current, and disaggregated data. Shaping favorable learning environments requires an objective, "just the facts" assessment of the current state of a school. Increasing pedagogical and content knowledge necessitates measuring the existing instructional capacity of the entire faculty. Explicit monitoring of learning demands frequent classroom visits to gather data that will serve as the basis for collective decisions to improve teaching and learning. Frequent means 20 to 60 short observations per week (Wallace Foundation, 2013, p. 14).

Good data has several characteristics. First, it must help define what specifically is to be measured. The instructional leadership team will further define terms like learning environment through the identification of data points, such as the number and location of disciplinary infractions, names of students involved, as well as teacher and student climate surveys. These data points provide a concrete picture of what the leadership team means by "favorable learning environment." We are all familiar with the saying "what gets monitored gets done." There is a corollary to that: what we measure defines our intentions.

Secondly, good data is both aggregate and disaggregate. Teachers and principals have been subjected to many professional development sessions that they could deliver themselves. This happens because we think about schools as a single entity rather than a very complex system composed of many working parts. Peter Senge (2006) writes that "living systems have integrity" and that to "understand the most challenging managerial issues requires seeing the whole system that generates the issues." (p. 66) A positive discipline seminar divorced from classroom teaching practices will not change the system of the school. Similarly, a professional development session that targets the needs of a faculty as a whole will be equally ineffective. Disaggregated data allows an instructional leadership team to find areas of effective practice within the organization which can be leveraged to support the learning needs of the remainder of the faculty.

Finally, good data needs to be transparent. There should be no mystery about what data is being collected, who is or will be doing the collecting, and how that data will be used. A lack of transparency and a favorable learning environment cannot coexist. Communicate clearly and explicitly the what, who, and how when it comes to data. Then communicate all of that again. Repeat. Never assume that communication has been effective.

Putting Theory into Practice: Data Teams

The most effective structure for collective instructional leadership is the Data Teams process. Instructional Data Teams are defined as "small groups of teachers who collaborate to improve instruction and accelerate student learning." (McNulty and Besser, 2011, p 110) The Building Data Team is composed of teachers and administrators who work together to support adult learning, application of best practice, and improve student achievement. The parallel between the definition of Data Teams and instructional leadership is striking.

Joe Belmonte (personal communication, April 29, 2008), Director of Effective Schools for North Thurston Public Schools in Lacey, Washington, described Data Teams as "the vehicle that will actualize all other school change." It is in Data Teams that all of the training in instructional strategies, the analysis of standards, and creation of common formative assessments become a seamless whole. The synthesis of effective practice is crucial if our students are to meet the increased level of rigor in both the new standards and accompanying next generation assessments.

John Hattie (2009) conducted one of the most thorough and comprehensive meta-analyses of educational practice to date. The practice of formative assessment, which he describes as a means for teachers to reflect on the effectiveness of their instruction, has an effect size of 0.9 or the equivalent of slightly more than two years' worth of academic growth (p. 181). Data Teams follow a structured process in analyzing formative assessment results to collectively select the best instructional strategies to meet the needs of their students. Building Data Teams support the effectiveness of the Instructional Data Teams, the implementation of the agreed-upon strategies, and link those data to student achievement.

Christine Smith, principal at Bruce Drysdale Elementary School in Hendersonville, North Carolina, has created an instructional leadership team that personifies the definition. Her team is composed of teacher leaders, instructional support

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personnel, and herself. Chris leads the team in regular reviews of current data regarding adult practice and taps their wisdom in addressing the challenges that they find. The team decided to create new classroom structures, specific to each grade level, which would allow teachers to meet with small groups of students to respond to the needs identified from data. Each team member returned from the building-level meeting and worked with their grade level to develop a specific plan for increasing differentiated instruction. The data-based instructional leadership has drawn attention within Chris' district as well as in surrounding cities and counties.

Ann Reever, principal at Lincoln Elementary in Frederick County Maryland, works along with her leadership team to improve the implementation of Data Teams. Ann, supported by Dr. Keith Harris, Elementary Instructional Director, created a learning environment so strong that her teachers collaboratively score video recordings of their team meetings and determine next steps to improve functionality. The teachers on the leadership team serve as the Instructional Data Team facilitators and use these opportunities to brainstorm actions for improvement. Visitors from other schools and systems have commented on the power of this practice.

New Haven Public Schools so improved its data practices that they, at least in part, contributed to a ground breaking 2009 teacher contract in which "at least three 'professional conferences' between an instructional leader performing classroom observations and each teacher" are required to identify areas of strength and to provide "a path for improvement." (Sawchuk, 2011). David Cicarella, just elected to his third term as local union president, and Dr. Reggie Mayo, superintendent, forged a partnership to create structures that improve data-based instructional leadership.

Instructional leadership AND data: the greatest partnership of all time. It is my hope that educators across the country, like those described above, will one day be used to as examples of what good leadership does. Schools are messy, complex places. Principals and teachers face challenges today that their colleagues of even 20 years ago could not conceive. It is no longer possible for principals or teachers to solve all of those problems by themselves: they must work together. But they form only one side of the partnership. Principals and classrooms teachers need the right kind of data to join the ranks of the greatest partnerships of all time.

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CHAT:

Delivering Data to Improve Schools

On March 29, 2013 Paige Kowalski and Laura Hansen answered readers' question on using data to inform instruction.
The following is an excerpt from the chat. To read the transcript in full, visit: http://www.edweek.org/ew/events/chats/2013/03/29/index.html

LAURA HANSEN is the Director of State Policy for the Data Quality Campaign, a national, nonprofit, nonpartisan advocacy organization based in Washington, DC.

PAIGE KOWALSKI is the Director for Information Management and Decision Support for Metro Nashville Public Schools.

Q Are districts investing sufficiently in the "information management" personnel to provide the needed support for teachers and administrators? How important is it for there to be someone (or several people) charged with facilitating effective use of all the data that is being collected?

HANSEN: Extremely important. Our district has focused on not being "vendor dependent" in order that we can customize and respond to our stakeholders' needs efficiently and without a bunch of additional costs.

KOWALSKI: Laura will be your best resource on this but it is absolutely critical that there are folks responsible at each level for managing and using data effectively. Often this is one person or it's a team but there needs to be a focus on this for it to happen.

HANSEN: My experience is that most districts do not invest in this area. We are very lucky that our district prioritizes this, and it has allowed us to create a number of tools and reports that deliver data that our teachers, leaders, and staff need.

Q What features of student information-management systems and learning-management systems are most important in delivering data to improve schools?

HANSEN: We have a data warehouse technical team, a set of business intelligence specialists that work in the area of data governance and professional learning around data, as well as a data quality team made up of about 28 individuals, school based and at central office. User-friendly interfaces that show relevant data in an understandable way—data visualization is extremely important. Ease of data entry is also a key aspect. Collection of data is a number one focus area, and if it is hard to collect, the quality will be less than desirable.

KOWALSKI: It's important to think about what the district can provide with these tools, but also what role the state can play to ensure that opportunities to leverage these tools are equal across high-and-low capacity districts.

HANSEN: Integration is also something to think about. Data silos in this day and age will be more trouble than they are worth. Being able to marry data across systems is key.

Q Can you tell us a little about the professional learning around data — especially ways you ensure that staff does not misuse data, e.g., make invalid inferences from trend data?

HANSEN: Making sure interoperability is part of any RFP is very important... and having people who know what that is supposed to look like technically is as well. Our district has a cadre of data coaches that work directly with schools to help them learn how to best leverage the data.

KOWALSKI: You've just teed up a focus of DQC's for this year...data literacy! We have some great examples out there around the technical aspects of data quality (see Kansas) but now it's time to focus on how educators can use (and not misuse) data.

HANSEN: We also have a research and assessment department that provides guidance on validity of evaluation of data when it's required.

KOWALSKI: DQC gets to this in our State Action 9; as of 2012, only six states have taken all the actions necessary to receive credit on our annual survey.

HANSEN: We also have a person that is looking at providing online resources and professional learning communities (digitally based) to expand the access to resources and best practices around the use of data.

Q What is the one thing you wish assessment companies would start doing in reporting their data that would have the greatest impact in enabling its usage among educators?

HANSEN: Our data coaches also work with the school based instructional coaches to spread the discipline of use of data and apply it directly to instructional approaches in the classroom.

KOWALSKI: We are seeing more schools, districts, and states adopt the idea of data coaches. DQC's work is with states and we encourage them to deliver timely actionable assessment data to the folks that need it most—teachers, principals, parents, and students themselves.

HANSEN: Make the data exportable and not require a separate interface to access it. Integrating assessment data with other district data resources, extends the power of the data analysis.

Q Do your schools use any kind of usage reports to indicate who is using the data, what data they are using? What is done with these usage reports?

HANSEN: Yes... we have utilization statistics based on the role of the user (i.e teacher), as well as the ability to see what reports are most commonly used.

KOWALSKI: It is always important to monitor usage through web stats and such but engaging directly with local stakeholders is the best way to determine use.

HANSEN: The utilization statistics are wonderful in allowing us to see if we are making improvement with our goals around extending data-driven decision-making

KOWALSKI: Generally, even just a few conversations with teachers and principals will help a state understand the usefulness of any given report.

Q Which came first for your school district,— the technology/infrastructure or the personnel to support capacity building? How did you decide which to focus on first? Who within the district led that charge?

HANSEN: The focus was led by the leadership with regard to data and our state advised us that we needed to use data better as we were threatened with state takeover due to lack of performance. This led to the creation of the data warehouse to bring data together to get a better idea of where we were.

KOWALSKI: I can't answer for a district, but we generally encourage folks to get the people in place who understand that systems should be built around stakeholder needs. Having IT without understanding purpose and use doesn't get us anywhere.

HANSEN: The technical team was built to develop the data warehouse and basic reporting, and then the staff was acquired to extend the use of the tool into the district and gather feedback to create enhanced reporting that best fit their needs

Q It sounds like Metro Nashville has a robust system for data collection and for analyzing that data to inform student outcomes, but what about those districts where the resources aren't readily available or they just need help improving their data collection processes? Does DQC provide resources?

KOWALSKI: DQC doesn't provide resources directly to districts. Consortium for School Networking and Schools Interoperability Framework Association are good places for districts to have a technical conversation, but I strongly recommend you connect with program and data folks at the state level.

HANSEN: I think that is one of the roles of the state in my opinion—to help ensure that affordable and effective tools are available for the districts. States are perfectly suited to broker deals with vendors that can make them affordable.

KOWALSKI: Their job should be to find innovative ways to support lower capacity districts and help them put processes and infrastructure and capacity in place to support effective data use. This support may be in training, funding, actual tools, or simply the delivery of better data than what the district had to begin with. States developing and delivering growth data for example is a huge value to lower capacity districts that can't link data longitudinally and warehouse it.

HANSEN: I have to say that DQC and other agencies and even the Department of Education often have conferences or learning opportunities to get information on best practices around data collection. STATS DC is one of those that I have gleaned a great deal of information from.

Q Have you been able to expand/broaden the types of data that schools use? Not just focus on state or interim test results?

KOWALSKI: DQC has long advocated on the 10 Essential Elements of a state data system....state test scores are just one of ten elements! We encourage states to emphasize program, enrollment, outcome, college-ready tests, demographics, etc. as well.

HANSEN: We use all the information that is collected from our student management system, which includes extensive demographic, attendance, discipline, grades, assessments, etc.

KOWALSKI: Early-warning systems are some of the best uses of these data and state assessments play very little role. Predictive analytics are powerful!

HANSEN: We have also ventured outside of the school walls to work with out-of-school time providers to collect participation data, and are working to incorporate post secondary data and eventually health data into the system. Financial data is also on the list, and we recently completed a project to start marrying HR data, teacher evaluation data, etc, with student outcome information.

Q What is the federal government's role in making sure data can be analyzed in a meaningful way for federal civil rights purposes? I know they did a great service by making the Civil Rights Data Collection public, but because of differences in state / federal data collection, many of the states have trouble reporting. Is there any effort to integrate data collection with the Office of Civil Rights database?

KOWALSKI: I know that there is conversation here in DC to make this data collection even better and more integrated but I don't know the current status of this. I do know that the federal government is interested in helping states better leverage information and in ensuring that federal data collections are efficient and effective.

HANSEN: With regard to federal data... I would love to see data standards used so that data could flow from the district to the state and ultimately the feds, and be something that is consistent.

Q Do you also gather any cost/financial information with which to make comparisons and cost/benefit analysis?

HANSEN: That is an area that we are prioritizing and currently doing the preliminary work needed to pull that data into our data warehouse so that we can marry it with other data (such as student achievement and program data) to see where our dollars are having the most impact.

KOWALSKI: I encourage you to look at the work around collecting and linking financial data in Texas, Oregon, and Tennessee

Q What about data for student consumption...have you seen strategies which ensure students have a clear idea of where they are and where they are going rather than relying on rather ambiguous letter grades?

HANSEN: We have been advocating for and our data coaches coach teachers on how to have "data conversations" with students. These have shown to be effective and allow students to own their progress and their goals moving forward.

KOWALSKI: I can't speak to any specific examples yet BUT we envision a future (soon!) where students can not only access their data but understand it and have access to predictive analytics that help them understand if they're on track to meet their goals, alert them when they're off track, and lead them to strategies to get back on track.

HANSEN: I would advocate for the delivery of the data to be done by teachers, or have students track their own progress ongoing so they know what the data mean.

KOWALSKI: As of 2012, 10 states report delivering data to students. States have prioritized teachers and are just now addressing parents and students.

HANSEN: Student tracking of data is a key aspect of personalized learning in my opinion...

KOWALSKI: We also believe that a key part of educator data literacy is the ability to help students understand their own data.

Q With extreme student transience, especially in low-income students, how can you develop data for your school's value-added to that particular student?

HANSEN: The challenge even with e-portfolios will be the systems used to house them. If the district the student is going to doesn't use the same system, or it isn't made available, access will still be difficult. Kind of like some people using Google Docs and others using Dropbox.

KOWALSKI: Another perfect example of the need for system interoperability and common data standards. If you're referring to using value-added for teachers then it is incumbent upon the district or state to set certain business rules around student mobility to address this issue.

HANSEN: Definitely a challenge. We use value-add, and if the student is present for a certain amount of time at a school, their data will count for the school. The real value with value-added data is at the individual student level, I think.

Q Given that data is now more easily accessible at all system levels, and many more people have access, what kind of procedures have you put in place to make sure student-level data is secure and not inappropriately shared?

HANSEN: Our systems are role based, so internally only those with defined job roles see the students in their class, school, or at the district level. We also are developing an online Family Educational Rights and Privacy Act training that will be rolled out next year to help people understand who they can share data with and can't. This training will also be made available to our community partners who we share data with.

KOWALSKI: Privacy, security, and confidentiality are incredibly important. States, districts, and schools must establish and follow policies and procedures to protect student data. We must find a way to balance the demands for data with the need and desire for privacy. We have found that most states have stronger privacy laws than FERPA and that most agencies are often very reluctant to share data or provide access.

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COMMENTARY

Watchful Pedagogy: The Power of Observation as a Data-Collection Tool

By Brooke McCaffrey

Teachers today are constantly engaged in conversations about data—analyzing it, using it to inform instruction, and creating strategic plans around it. There is no denying that data are important and that the place of data analysis in schools is secure for the foreseeable future. What will continue to evolve over time, however, are the ways in which teachers use and analyze data—all kinds of data—on a daily basis to meet the needs of students. While administering assessments is, of course, a valuable means of collecting data, looking beyond the paper in front of us can provide us with meaningful information as well. I found that the power of observation can be one of the greatest tools teachers have in assessing our students.

I am a kindergarten teacher in a sheltered-English-immersion classroom, which means that the majority of my students are English-language learners. During the last school year, I had a powerful learning experience about what it really means to analyze data in order to tailor instruction effectively to what students need.

My students were excited about learning—as most kindergartners are—from the very first day of school. They loved hearing the sounds of language, singing rhyming songs, and hearing stories with new and exciting words. I watched each of them carefully, figuring out what their interests were, seeing the ways they experimented in the block corner, and watching their interactions with books. When they were ready, I broke them into small groups for differentiated instruction.

One group in particular provided me with some interesting observational data. When it came time to assess their ability to decode consonant-vowel-consonant (CVC) words (e.g., cat, hat, man), I noticed that all six of the students in this group were demonstrating similar reading patterns. Each of them was able to articulate all of the letter sounds in the CVC words and to demonstrate appropriate print tracking with one finger. However, when it came time for them to read the word after saying the sounds separately, all six students lifted their eyes from the page and looked around the classroom. And they were unable to successfully decode more than one or two words.

This behavior persisted for each of the students throughout the assessment, even after several reminders to keep their eyes on the page. In their good-natured way, they didn't seem frustrated, only confused. After unsuccessfully reading a word, some of them shrugged; others gave me an uncomfortable smile. They could probably have read the words correctly with the help of a teacher and small group, but individually it proved too much for them.

Watching Their Eyes

I sat down and examined the recording sheet that I had used to track my students' responses during the assessment. According to the sheet, my students needed more practice with decoding CVC words. However, the more I thought about how all six of the students had let their eyes wander all over the room, the more I realized that I might have been missing an important factor. It occurred to me that, as their eyes wandered away from the words, their brains were processing the auditory input of the sounds that were coming out of their mouths. It was as if they were removing the visual stimulus of the letters in front

of them so that they could just focus on the sounds. The struggle to decode CVC words, then, was not necessarily a symptom of weak phonics skills but seemed to be rooted in difficulty with the auditory task of blending phonemes.

After thinking through the wealth of observational data that I had at my fingertips, I decided to collect some more traditional data. I administered a quick, teacher-created phoneme-blending assessment for each of the students individually. My initial hunch was correct: I found that each of the students did indeed struggle with the auditory task of phoneme blending—specifically, blending three or more discreet sounds. If they were to be successful at decoding CVC words, the intervention would need to target this particular skill.

Like all kindergarten small-group sessions, the intervention sessions needed to be no longer than 10 to 15 minutes, and they needed to be fun. I started off the sessions by presenting varied multisensory tools that the students could touch and feel: Elkonin boxes with plastic jewels, beads strung on a pipe cleaner, and paint sticks decorated with felt shapes, to name a few. The idea was that my students could touch an object to represent a phoneme in a given word (for instance, sliding a plastic jewel forward as they said each of the three sounds in cat), and then push all of the objects together in order to have a visual and tactile representation of blending the sounds together. As they pushed the objects together, I hoped that their brains would make the connection and be able to then easily blend the sounds into words. My students enjoyed these activities and asked to make their own tools to take home with them. However, after a few sessions, I found that for the most part they seemed distracted by the visual and tactile aids, and once again their eyes wandered around the room when I asked them to blend segmented sounds together.

I then decided to simplify matters. During the next intervention session I gave each student a special pair of sunglasses and told them that the game we were about to play could be done "in the dark," without looking at anything. I then proceeded to teach them the game "mystery word." I slowly segmented a word for them (/c/…/a/…/t/), and their job was to listen closely, think about the phonemes, and blend the phonemes together in order to tell me my mystery word. I modeled a few words and the students repeated after me. Then they tried it on their own with me prompting them quickly at first if they were unable to blend the phonemes into a word.

My students were excited as they experienced success with this task. Eventually I incorporated the visual and tactile tools, and I kept a close watch on their eyes. After a few weeks, their eyes stayed in one place and they blended words quickly and accurately. They had taken a huge step forward in their phonemic-awareness learning. At the end of each small-group session, I asked them the same questions: "Why do we do this? Why do we segment and blend sounds?" Their answer was always the same: "So we can learn how to read!"

The group made progress quickly through the rest of the school year, and by the end of it they were indeed readers. I learned a valuable lesson that will stick with me through the rest of my years in the classroom: Never underestimate the impact of taking the time to observe the behaviors, body language, and subtle cues that our students give us. There is powerful learning in these observations that you cannot always get from information recorded on a piece of paper or a spreadsheet filled with student achievement data.

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Data Quality Campaign, November 2012

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http://dataqualitycampaign.org/find-resources/from-compliance-to-service/
Data Quality Campaign, November 2011

Supporting Early Warning Systems
http://dataqualitycampaign.org/find-resources/supporting-early-warning-systems/
Data Quality Campaign, December 2012

State Educational Technology Directors Association
http://www.setda.org/

Transforming Data to Information in Service of Learning
http://www.setda.org/web/guest/datatoinformation
Christine Fox, Dian Schaffhauser, Geoff Fletcher, Douglas Levin
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