Data-Based Decision-Making

Nancy Protheroe

During the past decade, dozens of books and probably hundreds of articles have been written on data-based decision-making. Educators have spent thousands of professional development hours directed toward analyzing data—especially assessment data. Using data to help clarify issues, identify alternative solutions to problems, and target resources more effectively should lead to better decisions. The real question should not be whether to integrate the use of data in decision-making, but how.

The way in which data are used has been changing as educators have gotten more sophisticated about its use. They have broadened their definition of data to include aspects like observations from school walkthroughs and applied data analysis to a broader range of school-improvement issues. These changes have brought with them a need for information focused on effective use of data that is also more sophisticated, although still practical and grounded in the everyday life of schools. The resources included in this Research Roundup are intended to address this need. They are all practical and encourage you to put data use in a broader conceptual framework.

In this issue...

Lorna Earl and Steven Katz link school improvement with effective use of data in Leading Schools in a Data-Rich World.

NAESP and ERS encourage principals to broaden their definition of data and its application to a wide range of school functions in Data-Based Decision Making.

Michael S. Knapp, Juli Swinnerton, Michael Copland, and Jack Monpas-Huber suggest that both terminology and practice related to schools’ use of data should shift to a new perspective in Data-Informed Leadership in Education.

Editors Kathryn Parker Boudett, Elizabeth A. City, Richard J. Murnane, and their fellow authors describe a process to using data for school improvement in Data Wise: A Step-by-Step Guide to Using Assessment Results to Improve Teaching and Learning.

Nancy Protheroe is director of special research projects for Educational Research Service. Her e-mail address is nprotheroe@ers.org.

This is the printer-ready version of Research Roundup, an electronic newsletter of the National Association of Elementary School Principals (NAESP).
Leading Schools in a Data-Rich World: Harnessing Data for School Improvement


In the introduction to *Leading Schools in a Data-Rich World*, Michael Fullan characterizes the book as “simultaneously deep and practical.” This description fits well with the authors’ intent in writing it. They have both been long involved with issues of school improvement and characterize themselves as “data advocates [but] not data obsessed.” They are also clear in their belief that, “schools need much more than data to improve.” Data analysis, while providing a critical support for school-improvement efforts, must be accompanied by deep understanding and hard work.

Earl and Katz see effective data use as an important element of professional learning communities. In such schools, educators collaborate to solve problems, a setting the authors characterize as a “culture of inquiry.” An important role for principals is helping teachers and other staff members develop an “inquiry habit of mind.” They need to feel comfortable with having the sometimes difficult discussions focused on problems identified through data use, and they need to consider themselves capable of identifying solutions.

In one chapter, the authors write directly to educators who feel they “cannot do this ‘data stuff’ because they are no good with math.” They stress that “data literacy is not the same as ‘crunching numbers’” and go on to describe what they mean by data literacy. It is a thinking process—a process of:

- Standing back and deciding what you need to know and why;
- Collecting or locating the necessary data;
- Finding ways to link key data sources, ensuring that the data are worth considering;
- Being aware of the limitations of the data;
- Thinking about what the results mean; and
- Systematically considering an issue from a range of perspectives so that you feel you have sufficient evidence to explain, support, and also challenge your point of view.

This structure for using data is logical, practical, and, as Earl and Katz mean it to be, an approach that can help develop an inquiry habit of mind in school staff members.

A particularly helpful aspect of the book is its use of school-based examples to demonstrate concepts. Blank templates for use in the process are also provided. The companion *Facilitator’s Guide* has also been developed. Included in this guide are exercises and discussion questions organized around seven key topics—for example, Capacities for Using Data for Decision Making. Although the authors have designed the set of seven modules as a workshop intended to take a significant amount of time, each of them could form the basis for a school-improvement team’s discussion.
Data-Based Decision Making (second edition)

Research Roundup » Volume 24, Number 3, Spring 2008


*Data-Based Decision Making* is a new edition of a very popular title in the NAESP *Essentials for Principals* series. Almost all the content is new and reflects the evolving practices of schools with regard to data use. *Data-Based Decision Making* begins with a brief introduction to the importance of data use in supporting school-improvement efforts and then moves on to a discussion of some preconditions needed for school staff members to use data effectively:

- A trusting environment in which people feel comfortable talking about and studying school- or classroom-based problems;
- Training that emphasizes skill-building through actual use of data in authentic tasks such as grade-level team review of student progress;
- Opportunities for teachers and other staff members to collaborate in analyzing data and solving problems; and
- Development of a culture of data use through a principal’s demonstration that data are used daily to help support decision-making about small and large issues.

Although most schools begin more intensive data use with assessment data, there are many other areas of school operations that can be supported by data. *Data-Based Decision Making* discusses a few of these other areas and suggests:

You and your staff could probably brainstorm dozens more in just a few minutes. Remember that such endeavors need not be “big” projects. Many times the data question can focus on a small and manageable concern. However, addressing this small concern through careful study can often have big payoffs.

One of the areas discussed in this book is principals’ classroom observations, which are strong potential sources of data about instruction:

One of a principal’s most important responsibilities is ensuring that quality teaching is happening in every classroom. Obviously, student performance on the required year-end assessments is one source of data about the quality of instruction. But waiting until such data are available would mean many months of missed opportunities to help teachers improve their instructional skills. The once-a-year checklist observations of teachers used by many districts for evaluation purposes also suffer from the “too little, too late” problem.

*Data-Based Decision Making* goes on to describe a system of classroom observation and teacher feedback that can help principals strengthen their role as instructional leader. In this system, short, frequent visits to classrooms yield data about what happens on a day-to-day basis—data that can be used to strengthen instruction on an almost continual basis.
Data-Informed Leadership in Education


In *Data-Informed Leadership in Education*, authors Knapp, Swinnerton, Copland, and Monpas-Huber write about schools’ recent increase in data use, the types of data used, and the number of ways data are used. They write about the way things used to be:

An argument can be made that educational leaders have always had “data” of some kind available to them when making decisions intended to improve teaching and learning. Effective leaders gathered whatever information they could readily access, and then, drawing on accumulated experience, intuition, and political acumen, they chose the wisest course of action to pursue. The data they collected was likely impressionistic and rarely systematic, complete, or sufficiently nuanced to carry the weight of important decisions.

The authors then go on to describe “data-informed leadership,” a more thoughtful and intentional approach to using data. This phrase has important implications for principals because encouraging effective data use is emerging as one of their most important responsibilities. The researchers stress that the change in terminology from data-driven decision-making to data-informed leadership signals an important shift in the way data use should be viewed. In this new framework, data are not thought to “drive” decisions. Instead, data use acknowledges that educators bring into the process:

core values and insights into those aspects of the practice for which there is not yet good data, and may never be ... The notion of data-informed leadership captures the complex and often ambiguous nature of data use in educational settings.

Knapp, Swinnerton, Copland, and Monpas-Huber see leaders as providing an “anchor” for effective data use since they “are in a position to define the focus for the data they might generate and use.” They also suggest some leadership focus areas principals might find productive for their schools:

**Leadership that focuses attention and effort on improving student learning.** Both quantitative and qualitative data can help identify what students know and can do, and they can help suggest aspects of teaching that need improvement, for example, through classroom assessment for differentiating instruction and grouping by ability; by formative assessment to refine instruction and enhance motivation; and through student self-assessment.

**Leadership that guides the learning of individual professionals.** Quantitative and qualitative data about various aspects of professional practice can stimulate productive conversation and problem-solving by teachers and administrators. In the hands of a skilled leader, data become a tool for focusing professional learning on the improvement of daily practice.

**Leadership that guides what has been called “system learning.”** Various data can provide a picture of the system’s functioning as a whole, documenting accomplishments and helping to spot problems that need work.
Data Wise: A Step-by-Step Guide to Using Assessment Results to Improve Teaching and Learning

Research Roundup » Volume 24, Number 3, Spring 2008


In Data Wise: A Step-by-Step Guide to Using Assessment Results to Improve Teaching and Learning, editors Boudett, City, and Murnane introduce a process for assessment data use. The process is organized around eight distinct activities that fall into three general categories:

- Prepare: Organize for collaborative work and build assessment literacy;
- Inquire: Create a data overview, dig into student data, and examine instruction; and
- Act: Develop an action plan, plan to assess progress, and act and assess.

While the chapters are written by several authors, they all use the framework of the model to link concepts together. For example, authors of the “Examining Instruction” chapter build on the previous discussion about the “learning problem” a school might have identified, writing: “The learning problem you have articulated by this step of the improvement cycle is a complicated problem—if it were an easy one, you would have solved it by now.” They then go on to suggest that the learning problem should be reframed as a “problem of practice.” In other words, how can teaching help address this problem? Four guiding questions are provided to help with this:

- With this particular learning problem, how does instruction impact what students learn?
- How do we look at instructional data?
- What does effective instruction for our learning problem look like and what makes it effective?
- What is actually happening in the classroom in terms of the learning problem, and how does it relate to our understanding of effective practice?

The editors stress that the process is intended to be cyclical. Once schools learn from and act on assessment results, they should cycle back to ask additional questions. However, the book is intentionally designed so individual chapters, each of which focuses on one of the eight activities, can stand alone. It could also be used to support a yearlong focus for a school staff wanting to hone their data-use skills.

A strength of this book is its use of real-life examples to demonstrate the elements of the process. A companion volume—Data Wise in Action: Stories of Schools Using Data to Improve Teaching and Learning—expands on the discussion of Data Wise in practice. It uses case studies from eight schools to demonstrate the use of the Data Wise process of using assessment results to improve teaching and learning.
Additional Online Resources

www.mcrel.org/PDF/SchoolImprovementReform/5982TG_AskingRightQuestions.pdf
Asking the Right Questions: A Leader’s Guide to Systems Thinking about School Improvement was developed by Mid-Continent Research for Teaching and Learning “to help school leaders, particularly principals, think systematically as they examine school improvement.” The short report (34 pages) includes questions schools can use to jump-start a self-evaluation process.

www.naesp.org/ContentLoad.do?contentId=1455
This Principal article, “How Assessment Data Can Improve Instruction,” is available to members on the NAESP Web site. It briefly discusses topics such as “Assessment Data as a Tool for Instructional Improvement” and “Implementing Effective Classroom Assessment Practices.”

www.aasa.org/files/PDFs/Publications/UsingDataToImproveSchools.pdf
Although written from a school district perspective, Using Data to Improve Schools: What’s Working includes discussions that could easily be adjusted to school-level needs. For example, one section begins by stating, “One of the biggest challenges for any district implementing data-driven decision making is knowing where to begin,” and then provides suggestions for ways to move toward effective data use.

www.ael.org/dbdm/overview.cfm
The Council of Chief State School Officers and Advantia have collaborated to develop Data-Based Decision Making, a Web-based resource for educators. The site is organized around major components of the data use process, supplemented by key questions. For example, one section is titled “What must be considered when setting data-based goals?” Each of the sections includes a brief response to the organizing question, an example, and stories of actual schools’ uses of data.

About NAESP
Established in 1921, NAESP has grown to become the most powerful voice of pre-K-8 principals across the United States and around the world. NAESP leads in the advocacy and support for elementary and middle-level principals and other education leaders in their commitment to all children. www.naesp.org

About ERS
Educational Research Service (ERS) is the nonprofit organization serving the research and information needs of the nation’s K-12 education leaders and the public. Founded in 1973 by NAESP and six other national school management associations, ERS serves as the research arm for NAESP. www.ers.org

Links from the NAESP Web site to other sites do not constitute endorsement by NAESP for any of their contents.
Data-driven decision making brings many benefits to businesses who embrace it. Here, we offer advice you can use to become more data driven. Are you interested in learning how data-driven decision-making can enable you to be a more effective entrepreneur or member of your organization? Below is information about the benefits of becoming more data-driven, as well as a number of steps you can take to become more analytical in your processes.

What is Data-Driven Decision-Making?

Data-driven decision-making (sometimes abbreviated as DDDM) is the process of using data to inform your decision-making process and validate a course of action before committing to it. In business, this is seen in many forms. For example, a company might rely on data-driven decision making and gut feel often come up as two opposing extremes, with managers’ preferences often swinging toward the latter. The BI Survey research showed that 58% of the surveyed companies based half or more of their decisions on gut feel or experience over data. This habit of using one’s intuition most likely remains the key tool of business decision making simply because it’s been the best evaluator for centuries, while computer-based data analysis has only recently challenged it. Gut feel: effective yet imperfect.

Gut feel, or interoception as it’s known in academic circles, refers to the ongoing process of collecting and analyzing different types of data, including demographic, student achievement test, satisfaction, process data to guide decisions towards improvement of educational processes. DDDM becomes more important in education since federal and state test-based accountability policies. No Child Left Behind Act opens broader opportunities and incentives in using data by educational organizations by requiring schools and districts to analyze additional components of data, as well as pressing them...