Notes & Reflections

For professional developers **from** professional developers

IN THIS ISSUE:

Using Data to Guide School Improvement

Although certain provisions of the No Child Left Behind Act of 2001 remain controversial, there is broad agreement that measuring student progress and setting specific goals are fundamental to school improvement (Schmoker, 1999). How do educators measure progress and set goals? The process begins with data.

The ability to track performance is as valuable for educators as it is for doctors, businesspeople, and competitive athletes. Yet education leaders often lack formal training in data analysis. They may suffer information overload when they attempt to draw conclusions from dozens of variables. To remedy the situation, educators need a process for data-driven decision making that helps them focus on the essential pieces of information to identify priority areas and select realistic goals.

This issue of *Notes & Reflections* provides a recipe for school improvement based on data exploration. The main ingredients are the data themselves: useful information about schools and students. The recipe has four steps:

1. ***Prepare for data exploration.*** The process begins with promoting a data culture and forming a team that will examine the data.

2. ***Collect and organize the data.*** The team identifies the relevant data, gathers it together, and organizes it for analysis.

3. ***Analyze the data.*** The team reviews the data and looks for important patterns. It identifies specific programs or student groups most in need of improvement.

4. ***Explain the results.*** The team uses data to generate hypotheses and explain the underlying causes of the areas needing improvement.

Upon completion of these four steps, educators are prepared to use their data to inform school improvement efforts.

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STEP 1: PREPARE FOR DATA EXPLORATION

District and school leaders are responsible for creating an organizational culture that values the use of data and for forming the team that will focus on data exploration. The professional developer can help direct their efforts.

Promote a Data Culture

In schools with a data-friendly culture, teachers and administrators seek reliable data to inform their decisions about curriculum and instruction. Fostering such an atmosphere is a gradual process (Holcomb, 1999). A first activity for professional developers is to explain the purpose of data: to identify goals for school improvement. A second activity is to encourage administrators and teacher leaders to reflect on *how* they make critical school decisions.

An excellent resource for introducing educators to the practice of data use is the video and print package titled *Data Exploration: A Journey to Better Teaching and Learning*. It's listed in **Tools and Resources** on page 13.

Tip: Assess Your Data Savvy

The following questions (adapted from Sargent, 2003, p. 11) help to raise awareness of the need for data-driven decision making:

1. How do we currently establish our improvement goals each year (for the district, a school, or a program)? Describe the process.

2. Generally describe the achievement levels of the students in your building or program.

3. What academic areas are in greatest need of improvement? With what content areas within each subject are students having the most difficulty? On what basis do you answer these questions?

4. In your opinion, what are the primary factors within the school's control that cause low achievement in the areas of greatest need? What data have you examined to support your opinions?

5. What do you hope that the school or district will accomplish by data-driven decision making?

Also, see **Additional Reading** on page 13 for publications that explain how and why to use data for school improvement.

Form a Data Exploration Team

Data exploration is a task that is best accomplished by a broad-based team of educators. A team effort is crucial to the success of data-driven decision making for the following reasons:

• There is too much work for any one person to do.

• Input from multiple points of view is useful in order to interpret the data and brainstorm solutions.

• A broad-based approach builds consensus and buy-in, which helps sustain the decisions that are to be made.

The experience of staff at Learning Point Associates is that the ideal data exploration team size is six or seven members. For each school, the team must include the principal and two to three teacher representatives from various grade levels. It is also desirable for the team to have a representative from special-education teachers and noncore teachers (e.g., the art or music teachers). A district representative on the team helps the school understand the resources its district can offer and helps the district keep in touch with the needs of the school. In addition, a technology expert is quite helpful.

Because membership on the data team can be a lot of work, consider rotating the membership on an annual or biannual basis. Members must be willing and able to meet regularly.

Tip: Include a Technology Expert on the Team

Many schools find it useful to involve the technology coordinator or whoever is experienced with spreadsheet software. The process of interpreting and graphing data goes much faster when one team member is familiar with features of spreadsheet applications such as data filters and pivot tables.

STEP 2: COLLECT AND ORGANIZE THE DATA

The second step is collecting and organizing the data. Four types of data can be used as indicators of a school's success and progress: achievement data, demographic data, program data, and perception data. (See "Data Checklists" on page 4 for specific examples of critical data.)

Types of Data

Achievement data. Achievement data provide information on student learning and achievement. These data include standardized test scores, classroom-based assessments, rubric-scored writing portfolios, and class grades.

Achievement data answer critical questions about student achievement:

• What evidence shows the knowledge, skills, and understandings our students have achieved?

• What evidence shows the academic proficiency our students have achieved?

Demographic data. Demographic data provide information about the characteristics of students: enrollment, student mobility, attendance, disabilities, ethnic background, limited English proficiency, economic status, gender, dropout rates, and behavioral problems. The purpose of this data is to ensure that the needs of all types of students are being met adequately and to indicate important demographic trends (e.g., an increase in English language learners).

Demographic data answer critical questions about the student population:

• Who are our students? What trends do we see in our student population?

• What factors outside of school help us understand our students?

Program data. Program data provide information on all school programs. These data represent the conditions directly under the control of the school, such as its curriculum scope and sequence, academic programs, teacher training and experience, professional development, after-school programming, and Title I programs.

Program data answer the following critical questions:

• What are our academic programs? Which students are involved in each?

• How successful are our programs in attaining the academic standards?

Perception data. Perception data provide information on the attitudes and beliefs of various stakeholders in the school, such as teachers, students, and parents. Some categories for which perceptions are helpful include academic standards, school leadership, quality of instruction, and school climate.

Perception data are usually collected with surveys that address the following questions:

• How do parents, teachers, students, and members of the school community feel about the job our school is doing?

• How satisfied are our "customers" with our programs?

In order to have longitudinal data, which identify trends over time, it is essential to find or create a good perception survey and to stick with it year after year.

Organize Data

Organization is the key to successful data use. The following activities will help your school assemble the data you need in a useful format.

Set up a student-level file. Create a spreadsheet file of student-level data from this year's state assessments. Each row will be a different student, and each column will be a different type of data. Start by labeling each column of data with a descriptive heading. Include in this file achievement data as well as all of the demographic and program data you have for each student. Table 1 (on page 4) presents a sample student data file. (Note: When working with student data, it is important to maintain the confidentiality of the information. Most states, if not all, have laws that limit access to student data to school or district staff.)

Organize by grade and topic. After you have created this basic file, the next activity is to organize it. Because of the sheer amount of data, a single file would be cumbersome. Therefore, it is helpful to break it into smaller files according to grade and topic.

Table 1. Sample Student Data File

Student	Title I	Free Lunch	English Proficiency	Academic Program
Cohen, Jack	Yes	Yes	Yes	Vocational
Ismaeli, Mustafa	No	Yes	No	Regular
Smith, Maryanne	No	No	Yes	Gifted

Data Checklists

Checklist for Achievement Data

REQUIRED

❏ State achievement test summary reports for the last three years for all grades tested.

❏ State achievement test student-level data for the last three years for all grades tested.

❏ School report card for the last three to four years.

SUGGESTED

❏ Report card summaries: lists of students who are below a "C" in mathematics and language arts for Grades 3, 5, 8, and 11.
  • Include grade criteria descriptions.
  • Include lists for the last two to three years.

❏ Standardized test results (e.g., TerraNova, Iowa Tests of Basic Skills) with all reports, including school/district summary reports, objective/strand reports, and student-level data.

Checklist for Demographic Data

REQUIRED

❏ School report card that includes results for special-needs students and demographic groups.

❏ Demographic data such as gender, ethnicity, subsidized lunch eligibility, and English language learner status.

SUGGESTED

❏ Lists of behavior/social referrals by grade.

❏ Student attendance data.

Checklist for Program Data

REQUIRED

❏ Lists of students participating in special programs such as gifted/talented, special education, and Title I.

❏ Summary of schoolwide professional development (i.e., staff development plan) for the past two to three years. Include any evaluations or survey results associated with the professional development offered.

❏ School improvement plan, both current and from the past two years.

❏ Dates of significant curriculum revisions (textbook implementation, realignment of course sequence) in core content areas.

STRONGLY SUGGESTED

❏ Information about curriculum scope and sequence (e.g., curriculum maps).

SUGGESTED

❏ Any program evaluation by external or internal evaluators.

Checklist for Perception Data

REQUIRED

❏ Any survey data, in summary form (preferably for multiple years).

SUGGESTED

❏ Teacher absenteeism data.

STEP 3: ANALYZE THE DATA

The next step is to review and find patterns in the data that have been gathered. But before this step is begun, some preliminary planning will ensure that the team's discussions are productive.

Before You Begin

Reserve adequate time. Set aside a substantial block of time for the team to meet. Many schools have found success with a "data retreat" approach, in which they take a whole day to examine and discuss their data.

Distribute the data. Upload the database onto the computers that your group will use during your discussion. You also may want to have the data in paper form.

Gather necessary materials for displaying observations and conclusions. When you are ready to begin probing your data, have the following materials on hand to help you to display your data and conclusions:

❏ Highlighters (blue, green, yellow, and pink)

❏ Pencils

❏ Yardsticks and rulers

❏ Roll of masking tape (unless chart paper is self-stick)

❏ Markers for chart paper

❏ Flipchart easel

❏ Flipchart paper

❏ Laptop computer with Internet access

❏ Calculators

❏ Lunch, snacks, and beverages

The Data Analysis Process

With that preliminary planning completed, the team is ready to begin the process of data analysis. The goal is to identify strengths and weaknesses across the major academic areas, identify specific demographic groups that need academic improvement, and determine which programs are meeting or not meeting their goals. Throughout all of these analyses, there is a basic process for getting to the bottom line of the data.

1. *Create a data summary tabl*e that lists the percentage of students who are proficient in certain topics across several years.

2. *Color-code the data* to highlight areas of strength and weakness.

3. *Graph the data.*

4. *Record and discuss* the major findings.

Use this process for each of the four types of data: achievement, demographic, program, and perception.

Examine Student Achievement Data

The first and most essential part of the process is identifying areas of strength and weakness in student achievement. The following steps can help the team examine student achievement in broad subject areas.

1. *Find your broad district and school data summaries* from the state assessments.

2. *Locate the report that shows the percentage of students at each level* (e.g., below basic, basic, proficient, and advanced). Focus on the percentages of all students enrolled who are proficient in a given topic. Do not exclude special education or other exempted students, since the objective is to analyze data for all students enrolled. (Note: For some states, proficiency levels are listed as ranges of "scale scores," so you might need to look for the percentage of students in each scale score range.)

3. *Calculate the percentages of all students at or above the proficient level* for each grade and subject. Create a flipchart that lists the data for the past two to four years. Having data from the past four years will allow your data exploration team to compare how the same cohort of students (e.g., the class of 2006) performs across different grade levels, as well as how different cohorts of students perform at the same grade level (e.g., how the fourth grade performs across several years of students). Table 2 focuses on one grade level for the past four years:

Table 2. Sample Data Chart: Grade 3 Proficiency Levels, 2000–04

Grade	School Year	Scale Scores				
		Reading	Math	Science	Social Studies	Writing
3	2001–01	55%	71%	45%	56%	77%
	2001–02	67%	63%	48%	45%	83%
	2001–03	80%	59%	59%	58%	89%
	2001–04	82%	74%	56%	65%	91%

4. *Use the stoplight method*—with blue, green, yellow, and pink highlighters—to create a color-coding scheme indicating visually how well the student results are meeting your expectations. Table 3 defines the meaning of the colors. Your school may choose different cutoff points depending on your expectations.

Table 3. Sample Color-Coding Scheme: Grade 3 Proficiency Levels, 2000–04

Highlight Color	Meaning	Percentage of Student Proficiency (cutoff point)
Blue	WOW! Beyond expectations.	80% and above
Green	GOOD! Meets expectations.	70% to 79%
Yellow	CAUTION! Below expectations.	60% to 69%
Pink	URGENT! In need of immediate improvement.	0% to 59%

5. *Highlight the scores.* Use the highlighters to color over each cell of the chart according to this coloring scheme. Table 4 shows the end result: a striking visual display that indicates areas of academic strength and weakness.

**Table 4.** Sample Highlighted Data: Grade 3 Proficiency Levels, 2000–04

Grade	School Year	Reading	Math	Science	Social Studies	Writing
3	2000–01	55%	71%	45%	56%	77%
	2001–02	67%	63%	48%	45%	83%
	2002–03	80%	59%	59%	58%	89%
	2003–04	82%	74%	56%	65%	91%

6. *Display the data.* For each grade, create a graph to display the proficiency level over several years in each academic area. Graphing makes data more tangible and communicable.

There are several techniques for using graphs to look at longitudinal data. Here are two popular views:

• *Follow cohorts of students across several grades.* This view indicates whether teaching effectiveness within a grade level is improving over time.

In Figure 1, the fourth-grade level appears to be growing in its effectiveness with reading comprehension much more than the other grade levels.

**Figure 1. Sample Graph:
Reading Comprehension Across Year and Grade**
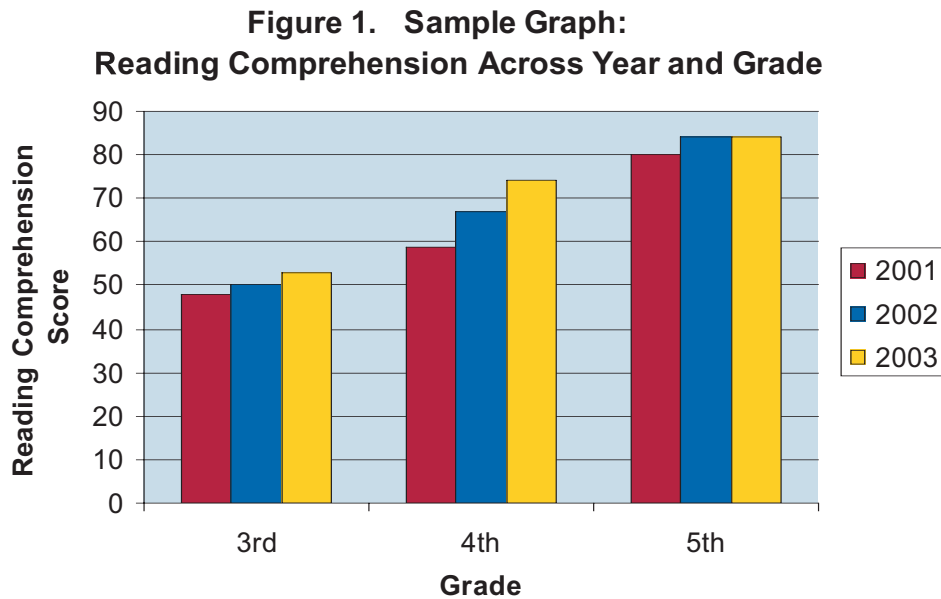
• *Compare the same grade level over time, across different subjects.* This view focuses on how instruction in various subjects is improving over time at a particular grade level.

Figure 2 displays the percentage of students who met proficiency standards for eighth-grade math and reading across several school years. The graph shows that reading proficiency is improving over time, yet math proficiency rates are somewhat stagnant.
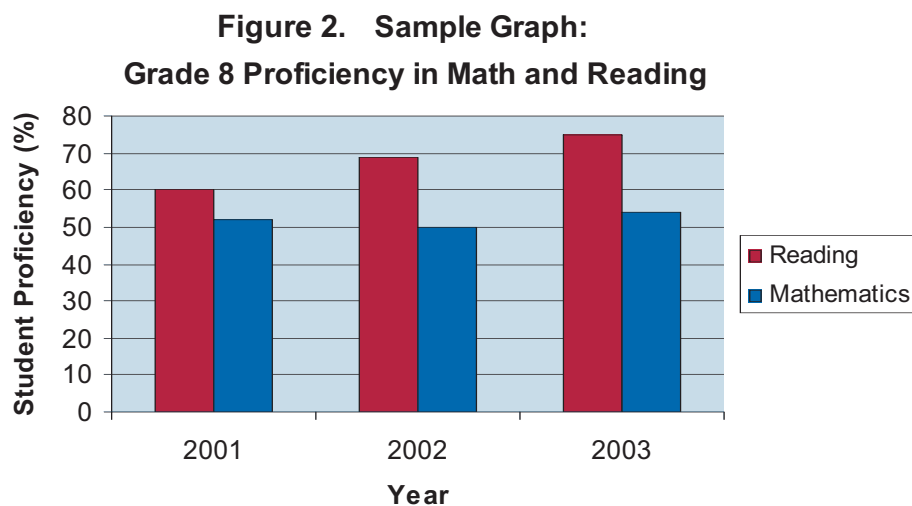
**Figure 2. Sample Graph:
Grade 8 Proficiency in Math and Reading**

7. *Discuss and record major patterns.* When you have finished creating the charts and graphs, consider the following questions:
   - What patterns do we see in this year's results? Do we see similar patterns in past years' results?
   - What trends emerge over the past several years? Do these trends indicate that we are moving toward our goals?

8. *Conclude by making a list of summary statements* that describe the major findings. Write the data summary statements on chart paper.

Examine Demographic and Program Data

Although the broad analysis of achievement data is useful for describing general student strengths and weaknesses, it is necessary to delve deeper to understand what these results mean. To do so, look at breakdowns of your data according to demographics and program participation. All state assessments now disaggregate a school's results according to major demographic categories.

Create data charts to summarize these data. List the major demographic variables in the rows and the major subject areas in the columns. (Each chart can represent a specific grade and year.) Color-code each data point, and graph your important findings.

Most achievement data, however, are not disaggregated by demographics or program participation. The state reports can reveal that low-income students show low proficiency in mathematics, for example, but it is necessary for each school to determine the areas of math in which these students need particular help. Use the following steps as a do-it-yourself guide to disaggregating data:

1. *Locate your student-level data file* (which was described in Step 2 in the section "Organize Data"). Color-code the achievement scores for each student, so that scores considered "excellent" receive one color, "good" scores receive another color, and so on.

2. *Sort the data* or use filters to look at the students in a specific category. For example, you first can display only those students who received Title I assistance, and then view only those students who have not. The color coding will enable you to compare these two groups quickly.

3. *Calculate the percentage of proficient students* for important demographic and program categories. To get a longitudinal view, repeat this process for different years and different grades.

4. *Create charts and graphs of the data.* Table 5 and Figure 3 display the percentage of students in different academic programs who were proficient in ninth-grade math.

Table 5. Sample Data Chart: Grade 9 Math Proficiency				
Program	2001	2002	2003	2004
Accelerated	94%	99%	99%	99%
Regular	66%	65%	81%	84%
Vocational	46%	48%	59%	61%

Figure 3. Sample Graph:
Grade 9 Math Proficiency
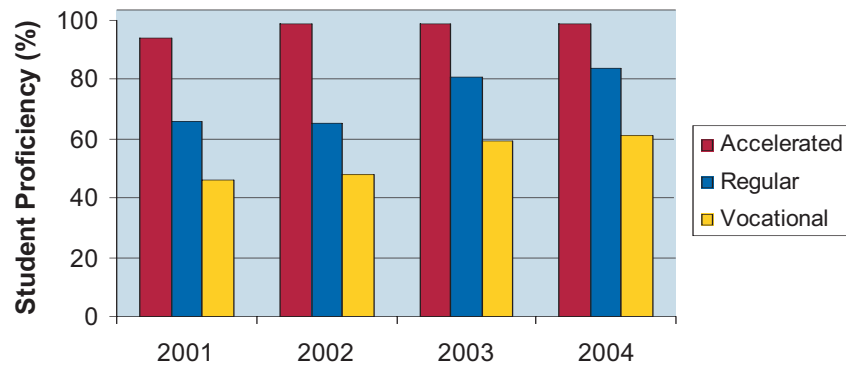
5. *Look for patterns in the data.* Discuss these patterns and list the observed strengths, weaknesses, and other unique patterns. For example, Figure 3 graphically shows a distinct jump in achievement starting in 2003 for both regular and vocational students. Use chart paper to write down the important patterns that you observe.

Examine Perception Data

Perception data verify that stakeholders such as teachers, parents, and students are satisfied with the way the school is being run. The guiding question is whether or not the stakeholders of the school, along with the staff, are satisfied with the way that the school operates. Examine perception data through a similar process as with the content areas:

1. *Create frequency tables.* School surveys often ask people to express their degree of agreement or disagreement with statements about a school, such as "I feel safe in our school at all times." Calculate the percentage of respondents who rated the school as satisfactory or better. In this example, the group would consist of the respon-

dents who agreed or strongly agreed with the statement about school safety.

2. *Chart the responses.* Create a chart for all of the items on the survey to display the percentage of respondents who rated the item as satisfactory or better. Table 6 compares the responses of different groups.

3. *Color-code the results using the stoplight method.* For each item, the team should decide what level of agreement is expected, better than expected, and worse than expected. Then it is possible to color-code each box using the stoplight method described earlier. *Variation:* If you have too much data or not enough time to analyze each item independently, just calculate an overall mean for each major section of your survey (e.g., Vision, Climate, Diversity). Then determine if the mean meets or exceeds your team's expectations.

4. *Discuss and record patterns in the data.* As survey data are shared and studied, team members should discuss and summarize the patterns they see. Write data summary statements on chart paper. Major problem areas as well as demonstrated strengths should be listed.

Table 6. Sample Data Chart: Perceptions of School Climate

Item	Percentage of Respondents Who Indicated "Satisfactory" or Better		
	Parents	Students	Teachers
Teachers let parents know how well their children demonstrate the core values.	68%	61%	88%
All students and staff participate in creating a positive school climate.	55%	70%	68%
Diversity is celebrated through a variety of programs and activities.	43%	59%	74%

Summarize the Analyses

Now it's time to pull together all of your team's observations. The goal is to summarize and prioritize the school's strengths and problems that have emerged from the data. Before you begin, appoint a discussion leader. Then tape all of the graphs and data summary statements to the walls.

1. *Summarize the observed strengths, and compile them* on large paper for all to see. Acknowledge and celebrate all of the school's accomplishments.

2. *Brainstorm how to publicize* these strengths to the community. Remind the team that solid data is highly effective for substantiating claims of school success.

3. *List all the problem areas* that appeared in the data analysis. Use group processes to come to agreement on the list, and write it on large paper for all to see.

4. *Delete from the list* all problems that cannot be influenced (e.g., student mobility), and those that were not clearly based on data. Review the remaining problems to be sure they are stated completely and clearly.

5. *Have each team member rank-order the problems* in terms of urgency, with the most urgent getting a rank of 1 and so on. Tally the rank orders to create a final list that takes into account everyone's rankings.

Tip: Publicize Your Successful Results to the Community

Data are the best and most credible way to persuade your community of the success of a particular program or the school as a whole. The following suggestions are helpful for publicizing this success to your community:

1. **Use graphs to display successful programs.** Post charts displaying year-by-year trends in your school's hallways. Include graphs in your school's newsletter and on its Web site.

2. **Target a message to Parent Night** by displaying a chart of findings or having a speaker announce successes to the whole group. For example, administrators at Scott-Morgan Community Unit School District 2 in Bluffs, Illinois, observed that students with good attendance had higher achievement. In order to drive the message home, administrators displayed a large chart of the finding during a recent Parent Night.

3. **Celebrate.** Your teachers and students have worked hard to reach your achievement goals. Celebrate the success with a schoolwide assembly.

4. **Publicize success in local newspapers.** The district office can send a press release to the local newspaper announcing the success of a program.

STEP 4: EXPLAIN THE RESULTS

Step 3 answered the question of "Where are we now?" The challenge of Step 4 is to determine "How did we get here?" or, more precisely, "Why are our students performing the way they are?" In other words, it's time to find explanations for the results. For example, there may be a number of possible reasons for low math achievement, such as the inadequate alignment of textbook to standards, the lack of instructional time, or gaps in the curriculum.

The key idea is for team member to meet, ask questions about the data, and discuss possible answers. Whenever possible, team members should consult additional data to corroborate their answers.

1. *Establish ground rules for discussion.* It is important to maintain a safe and respectful environment that is conducive to discussing professional effectiveness.

Ground Rules for Discussion

❏ The opinion of every team member matters.

❏ If you think it, say it—respectfully.

❏ All comments should be brief (less than one minute).

❏ Silence = consensus.

❏ One person talks at a time.

❏ Respectfully listen to each member's hypothesis.

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2. *Assign a recorder for the group discussion.* This person will write down the hypotheses as they are suggested.

3. *Generate hypotheses.* Considering one problem statement at a time (e.g., declining math achievement), team members take turns stating a hypothesis for it. The recorder writes down each hypothesis in the left column of the Hypothesis Worksheet (see Table 7 on page 12). Hypotheses frequently fall into the following categories:
   • The curriculum or curriculum materials do not align with the standards or the assessments.
   • Teachers have not received adequate professional development to teach to the standards effectively.

Tip: Analyze Root Causes

Identifying the root cause of problems leads to more strategic, effective interventions. A number of group processes are available for root cause analysis. One of these, the Fishbone Group Process, is described in *Notes & Reflections* Issue 4 (www.ncrel.org/info/notes/spring03/fish.htm). For an additional resource on analyzing root causes, see *School Leader's Guide to Root Cause Analysis*, listed on page 14 of the Tools and Resources.

   • A significant number of students are at risk or have special needs that are not being met adequately.

4. *Evaluate the hypotheses.* Use data such as curriculum maps, textbook adoption records, demographic trends, records of behavioral problems, and perceptions of various stakeholders to evaluate the hypotheses for each problem statement. In the right column of the Hypothesis Worksheet (see Table 7 on page 12), write evidence that supports or contradicts each hypothesis. Then record the final action: Accept as possible any explanation that is supported by evidence or reasoning; reject any explanation that is not.

Table 7. Sample Hypothesis Worksheet

Problem Statement: Achievement levels in math drop grade-by-grade, until they are at very low levels in Grades 6, 7, and 8. They pick up slightly from Grades 9 to 12.

Hypothesis	Action and Evidence
Our standards are too high. The achievement tests are too difficult, and get harder each year.	REJECT. Students in neighboring districts, who take the same tests, do not show a decline in scores as the grades progress. We also have studied the items and concur that they are grade-appropriate.
Our math teachers in the intermediate levels have not had the appropriate training to teach to the standards.	ACCEPT AS A POSSIBILITY. We looked at the licensure, and our teachers do have the appropriate credentials. However, we also examined the sequence of professional development and there has been none in the area of mathematics for the past 10 years.
We have too many students from low-income families who are not prepared to achieve at higher levels.	REJECT. Students who are classified as economically disadvantaged do not perform any worse than other students.
We have gaps in our curriculum.	ACCEPT AS A POSSIBILITY. We examined our curriculum scope and sequence, and found that we spend very little time covering the objective areas on which our students fared poorly.

Adapted from *Using Data to Bring About Positive Results in School Improvement Efforts* (North Central Regional Educational Laboratory, 2001, p. 41).

NEXT STEPS: PROCEEDING FROM DATA TO ACTION

Up to now, this issue has described four critical tasks: preparing for data exploration, collecting and organizing the data, analyzing the data, and explaining the results. This knowledge will serve as a powerful motivator for school change. As Ralph Grimm, superintendent of the Canton Union School District 66 in Canton, Illinois, notes, "That chart [of data] is hard to argue against."

The challenge for your data exploration team is to turn this momentum into action. The next steps in the process are to set concrete goals, develop strategies for achieving those

goals, determine how to evaluate progress, and roll out the plan. This series of steps is the second half of the process of data-driven decision making. It will be the focus of a forthcoming issue of *Notes & Reflections*.

For additional hands-on experience using data, school teams might be interested in participating in a Data Retreat. Refer to "Spotlight on Learning Point Associates Data Retreats" on page 14. Also, the interested reader is directed to *Using Data to Bring About Positive Results in School Improvement Efforts*, a data tutorial that is available online (www.ncrel.org/toolbelt/tutorial.pdf).

References

Holcomb, E. (1999). *Getting excited about data: How to combine people, passion, and proof.* Thousand Oaks, CA: Corwin Press.

No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat. 1425 (2002). Retrieved September 15, 2004, from http://www.ed.gov/policy/elsec/leg/esea02/index.html

North Central Regional Educational Laboratory. (2001). *Using data to bring about positive results in school improvement efforts.* Naperville, IL: Author. Retrieved September 15, 2004, from http://www.ncrel.org/toolbelt/tutorial.pdf

Sargent, J. (2003). *Data retreat participant's guide* (2nd ed.). Naperville, IL: Learning Point Associates.

Schmoker, M. (1999). *Results: The key to continuous school improvement* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Additional Reading

North Central Regional Educational Laboratory. (2000, Summer). How schools use data to help students learn [Special issue]. *NCREL's Learning Point, 2*(2). Retrieved September 15, 2004, from http://www.ncrel.org/info/nlp/lpsu00.htm

> This issue of *NCREL's Learning Point* magazine is devoted to explaining the benefits of data-driven decision making. It presents an example of a school that has used data to improve student learning.

Association for Supervision and Curriculum Development. (2003, February). Using data to improve student achievement [Special issue]. *Educational Leadership, 60*(5). Retrieved September 15, 2004, from http://www.ascd.org/publications/ed_lead/200302/toc.html

> The entire February 2003 issue of *Educational Leadership* explores how data use can improve student achievement.

Bernhardt, V. (2004). *Data analysis for continuous school improvement* (2nd. ed.). Larchmont, NY: Eye on Education.

> This book is designed to help schools overcome barriers to the use of data, such as an unsupportive school culture, lack of understanding about the importance of data, and lack of training in the use of data. It clarifies the importance of data, discusses what data to gather, suggests how to use and analyze data for school improvement, and indicates how to communicate about data and the results of analyses. The book can be ordered from the publisher (www.eyeoneducation.com).

Lewis, M. (2003). *Moneyball.* New York: Norton.

> This book describes how data-driven decision making has given the Oakland A's major league baseball team a competitive advantage over other teams. By vividly illustrating the benefits of data use for a major league team, this book motivates interest in exploring data.

Tools and Resources

The following tools and resources facilitate the different steps of data exploration.

Resource for Introducing a School to Data Exploration

Data Exploration: A Journey to Better Teaching and Learning

This multimedia package contains a 20-minute video featuring two schools that have used data and data-based processes to build and maintain school cultures of continuous improvement. In the video, educators and administrators in each school clearly articulate the ways they use data to improve student achievement. The package includes a booklet of three activities to start conversations around data use in school and the classroom. Ordering information and additional details are available through the Learning Point Associates product catalog (www2.learningpt.org/catalog/cart/item.asp?productID=93).

Resources for Data Collection and Organization

Quality School Portfolio

This free Web-based tool helps schools and districts make data-based decisions. It consists of two free software applications—a Data Manager and a Resource Kit—that offer schools a solution for collecting and storing student data that can best inform their practices. The Data Manager is a database that enables users to disaggregate, import, and analyze data. The Resource Kit contains surveys, questionnaires, and observation protocols to help schools gather information about their school's climate and instructional practices, safety and security, parent involvement, professional development, curriculum and instruction, technology and innovation, and special programs. It is available online (qsp.cse.ucla.edu).

Characteristics of Successful Schools Web Site

This Web site, maintained by the Wisconsin Department of Public Instruction, contains several surveys that can be used to collect perception data. Although only Wisconsin public schools can administer surveys from the site, the surveys themselves are available for viewing online (goal.ncrel.org/winss/sample.htm).

School and District Report Cards

Many states and districts have created Web-based reporting systems to provide school- and district-level data to constituents. The Learning Point Associates *ToolBelt* Web site contains a Web page of "Regional, State, and District Report Cards" with links for Illinois, Indiana, Iowa, Michigan, Ohio, and Wisconsin. This page is available online (www.ncrel.org/toolbelt/states.htm).

Resources for Explaining the Data

The following resources help to explain the underlying causes of student achievement patterns, with a focus on curriculum scope and sequence:

Surveys of Enacted Curriculum

The Surveys of Enacted Curriculum (SEC) are a research-based tool that collects and reports data on what content is taught and how it is taught in schools and districts. The SEC compare this enacted curriculum to what is expected by standards and assessments. Additional information is available at the SEC Web site (www.secsupport.org).

Notes & Reflections, Issue 4

This issue of *Notes & Reflections* outlines a process for curriculum mapping. It includes the Fishbone Group Process, a tool for analyzing root causes. The entire issue is available online (www.ncrel.org/info/notes/spring03/npsp03.pdf).

Guide for Instructional Leaders, Guide 1: An ASCD Action Tool

This 215-page resource by Roland Barth, Bobb Darnell, Laura Lipton, and Bruce Wellman describes a process of continuous educational improvement and includes tools for analyzing root causes. It is available from the Association for Supervision and Curriculum Development (shop.ascd.org).

School Leader's Guide to Root Cause Analysis

This book by Paul Preuss explains the concept and the process of root cause analysis and includes numerous real-life examples in the area of school improvement. It can be ordered from the publisher, Eye on Education (www.eyeoneducation.com).

Spotlight on
Learning Point Associates Data Retreats

The most common barrier to using data in schools is the lack of time to collect, organize, analyze, and interpret the information. Educators are often faced with the challenge of conducting data review in short meetings before or after school or as a smaller part of a professional development day. For this reason, many schools are opting for a Data Retreat approach. Instead of tackling the task piecemeal, a Data Retreat is a dedicated block of time during which a school team accomplishes the major tasks of data-driven decision making.

Learning Point Associates conducts Data Retreats on-site at schools and districts. According to Bryan Chumbley, senior professional development associate at Learning Point Associates, conducting a Data Retreat early in the improvement process helps schools examine their data history and clarify their future improvement path. "When schools examine data that tell the story of where they have been and where they are, they are better prepared to make decisions about where they want to go," Chumbley says.

One of the first challenges uncovered in a Data Retreat is identifying what data to collect and deciding how to organize it. Sometimes schools struggle because they have no data or what they have is inconsistent. To address this concern, Chumbley conducts a preliminary meeting with school leaders in order to identify and organize the data that they will bring to the retreat.

Another critical issue is appropriate training. "Educators in general receive inadequate training in the areas of data use and analysis," says Chumbley. "Even when they are provided a block of time to review data, feelings of being ill-prepared to engage in such work are pervasive."

Data Retreats provide a unique opportunity to address this common barrier. Chumbley describes the two-day session as a time to receive training in processes to analyze and interpret data, as well as an opportunity to engage in those processes to review school data. "Participants are able to see the data transformed into meaningful charts and graphs, which make trends and patterns apparent," he explains. "This kind of information benefits decisions about curriculum planning and instruction."

Note: Portions of this section originally appeared in *What's Working: Data-Driven Decision-Making in the Schools* from LRP Publications. Reprinted with permission. (For more information on *What's Working*, call 800-341-7874 or visit online at www.whatsworkingdata.com.)

> To obtain more information about Learning Point Associates Data Retreats, to schedule a Data Retreat for your school or district, or to learn how Learning Point Associates can serve your school or district's professional development needs, call the Learning Point Associates Service and Product Order Line at (800) 252-0283.

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