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## SUSTAINING SCHOOL IMPROVEMENT Data-Driven Decision Making

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# Data-Driven Decision Making

Using data to make decisions about policies, programs, and individual students is a hallmark of schools that want to stay on the path of continuous improvement. These schools have incorporated thoughtful data collection, analysis, and use into their improvement plans. Teachers and administrators in these schools know how to use the feedback provided to pinpoint areas in need of improvement, get to the root cause of problems, guide resource allocation, and communicate with stakeholders as needed. Educators in schools that sustain improvement know that gut feelings, instincts, and anecdotes are poor substitutes for empirical data when important decisions need to be made.

## Key Elements

Although the exact nature of data collection, analysis, and use may vary from school to school, the key elements of an effective data program include (1) purposeful data collection and analysis; (2) designated resources and other supports, such as time and an appropriate data management system; and (3) strategies for communicating about the process of data collection and use as well as the findings. Each of these elements is discussed in the sections that follow.

## Purposeful Data Collection and Analysis

When data collection and analysis are purposeful, educators are better able to identify patterns of outcomes and design strategies to enhance student learning. Purposeful data collection and analysis efforts focus on answering questions that are tied to identified needs and goals, as illustrated in the sidebar. Focusing on identified needs and goals — in the school improvement plan, for

### Tying Data Collection to Needs and Goals

**Identified Need:** Improvement in mathematics problem solving in the elementary grades

**Goal:** By May 2004, 85% of 4th-grade students in each subgroup will perform at proficient levels in mathematics problem solving as measured by the district math assessment.

**Question:** How effective is the after-school math tutoring program for English Language Learners?

example — makes the best use of time and other resources. It also increases the likelihood that teachers will use data to inform decision making and that stakeholders will receive useful information about the school.

Ensuring that data efforts are purposeful doesn't mean limiting the types of data collected. In fact, schools that focus their data collection processes are likely to collect many types of data from a variety of sources to answer complex questions, such as those in the sidebar. Considering different types of data — for example, demographic, student outcome, perception, and school

process data — both alone and in combination over time helps create a more complete view of student achievement. For example, considering scores on state tests may help determine how students are doing overall, but examining

students' performance on classroom assessments may reveal how well students are learning particular topics or skills.

Purposeful data analysis focuses on using data to make decisions about programs and students. To make appropriate decisions about *programs*, data may need to be analyzed over multiple years; to make appropriate decisions about *students*, data may need to be disaggregated, analyzed across classes and teachers, and draw on more than one source (Bernhardt, 1998). For example, to understand how different groups of students are performing in the mathematics curriculum, a school might collect data on student demographics, teaching practices, student learning (e.g., performance on state, district, and classroom assessments) and particulars about the program (e.g., textbooks in use, teacher experience with the curriculum) and analyze these data over

### In-Depth Data Analysis: Sample Questions

- Which form of block scheduling has made the biggest difference for at-risk students over the last three years, and is there any group of students that has responded better to block scheduling?
- Have scores on the district's reading assessment been consistent with report card grades over the past three years?

a three-year period. By going beyond simple data analysis (examining one year's results on a single test) to in-depth analysis (examining the interaction of multiple types of data from varied sources over multiple years), educators can determine the effects of their programs and practices and modify them to improve student performance.

### Resources and Supports

In order for data to be collected and used effectively to enhance student learning, a number of supports need to be in place. One important support is a data team. Working as a team builds a sense of community that provides support for improvement over the long run. Also, distributing the work across team members lightens the burden on any one person and ensures that if a member leaves, the team continues to function. In addition, a team is likely to view data from multiple perspectives, which increases the probability that interpretation of data will be less biased and more complete.

Another necessary support for effective data-driven decision making is access to the right tools — data collection and analysis software, access to the Internet and e-mail, and access to practical guides and references. A technology infrastructure, including professional development for users and equipment maintenance, supports the sustainability of improvements by aiding data use over the long term.

Time is one of the most critical supports staff members need in order to use data for decision making. Schools and districts that sustain improvement efforts know the importance of involving staff members with data at critical points and have found ways to provide time for their involvement (Holcomb, 1999). Some activities, such as affirming the school improvement plan, can be embedded in staff meetings. Other activities, such as identifying appropriate improvement strategies, require more time and often occur during scheduled in-service days or “early-release” afternoons. Because the data team has the primary responsibility for coordinating data collection, analysis, interpretation, and

reporting, monthly meetings are necessary. Some schools create time for these meetings by providing substitute teachers for team members or by holding meetings after school and compensating members for their time. Other schools arrange team members' schedules so that activities occur in part during the school day and in part after school hours.

In the world of schooling, it's impossible to talk about time without talking about money. Schools that know the data-based requirements of their various funding sources (e.g., needs assessment, evaluation) can legitimately use funds from those sources to support the work of the data team.

### Communication

Communicating both the purpose and results of data analysis to all stakeholders is critical for schools that want to sustain improvement efforts. This communication must occur throughout the school year, not just when the school or district's annual report card is released. Further, schools should think carefully about whether information should be disseminated without conversation or whether opportunities also should be available to talk about results, patterns, possible interpretations, and likely next steps. Allowing time for stakeholders to dialogue

about the results of data analysis is worth the effort because it leads to sounder strategies and policies and greater understanding and support at all levels (Love, 2002).

### What the School Leadership Team Can Do

Given the complexity of collecting and using data for decision making, it is best that the school leadership team not serve as the data team. Nonetheless, at least one member of the leadership team should serve as a liaison to the data team to facilitate communication and collaboration between the groups (Johnson, 2002).

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collected, analyzed, and used constructively to increase student achievement. To carry out this role, the team can ensure that there are regular opportunities to discuss not only the data and their implications, but also assumptions being made about students and the personal beliefs that can affect how data are interpreted. Maintaining a climate of trust and respect helps ensure that potentially difficult or sensitive discussions about data and resulting decisions are productive (Love, 2002).

Part of maintaining a culture that supports the use of data is ensuring that data are continually reviewed. The leadership team can do this by posing key questions to the data team (e.g., Do these data give us the information we need? What data are missing, and how can we find or collect missing information?), encouraging them to expand the types of data collected, and providing the guidance and support they need to deepen their analysis.

School leaders also should continually revisit how resources for data collection, analysis, and use are allocated and make adjustments as needed (Johnson, 2002). For example, to ensure that data are used for decision making over the long term, the leadership team should periodically review the technological capacity of the system for data storage and analysis. In addition to considering technological capacity, the leadership team needs to ensure that data team members receive ongoing professional development to increase their capacity to analyze complex school data (Mason, 2001). By allocating resources to all aspects of the data system, the leadership team sends the message that data-driven decision making is integral to the life of the school's mission and a key part of continuous reflection and self-improvement.

## What Does Data-Driven Decision Making Look Like in Our School?

The following continuum of sustainability strategies can be used to assess the adequacy of the data-driven decision-making process in your building. Schools that take the actions described in the right-hand column are more likely to sustain improvement.

Least Effective	Somewhat Effective	Most Effective
<b>Purposeful Data Collection and Analysis</b>		
Data collection is not aligned with identified needs and goals. Different types of data may be collected, but the focus of data collection is primarily on student outcomes. Data analysis focuses on measures of student achievement over time. Achievement data are disaggregated.	Data collection is aligned with identified needs and goals. Data collection includes several forms of student outcome data but limited amounts of data. Multiple measures of student achievement data are disaggregated and analyzed over time. Different types of data may also be examined but not in combination with other types of data.	The purposes for data collection are clearly stated, and data collection is aligned with identified needs and goals. Appropriate amounts and types of data are collected. Different types of data from a variety of sources, including disaggregated data, are examined over time, alone and in combination.
<b>Resources and Supports</b>		
A data team may be in place, but it is viewed as an ad hoc group rather than a standing committee. Some technology may be available to support the team's work, but no training is provided.	A data team exists and meets on a regular basis. Time is provided for the team to meet. Limited training and technology to support data collection and analysis are available.	Data structures and processes are in place, including a data team, adequate time, appropriate technology, and training. These structures are viewed as permanent, revisited regularly, and revised as necessary.
<b>Communication</b>		
Communications about data are sporadic and intended only as "information dissemination," not for the purpose of discussion and improvement.	Communications about data occur on a regular but limited basis. Communications are mainly for providing information, but there are some opportunities for stakeholders to participate in discussions about data.	There are clear communications about all aspects of data collection, analysis, and use. Communications about data occur on a regular and timely basis. Communications include discussions that provide opportunities for stakeholders to participate in the decision-making process.

## From the Field

### Jeanette Myhre Elementary School

Bismarck, North Dakota

In 1994, Bill Demaree, principal of Jeanette Myhre Elementary School, and his Schoolwide Planning team searched high and low to find data that could help them formulate their first Title I Schoolwide Improvement Plan. Although data from statewide testing in grades three through six were available, the school did not have access to the specific classroom-level data necessary to impact student achievement. Recognizing the critical role of data in instructional decision making, the staff of Jeanette Myhre Elementary School set about crafting a comprehensive data program. Educators at the school now have access to a full range of data-collection and data-analysis tools.

To date, the Planning Team, now made up of the chairpersons of several curriculum study committees, has used data in a number of ways to determine how best to target services to a diverse group of children. For example, data have been used to validate the effectiveness of the summer school program and to determine the merits of students “looping” with teachers. This stronger emphasis on data collection also has led to the realization that teachers did not have access to consistent, classroom-level data about students’ mathematics progress. As a result, the school partnered with its regional educational laboratory, Mid-continent Research for Education and

Learning (McREL), to align its mathematics curriculum with state standards. Perhaps most important, the data are used to gauge the success of programs by measuring growth in student achievement.

“Data demonstrate the need — and you can’t refute it,” says Demaree. “It helps get people on board when they see the evidence in black and white. And teachers enjoy seeing the results of their work reflected in data on student achievement. It validates that what they’re doing makes a difference.”

Because data can be gleaned from a number of sources, this information has wide applicability across school programs and departments. For instance, as part of continuing school improvement efforts, the Schoolwide Planning Team has established a new initiative called the “sustainability plan.” As part of the initiative, teachers have devised ways to ensure the continuation of the innovations that have substantially increased student learning. For example, two hours of weekly block time have been built in for planning. Several teachers have assumed coaching roles and now lead their colleagues in learning new strategies to enhance students’ learning in mathematics, reading, and writing. The continued use of data is a cornerstone of the sustainability plan — and is now a part of the everyday fabric of teaching and learning at Jeanette Myhre Elementary School.

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