

# InFOCUS

## Developing a Coherent Plan for Effectively Using Data

This brief focuses on developing a coherent plan for effectively using data.

Data-driven decision making has been a catchphrase in education for the past decade. Everyone is for it, and who could object? Most agree that decisions from the classroom to the central office and the state education agency should be informed by good data. In practice, however, it is all too easy for data to leave educators and policymakers unmoved—or, worse yet, to drown them in extraneous information, rather than drive decisions that will improve classroom instruction, school performance, and student achievement.

This series of briefs offers recommendations and strategies for state officials, district-level staff, and system developers who seek to promote effective data use by decision makers and educators at any level of the education system. This brief focuses on developing a coherent plan for effectively using data. The other two briefs focus on considerations for developing or enhancing a data system and on supporting the effective use of a data system.

### INTRODUCTION

A primary element that is necessary (though not sufficient) for effective data use is a coherent theory of action—a clear plan for how the data will be used, and by whom, to improve policy or practice. At a minimum, this requires an understanding of the need for the data and how the data will meet that need. The most ambitious data initiatives or analysis activities must also have a plan for how and when the data will be delivered to the relevant decision makers, in a form that promotes understanding rather than confusion.

In the absence of a coherent theory of action, a data-driven decision making (DDDM) activity may be doomed to fail. For example, in a strategic data initiative that Mathematica recently studied, more than 80 percent of surveyed school-level staff never used the web-based data and analysis tool that the program developed. It is possible that the data the program provided were not particularly useful to the targeted teachers and administrators; developing a clear theory of action in advance might have avoided this pitfall.

### TAKING ACTION

DDDM activities can address a wide range of data aimed at different users to inform various kinds of decisions, from the classroom to the state superintendent's office. Even before

data use begins, it should be possible to clearly identify (1) the intended users of the data and (2) how the data will help inform educators' or administrators' decisions. For data analyses with narrow goals, this information may be sufficient as a theory of action. The TSDL project, for

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How and when will the data be delivered to the users?

Do the data tell users what they need to know?

example, has relatively narrow goals: it seeks to create high quality statewide teacher-student data links, but recognizes that this is a necessary but not sufficient condition for effective DDDM, and leaves most of the remaining pieces—such as analytic capacity, motivation, and communication—to others. More ambitious analytic activities may aim to directly influence decision making. A robust and comprehensive theory of action is even more important for data activities or initiatives that expect to change human and institutional behavior.

Before launching their work, policymakers and administrators should test the theory of action by considering the questions described below.

**Is there a demonstrated need for the data?** Have educators, administrators, or policymakers requested the data? If not, is there any other evidence that the data are needed? SDP and EP, for example, place fellows only in state and local education agencies that commit to placing and using their staff appropriately as a condition of partnering, and the partnership would not exist if the agencies did not request

the SDP or EP fellows and recognize a need to increase their capacity for data analysis. The TSDL project, meanwhile, operates in a context in which states across the country are modifying their teacher evaluation systems to incorporate measures of student achievement growth (or teacher “value-added”); these measures cannot be implemented without the accurate and reliable teacher-student data links that the project seeks to create. In contrast, it is less clear why school-level staff participating in the NSC pilot need postsecondary data on students whom they are no longer teaching.

**Who will use the data?** Is the initiative aimed at teachers? Counselors? Principals? District administrators? State officials? The TSDL project, for example, aims to assist state and local education agencies in creating links between students and teachers in statewide databases and setting up processes to ensure that the links are accurate. Similarly, SDP and EP seek to enhance the data analysis capacity of district central offices, to give district leaders access to data. Other DDDM initiatives are aimed explicitly at classroom teachers.

## DATA SOURCES

This brief is based on interviews conducted by Mathematica with program staff and with state, district, and school-level staff about the first year of implementation of four strategic data use initiatives that were funded by the Bill & Melinda Gates Foundation:

- **The Strategic Data Project (SDP)** partners with state education agencies, school districts, and charter school networks to transform the use of data in education to improve student achievement. The program places and supports skilled staff in partner agencies for two-year fellowships.
- **Education Pioneers (EP)** mobilizes and prepares a national network of talented leaders, managers, and analysts to transform education into the best led and managed sector in the United States. The program places early- or mid-career professionals from multidisciplinary backgrounds in leadership, management, and analytic roles in education agencies for 10-month fellowships.
- **The National Student Clearinghouse (NSC) PILOT** sought to develop high quality, actionable reports linking K-12 and postsecondary data that can be used by schools, districts, and states to improve the college readiness of their students.
- **The Teacher Student Data Link (TSDL)** project aims to improve the validity and reliability of K-12 teacher-student data links, to enable states and districts to better measure teachers’ contributions to the achievement growth of their students.

Reports on implementation of these initiatives can be found at <http://mathematica-mpr.com/Education/strategicdatause.asp>.

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### **What decisions will the data inform?**

Will the data inform the development of interventions for individual students? The modification of whole-class instruction through identifying classwide academic needs? The evaluation of teacher performance? The identification of struggling subgroups of students? The school-level targeting of resources or interventions? The TSDL project, for example, involves the creation of valid and reliable teacher-student links relevant to teacher evaluation, as they are necessary to estimate value-added or student achievement growth associated with individual teachers. State departments of education might use data from the NSC on students' postsecondary progress to identify high schools that are particularly successful or unsuccessful at preparing their students for college. Yet, the NSC pilot was mostly directed to school administrators and teachers, and the school-level decisions such data might inform are not obvious.

### **How and when will the data be delivered to the users?**

Will reports be created and delivered on a regular basis? Will users have on-demand access via a network portal to the data system? How frequently will data be updated? Some types of student outcome data, such as state assessment results and graduation rates, are typically updated annually, after the school year ends. With appropriate analysis and presentation, such data may be useful for accountability, research, and high-level performance assessment—but not for immediate feedback on classroom instruction and student needs. This is particularly true if the data relate to students who are no longer being taught by the school or district, as in the NSC pilot, which provided schools with data on students who had moved on. In contrast, interim/benchmark assessments that are administered at regular times during the school year can be more immediately useful for diagnosing student needs and instructional issues, if they feed a data system that is frequently updated and readily accessible to teachers and principals. At the policy level, SDP and EP both seek to promote DDDM by providing school districts or states with full-time staff who have the expertise to analyze data, along with training and additional supports; they expect that the new staff will have the skills to provide district- or state-level officials with timely data that can inform decisions on a variety of policy issues. The SDP and EP fellows' influence on

decision making partly depends on their specific role in the organization and their access to key decision makers such as the superintendent.

### **Do the data tell users what they need to know?**

Can the data be readily understood and interpreted without conducting sophisticated analysis? If the data require substantial analysis to be interpreted and used correctly, do the users have the skills to conduct the analysis? For example, teachers who need to know the strengths and weaknesses of individual students and entire classes can readily use data from benchmark assessments that are clearly aligned to relevant academic standards. In contrast, raw student achievement data are not very useful for principals or district officials who want to evaluate teacher performance, because the raw data do not account for the fact that the students of different teachers may begin with widely varying achievement levels. Sophisticated statistical analysis, however, can turn the student outcome data into value-added data that are useful for teacher evaluation purposes. Very few school districts have the capacity to produce teacher value-added measures on their own, which is one reason that SDP provides its partner districts with an analysis of the distribution of teacher value-added across the district. In contrast, the NSC pilot overlooked the fact that raw data on the postsecondary progress of a high school's former students are not easy to interpret: like raw test-score data, raw data on postsecondary progress do not identify whether student success or failure is due to the school or to some other factor. Educators who tried to use raw postsecondary outcome data to assess the effectiveness of high school programs could be seriously misled, potentially drawing false conclusions from the data. In short, if data are to be useful in improving practice, they must be relevant to the decision maker and diagnostic for the decision at hand.

## **THINKING AHEAD**

Educators and administrators considering DDDM activities should begin by constructing a theory of action that identifies the relevant decision makers and their data needs, considers organizational impediments, and ensures that the data to be provided are actually useful for decision making: relevant, diagnostic, and presented in a way that helps educators use them correctly.

**Plan to ensure data provided are relevant, diagnostic, and presented in a way that helps educators use them correctly.**

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