

Issue BRIEF

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Districts And Data: Developing Capacity For Effective Data Use



KEY RECOMMENDATIONS

- #1. Develop a culture of data use among all levels of staff.
- #2. Ask the right questions and use the correct data to support district goals.
- #3. Correctly interpret findings to improve policy and practice.
- #4. Secure and dedicate resources to conduct analyses and interpret findings.

The development of large and interconnected data sets has awakened educators to the value of strategically using data to inform education policy and improve instruction. Recognizing that using data effectively is critical to improving student achievement, numerous organizations and agencies, including the Bill & Melinda Gates Foundation, are supporting school districts and other education agencies in building their capacity to generate and use data.

Even with essential data systems and supports in place, districts face challenges related to the strategic use of data. Many districts do not know what questions to ask, what data to use, or how to interpret findings to improve policy and practice. This brief discusses **four key recommendations** related to the strategic use of data, and suggests ways districts can overcome challenges associated with these recommendations. Data and supporting examples in this brief are drawn from work conducted as part of the evaluation of strategic data use initiatives. See the text box on page 4 for a description of the evaluation.

ESSENTIAL ELEMENTS OF A DATA SYSTEM

Using data strategically requires time and resources. To get the most out of these investments, districts should have these essential data system elements and supports in place:

- **Flexible data systems that link data from multiple sources.** Ideally, links are automatic, saving staff time and effort. Districts should ensure that data from different systems—teacher, student, financial—is streamlined and easily accessed.
 - **System-driven interfaces.** Commonly known as dashboards, these allow users at all levels to easily access data about students, teachers, and schools.
 - **Customized access to data.** Access to data on students, teachers, or schools should be customized based on user type and data needs.
- These essential elements are further described in the reports on the evaluation of the Strategic Data Project and Education Pioneers (Hallgren et al. 2013b; Pickens Jewell et al. 2014b).



1 DEVELOP A CULTURE OF DATA USE AMONG ALL LEVELS OF STAFF

A supportive culture of data use at all levels of the district—and driven by district leadership—is essential. Without it, staff may not understand the importance of using data or may be resistant to using data to make decisions.

Encouraging a district-wide data culture begins with district leadership, who should involve staff at all levels in data-related decisions and activities. Such decisions and activities could include defining data governance terms and piloting data system upgrades or enhancements. For example, two state agencies' leaders worked closely with stakeholders, including teachers, to understand data needs (for example, student-level reports on progress toward standards) and then refine systems and processes to make the desired information available. Similarly, organizations involved in projects to enhance teacher-student data links found that state- and district-level roster verification discussions occurring before implementation provided a concrete way to engage teachers early in the process.

If district leaders have developed a culture of data use, staff are apt to understand the importance and potential of using data to make decisions.



2 ASK THE RIGHT QUESTIONS AND USE THE CORRECT DATA TO SUPPORT DISTRICT GOALS

To place strategic data use efforts within an agency-wide context, agency leaders should consider the agency's strategic plan. The questions asked and the data used to answer those questions should be related to the goals in the strategic plan. Strategic priorities should be matched with available data, and districts should regularly measure progress toward the goals. Data analysis efforts could fit into five key areas, aligned with the agencies' strategic plans: (1) monitoring and developing accountability reports, (2) informing the selection or use of interventions, (3) understanding educator effectiveness and retention, (4) informing instruction, and (5) aligning financial resources with educational needs.

Asking Questions and Using Data to Understand and Target Professional Development

Staff at one education agency compiled teacher observation scores and student achievement outcomes for teachers who attended a particular training session. Those outcomes—and those of their students—were examined to determine the helpfulness of the training.

Staff at another agency conducted analyses about teachers' strengths and weaknesses, as identified in teacher observations and value-added modeling results, to support planning future professional development based on teachers' needs.

Asking Questions and Using Data to Address Retention, Hiring, and Placement

After teacher effectiveness data were released in 2013, staff at one school district received requests from the leadership for analyses to support talent management and make better hiring decisions. Agency staff analyzed patterns of movement among teachers in the district and how new staff changed overall teacher effectiveness in particular schools. The analysis indicated that teachers performing at the lowest levels were much more likely to change schools. Based on this finding, agency staff developed plans to conduct additional analyses to determine why low-performing teachers change schools and to examine teacher mobility patterns.



3 CORRECTLY INTERPRET FINDINGS TO IMPROVE POLICY AND PRACTICE

Even with the right questions—and using the right data to answer those questions—strategic data use is only successful if staff correctly interpret the findings. Misinterpretation of the data can lead to flawed decision making. Mistaking correlation for causality is one common mistake. For example, students taking advanced

DISTRICT RESOURCE: STRATEGIC DATA PROJECT

Based at the Center for Education Policy Research at Harvard University, the Strategic Data Project (SDP) brings a combination of rigorous analytic techniques; knowledge of education policy; and practical, on-the-ground expertise to support the transformation of the use of data in education. SDP recruits, develops, and supports data strategists to serve in state or local education agencies in two-year, intensive fellowships that blend analytic skill-building and leadership training. SDP fellows provide agency leaders with the capacity to leverage data in new ways to inform policy decisions.

Districts interested in developing a district-wide data culture and using data to improve decision-making processes might consider accessing SDP's online resources or engaging in a partnership with the organization.

DISTRICT RESOURCE: EDUCATION PIONEERS

Founded in 2003, Education Pioneers (EP) aims to develop the potential of leaders, managers, and analysts to improve education through selective Fellowships. EP's Analyst Fellowship places early- or mid-career professionals into analytic roles across the sector to improve education organizations' capacity to use data effectively.

Districts interested in working with data-driven staff who can complete targeted data projects, evaluate programs, interpret student data, and make informed recommendations for action should consider partnering with EP.

placement (AP) courses are more likely to succeed in college, but this does not mean that increasing the enrollment of AP courses (without ensuring that the new enrollees are prepared) would improve the college success of students newly brought into the AP courses.

To encourage appropriate data use across the agency, staff need to have training relevant to the data they use. For example, school administrators can receive professional development sessions focused on interpreting value-added scores, using the scores to support process improvements, or using data and related resources from the instructional management system to inform instruction. Potential training topics, as identified by data-savvy employees from the education sector, are presented in Figure 1.¹

If agencies do not have the resources to support formal training for all staff, they can instead rely on informal training provided on an as-needed basis. For example, staff can help one another use data analysis software programs or interpret teacher rankings. If resources are available, districts may want to use outside vendors to support the effort.



4 SECURE AND DEDICATE RESOURCES TO CON- DUCT ANALYSES AND INTERPRET FINDINGS

Staff are constantly pulled in multiple directions to address the changing needs of their districts. Often, staff do not have the time to add new duties to their workload or the experience to efficiently complete the new work. Additionally, some agencies do not have the internal resources to train their staff to complete new work.

When internal capacity is lacking, support from external partners enables districts to work toward their data-related goals, such as updating systems and developing reports. For example, universities, research centers, and consultants can provide a range of support services, including producing value-added scores, training staff on interpreting value-added reports, consulting on ways to improve or link data systems, and completing long- and short-term research projects.

Training needs of staff in education agencies

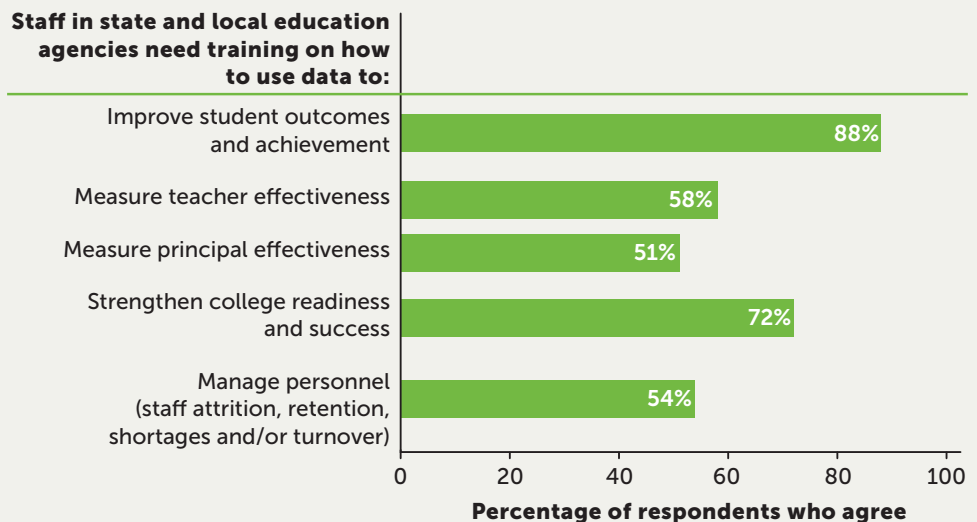


Figure 1

Source: Survey of Education Pioneers and Strategic Data Project alumni conducted in spring 2014.
Note: Figure shows percentage of respondents who reported the type of training as being "a top priority."

ABOUT THE EVALUATION OF STRATEGIC DATA USE INITIATIVES

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

- The **Strategic Data Project** 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** 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 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 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 include evaluations of the Strategic Data Project and Education Pioneers (Hallgren et al. 2013b, 2013c; Pickens Jewell et al. 2014b; Hallgren and Burnett 2014), the teacher-student data link project reports (Hallgren et al. 2013a; Pickens Jewell et al. 2014a), and the National Student Clearinghouse Pilot implementation report (Hallgren and Coffee-Borden 2013).

ADDITIONAL RESOURCES

Education Pioneers. "Unleashing the Potential of Leaders and Managers to Transform Education So That All Students Receive an Outstanding Education." 2014. Available at <http://educationpioneers.org/>. Accessed December 16, 2014.

Hallgren, Kristin, and Brandon Coffee-Borden. "The National Student Clearinghouse Pilot: First Year Implementation." Report to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, February 2013.

Hallgren, Kristin, Cassandra Pickens Jewell, and Celina Kamler. "The Teacher-Student Data Link Project: First Year Implementation." Report submitted to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, February 2013a. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/tsdl_first_year_implement.pdf. Accessed December 16, 2014.

Hallgren, Kristin, Cassandra Pickens Jewell, Celina Kamler, Jacob Hartog, and Andrew Gothro. "Strategic Data Project and Education Pioneers Year 1 Report: Laying the Groundwork for Data-Driven Decision Making." Report submitted to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, August 2013b. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/strategic_data_project_year1.pdf. Accessed December 16, 2014.

Hallgren, Kristin, Cassandra Pickens Jewell, Celina Kamler, Jacob Hartog, and Andrew Gothro. "Companion Document for the Strategic Data Project and Education Pioneers Year 1 Report: Laying the Groundwork for Data-Driven Decision Making." Report submitted to the Bill & Melinda Gates Foundation.

Princeton, NJ: Mathematica Policy Research, August 2013c. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/strategic_data_project_year1_companion.pdf. Accessed December 16, 2014.

Hallgren, Kristin, and Alyson Burnett. "Companion Document for the Strategic Data Project and Education Pioneers Year 2 Report: Changing Education Agencies from the Inside Out." Report submitted to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, October 2014. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/sdp_ep_year2_companion.pdf. Accessed December 16, 2014.

Pickens Jewell, Cassandra, Kristin Hallgren, and Sarah Wissel. "The Teacher-Student Data Link Project: Three Lasting Accomplishments." Brief submitted to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, October 2014a. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/teacher_student_data_link_accomplishments.pdf. Accessed December 16, 2014.

Pickens Jewell, Cassandra, Libby Makowsky, Kristin Hallgren, and Jacob Hartog. "Changing Education Agencies from the Inside Out: Year 2 Report on the Strategic Data Project and Education Pioneers." Report submitted to the Bill & Melinda Gates Foundation. Princeton, NJ: Mathematica Policy Research, October 2014b. Available at http://www.mathematica-mpr.com/~media/publications/pdfs/education/sdp_ep_year2.pdf. Accessed December 16, 2014.

Strategic Data Project. "Transforming the Use of Data in Education to Improve Student Achievement." 2014. Available at <http://cepr.harvard.edu/sdp/index.php>. Accessed December 16, 2014.

ENDNOTES on page 2

¹ Alumni of SDP and EP are uniquely positioned to provide important insights about how education agencies use data strategically to make decisions, the barriers to doing so, and approaches that could improve their efforts. Mathematica conducted a survey of SDP and EP alumni in spring 2014, the results of which inform Figure 1. A detailed description of the results of the survey is in Appendix B of the Year 2 Report on the evaluation of the Strategic Data Project and Education Pioneers (Pickens Jewell et al. 2014b).

