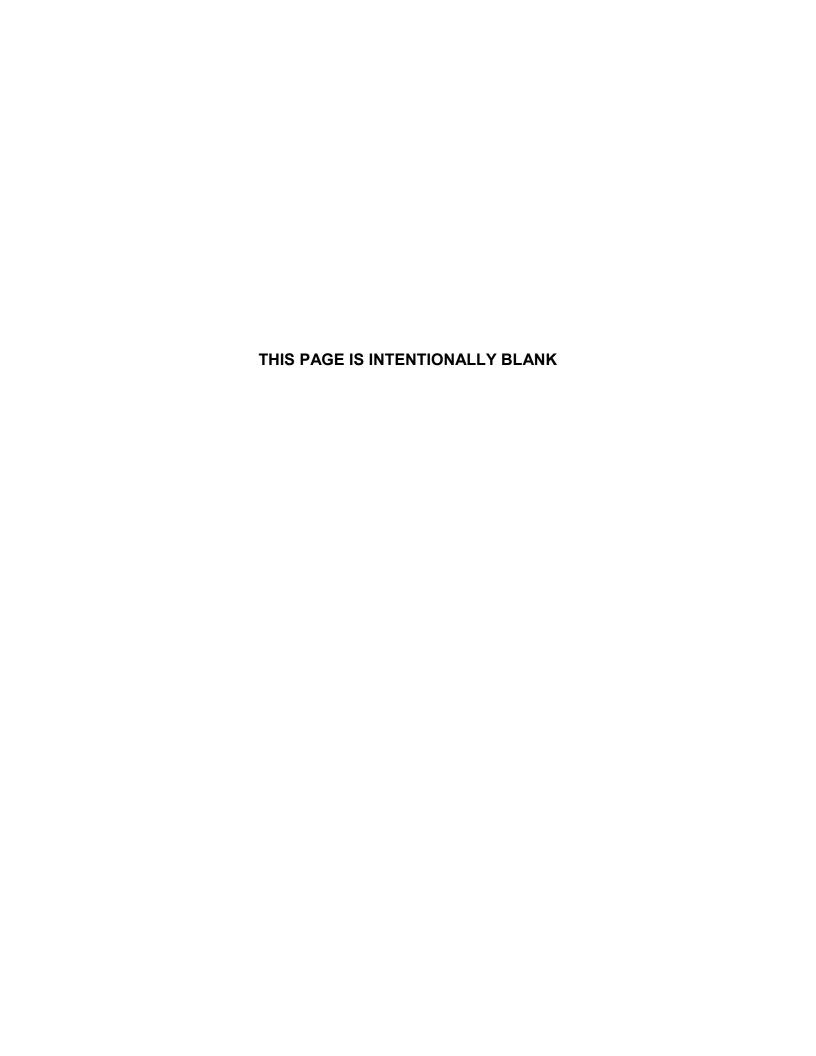
Companion Document for the Strategic Data Project and Education Pioneers Year 1 Report: Laying the Groundwork for Data-Driven Decision Making

October 16, 2013

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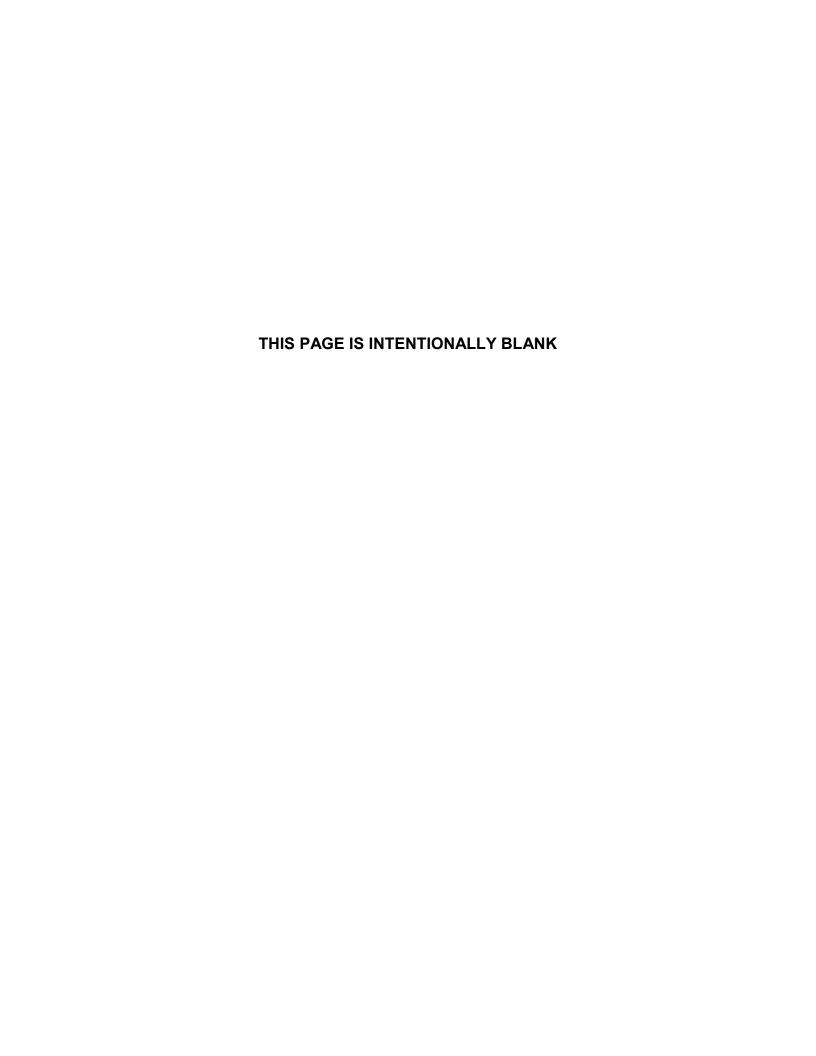




The Gates Foundation has invested in two initiatives, the Strategic Data Project (SDP) and Education Pioneers (EP), that aim to enhance the capacity of school districts and other education agencies to collect, manage, analyze, and use data through the support, training, and placement of additional staff. This document is a companion to a year 1 report on the implementation of these programs in seven sites as of late 2012 and early 2013. Information about these programs, the study's methods, and its findings can be found in that report.

This document presents seven profiles, one for each agency in the study. The profiles describe the experience of each agency, and were developed using data collected from interviews during site visits about agencies' data collection, use, analysis, and reporting efforts. Each profile contains the following information:

- Background and context for data use. A summary of the agencies' background and current context for data use, including data systems, staff expertise and development, and partnerships and resources.
- Working with Strategic Data Project/Education Pioneer fellows. A description of the fellows' agency-specific data projects.
- Data analysis and reporting. A summary of agencies' current data analysis and reporting efforts.
- Challenges encountered and lessons learned. A review of challenges met and lessons learned during the agency's partnership with SDP or EP.



AGENCY A—STATE EDUCATION AGENCY

A state department of education began its partnership with SDP in January 2012. The agency created a new office, the Commissioner's Delivery Unit (CDU), to provide analytical support to agency leaders as they implemented the agency's strategic plan. The SDP fellows work in the CDU and conduct data analyses for agency staff. Specific tasks include monitoring the progress of agency initiatives, helping set performance goals for agency programs, and conducting supplemental research to improve agency operations. In the study year, the fellows increased data capacity by training agency staff on using data to monitor performance.

Background and Context for Data Use

Agency Spotlight

Agency Type: State

Program Partner: Strategic Data

Project

Partner Since: 2012

Number of Fellows: 1 agency

fellow, 2 data fellows

Project Description: Fellows conduct data analysis to measure progress toward achieving strategic goals. Fellows have increased data capacity by training agency staff.

The partnership with SDP began as part of a comprehensive reform of the agency and its operations. The transition, which began in 2009, has aimed to shift how the agency uses data from monitoring compliance to measuring program performance. The agency adopted a strategic planning process and reorganized its staff around four strategic goals: (1) increasing the proportion of high school graduates who are career or college ready; (2) ensuring that all students are grade-level proficient in reading, writing, and mathematics; (3) closing the proficiency gap between historically low-performing student subpopulations and the rest of the student population; and (4) ensuring that every student in the state has effective teachers and every school has an effective principal. Agency leadership adopted specific, measurable plans for each goal. The CDU's function is to measure the agency's progress toward achieving each goal.

Data system. The agency has three shared statewide data systems. The first system, a web-based student records management system used by all districts in the state, houses data on student achievement, student attendance, and other data. Specific users, such as teachers, principals, guidance counselors, and state staff, have specific types of access. The state also has a P-20 statewide longitudinal data system, which contains student data from pre-kindergarten to post-graduation employment data. This system provides teachers with standards-based instructional resources as well as demographic, program, and performance data on students and will eventually include professional development resources. The third system is a statewide human resources system. The agency plans to roll out an updated teacher and principal evaluation system following a pilot test in a limited number of school districts. The agency is also rolling out a new platform for tracking school improvement plans, the Adaptive System of School Improvement Support Tools (ASSIST).

Staff expertise and development. Using data to measure performance and drive decisions has been a new concept to many staff who have program management backgrounds and are accustomed to program processes and requirements. Fellows have helped agency leaders understand how to use data to monitor performance. For example, fellows conducted a data workshop for department staff on data collection and analysis. Fellows also provided informal instruction and advice on how to use data.

Resources and partnerships. A range of partners and funders supports the agency's data use efforts. The Educational Delivery Institute developed the strategic planning process and the delivery unit model and worked with the agency on implementation of the latter. The partnership with SDP supports the CDU. The state provided additional funding to extend the partnership with SDP from two to three years. Other organizations, including the Council of Chief State School Officers, the Data Quality Campaign, and the New Teacher Center, provide assistance with data as well. The agency contracted with SchoolNet to generate reports using the state's student information system and with AdvancED to create ASSIST, the state's school and district improvement system. Finally, the Regional Educational Laboratory and a state university conducted external research on behalf of the agency.

Working with SDP Fellows

The agency pursued its partnership with SDP in order to develop the analytic capacity for implementing its strategic planning process. Fellows have three primary functions: (1) to measure progress toward strategic goals, (2) to build data capacity in the agency, and (3) to conduct other research analysis in support of the agency's mission.

• Measuring initiative progress. Fellows help measure progress on all of the plans that align with the agency's four strategic goals. For each goalspecific plan, fellows use formulas to predict future performance by modeling the trajectory of past performance for that plan. These estimates inform the agency's semiannual progress reviews, which agency leaders use to track overall agency performance.

Key Activity: Measure Initiative Progress

Fellows use agency data to measure progress toward achieving strategic goals.

Build capacity for data use. Fellows conducted workshops for department staff to explain the types of data to use to answer specific research questions, how data should be collected, and what analysis methods are appropriate for particular types of data. Fellows also helped the agency

Key Activity: Build Capacity for Data Use

Fellows trained agency staff on using data effectively and improved data collection procedures.

improve the quality of data collection, including creating procedures to standardize data recording and revising internal survey instruments. For example, fellows replaced a method of collecting district-level information on educational content with a standardized web survey to make responses comparable across the state.

• Conducting other research. Fellows conducted additional research to support the agency. For instance, fellows analyzed survey and focus group data on a pilot teacher evaluation system and have compared student outcomes associated with halfday kindergarten versus full-day kindergarten for a district superintendent. They have also helped redesign the state's school report card system.

Key Activity: Support Other Research

Fellows conducted other research as needed, including evaluating pilot programs and analyzing student outcomes.

Data Analysis and Reporting

The agency uses data to track metrics associated with its strategic goals. For example, it created a risk indicator tool that schools can use to track student progress toward graduation. In addition, as part of the agency's strategy to improve eventual college readiness by boosting successful early learning, staff plan to analyze kindergarten readiness measures among students by preschool provider to identify successful providers.

Agency staff use internal reporting mechanisms to track the agency's progress toward each of its four strategic goals. Department directors receive biweekly reports and schools report progress monthly, bimonthly, and quarterly. Twice a year, associate commissioners prepare presentations for the commissioner that include green, yellow, or red ratings indicating the extent to which each plan is on track.

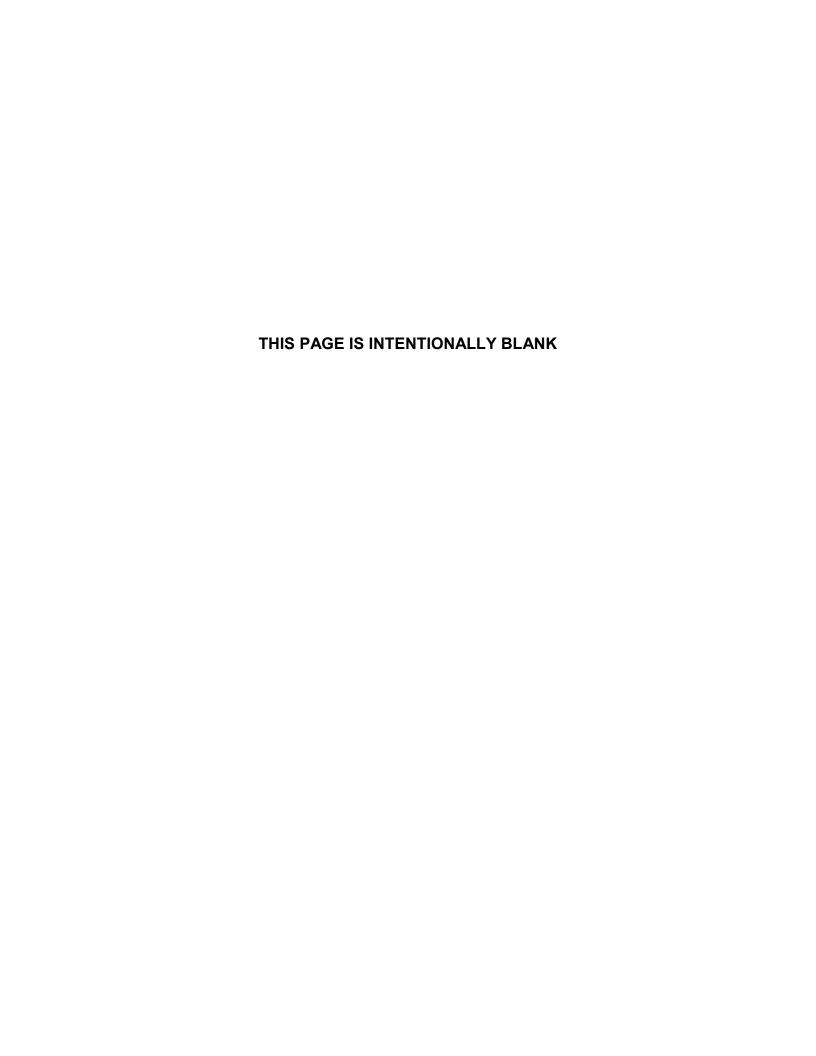
Challenges Encountered and Lessons Learned

Challenges encountered. The agency experienced the following challenges in implementing its strategic data use initiatives:

- Some staff struggled with learning to monitor performance instead of monitor compliance. Implementing the new data procedures required a substantial adjustment for staff. Staff were accustomed to collecting data but not to using it to monitor progress toward strategic objectives.
- Inconsistent collaboration across departments. Cross-departmental work is not consistently done, which has limited the possibilities for conducting more complex analyses. For example, getting teacher-level data requires working with two departments (human resources and teacher licensing). In addition, department leaders may be focused on their own goals and may not know what other departments have done.

Lessons learned. The following attributes of the fellows' work help the agency use data more effectively:

- Fellows function as a team. Fellows work as a unified team within the CDU. Having them centrally located in the agency allows them to focus on data at the strategic level. Fellows reported that they support one another and, as a unified team, focus on the agency's most important goals.
- Strong data systems support analysis efforts. The agency's statewide data systems allow consistent treatment of metrics across schools and districts. The P-20 longitudinal data system will eventually link with the statewide student information system, allowing the agency to track its performance goals consistently across the state. Respondents believe the systems have improved the quality of data in the state and created authoritative sources for data metrics.



AGENCY B—SCHOOL DISTRICT

This midsized, urban district has partnered with SDP to analyze and interpret new information about the quality and characteristics of the district's workforce. The district aims to combine data on teacher effectiveness with information on student achievement, school characteristics, and college readiness to improve district decision making.

The district's SDP fellows each have their own individual focus and together share a body of work. One fellow focuses on supporting the use of teacher effectiveness data to inform human capital decisions. A second fellow, working closely with the first, manages knowledge sharing and program evaluation to support teacher effectiveness. The third fellow focuses on building a body of data measuring students' college and career readiness that can be used to inform decisions about schools and student support.

Agency Spotlight

Agency Type: District

Program Partner: Strategic Data

Project

Dates of Partnership: 2012-2014

Number of Fellows: 2 agency

fellows, 1 data fellow

Project Description: Fellows support the development of district practices to facilitate the use of data in decision making related to human capital and school support and provide analysis of school-, student-, and teacher-level data for various audiences, including district leadership and the community.

Together, all three fellows provide weekly summaries of data about the district's schools to district leadership and participate in the development of data reports and dashboards tailored to different audiences that will communicate data on students, classrooms, schools, and the district. They also assist in the process of planning for the district's strategic use of data going forward.

Background and Context for Data Use

The district's Office of Teacher Effectiveness oversees the partnership with SDP. Over the last three years, in partnership with the teachers' union, private foundations, and federal grants, district leaders have developed three measures of teacher effectiveness: (1) a new observational measure of teacher practice, (2) value-added measures (VAMs) developed specially for the district, and (3) a survey of students' perceptions and engagement in school.

These new measures have generated new and potentially rich data, which the district hopes to use to inform a number of human capital decisions, such as opportunities for professional growth, a modified career ladder, and financial awards for strong performance. Data collected from the observation-based rubric have already been used for decisions about retaining and promoting teachers. Beginning in the 2013-2014 school year, data from VAMs and the student survey will be employed for summative ratings and additional human capital decisions.

Data system. The explosive growth of new data has strained the district's existing systems for storing and managing data. To reduce the strain on data systems and the need for IT staff to produce individualized reports for individual users, the district is developing a data dashboard system. This process has two components. First, the district is developing a data warehouse that consolidates multiple sources of data into a single repository. Second, it is developing an online platform that will draw information from the data warehouse to produce dashboards and reports tailored for individual users. These dashboards will give teachers, school administrators, and district leadership different sets of data, depending on their students, school, or position. The district is also

conferring with other districts and with at least one charter management organization with experience developing and using similar data dashboards to help design its system.

Staff expertise and development. The district wants to build the capacity of both school and central office staff to work with data. At the school level, the district has partnered with outside agencies to develop online and paper materials that explain the various measures to school-based staff. The district has also used a "train the trainer" model, in which four staff members from each school helped design the evaluation and growth process from the beginning, continued to engage in dialogue and receive regular training on the measures during their development, and will then be called on to train others at their school. As the district nears the 2013–2014 milestone for using multiple measures for summative ratings and other human capital decisions, building the capacity of school and central office staff to use data becomes an even more critical need on which fellows are focusing their time.

Partnerships and resources. To collect and manage data on students' college readiness, the district participates in another foundation-funded program, the College Readiness Indicator System (CRIS) network. This effort has subsidized one of the two agency fellows' participation in SDP. CRIS seeks to develop, expand, and modify current college readiness indicator systems, which are used to identify students as college ready and support them in developing that readiness. These indicator systems can give the district clues about whether individual students are on or off track for graduating as college ready. It can also help in developing policies for how schools and district staff can respond to data about students' college readiness as information become available.

Working with SDP Fellows

The fellows' activities presently focus on several areas:

• Developing action plans for data use. Fellows are developing a plan for using data to inform key levers for improving teacher effectiveness in the district. This plan includes a map of which district staff members need which data elements and when these data must be delivered in order to support critical

Key Activity: Develop Strategic Plans for Data Use

Fellows identified areas of district policy that can be improved using available data.

human capital decisions. It also includes strategies for building capacity for those individuals to effectively use the data, as well as plans for reports and dashboards that will facilitate the use of the data.

 Developing and presenting data summaries for district leadership. On a weekly basis, the fellows produce short summaries of school- and districtlevel trends regarding various indicators, including suspension and absence rates by subgroup, students' performance on interim assessments, and metrics related to teacher observations. Fellows brief district

Key Activity: Prepare and Present Weekly Data Summaries

Fellows presented school- and district-level trends to district leadership.

related to teacher observations. Fellows brief district leaders on important findings and identify any areas of concern at the school and district level that might require deployment of resources for support.

- Participating in the development of new data display tools. For the new data dashboards and reports, fellows act as liaisons among district leadership, data consumers, and the IT department. They help stakeholders agree on the metrics required by various end users and try to match these priorities with the capacities of the new data display system.
- Responding to additional data analysis and reporting requests. Fellows have responded to ad hoc requests from district leadership for district and school data, compiling data from various systems and shaping the presentation of these data for

Key Activity: Coordinate

Development of Data Dashboards

Fellows supported IT in designing
and implementing data dashboards
and reports.

Key Activity: Respond to Additional Data Requests Fellows responded to as-needed requests for data and analysis.

relevant audiences. For example, fellows recently helped prepare student and school data for a public event in which district leaders presented the status of district initiatives and the current level of student achievement. Fellows also supported the development of a report on the status of each district schools, a first-of-its-kind effort by the district to share a comprehensive view of school performance using multiple measures.

Data Analysis and Reporting

Central district staff are eager to expand use of the variety of information collected about students and staff, including the multiple measures of teacher effectiveness, to investigate areas for improvement in district policy and to identify promising ways of increasing teacher effectiveness and student outcomes.

Such analyses will become particularly salient as VAM and student survey data are used in summative evaluations in 2013–2014. The district hopes to identify teacher practices that result in increased student achievement.

In the upcoming year, SDP fellows will also examine whether certain characteristics of new teacher applicants, such as test scores or characteristics of the preparation program, are correlated with success in the classroom. One fellow is interested in attempting a similar analysis with regards to college and career readiness data. In addition, the fellows may investigate the effects of introducing specific teacher leadership roles and their impact on district goals.

Challenges Encountered and Lessons Learned

Challenges encountered. The district has encountered several challenges in using data strategically to make decisions that improve teacher effectiveness and college readiness:

- Getting data to users who need it when they need it. The district has had trouble keeping up with demands for data and reports. The old data reporting system has prevented district staff from accessing the school- and district-level information in a timely manner.
- Prioritizing data use over data management. The district has experienced a data
 overload that sometimes made it difficult to use data strategically. Resolving minor data
 quality issues—combining records for students who had left and re-entered the district,
 for example—has sometimes overshadowed using the data. The new data dashboard

- system should reduce the prominence of some of these data management issues and give staff more time to conduct analyses.
- Building capacity for data use. Additionally, the collaborative development of new information sources, a shared decision making approach, and ongoing refinement of new lenses on effective teaching continue to require the attention of teachers, administrators, and staff, making it difficult to focus time and resources on using this information to drive decision making and improve outcomes.

Lessons learned. Based on interviews with staff and fellows consistent themes emerged related to lessons learned from the district's efforts to use data to improve college readiness and teacher effectiveness:

- Data can break down misconceptions. The availability of new data has helped the district to identify and confront challenges that may not have received attention otherwise. For example, the district recently began monitoring chronic absenteeism (students missing 10 percent or more of school days) and identified a significant attendance concern district wide that had not been noticed through tracking of average daily attendance. Using information provided by the new analysis, the district has begun developing data-driven approaches to increasing student attendance.
- Data-driven change benefits from a gradual and intentional process that involves multiple stakeholders. Developing multiple measures of teacher evaluation required stakeholder engagement, collective decision making, and continuous training and improvement. Now that the measures have been developed, deepening their use across the district requires the same efforts. Similarly, developing the new data dashboards and reports continues to require careful and deliberate adaptation of existing systems to the specific needs of the district. While both initiatives encounter challenges, staff reported that they value the care taken in the design of dashboards and reports and the commitment to broad stakeholder investment and system improvement.
- The district is poised to move from data management to data use. Central district staff expressed a desire to ground conversations across departments in data metrics. The district is in the process of moving from spending time collecting and managing data to using data more effectively to inform instruction, professional development, and policy change.

AGENCY C—SCHOOL DISTRICT

An urban school district began its partnership with SDP in September 2012 as part of a broader effort to incorporate data into decision making more effectively. The purpose of the partnership is to take stock of existing data and improve and organize it for more effective analysis. Other goals for the partnership include launching a new data display system, conducting SDP-directed research around human capital and college preparation, and conducting research for senior district leadership.

Background and Context for Data Use

Since 2010, the district leadership has pushed for more systematic use of data in decision making. District leaders worked to change the administrative culture in the

Agency Spotlight

Agency Type: District

Program Partner: Strategic Data

Partners

Partner Since: 2012

Number of Fellows: 2 agency

fellows, 2 data fellows

Project Description: SDP fellows provided data analysis support to the financial, academic, human resources, and accountability departments in the school district.

district to encourage effective data use and greater collaboration across departments. The district chief executive officer brought in new members of the leadership team with data analysis experience and stressed the need to use data at the district, school, and classroom levels. For example, the human resources department analyzed past teacher evaluation data to see how it correlated with student outcomes. Analysts determined that many teachers received positive evaluations even if their students did not perform well. District staff examined benchmark measures of student performance to inform schools in the middle of the academic year whether they are on track to meet performance goals. Other new data-driven initiatives include a weighted student funding scheme, differentiated teacher compensation plans, and teacher and principal effectiveness evaluations.

Data system. The district is upgrading many of its data systems to support the transition to more effective data use in decision making since some systems are ten years old and do not communicate across departments. Key upgrades include updating the financial and human resources information systems and scaling up a new teacher evaluation data system. The district may also purchase several new systems, including a data warehouse for teacher evaluation data and a system to track student performance data for use in teacher VAMs. Finally, the district is developing a data display tool for senior district leadership, which is described in detail in the next section.

Staff expertise and development. Using data to inform decisions provided the impetus for improving the district's data capabilities, including staff development. However, many staff members, particularly mid-level district staff and school staff, are not familiar with how to use data effectively. The district supported training for some educators that covered topics such as setting standards, data quality, and data analysis, but other staff received no training from the district on effective data use.

Partnerships and resources. Philanthropic foundations support the district's efforts to improve its data capabilities through grants. One foundation provided funding to create an online student account system that enables students to view their performance history on standardized tests. The district also contracts with an education consultant to conduct data analysis to support a transition to a weighted student funding scheme. The resulting model will apportion funds across schools based on individual student needs and costs per graduate rather than on student enrollment and costs per student.

Working with SDP Fellows

The cohort of fellows organizes and cleans data sets for the financial, academic, human resources, and accountability departments. The district assigned each fellow to a different department so that they could become experts on their departments' data and work together to analyze major district decisions from multiple perspectives, bringing all of the district's data to bear on an analytical problem. The fellows were assigned several specific initiatives:

• Organizing measures for the data display tool. The district is creating a data display tool to allow senior leadership to track various measures of student, teacher, and school performance. The four fellows led the effort to organize the tool's 15 measures, which include statistics such as student

Key Activity: Organize Measures for Data Display Tool

Fellows collected and cleaned data for 15 district performance measures for use in a data display tool.

ACT scores, state-measured school quality, perceived school safety, teacher adherence to written curriculum, and district enrollment and retention. As part of this work, fellows developed a measure for teacher attendance.

• Leading department-focused research and collaboration efforts. Working in their respective departments, fellows have carried out such department-specific activities as analyzing patterns in staff absenteeism and working with the district's education consultant to develop weights for a weighted student funding scheme. They also facilitate interdepartmental data sharing and analysis.

Key Activity: Conduct Research and Collaboration Efforts

Fellows conducted data analysis within their assigned departments and facilitated interdepartmental data sharing.

• Conducting research for senior leadership. Fellows constitute the research arm for senior district leaders and are available for ad hoc data analysis tasks. For example, one fellow developed a proposal for evaluating a year-round school calendar at the request of the district CEO.

Key Activity: Conduct Research for Senior Leaders

Fellows conducted ad hoc research for district senior leadership.

Challenges Encountered and Lessons Learned

The district is transitioning to using a more data-driven approach to decision making. Antiquated systems and lack of familiarity with data use among staff posed challenges throughout the transition, but district staff believe that the district is making progress toward its goals.

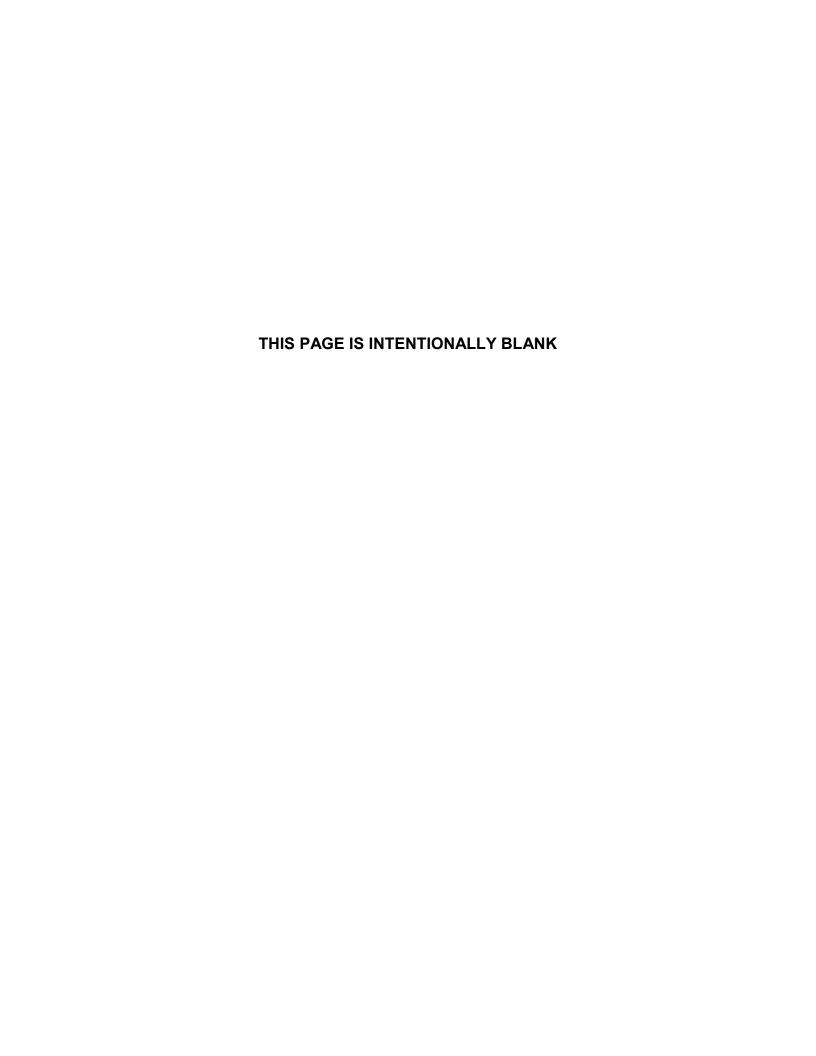
Challenges encountered. The district's data systems, data collection methods, and procedures were not designed around data-driven decision making, which resulted in several significant challenges:

- Data systems are not integrated. Each department uses different data collection procedures, and legacy systems were not designed to interact with each other.
- Data quality varies. Different data systems store conflicting measures of the same metric.

• Staff are unfamiliar with effective data use practices. Staff did not know the strengths and limitations of different data measures and did not always recognize quality measures.

Lessons learned. District staff report that the district has experienced the following successes:

- **District-wide increase in using data.** Central office staff perceive that interest in using data effectively has increased in the central office and in many schools.
- Planning process serves as a model for effective data use. The district's academic achievement planning process integrates district data to create predictive measures of academic achievement. Staff use these measures to evaluate the effectiveness of teaching practices by comparing the change in performance among students who received a particular intervention with that of students who did not.
- **Fellows provide useful outside perspective.** Fellows highlighted problems district staff may not be aware of, such as the absence of a data governing structure. They provided the resources and expertise to improve the district's ability to use data effectively.



AGENCY D—STATE EDUCATION AGENCY

The agency's SDP project began in 2011, and its EP project began in 2012. In 2010, the agency initiated reforms under a federal Race to the Top (RTT) grant, including an increasing emphasis on data-driven decision making. The agency applied for partnerships with SDP and EP to bolster its analytic capacity as it implemented the RTT reforms. The partnerships include two SDP data fellows, 3 SDP agency fellows, and 2 EP fellows.

Background and Context for Data Use

The agency is improving its data analysis capacity to meet the goals for student performance improvement in its strategic plan. Increasing capacity involves bringing in new staff, implementing new data systems, and fostering a culture that values effective data use. The agency created a **Agency Spotlight**

Agency Type: State

Program Partner: Strategic Data Partners and Education Pioneers

Partner Since: 2011

Number of Fellows: 3 SDP agency fellows, 2 SDP data fellows, 2 EP

fellows

Project Description: SDP and EP partnerships were used to bolster the agency's analytic capacity and help apply data to agency decisions and policies.

new Office of Research and Policy, which contains the SDP data fellows and the EP fellows, to move towards its capacity-building goal.

In addition to increasing capacity, the agency has identified data objectives and initiatives. The primary objective of data analysis in the agency has shifted from ensuring compliance with state and federal requirements to improving school performance. To assist with the shift in focus, the agency has developed major data-use initiatives, which include upgrading data systems and using teacher retention and value-added data more effectively.

Data system. The agency's most important data system initiatives include establishing a P-20 longitudinal student data system, updating the state's teacher and principal evaluation system, and implementing an early warning system to identify students at risk of dropping out. When fully developed, the longitudinal student data system will contain student data from preschool through college, including workforce data. It will also link students to classes and teachers, allowing substantive analyses of student outcomes over time. Because the system will include data from a wide range of sources and departments within the state, the agency outsourced the project to an external developer.

The agency updated its teacher and principal evaluation system for the 2012–2013 school year based on a pilot demonstration conducted the previous year. The agency intends to use data in the evaluation system to determine whether the state has retained its highest performing teachers. Agency staff will also use the value-added data from the system to reform the way teaching licenses are renewed. Additionally, the agency plans to implement an early warning system to help districts identify students at risk of dropping out and schools with high numbers of such students. The early warning system will present data through a series of dashboards that districts can use to guide intervention efforts.

Staff expertise and development. Steps to increase the analytic capacity of staff have focused primarily on hiring new staff with the desired skill sets rather than training existing staff. Partnerships with SDP and EP have contributed to this effort. Data analysis training opportunities for other agency staff have been limited and informal; however, district-level staff have received training from external vendors on how to interpret data results.

Partnerships and resources. The state's RTT grant provided much of the funding for the agency's expanded data capacity, including developing the longitudinal data system and hiring additional staff. Agency staff are working to reduce costs and identify funding sources to keep their operations sustainable once the grant expires.

Additionally, a wide range of partners have helped the agency improve its data use capacity in recent years. For example, Battelle for Kids provides dedicated data analysts and assists in developing the agency's VAMs for its teacher and principal evaluation system. Double Line Partners is helping develop the agency's early warning system. The agency also partnered with the Institute for Learning and Measurement Inc. to implement the Common Core math standards. Finally, a university research center is developing the agency's longitudinal data system.

Working with SDP and EP Fellows

The SDP fellows' main function is to conduct rigorous and timely analyses to inform decision making. The EP fellows were tasked with making data available to stakeholders inside and outside the agency and with responding to research questions from departments within the agency. The fellows' major projects fall into three categories:

 Coordinating external research. Fellows seek partnerships with external research organizations to encourage research pertaining to agency priorities. They track external research projects of interest and make select education data sets available for

Key Activity: Coordinate External Research

Fellows coordinate external research related to agency priorities.

- public use. They are also working to develop an external research request system. One fellow helped develop a website for parents and students to gain access to publicly available education data and a web portal for external education researchers.
- Building data-use capacity. Fellows help build the agency's capacity to use data by assisting districts in creating data use tools and helping district staff understand how to use data measures effectively. One fellow helped build data dashboards that districts use to identify student achievement gaps.
- Conducting data analysis to support objectives. Fellows conduct other analysis for the agency, including analyzing alternative teacher licensing methods, teacher evaluation data, and student performance and Common Core standards and conducting statistical analysis of student

Key Activity: Build Data-Use Capacity

Fellows help develop data-use tools and work with district staff on data measure interpretation.

Key Activity: Conduct Data Analysis to Support Objectives

Fellows perform statistical and other data analyses to inform agency decisions.

achievement data. In particular, one SDP fellow influenced the recruitment of Common Core standards coaches by analyzing teacher satisfaction survey results following a

previous coaching session. Other analysis projects focused on teacher performance, retention, retirement, and compensation. For example, an EP fellow examined trends in the value-added scores of retiring teachers to determine whether the new teacher rating system induced low-performing teachers to retire early.

Data Analysis and Reporting

The agency uses data to generate reports intended to inform decisions made by district and school leaders. For example, the agency's accountability system generates quarterly benchmark reports and student achievement reports that districts use to monitor their progress. Regional directors monitor school performance progress through the same system. Additionally, staff in each district can monitor their district's performance and goals through the state's evaluation system. The agency plans to issue report cards on professional development vendors, synthesizing the experiences of districts across the state with different products and companies. This will allow districts to make informed decisions about how to allocate their professional development resources.

Challenges Encountered and Lessons Learned

Challenges encountered. The agency experienced a number of challenges in its transition from compliance monitoring to data use and analysis focused on improving student performance:

- Limitations of data quality and data systems inhibit data use. The agency has encountered challenges with data collection, data quality, and data system interoperability. Data do not always reach teachers in a timely fashion due to cumbersome data collection procedures in the student information system. Some data metrics, like graduation rates, changed definitions in previous years, making it difficult to identify trends in historical data. Finally, data systems across the agency were not designed to link together, complicating analysis drawing on data from different systems.
- Some staff have limited experience using data. The shift to an organizational culture focused on rigorous data use was relatively recent, and many staff are not yet accustomed to using data to drive decisions. Some staff do not know how or when to apply data to their work.
- Variable funding constrains improvement. Historically, the agency improved its data or other operations when receiving temporary funding but then experienced a diminution of that improved capacity when funding recedes. Inconsistent funding, regardless of the size of the grant or award, makes it difficult to sustain improvements in data capacity and operations without purposeful strategic planning devoted to continuing the work beyond the period of the grant or award.

Lessons learned. Key lessons learned from the agency's efforts to use data include the following:

• Agency culture encourages data use. The agency is focused on fostering a data-use culture by hiring staff with strong analysis skills and a commitment to influencing policy through data driven decisions. The partnerships with SDP and EP were primary components of this staffing increase. Agency leadership strongly encouraged the culture shift following the state's receipt of the RTT grant.

• Data team has necessary data analysis skills. The data team in the Office of Research and Policy has the requisite skills to support effective data use. Additionally, the diversity of perspectives, experiences, and skills on the team augment its capabilities and enhance the potential for strong data analysis.

AGENCY E—SCHOOL DISTRICT

This large school district is partnered with both EP and SDP. The district began hosting EP and SDP fellows in 2012 although it had hosted EP summer fellows previously. The EP fellow provided technical support and analysis for the district's secondary school reforms. The SDP fellows are bringing together different data sources to assemble a longitudinal, student-level dataset that will be used to develop a college readiness profile. This profile will enable the district to assess where a student is on the college-ready path and what needs to be done to keep students on that path or return them to it.

Background and Context for Data Use

Current data-use initiatives underway in the district include a new principal and teacher evaluation system and a district-wide performance management system. Under this

Agency Spotlight

Agency Type: District

Program Partner: Strategic Data Project and Education Pioneers

Partner Since: 2012

Number of Fellows: 2 SDP agency fellows, 1 SDP data fellow, 1 EP

fellow

Project Description: SDP fellows worked on developing a college readiness profile for students. The EP fellow provided support for programmatic reforms in the secondary schools.

performance management system, all district offices and programs are evaluated quarterly against key performance indicators. The district is also engaged in a series of reforms of its secondary schools, including the formation of new career academies.

Data systems. The district has a number of online systems it uses for data storage and management. The student information system collects data including enrollment, attendance, grades, and discipline. Another system collects student performance data from classroom-level formative assessments administered throughout the year. A data system used for performance management brings together several data sources and enables school staff to filter the data.

Staff expertise and development. District staff believe that the capacity of both school and central office staff to work with data has improved in recent years. This improvement in data culture may be partly the result of the performance management process, which has focused on key metrics and deliverables whose progress is assessed regularly. In addition, the adoption of a new teacher evaluation system has encouraged conversations about instruction to be more data driven.

Additional partnerships. As part of its Race to the Top application, the district worked with Harvard's Data Wise, which provides training to schools in data use. This training aimed to get staff to become comfortable with data, ask questions that can be answerable by data, and to ask questions about additional data that should be sought. The district has also partnered with the College Board and International Baccalaureate program to do diagnostics that the district did not have the resources to do. Finally, the district has employed many consultants and academic partnerships to do additional research using its data. One of these consultancies was a foundation-sponsored process that helped the district develop metrics that can be used to better support teachers and principals.

Working with SDP and EP Fellows

The district became aware of the EP fellow program by partnering with EP through the summer graduate program. The district became aware of the SDP program from an invitation sent from SDP to the superintendent to apply. The district's goals in participating in these programs

reflect the hope that the fellows can transfer their capacity to analyze data to long-term employees of the district. Some of the specific activities of the fellows include the following:

• Secondary school reform analysis and technical support. The EP fellow's work focused on the district's secondary school reforms and the development of career academies for the high schools. The fellow helped to resolve issues regarding student scheduling, including helping

Key Activity: Support Secondary School Reform

A fellow provided technical support and analysis for schools developing a new "career academy" structure.

students to move as a cohort through the four years of the high school career academy, which consisted of small learning communities. The fellow also acted as a liaison between the academic managers and the IT division, building tools so that the district can improve its tracking of students in the program from year to year. In the future, the EP fellow will train school staff on how to utilize these tools to do cohort scheduling.

• Developing college readiness dashboards. The SDP fellows are developing a dashboard that will let district educators examine every individual student's progress towards college readiness and early warning indicators of falling behind. To do this, they are assessing the district's existing data and identifying which items are relevant to college readiness and then developing systems to link the disparate data

Key Activity: Develop College Readiness Dashboards

Fellows are linking multiple data systems and National Student Clearinghouse data to create a longitudinal dataset for analyzing college readiness.

pieces, including National Student Clearinghouse data, into a longitudinal dataset. This dataset will be used to analyze patterns in college readiness and attainment among the district's students and graduates.

Making college readiness findings actionable.
Fellows will investigate ways of turning the findings
of the college readiness analysis into policy at the
school level. Fellows will speak with principals and
teachers about the findings of his college readiness
analysis and offer ways of making the findings

Key Activity: Communicate College Readiness Findings

Fellows will share the findings of the college readiness analysis with school leaders.

actionable. They may also incorporate the college readiness information into existing report templates, or create new reports focusing on college readiness that fellows can discuss with school leaders.

Participating in random assignment evaluation.
 One SDP fellow is also involved in a random assignment evaluation sponsored by the U.S.
 Department of Education (ED) looking at the impact of providing completed information from the Free Application for Federal Student Aid form

Key Activity: Participate in a U.S. Department of Education Study

A fellow assisting in a random assignment evaluation of financial aid data sharing.

to schools. The fellow will send a list of students to ED, and then work together with other district staff to determine how best to get the completion information to schools, which may involve working with guidance counselors.

Data Analysis and Reporting

In addition to the planned activities of the fellows, the district has executed other data analysis activities. The district ran a pilot study examining teacher evaluation, trying to link student growth to individual teachers. The findings led the district to question the validity of the student survey used to evaluate courses. The next step will be to link observational data on teacher practices to the student achievement data.

Another analysis activity examined how principals collect evidence through teacher observations. Administrators are using a new observation rubric to evaluate teachers. District staff will analyze the data collected through teacher observations to see if there is a pattern across a school, a principal, or a cluster of principals.

Challenges Encountered and Lessons Learned

District staff believe that schools in the district are increasingly, in their words, "tuned into data" and making a "concerted effort" to use data to inform decision making. The district also has a vast amount of data, in virtually every area one could want, and has a unique student ID that helps those analyzing data match students over time and across datasets.

Challenges encountered. In spite of these strengths, the district faces several challenges in its strategic use of data:

- Siloing of data. Data are stored in a number of different systems, and it is difficult for staff to find out where the data are, what format they are in, and how different data sources match.
- Carving out time for developing school staff capacity around data use. Once school starts, the demands on teachers' and other school staff's time challenges the ability to find time for professional development around data use. Capacity to use data may grow on the fly, as teachers use data to inform planning and instruction, but systematic professional development may still be needed.
- Changes in leadership. Transitions in leadership at the district level may hinder efforts to establish a stable culture of data use. The district has experienced significant leadership changes and remains in flux. Although current leaders are capable and enthusiastic about the use of data to investigate problems and propose solutions, future ones may not prioritize strategic data use. In addition, maintaining day-to-day focus on data use among school staff can be challenging in the midst of the anxiety that transitions create.

Lessons learned. In spite of these challenges, district staff report several successes in the district's use of data in recent years:

• Establishment of a performance management system has helped to create a stronger data culture. District staff believe that the establishment of key performance indicators, targeted metrics, and regular reporting has helped to instill a culture that values data and looks to it for decision making and accountability.

- The use of a structured framework for teacher evaluation has made conversations about instruction more objective and data-driven. In adopting a new framework for teacher evaluation and instructional improvement, the district gained a structured means for giving feedback to teachers, to show the strengths and weaknesses of classroom practice in an objective and robust way.
- Data use has risen in importance at the school as well as district level. For example, the district has established what it calls a "data wall" in a location visible to staff in every school. Data from every grade level are posted on the wall, and teachers collaborate to identify, suggest, and select instructional strategies based on individual students' progress. In addition, respondents noted that teachers are increasingly able to access student achievement data even if there are limitations to their ability to use that data to inform instruction. District staff perceive that principals are also improving in their use of data—including both data about teacher effectiveness and student achievement—in response to the district's reform initiatives.

AGENCY F—STATEWIDE SCHOOL DISTRICT

The statewide district's mission is to transform the lowest performing 5 percent of schools in the state to the top 25 percent within 5 years. The district was in its first year of operations and partnered with EP to help establish data tools and provide accountability reporting, both of which it believed were critical to implementing its operational model.

The district's EP fellows undertook distinct responsibilities. One, the "portfolio fellow," created accountability reports, or "portfolio report cards," which gave decision makers a data snapshot for each school; that fellow also analyzed district assessment data. The "school

Agency Spotlight

Agency Type: District

Program Partner: Education

Pioneers

Partner Since: 2012

Number of Fellows: 2 fellows

Project Description: Fellows

supported a special statewide district applying data-driven decision making to transform low performing schools.

data fellow" was charged with creating school- and class-level reports for direct-run schools that lead to instructional actions.

Background and Context for Data Use

To achieve the district's mission of improving the lowest 5 percent of schools in the state, as identified by the state's school improvement grant application requirements, it required its schools to implement one of two data-centered operational models intended to foster data-driven decision making among school staff. Under the first model, the district's direct-run schools control their own staffing, curricula, and budget, with oversight from the district, while retaining full accountability for improvement in student performance. Schools implementing the second model operate as autonomous charter schools, receiving support from the district in optional data systems and professional development resources, but retaining autonomous control over budget and processes. Primary uses of data in both models included giving parents the information necessary to make the right educational decisions for their children, identifying and replicating best practices among schools and staff, and identifying schools that fall short of their performance goals.

Data systems. The district established a data warehouse and complementary data visualization software to make a wide range of data available to district and school staff. The district's software generates reports using district data, customizing the types of data staff can access based on their permission level. Through the system, staff can also generate reports, produce charts and figures, or access customized data dashboards that present summary data on student attendance, teacher evaluation and monitoring, and student behavior.

Staff expertise and development. District staff had a range of skill and experience in using data. The district selected its staff at the school and district levels based partly on familiarity with data and interest in using data to drive decisions. For example, teachers were required to demonstrate basic skills in data analysis and interpretation when applying for positions.

To improve staff effectiveness in using data, the district offered a wide variety of professional development resources. All teachers at direct-run schools began working for the district in July, allowing time to learn the district's processes and policies prior to the beginning of the school year. The district also contracted with external vendors to provide additional training. For example, a quarter of the district's teachers benefited from additional training on applying data to instructional

decisions and personnel management through Teach Plus; teachers and principals were coached on using data effectively by the Achievement Network; and staff was assisted in interpreting academic assessment results by the Northwest Evaluation Association. The district also makes professional development funding available to school staff so that they can select resources targeted to their specific needs.

Partnerships. The district maintains a broad network of partners, many of whom helped set up the district's data systems, processes, and professional development resources. In addition to the partners mentioned above, SchoolZilla helped the district build its data warehouse and provided continuing support with data integration, the New Teacher Project provided mentoring to teachers and principals on creating career pathways for staff and using teacher evaluations effectively, and Teach for America was a staff recruiting source.

Working with EP Fellows

District leaders pursued a partnership with EP to support the district's data initiatives, including using data to improve the feedback the district provided to schools on outcome and accountability measures and documenting changes in school performance over time to identify successful practices. Although the fellows had distinct, project-specific responsibilities, the broader activities they conduct include the following:

 Conducting data analysis to support the development of reports. Fellows examined student and school performance data to support the creation of school-level accountability reports. These reports included the analysis of district and

Key Activity: Conduct Data Analysis

Fellows examined performance data and assessment results.

state assessment results. The reports were presented to school principals and district leaders and were used to set school and district goals for the school year and to monitor progress throughout the year.

 Coordinating data processes to obtain data for analysis and reporting. Each fellow planned and implemented necessary steps to complete assigned tasks. For one fellow, this involved coordinating between the district and state to gather data for accountability reports, working with principals and

Key Activity: Coordinate Data Processes

Fellows coordinated among school, district, and state education agency staff to obtain data.

district staff to develop enrollment projections, and developing processes to obtain data necessary to evaluate portfolio performance. The other fellow created reports that incorporated accountability and assessment data at the classroom level, which teachers could use to drive instructional decisions and planning. Both fellows worked to populate the data warehouse with data from sources that did not automatically integrate with the warehouse and documented their processes to make future efforts easier.

 Designing useful data reports. Fellows helped design and develop data tools that school and district staff and community members can use to make decisions. One fellow designed portfolio report cards available on paper and online that summarize each school's accountability measures

Key Activity: Design Useful Data Reports

Fellows used data to create school portfolio report cards, accountability reports, and school choice guides.

and compared those measures to other schools in the district and state. This information

was also used to develop school choice guides for parents, and included data on student achievement and growth, school culture, service equity, gateway grade readiness, and other topics of interest suggested by district staff and parents. The guides introduce the district to parents, explain its main features, and present comparative information about schools so that parents can select their child's school.

• Responding to additional data analysis and research requests. Fellows performed other tasks as needed, including maintaining awareness of educational research trends; collecting and analyzing data on other schools in the state that

Key Activity: Respond to Additional Data Requests Fellows performed statistical data analysis and research as needed.

might be added to the district in future years due to their low performance; and assisting district leadership with statistical data collection, analysis, and interpretation.

Data Analysis and Reporting

Data use is central to the district's mission of transforming the state's lowest-performing schools. The district consistently uses data analysis to support efforts to achieve the goals of its five-part accountability plan: (1) ensure that schools and programs that demonstrate success are replicated and that unsuccessful ones are closed; (2) provide parents with the information they need to make informed decisions about the right school for their child; (3) identify and commend within-school units that are improving outcomes for students; (4) quickly identify and test best practices for rapid deployment; and (5) create early warnings for schools that are not adequately improving student performance to enable proactive correction. In alignment with state policy, the district also uses data in making human resources decisions, such as determining teachers' salaries based on measures of teacher effectiveness rather than tenure.

The district disseminates the results of its data analyses through reports and data dashboards. In addition to the portfolio report cards and school choice guides, the district reformats value-added reports from the state to provide teacher-, school-, and district-level information. The district uses these reports to determine salary bands and promotions for teachers and to measure whether schools and districts are progressing toward performance goals. School and district staff can also generate reports, such as achievement and accountability reports, through the data dashboard and software system. Staff are expected to use these reports to measure student progress and determine instructional strategies.

Challenges Encountered and Lessons Learned

Challenges encountered. The district experienced a number of challenges in setting up its systems and processes for its inaugural year as a school district:

- Simultaneously rolling out multiple data and support systems. Because the district was in its first year, systems and processes were new to all staff. Teachers and principals had to learn several new data systems while performing the other aspects of their jobs.
- Accessing data from other agencies. Though the district generated most of its own
 data, the data tools also relied on data from the state and other school districts.
 Obtaining such data was sometimes challenging, and gaining access to data often
 depended on identifying the correct state staff member and the turnaround time for
 release of the data from the state.

• Creating secure, purposeful data dashboards. Creating user-specific dashboards for the data system presented a number of challenges, including ensuring data security, building automation into the system, matching and validating data from different sources, and prioritizing among the range of data available.

Lessons learned. Key lessons learned from the district's efforts to use data to drive decisions at the classroom-, school-, and district level include the following:

- Having staff interested in using data may have helped the district implement its data-centered operational models. School and district staff have a clear focus on using data to drive decisions at all levels. This is not a coincidence; the district screened staff during the hiring process for interest and skill in using data to make instructional and other decisions. This broad interest in data use provided a necessary foundation for the district to build its data-driven decision making processes and encouraged staff to utilize tools to aid in data-driven decision making practices.
- Customized data tools support data-driven decision making. The district designed data systems and ensured that they were in place, as much as possible, at the beginning of the first academic year. The data tools connected to the data system are intended to work as a cohesive system, designed to save staff time and make teachers and principals more effective in their everyday practice.

AGENCY G—SPECIAL SCHOOL DISTRICT

This special school district is designed to take underperforming schools in the city and transform them into successful schools. The district first manages schools directly (direct-run schools) and then transitions them into charter schools. These charter schools are then overseen by the district as part of a portfolio of schools.

The district partnered with EP in September 2012 to make data about the city's schools easily accessible to parents, educators, and community members. The main project of the two EP fellows has been the development of a parents' guide that includes data about all public schools in the city. The fellows are also involved in smaller projects, including a cost study of special education services, data-related technical assistance for a high school, and strategic planning to help the district's data and analytics department

Agency Spotlight

Agency Size: Charter management

organization

Program Partner: Education

Pioneers

Partner Since: 2012

Number of Fellows: 2 fellows

Project Description: Fellows participated in strategic planning, conducting cost studies, developing a data-rich parents' guide, and providing technical assistance regarding data use.

adapt to the changing educational landscape in the city when charters replace district-run schools. From its inception, the district's goal has been to transition its responsibilities to effective charter operators, or, as district leadership expresses it, "the goal of the district is to make itself obsolete."

Background and Context for Data Use

Data system. Because a large and growing proportion of the special district's schools are charter schools, it has limited control over the procedures for data use in most of the schools it oversees. For direct-run schools, the district uses a comprehensive student, school, and employee information system that syncs automatically with the state data system. Some of the district's charter schools also use this system, but charters generally have discretion about which data systems to use, and the district does not have direct access to their data. This creates challenges for the district in using data to support, oversee, and determine the effectiveness of its portfolio of charter schools.

Staff expertise and development. Both school-level and district-level staff have become increasingly sophisticated in their use of data since the creation of the district less than a decade ago. Conversations at the district level often focus on quantitative data, and important decisions are rarely made based only on anecdotal reports. At the school level, one goal of the teacher evaluation system is to help teachers and principals become more data savvy, which is to be achieved by providing more actionable feedback and emphasizing student achievement results.

Working with EP Fellows

The district became aware of the EP program through a former staff member, who was an EP summer graduate fellow and had kept in touch with EP during the 10-month fellowship. The initial goal of the partnership between the district and EP was for one of the two fellows to continue developing and releasing equity reports, which the district had released about each of its schools for the first time in 2011–2012. The other fellow was initially tasked with supporting the implementation of a mandate that students in the district's schools take a national college-entrance exam. Between the hiring of the second fellow and the beginning of the fellowship, however, a state law was passed that required all students in the state to take the national college-entrance exam,

making the intended work of the fellow unnecessary. As a result, both fellows began working together on the equity reports. The scope of this project has grown and now incorporates information from a parents' guide, previously produced by an independent nonprofit organization in the city.

During the first four months of the fellowship, specific projects and activities undertaken by the fellows included:

• Developing a data-rich parents' guide for the city's public schools. Due to frequent school closures and transformations, it is often difficult for parents to obtain reliable information about schools. The parents' guide aims to address this challenge. Fellows worked with other district staff

Key Activity: Develop a Parents' Guide

Fellows are adding school-level data to a parents' guide about public schools in the city.

and nonprofit partners to identify important and understandable metrics that would help parents during the school choice process. Fellows obtained data from the state, verified the data with individual schools, and developed the graphic design and explanatory text of the guide. Fellows will assist with dissemination of the guide once it is completed and are collaborating with the state's charter school associations to develop a web-based version.

• Conducting a cost study of special education services. One fellow worked with district staff to begin a cost study of the different services mandated by the Individuals with Disabilities Education Act (IDEA). The goal of the study is to have a clear picture of the kinds of disabilities the

Key Activity: Conduct a Cost Study

A fellow developed a picture of the cost of special education services in the district.

district's student population experiences and the costs its schools can anticipate as they begin serving those students.

- Providing data management and technical assistance for a direct-run high school. One fellow is providing technical assistance and data expertise to a high school recently taken over by the district, working with school administrators and teachers to improve their data processes and establish new protocols around data use.
- Supporting strategic planning for departmental transition. The fellows are developing plans and guidelines for the future scope and activities of the district's data and analytics department. These plans include transition processes for activities in the department, guidelines for continuing the

Key Activity: Provide Technical Assistance

A fellow provided weekly support for teachers and school administrators on the strategic use of data.

Key Activity: Support Strategic Planning

Fellows developed a vision for future data and analytics activities in the district.

parents' guide in collaboration with the nonprofit partners, and special considerations for the shrinking staff size at the central office to reflect changing needs and priorities within the district.

Data Analysis and Reporting

The district is an organization in transition, which extended to changing procedures around the scope of data and analytics. For its remaining direct-run schools, the district undertakes several data analysis and evaluation activities, in addition to the work of the fellows. For example, one district administrator planned to begin structured midyear conversations with all principals to discuss trends in student achievement and school-level issues observed in district wide assessments. Other planned activities with a data analysis component include revising checklists and rubrics used in the process of awarding charters and reevaluating the professional development offered to new charter operators.

Challenges Encountered and Lessons Learned

Challenges encountered. The district values data and uses it regularly in decision making, including human capital decisions and the process of transforming schools into charter schools. However, staff identified significant challenges, particularly due to the district's status as a transitional district:

- Accessing data from independent local educational agencies (LEAs) and the state. It is difficult for the district to obtain data from many of its schools. Because the charters overseen by the district are their own LEAs and are not obligated to use the district's data system, it cannot directly view the data collected by these schools. The district had similar difficulties accessing data from the state Department of Education. When the fellows were collecting data from the state for use in the parents' guide, for example, they found that systems were not well organized for reporting data back to districts.
- Frequent transitions and staff reductions make it hard to sustain initiatives. The district is intentionally a transitional district, meaning that it changes and shrinks rapidly in response to the transformation or closure of schools. As a result, staffing is in constant flux, causing concern about the sustainability of the fellows' projects and other initiatives. Frequent staffing changes mean that even the most promising initiatives in IT and data use were sometimes abandoned before they could be fully implemented.

Lessons learned. District staff and fellows offered several lessons learned about the strategic use of data:

- Temporary staff members can provide an independent voice. Temporary employees can look critically at the procedures of the organization because they are not fully integrated into the organization's culture. Respondents noted that fellows were able to provide this role, proposing solutions to data challenges and pushing other district and state staff to think critically about their practices of data use and to consider new approaches.
- A transitional district must focus on *both* achievement growth and achievement levels. The district purposely takes over struggling schools and attempts to put them on a trajectory towards success. As a result, the schools' level of student achievement is often low, even if they have been making great strides. It is important to communicate progress and improvement to the community, especially since many of the districts' schools were starting from a low initial point.

• Communicating data with parents is an important part of establishing a functional and responsive system of school choice. One area where district leaders felt they lagged behind other large cities was in delivering information about schools to the community. By incorporating data on attendance, student achievement, and student discipline, the parents' guide is intended to help parents make informed decisions about where to send their child to school.





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