

# REPORT

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## **Changing Education Agencies from the Inside Out: Year 2 Report on the Strategic Data Project and Education Pioneers**

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October 29, 2014

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## CHANGING EDUCATION AGENCIES FROM THE INSIDE OUT: YEAR 2 REPORT ON THE STRATEGIC DATA PROJECT AND EDUCATION PIONEERS

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### What we learned

Partnerships with Strategic Data Project (SDP) and Education Pioneers (EP) have enabled education agencies to develop new and meaningful practices for using data, and many agencies continue to refine and build upon what they have learned and implemented. While SDP and EP's approaches to affecting data-driven decision making in education agencies differ, the study team found few differences between agencies that were partnered with SDP or EP relating to their capacity for data use or activities related to data use. There were, however, some differences between agencies that had partnered with SDP *or* EP for longer periods of time and those that were new to their partnerships. Key findings from the second year of evaluating SDP and EP include:

- **Data infrastructure.** Agencies have developed and built data systems to include linked data from multiple sources. Agencies are increasingly making data dashboards customizable to the various types of users. Issues of data governance and quality have emerged as topics of conversation among stakeholders and staff. Agency staff acknowledge the importance of data use and of technically skilled employees to support it.
- **Analytic capacity.** Some agencies have hired technically skilled staff—sometimes SDP or EP alumni—thereby permanently filling positions with technically strong candidates who might not have considered working in the education sector if SDP or EP had not brought them in. Agencies have developed partnerships with vendors to support data storage, analysis, or other data use work. Some formal training on data use, particularly for school-level staff, has begun.
- **Data culture.** The SDP and EP fellows' placement serves as a unique and potentially influential force for facilitating agency-wide strategic data use. The fellows' proximity to high-level agency leaders has afforded opportunities for leadership to see the value of data for informing decisions firsthand.

While there is evidence of promising trajectories with respect to using data, there are also two areas that still lag. First, although agencies analyze data for single initiatives, this kind of measurement and analysis has not always impacted agency-wide policies and practices, according to the staff and fellows from whom we gathered information. Second, it appears likely that many agency staff (other than fellows) do not know what questions to ask, what data to use, or, most importantly, how to interpret findings and draw inferences to improve policy and practice. Training of agency staff is informal and somewhat limited. Addressing this shortfall is complicated by the fact that staff expertise is concentrated at the higher levels of leadership and often in non-instructional departments. That makes it difficult for individuals with expertise to regularly interact with the mid-level agency staff responsible for programmatic implementation.

## About the study

The Bill & Melinda Gates Foundation invested in two programs, SDP and EP, that aim to provide, train, and support staff (known as fellows) who can enhance the capacity of school districts and other education agencies to collect, manage, analyze, and use data.<sup>1</sup> The foundation contracted with Mathematica Policy Research to conduct a descriptive implementation study of these programs through longitudinal, in-depth case studies of the agencies hosting SDP and EP fellows. The study aimed to describe agencies' capacity for and use of data. Overall, the study team found that the capacity for data use or activities related to data use was similar among agencies partnered with SDP or EP, despite the fact that SDP and EP's approaches to affecting data-driven decision making in education agencies differ. There were, however, differences between agencies that had partnered with SDP *or* EP for longer periods of time and those new to their partnerships. The differences are articulated throughout the report.

### About the programs

**Strategic Data Project.** Based at the Center for Education Policy Research at Harvard University, SDP brings a unique combination of rigorous analytic techniques and a deep knowledge of education policy with practical, on-the-ground expertise to transform the use of data in education to improve student achievement. To achieve this mission, SDP recruits, develops, and supports talented data strategists who are revolutionizing how data are used to improve decision-making processes in education. These individuals join a two-year fellowship that is an intensive, comprehensive professional development program providing a unique mix of analytic skill-building and leadership training. SDP fellows have an advanced degree (master's level or higher) and provide senior-level agency leadership with the capacity to leverage data in new ways to inform policy decisions, particularly in support of teacher effectiveness and students' college-going success and attainment. Fellows are either recruited nationally and enter the agency as new employees, or, existing employees may enroll in the fellowship program. Several SDP partnerships also include analysis of the agencies' data to better understand human capital and college readiness trends in their agency.

**Education Pioneers.** Founded in 2003 and supported by the Gates foundation since 2011, EP unleashes the potential of leaders, managers, and analysts to transform education for all students. Through selective Fellowships and ongoing Alumni and Partner Services, EP strengthens the ranks of exceptional leaders, managers, and analysts in key education organizations, including school districts, charter school organizations, education agencies, nonprofits, and more to support strong teaching and learning results. In addition to other programs, 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. EP launched the Analyst Fellowship in response to the education sector's need for data-driven leaders who can evaluate programs, interpret student data, and make informed recommendations for action.

Seven partner agencies participated in the first year (the 2012–13 school year) of the two-year study, and that report provided baseline information about the agencies' context for data use, the early work of fellows, data analysis and reporting activities, and early successes and challenges. Those seven agencies were included in the second year (2013–14) of the two-year

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<sup>1</sup> See the text box for a brief description of each program provided by program staff. Detailed information about each program can be found in the 2012–13 implementation report.

study as well. So the study team could more fully examine themes, the second study year included five additional partner agencies. The 12 sites included eight agencies that partnered with SDP and five that partnered with EP (one agency partnered with both programs). This report describes the work of these 12 partner agencies in 2013–14 as well as an analysis of change over time in the seven original agencies' use of data. Table 1 provides additional details about the partner agencies in the study.

**Table 1. Summary of 2013–14 study sites**

	Number of sites
Total sites	12
Partner organization <sup>a</sup>	
SDP	8
EP	5
Site characteristics	
State education agencies	2
District agencies	7
Charter district/charter management organization (CMO)	3
Years partnered with SDP or EP	
One year	3
Two or three years	7
Four or more years	2

<sup>a</sup>One site partnered with both SDP and EP.

**Data sources.** Comprehensive, in-depth information to support the implementation analysis came from telephone interviews with SDP and EP staff members and from 12 site visits that included in-person interviews with a diverse range of agency staff. Appendix A describes these sources and the procedures followed to select agencies for participation in the study.

A companion document to this report presents 12 case profiles, one for each partner agency in the study. Each profile presents agency-specific information about the areas discussed in report. Readers interested in learning more about the specific context, activities, or challenges encountered by partner agencies as they undertook the activities described in this report can refer to the profiles.

Data from two additional sources supplemented the research team's information about implementation. First, to better understand program activities and the support provided to fellows, study team members attended one SDP and one EP workshop in fall 2013. These workshops provided fellows with professional development and an opportunity to interact with peers from around the country. Second, because 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, the study team conducted a survey of SDP and EP alumni. SDP and EP gave the study team contact information for 102 EP fellowship alumni and 35 SDP alumni who participated in fellowship programs between 2009 and 2012, when both programs received funding from the foundation. The overall response rate for the survey was 88 percent (120 out of 137 total alumni): 94 percent of SDP alumni and 85 percent of EP alumni responded to the survey. Selected findings from the

survey are included in this report, and a detailed description of the results of the survey is in Appendix B.

**About this report.** This report begins with a description of the partner agencies' capacity for data use, including data systems and governance, professional development and expertise, and partnerships and resources. It then summarizes 12 data-use activities described by agency staff and fellows, followed by a summary of four key challenges reported by agency staff and fellows. For each challenge, we present a specific strategy described by agencies for addressing it. The report concludes with a short discussion of the findings.

## A. Capacity for data use

Dynamic and user-friendly data systems, analytically skilled staff, and support from external partners facilitate data-driven decision making. This section documents the capacity for data use at SDP and EP partner agencies, as reported during site visit interviews and through SDP and EP alumni survey responses, by describing data systems, data governance practices, reports about staff expertise and professional development activities, and the use of consultants to bolster capacity.

*Data systems may be linked, but many agencies continue to rely on multiple data systems without automatic linkages, making the linking process cumbersome.* Instead of collecting and storing agency data—student, teacher, and financial data, for example—in a unified system, the agencies in the study reported using several systems. In some instances, separate data systems automatically link to facilitate analyses that require data from multiple systems. For example, four agencies' systems automatically link student achievement and demographic data to teacher information to develop value-added scores. However, staff from eight agencies reported that the process of linking systems remains labor-intensive because it requires working with many departments, downloading data sets from several systems, and manually merging the data. For example, staff from one agency reported that if they want to determine predictors of effective teaching, they must pull data on teachers and students from different systems into a software program such as Excel, then manually link the data.

### Change over time: Data systems

Of the seven agencies that participated in both years of the study, in the second year:

- Five continued work to link and streamline data systems.
- One started a new initiative to update its data warehouse.
- One did not make improvements to its data systems because most of its schools are charter schools that have autonomous data systems and procedures, thereby limiting the agency's capabilities for improvements.

Results from the SDP/EP alumni survey suggest that improving data systems was a priority for the education agencies at which they worked. More than one-quarter (26 percent) of alumni survey respondents reported that they worked on enhancing longitudinal data systems during their fellowship; almost one-third (32 percent) of alumni who continued to work in the education sector after their fellowships reported doing this work (Table 2).

**Table 2. Data infrastructure activities conducted by alumni fellows during and after their fellowships**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
During fellowship (2009–12)			
Enhancing longitudinal data systems	26.3	24.7	30.3
Developing a portal structure for the data system	19.5	15.3	30.3
Creating user-specific dashboards	46.6	45.9	48.5
<b>Number of respondents</b>	<b>118</b>	<b>85</b>	<b>33</b>
After fellowship as employees in education sector			
Enhancing longitudinal data systems	32.2	28.1	39.4
Developing a multiple or single portal structure for the data system	16.7	14.0	21.2
Creating user-specific dashboards	34.4	35.1	33.3
<b>Number of respondents</b>	<b>90</b>	<b>56</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who reported being “highly involved” in the activity.

However, survey results also show that working with data systems in partner agencies can be challenging. More than 40 percent of alumni survey respondents reported that data infrastructure or systems were a barrier to data-driven decision making when they were fellows (Table 3). Alumni who continued to work in the education sector after their fellowships reported such barriers at an even higher rate (59 percent).

***Data governance remains a vital but often neglected process.*** Data governance is broadly defined as the processes that describe the collection, cleaning, processing, storing, use, and deletion of data; rules for ensuring data quality; identifying data stewards (that is, staff who are considered point persons for data collection, cleaning, and use in their office or department); and methods for data management. Staff at five agencies identified the lack of defined data governance processes as at least one reason for their struggle to enhance capacity for data-driven decision making. For example, as one respondent reported, data comes from multiple sources and it is often difficult to ensure that the data is clean and “tells one truth.”

**Change over time:  
Data governance**

For the seven agencies that participated in both years of the study, data governance processes remained largely unchanged by the second year. One agency articulated a new focus in 2013–14 on developing new connections with other agencies and departments to enhance data available in the longitudinal data system.

Results from the SDP/EP alumni survey echo this finding. When asked to identify major barriers to data-driven decision making in their agencies when they were fellows, nearly one-third of alumni survey respondents pointed to issues associated with data governance, including data quality (33 percent), data collection practices (32 percent), collaboration among departments within the agency (31 percent), and policies or procedures within the agency (27 percent) (Table 3). Alumni who continued to work in the education sector after their fellowships reported these barriers at even somewhat higher rates (35 percent, 34 percent, 39 percent, and 32 percent, respectively).

**Table 3. Barriers to data-driven decision making at placement sites and at education agencies employing alumni fellows**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
<b>During fellowship (2009–12)</b>			
Technical skills of other agency staff	33.3	32.1	36.4
Funding resources	14.5	10.7	24.2
Staffing (attrition, retention, shortages, and/or turnover)	30.8	29.8	33.3
Policies or procedures within the agency	27.4	21.4	42.4
Data infrastructure or systems	41.0	47.6	24.2
Data collection	31.6	36.9	18.2
Data quality	33.3	36.9	24.2
Collaboration among departments within the agency	30.8	22.6	51.5
Collaboration with community stakeholders (board of education, funding partners)	7.7	9.5	3.0
Other	13.7	8.3	27.3
<b>Number of respondents</b>	<b>117</b>	<b>84</b>	<b>33</b>
<b>After fellowship as employees in education sector</b>			
Technical skills of other agency staff	53.4	49.1	60.6
Funding resources	27.3	21.8	36.4
Staffing (attrition, retention, shortages, and/or turnover)	40.9	40.0	42.4
Policies or procedures within the agency	31.8	27.3	39.4
Data infrastructure or systems	59.1	63.6	51.5
Data collection	34.1	38.2	27.3
Data quality	35.2	38.2	30.3
Collaboration among departments within the agency	38.6	30.9	51.5
Collaboration with community stakeholders (board of education, funding partners)	14.8	18.2	9.1
Other	4.5	3.6	6.1
<b>Number of respondents</b>	<b>88</b>	<b>55</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who reported barriers as “major.”

***Data dashboards vary greatly in customization and ease of use.*** Ten agencies’ data systems have software-based interfaces, commonly known as dashboards, which allow users to access information about students, teachers, or schools. The interfaces vary in their levels of customization based on user type. For example, staff from at least one agency explained that the agency employs a single dashboard that only district staff and principals can access to view school and student-level test score histories. In contrast, staff from another agency described a dashboard that allows district- and school-level staff to access teacher, school, and district-level information on student outcomes and staff effectiveness. Each user is able to see different

#### **Change over time: Data dashboards**

Of the seven agencies that participated in both years of the study, in the second year:

- Two focused on new interface improvements (one piloted a new dashboard; the other worked to streamline its existing dashboard).
- One continued the prior year’s work on its data dashboard
- Two completed improvements prior to the site visit.
- Two were not actively working on dashboard improvements.



information based on their permissions. Additionally, staff from six agencies reported having dashboards available on their public websites for users to examine school-level test results or student populations within schools.

Across agencies, dashboards also vary in the ease with which users can locate and view data. Some dashboards enable users to develop reports based on data through an easy-to-navigate interface. For example, staff from one agency reported that users can generate reports, produce charts and figures, or access customized data on students and teachers through a single interface. However, other dashboards require the user to search for the data most applicable to their needs. Staff from another agency reported using multiple interfaces to access different types of data, but the reports produced do not include all of the desired information.

Improving dashboards as a way to access data has been and continues to be a priority for many education agencies that partnered with SDP or EP or that have hired fellow alumni. Approximately half (47 percent) of alumni survey respondents reported being “highly involved” with creating user-specific dashboards when they worked at their partner agencies, and about one-third (34 percent) of alumni respondents who continued working in the education sector after their fellowships reported the same (Table 2).

***Analytically skilled staff are typically concentrated in one department or in high-level positions.*** Staff with expertise in conducting complex data analyses, including fellows, tend to be concentrated in one department, such as research and accountability. In 2013–14, almost half (42 percent) of fellows were concentrated in agencies’ research offices (Table 4). Such departments often take primary responsibility for conducting analyses and developing reports on behalf of other staff members or departments.

**Change over time:  
Analytically skilled staff**

Among the seven agencies in both years of the study, levels of staff expertise appeared to remain stable the second year. Staff from three agencies reported that the agencies focused on hiring staff with data expertise to address the need for analytically skilled staff.

**Table 4. Fellows’ placement in partner agencies in 2013–14**

Department	Number of fellows in SDP partner agencies	Number of fellows in EP partner agencies
Research, evaluation, and analytics <sup>a</sup>	10	4
District/school support <sup>b</sup>	2	3
Leadership (strategic planning; chief of staff)	4	1
Offices on teacher effectiveness or college/career readiness	5	0
Resource allocation	2	0
Other	1	1

<sup>a</sup>Includes assessment or accountability departments.

<sup>b</sup>Includes charter schools.

Fellows typically hold higher-level positions in the partner agencies. In the 12 study sites, all fellows worked in offices that were no more than three below the agency’s highest leadership (see the profiles of partner agencies in the companion document to this report). In addition, two-thirds of fellows held leadership positions, as defined by job titles. SDP fellows, for example,

typically served as department or deputy directors, and EP fellows worked in departments directly supporting agency leadership.

However, analytic expertise was not agency-wide. For example, a leader from one agency reported that, across the agency, there were generally two or three people per department capable of working with data. The respondent went on to say that more advanced analyses—that is, those that combine multiple data types—were still conducted by the research team.

Results from the SDP/EP alumni survey also suggest expertise is limited. Thirty-three percent of alumni survey respondents reported that the technical skills of agency staff were a major barrier to data-driven decision making (Table 3). Additionally, 31 percent believed other aspects of staffing—such as attrition, retention, shortages, or turnover—were major barriers (Table 3). Alumni who continued to work in the education sector after their fellowships reported such barriers at even higher rates (53 percent and 41 percent, respectively).

***Agency-level training for data use typically occurs informally and on an as-needed basis.***

Across all partner agencies, staff reported that agency staff and fellows trained each other informally on an as-needed basis. For example, respondents from one agency explained that fellows casually helped other agency staff use data analysis software programs or interpret teacher rankings. Staff members from another agency reported receiving technical assistance when needed from the data team, focusing on such topics as presenting data in actionable forms.

Respondents also said professional development on data use for school-level staff was more formal. Staff from the research office, fellows, and external partners conducted the training sessions. Training topics included data system access and use (including pulling reports from the system), interpreting value-added scores or school climate reports and using them to support process improvements, and using data and related resources from the instructional management system to inform instruction.

Some of the training sessions for school-level staff were ongoing. Staff from two agencies explained, for example, that their agencies host “data days.” At one of the agencies, data analyses are disseminated in advance through reports published on the agency’s intranet site. Educators can access the reports and data visualizations on teacher and student performance, including automated reports based on real-time student data and mid- and end-of-year teacher evaluation data. Staff then review the analyses and reports to discuss ways to use the information in their daily work.

**Change over time:  
Professional development**

Among the seven agencies in both years of the study, formal training opportunities continued to be limited in year 2, but informal opportunities to learn from colleagues continued to exist. Staff from two agencies reported new training opportunities in the second year specifically focused on rolling out new data initiatives. One of these agencies provided staff training to prepare for the release of teacher effectiveness reports; staff in the other agency received training on how to use a new data warehouse.

Although the interview data suggests that nearly all SDP and EP fellows provide technical assistance or training to staff during the fellowship, data from the alumni survey reveal a slightly different finding. According to alumni survey respondents, 42 percent reported providing

technical assistance and training to agency staff during their fellowships; 33 percent reported doing the same as employees in the education sector after their fellowships (Table 5).

**Table 5. Training or technical assistance activities conducted by alumni fellows during and after their fellowships**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
<b>During fellowship (2009–12)</b>			
Building a data quality research group	8.5	2.4	24.2
Providing technical assistance and training to agency staff	42.4	37.6	54.5
Providing technical assistance and training to school or classroom-level staff	24.6	20.0	36.4
<b>Number of respondents</b>	<b>118</b>	<b>85</b>	<b>33</b>
<b>After fellowship as employees in education sector</b>			
Building a data quality research group	12.2	8.8	18.2
Providing technical assistance and training to staff within my agency	33.3	31.6	36.4
Providing technical assistance and training to school or classroom-level staff	23.3	15.8	36.4
<b>Number of respondents</b>	<b>90</b>	<b>56</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who reported being “highly involved” in the activity.

When asked to draw on their experience working in the education sector to identify top training needs for staff in education agencies, alumni survey respondents reported staff should receive training on *specific* applications of data to educational issues, analyzing data, and presenting data to stakeholders. Eighty-eight percent of respondents suggested staff be trained on “using data to improve student outcomes and achievement,” 72 percent suggested “using data to strengthen college readiness and success,” and 58 percent suggested “using data to measure teacher effectiveness” (Table 6). Additionally, around three-quarters of all alumni reported that staff in education agencies needed training on analyzing data (78 percent), presenting data results (80 percent), using data to improve student outcomes (88 percent), and using data to improve college readiness (72 percent).

When asked to suggest the best approach for training sessions on these topics, alumni survey respondents most often recommended webinars or in-person workshops (Table 7). More specifically, for the area which the largest percentage of alumni identified as a top training priority—using data to improve student outcomes and achievement—more than 40 percent of respondents reported that webinars, in-person conferences, newsletters, or shared online resources would be helpful training modes. The responses suggest that a combined approach to training in this highest-priority area might be appropriate.

Other modes of training could include individual advisors and mentors and online databases. Alumni respondents reported that advisors or mentors were helpful for improving such skills as analyzing data, developing data systems, and measuring teacher effectiveness. Online databases, such as the Activate ED Exchange, were more often preferred for training on applications of data

to specific educational areas (at least 38 percent) than for developing general data skills (29 percent or less). Newsletters were least popular overall, but were considered more useful for specific applications of data to education area topics (at least 24 percent) than for general purpose skills (23 percent or less).

**Table 6. Training needs of staff in education agencies, as reported by alumni working in the education sector after their fellowship**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
Develop data systems	42.2	40.4	45.5
Develop data dashboards	37.8	40.4	33.3
Plan data collection	57.8	52.6	66.7
Administer surveys	20.0	14.0	30.3
Prepare data files	23.9	18.2	33.3
Analyze data	77.8	82.5	69.7
Prepare data reports or summaries	66.7	59.6	78.8
Present data results	79.5	74.5	87.9
Use data to:			
Improve student outcomes and achievement	87.8	84.2	93.9
Measure teacher effectiveness	57.8	61.4	51.5
Measure principal effectiveness	50.6	48.2	54.5
Strengthen college readiness and success	71.9	64.3	84.8
Manage personnel (staff attrition, retention, shortages and/or turnover)	54.4	50.9	60.6
Navigate agency policies and procedures	40.0	26.3	63.6
Other	12.9	4.8	30.0
<b>Number of respondents</b>	<b>90</b>	<b>55–57</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who reported the type of training as being “a top priority.”

*All of the agencies use consultants to enhance their data use capacity.* Even if internal capacity is lacking, support from external partners enables the agencies to work toward their data-related goals, such as updating systems and developing reports. For example, all agencies contract with vendors that provide data warehouse or software systems; several vendors also provide technical assistance or ongoing maintenance support. Other partners, such as universities, research centers, and consultants, 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. For example, respondents from one agency described how the agency partners with a consultant to examine the return on

#### Change over time: Partnerships

Of the seven agencies in both years of the study, in the second year:

- At least two continued partnering with research consortiums or consultants for analysis support.
- At least three developed new partnerships to support work undertaken with support of fellows in 2012–13.

investment of various programs in order to help the agency implement new budgeting systems. Respondents from another agency reported that a university research center conducts research projects on a current topic of interest to the agency, such as third grade retention.

**Table 7. Preferred methods of training**

	Percentage of all respondents				
	Secure or subscriber-based databases	Newsletters	Webinars	Workshops, convenings, or conferences	Advisors, mentors, supervisors, or other individuals
Developing data systems	29.0	8.6	40.9	67.7	50.5
Developing data dashboards	29.0	12.9	55.9	59.1	46.2
Planning data collection	25.8	23.7	60.2	38.7	25.8
Administering surveys	25.8	23.7	60.2	38.7	25.8
Preparing data files	21.5	8.6	35.5	38.7	46.2
Analyzing data	23.7	8.6	47.3	66.7	64.5
Preparing data reports or summaries	23.7	9.7	55.9	62.4	52.7
Use data to:					
Improve student outcomes and achievement	41.9	43	61.3	52.7	31.2
Measure teacher effectiveness	43	30.1	60.2	72	51.6
Measure principal effectiveness	37.6	26.9	57	67.7	45.2
Strengthen college readiness and success	38.7	23.7	59.1	64.5	43
Manage personnel (staff attrition, retention, shortages, and/or turnover)	43	25.8	62.4	68.8	46.2
Navigating agency policies and procedures	38.7	26.9	59.1	64.5	44.1
Other	36.6	28	45.2	51.6	50.5
<b>Number of respondents</b>			<b>93</b>		

Source: Survey of EP and SDP alumni conducted in spring 2014.

## B. Data use

The types of data analysis efforts underway in SDP and EP partner agencies (reported during site visit interviews and through responses to the SDP and EP alumni surveys) fit into five key areas: (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. Most of these efforts require complicated analyses, often combining student achievement data with other types of data (teacher evaluation or financial data, for example) to examine the effectiveness of programs or determine the best use of resources. For each area discussed in this section, a table presents the number of agencies engaged in these efforts, by program.

### Monitoring and developing accountability reports

	SDP partner agencies	EP partner agencies
Develop school or district report cards for public viewing	5	5
Monitor and evaluate strategic initiatives	5	1
Administer surveys and analyze data	5	2

**Develop school or district report cards for the public to view.** Staff from nine agencies reported they had developed school or district report cards that are reviewed by agency leadership and made available to the public. This type of work typically requires calculating basic descriptive statistics. Resulting reports often present various measures organized by different goals and indicate progress made toward meeting those goals. One of the agencies, for example, uses the report cards to present measures summarizing student achievement levels, results from student and teacher surveys, school climate information, and the progress made in each of those areas since the previous report card. The report cards produced by another agency present data on 27 measures of district performance in the areas of student achievement, staff effectiveness, school climate, district operations, and community engagement. For each measure, the agency provides color-coded data tables that show changes compared to the prior year: increases are in green and decreases in red. The report cards also present business plans that show growth targets and strategies for improvement.

**In their words: SDP and EP alumni experiences**

“I (led) the design and implementation of a new organizational balanced scorecard at the school district to hold the district accountable for achieving its strategic plan goals. (This) scorecard has ... increased both personal responsibility (among district leaders) and public accountability.”

**Monitor and evaluate strategic initiatives.** Fellows have an important role in five agencies’ assessments of progress in meeting state and local goals, monitoring the success of programs that support strategic initiatives, and determining opportunities for further improvement. For example, fellows at one partner agency monitor delivery plans and conduct quarterly strategy assessment meetings with agency leadership and other staff involved in carrying out the strategic initiatives. The meetings focus on specific targets set for the year and strategies for overcoming such obstacles as technical problems, system implementation, or budget issues. Fellows reported that they helped staff develop strategies to achieve targets and measures to assess progress.

**In their words: SDP and EP alumni experiences**

“I helped the senior management team define our annual planning process, which involves identifying the highest impact initiatives for the year across each of our departments.”

This finding is similar to that which emerged from the SDP/EP alumni survey. Fifty-three percent of alumni survey respondents reported having been highly involved in project management and strategic planning support during the fellowships; 50 percent reported having been highly involved in examining indicators and outcomes to monitor progress of initiatives (Appendix Table B.3).

**Administer surveys and analyze data.** Staff from six agencies reported they used surveys to assess stakeholder feelings and monitor progress. For example, staff from three agencies said they conducted surveys after teacher training sessions to assess how teachers felt about the sessions. Fellows and other agency staff analyzed the quantitative and qualitative data, using results to inform changes for the next training session. Respondents reported that other surveys were conducted to measure progress—in such areas as engagement and satisfaction of teachers, principals, or other district employees, and regarding school climate and working conditions. Staff from one agency said the agency conducts engagement and satisfaction surveys from teachers, principals, and other employees, then the human resources (HR) department conducts monthly reviews of the results to track progress toward department-specific goals (diversity hiring and retention goals, for example). If the agency is not on target, it adjusts procedures.

**In their words: SDP and EP alumni experiences**

“As a part of the district's strategic planning process, I designed and conducted dozens of focus groups with parents, teachers, administrators, and community members. The data and feedback that we collected fed ... into the district's new strategic plan.”

Findings from SDP/EP alumni survey support the staffs' descriptions of survey use: almost one-third of alumni survey respondents reported they had been involved in administering surveys during their fellowships (Appendix Table B.3).

### Informing the selection or use of interventions

	SDP partner agencies	EP partner agencies
Develop and use early warning systems (EWSs)	3	2
Conduct program evaluations	5	2

**Develop and use Early Warning Systems (EWSs).** Five partner agencies in the study have created, or are in the process of creating, EWSs that combine student achievement data with other indicators to identify a student's likelihood of progressing in school. Agencies often use information generated by EWS to recommend interventions for students at risk of not advancing to the next grade or of dropping out of school. For example, one fellow conducted a statistical analysis to identify each 9th grader's likelihood of progressing to 10th grade. The analysis involved building a longitudinal data set of student data from various data sources, including test scores, grades over time, discipline records, attendance, and demographics. The fellow ran the model quarterly and produced reports that color-coded students based on risk level. Another staff member (who is also an SDP agency fellow<sup>2</sup>) with years of experience at the agency and exposure to the agency's available resources, then helps principals obtain support services for students identified in the reports as high risk.

<sup>2</sup> As described in the program description in this report, SDP agency fellows already work at partner agencies and typically apply to SDP in conjunction with the partner agency application.

**Conduct program evaluations.** Staff from six partner agencies reported they evaluated the effectiveness of programs or interventions. The fellow at one agency, for example, identified high school students who used vendor-specific curricula in career and technical education programs and examined the students’ assessment results in years preceding, and subsequent to, their enrollment in such programs. The analysis suggested that some programs did not change the college and career readiness outcomes of interest; students were already on track before entering the program. Using the analysis to support their decision, the agency changed, and in some cases removed, these vendor-specific strategies in its college and career readiness delivery plan. A fellow in another agency examined the effectiveness of a college readiness program by comparing program participants’ advanced placement (AP) test performance and college acceptance rates with a matched sample of nonparticipants. Staff shared the agency’s analyses and resulting evaluation report with agency leadership so it can be used to inform future decisions about the program.

**In their words: SDP and EP alumni experiences**

“I created dashboards to analyze and evaluate charter school performance. This data helped inform senior leadership’s renewal recommendations to the chancellor and state education department. When the state pushed back on some of our recommendations, I drafted internal memos outlining the renewal decision rationale, defending our recommendations and helping [leadership] respond to push-back.”

**Understanding educator effectiveness and retention**

	SDP partner agencies	EP partner agencies
Develop and use metrics for teacher effectiveness	6	4
Address retention, hiring, and placement	4	2
Evaluate training and professional development programs	2	2

**Develop and use metrics for teacher effectiveness.** Nine agencies were, at the time of the interviews, developing multifaceted metrics of teacher effectiveness that combine value-added measures with other measures, such as observation scores or results from student surveys. For example, in one agency, staff in the research department, which is led by a fellow, conducted analyses to determine how student growth measures align with teacher observation data. They used several growth measures, including student growth from vendor-provided summative assessments for non-tested grades, value-added measurements based on state standardized tests, and school-developed student learning objectives. Staff combined student growth measures with teacher observation data to develop an effectiveness rating for every teacher.

**In their words: SDP and EP alumni experiences**

“We were working to implement a new teacher evaluation system. Part of the new regulations required identifying teachers in ways we had not typically. For example, teachers with three years of experience could not be retained if they were not proficient in all standards. We met with the director of HR, legal, assistant superintendent of teacher effectiveness... to discuss the numbers of people who were affected, the distribution, and how our data systems needed to be able to indicate who these people were in order for school leaders to be informed and make the decisions.... I provided a report to help facilitate the understanding of the numbers of people we were dealing with.”



**Address retention, hiring, and placement.** Five agencies use teacher effectiveness metrics to answer policy questions about teacher retention, hiring, and placement. For example, after teacher effectiveness data were released in 2013, one agency received requests from district leadership for analyses to support talent management and make better hiring decisions. Fellows and 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.

**Evaluate training and professional development programs.** Staff from three agencies described efforts to evaluate the effectiveness of educator training and professional development programs. For example, staff at one agency compiled teacher observation scores and student achievement outcomes for teachers who attended a particular training session. Those outcomes were compared with the outcomes of teachers who did not attend—and their students—to determine if differences in effectiveness were attributable to the training provided. 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.

### Informing instruction

	SDP partner agencies	EP partner agencies
Use formative assessments to plan instruction	4	2

**Use formative assessments to plan instruction.** Staff from six partner agencies used student formative assessments and other data to inform instruction, plan interventions, or group students by ability. For example, teachers in one agency receive data from dashboards and from reading and math computer programs that students use in the classroom. The agency trained teachers to use an assessment tool that combines the data to help inform instruction, give assignments (at the class or student level), and assign students to work together. The agency also works with teachers in ongoing, small meetings to review the data and determine appropriate interventions.

#### In their words: SDP and EP alumni experiences

“I worked on rolling out a successfully aligned new pre-K–12 formative assessment platform to support the vision of school staff using leading indicators to make instructional adjustments.”

### Aligning financial resources with educational need

	SDP partner agencies	EP partner agencies
Understand resource use	1	4
Target resources	3	2
Calculate return on investment	1	2

**Understand resource use.** Staff from four agencies used existing data to understand resource use. For example, one partner agency uses data from its resource planning system to assign costs to specific activities, such as using mobile computer labs. Agency staff then conducted analyses to determine if specific departments or schools were using more resources than others, and the cost associated with that use. Staff at another partner agency described completing a cost study of school-based special education services to gain an understanding of disabilities among its student population, and the school-level costs associated with serving students with disabilities. Using results from the analysis, the team developed a formula that disaggregated students based on the services received and the least restrictive environment requirement.<sup>3</sup> To address the concern that schools might change individualized education plans in response to the new formula, the agency is closely monitoring schools by visiting them and asking for evidence of compliance to the high quality service provision.

**In their words: SDP and EP alumni experiences**

“I analyzed inequities in teacher compensation across the (CMO) network of schools—both internally ... and versus external (local district) benchmarks. I provided a list of options for how these inequities could be remedied and quantified the cost of each option.”

**Target resources.** Five agencies use data to strategically target resources to students, schools, and districts based on equity-based funding calculations. For example, after investigating reasons for a low rate of students taking and passing AP exams, one agency concluded that students may not have access to AP courses, or they may have access to the courses but have trouble paying the fee to take the AP test. The agency used data on test scores from 8th grade and free and reduced-price lunch indicators to establish which schools would benefit from receiving funds to help students pay for AP tests. The agency is now piloting this funding program to see if the number of students who take and pass AP exams increases.

Results from the SDP/EP alumni survey support what the staff reported. More than 27 percent of alumni survey respondents reported that during the fellowship they worked on initiatives that informed strategies for allocating school and district resources (Appendix Table B.3).

**Calculate return on investment.** Staff from three agencies reported that they calculated a return on investment figure for programs and initiatives to help decide whether funding should continue. In one agency, for example, agency staff reported they examined interim assessment data from a new literacy program. Agency staff conducted a non-rigorous comparison of literacy scores and rates of improvement from the implementation year to the prior year, when the literacy program was not in place. They then incorporated a measure of cost per student for the new and old programs. The staff presented the resulting analyses to principals, who used the information to determine if the program should be funded the next school year.

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<sup>3</sup>The least restrictive environment is a principle based on the Individuals with Disabilities Education Act that states a student who has a disability should be educated with nondisabled peers to the greatest extent appropriate.

## C. Challenges and strategies

This section describes four key challenges respondents identified that are related to agencies' data use initiatives. Each of the challenges also presented opportunities for agencies to harness resources or otherwise creatively address the issue at hand; this section describes those efforts as well.

**1. Data governance considerations—including data quality and linking different data systems—continue to be persistent concerns.** The most common data governance-related challenges were data quality and data in silos—that is, data housed in different systems, perhaps in different departments, making them difficult to access and link.

When policies, standards, and goals change, data systems must reflect those changes. Staff in all agencies said they recognize this, and they mentioned plans to continue improving their data governance processes. Two approaches agencies are taking, or plan to take, are:

*Work closely with stakeholders to define data governance, processes, and data needs.* In two agencies, agency leaders work closely with stakeholders, including teachers, members of the public, and legislators, to understand data needs (state- or student-level reports on various measures, for example). Agency leaders and staff then refine systems and processes to make the desired information available, often through dashboards.

*Anticipate future needs.* Agency leaders noted the need for data warehouses to incorporate new systems that are not yet developed or conceptualized. In one agency, for example, the fellow works with the IT department to incorporate new data into existing systems and integrate all systems into the data warehouse. The primary aim of the fellow's work is to ensure that the structure of the warehouse will accommodate future test score data and enable longitudinal comparisons of student progress.

**2. Number of staff capable and available to conduct complex analyses is small.** Agency leaders want to get the most out of the data collected but often cannot do so with current staff. Respondents at 10 of the 12 agencies noted that agency staff, in general, are better at “asking the right questions” of the data than in previous years, but it is often difficult to find someone with available time and skills to conduct desired analyses. As a related point, although highly skilled staff members may exist in every agency to analyze and interpret data, these individuals are sometimes isolated in one department. Additionally, respondents from 10 agencies said limited funding and staff who have little time available are significant roadblocks to instructing staff in analyzing, understanding, and acting upon data.

Respondents agreed that staff capability to analyze data must improve, but reported approaches to accomplish this goal differ greatly across agencies. Two primary approaches emerged:

*Use fellows to train agency staff.* Eight agencies take advantage of the fellows' skills to increase overall staff capacity, primarily through sharing knowledge and informal training. For example, one agency respondent described a documentation process that fellows complete before the end of the fellowship; the goal is to sustain the technical expertise the fellow provides through facilitated knowledge transfer. Respondents described training

sessions (formal and informal) focused on such topics as using specific data analysis software (Excel or data dashboards, for example); conducting data analyses; and presenting data in actionable formats to relevant stakeholders.

Results from the alumni survey suggest that other training topics could include planning data collection, analyzing data, preparing data reports, and presenting data. These were the topics selected when alumni survey respondents were asked to identify top training needs for staff in education agencies (Table 6).

***Continue hiring staff skilled in using data.*** Hiring staff with data expertise is another way to build capacity in an agency. Respondents from each agency articulated a desire to retain fellows beyond the fellowships if funds are available. Staff from nine agencies reported that their agencies want to continue their partnerships with SDP or EP. Staff from at least one agency that does not plan to continue its partnership stated a preference for permanently hiring staff skilled in analytics rather than bringing on more temporary fellows.

Results from the alumni survey suggest that education agencies have hired fellows into permanent positions. All SDP alumni respondents and two-thirds (68 percent) of EP alumni respondents reported that they were employed in the education sector after their fellowships (though not necessarily at the agency they worked at during the fellowship) (Appendix Table B.5).

**3. Data use activities are integrated into targeted initiatives, but not necessarily agency-wide.** Agency leaders reported engaging in partnerships with SDP or EP with a primary goal of learning how to best use data to make decisions. Staff from seven agencies pointed to instances where recent data analyses informed changes for specific initiatives, such as those aimed at improving student performance or educator effectiveness. However, few respondents pointed to examples of consistent data use across multiple initiatives or departments. As one agency leader noted, “While there has been an increase in sophistication in recent years in educators looking at student performance and teacher effectiveness, [agency] leaders may be less comfortable with having discussions about the whole organization analytics, and looking at the [data] ... to make improvements and refinements.” Another agency leader noted that “the thing that stuck out as a challenge ... was the absence of a solid plan or theory of action” for the agency itself.

Although few agencies appeared to be addressing this issue, one approach to expanding data-driven decision making practices to organizational process improvement deserves mention:

***Develop strategic plans that include analytics for organizational performance.*** Agencies should, as one agency leader stated, use strategic plans “to critically examine weaknesses within an agency.” Agencies can devote time to developing strategic plans that incorporate educator effectiveness, student outcomes, *and* organizational processes. Fellows or agency staff with data skills can facilitate or support the planning processes, match strategic priorities with available data, conduct analyses to inform data-driven decisions, and measure progress toward goals. One agency focuses its annual strategic planning on: (1) a collective area known as “learners,” which includes goals for college and career readiness, proficiency, and closing the achievement gap; (2) an area it calls “professionals,” which focus on goals related to educator effectiveness; and (3) the support systems area, which focuses on

planning, monitoring, and continuous improvement across the educational system. Fellows at the agency then conduct quarterly strategy assessments to monitor progress and report results to agency leadership.

**4. Fellows’ skills may not be utilized to the fullest extent.** Staff from 10 agencies reported that their partnership enables the agency to employ fellows of a quality they would probably be unable to recruit on their own. Despite this, fellows identified some barriers to their contributing as much as might be possible. Two fellows said agencies did not give high-level work to fellows; another noted that fellows are sometimes placed in positions where their “educational judgment might not be trusted because [they] come from other sectors” or because they are new to the organization.

One approach agencies might take to ensure fellows are utilized to the fullest extent:

***Thoughtfully place fellows within the agency’s organizational structure.*** Fellows, if placed smartly, can work with agency leadership to match strategic priorities with available data, conduct analyses to inform data-driven decisions, and measure progress toward goals. For these reasons, agencies should consider placing fellows in positions throughout the agency where they can connect with decision makers and facilitate or support strategic planning and capacity-building initiatives. For example, one partner agency said its partnership has been successful because its three fellows are in three different departments, supervised by different leaders. According to respondents at this agency, this organization created unintentional, but beneficial, cooperation between the various departments: the fellows and their supervisors meet frequently as a part of their participation in the partnership, and the cooperation has helped move the district toward using data in new ways to inform decisions (about budgeting, for example).

Another option is to place fellows into specifically titled job positions, such as “college and career readiness project manager,” as opposed to a position titled “fellow.” The study team found that of the 33 fellows interviewed, at least 13 (39 percent) were placed in positions titled “data fellow,” “EP fellow,” or “SDP fellow.” Placing fellows in positions with specific titles may signal to agency staff a longer-term commitment to integrating analytically skilled employees into the agency. It might also lend additional perceived legitimacy to the fellows’ work.

## **D. Discussion**

The 12 sites in this study could be regarded as some of the more innovative education agencies in the country when it comes to using data. These agencies sought out a partnership with SDP or EP to enhance key elements that facilitate strategic data use: data infrastructure, analytic capacity, and a data use culture (Gill et al. 2014). It appears that the partnerships have, for the most part, enabled the establishment of new and critical data use practices, which many of the agencies continue to refine and build upon. For example:

- Agencies have developed and built data systems to include linked data from multiple sources.
- Agencies are customizing data dashboards to the needs of the user.

- Issues of data governance and quality have emerged as topics of serious conversation among stakeholders and staff.
- Agency staff acknowledge the importance of data use and of technically skilled employees to support it.
- Some agencies have hired technically skilled staff—including SDP or EP alumni—thereby permanently filling positions with technically strong candidates who, in the absence of SDP/EP, might not have considered working in the education sector.
- Agencies have developed partnerships with vendors to support data storage, analysis, or other data use.
- Some formal training on data use, particularly for school staff, has begun.

The fellows' placement serves as a unique and potentially influential force for facilitating agency-wide strategic data use. In the 12 sites in this study, all fellows worked in offices that were no more than three below the agency's highest leadership; many worked in high-level positions. This proximity to agency leaders has allowed leaders to see firsthand the value of data for informing decisions.

However, two areas lag. First, although agencies analyze data for single initiatives, it isn't clear how often this kind of measurement and analysis is being employed for agency-wide policies and practices. Data use appears to be integrated into work on targeted initiatives, but few agencies measure organizational performance. This issue is likely connected to the second lagging area: many agency staff (fellows excluded) do not know what questions to ask, what data to use, or, most importantly, how to interpret findings and make appropriate, actionable inferences. Although agencies have begun to build technical know-how by hiring fellows and other staff with expertise or by partnering with vendors, most training of agency staff is informal and limited. Addressing this is complicated by the fact that staff expertise is concentrated at the higher levels of the organizations and often in departments that do not direct instruction, making it difficult for those with expertise to regularly interact with mid-level agency staff responsible for implementing instructional improvements and programs.

It is perhaps unrealistic to expect that agencies' data use practices would be fully developed already. The availability of and access to large volumes of data is a recent development, and an exact formula for an educational agency's data use, taking into account its unique strengths and challenges, does not exist. The education agencies in this study have undertaken considerable work to prepare to be data-driven agencies and, in many cases, strategic data use has been pushed forward. The work that will continue will require strong and knowledgeable leadership.

**REFERENCES**

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Gill, Brian, Brandon Coffee-Borden, and Kristin Hallgren. "A Conceptual Framework for Data-Driven Decisionmaking." Cambridge, MA: Mathematica Policy Research, June 2014.

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## APPENDIX A. DATA SOURCES AND PROCEDURES

Information to support the implementation analysis came primarily from telephone interviews with SDP and EP staff members and from site visits that included in-person interviews with a diverse range of agency staff. Data from two additional sources supplemented the research team's understanding of implementation: (1) a review of SDP and EP documents, and observations of professional development workshops hosted by SDP and EP for their respective fellows; and (2) a survey of SDP and EP alumni. In this appendix, we describe these sources and the procedures followed to select agencies for participation in the study.

**Telephone interviews with SDP and EP staff members.** We conducted telephone interviews with SDP and EP staff members to better understand program goals and fellow and agency application and selection procedures. We used a formal interview protocol to guide the 60-minute conversations.

**Site visits.** The study team selected agencies that would demonstrate a range of activities related to data use, taking into consideration the following criteria: (1) partner organization (SDP or EP); (2) agency characteristics, such as size, type, and geographic location; (3) data activities; and (4) input from SDP and EP staff.

Each site visit was conducted by one member of the study team over the course of 1.5 days; each consisted of a series of 60-minute interviews with key officials. A member of the study team requested interviews with a range of respondent types, including agency leadership and administrators from various departments, including HR, information systems, curriculum and instruction, finance, and research and assessment. We also asked to speak with the teacher's union representative and a school board representative, if available. Finally, we asked to speak separately with the fellows, even if they were the main respondents for other types of interviews. During site visits, study team members used formal interview protocols for each respondent type to guide conversations. A summary of the number of completed interviews by respondent type is presented in Table A.1.

**Table A.1. Summary of interview respondents from 2013–2014 study agencies**

	Number of interviews
Agency leadership <sup>a</sup>	21
HR administrator <sup>b</sup>	19
Research and assessment <sup>c</sup>	13
Curriculum administrator <sup>d</sup>	21
Information technology administrator	14
Financial officer or budget administrator <sup>c</sup>	9
Fellows (SDP; EP)	33 (22, 9)
Teacher's union representative	3
School board representative	1
Other <sup>a</sup>	7
<b>Total</b>	<b>141</b>

<sup>a</sup>These respondents included chiefs of staff, superintendents, state education chiefs, or CEOs.

One respondent in this category is an SDP agency fellow who is also counted in the SDP/EP fellow category.

<sup>b</sup>Five respondents in this category are SDP agency fellows who are also counted in the SDP/EP fellow category.

<sup>c</sup>Two respondents in this category are SDP agency fellows who are also counted in the SDP/EP fellow category.

We also collected documents from each agency to augment our understanding of the activities undertaken by fellows and of each agency's goals, processes, and activities. Documents included project-related presentations to school board or governance councils, report templates, data reports, mission statements, performance management targets, and evaluation procedures.

***SDP and EP workshops.*** SDP and EP workshops serve as fellows' orientation to the programs, and they provide opportunities for professional development and interactions with peers from around the country. To gain an understanding of the program activities and the support provided to fellows, we attended one SDP and one EP workshop in fall 2013. Our documentation of the workshops included taking notes on workshop presentations and activities as well as collecting and reviewing training materials, handouts, and meeting agendas.

***Survey of SDP and EP alumni.*** We conducted a survey of 135 alumni of SDP and EP to tap into the experiences—relating to strategic use of data in decision making—of fellows who have worked in this capacity. A detailed description of the survey methodology and findings can be found in Appendix B.

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## **APPENDIX B. RESULTS OF THE SURVEY OF SDP AND EP ALUMNI**

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Alumni of SDP and EP are uniquely positioned to share important insights about how education agencies strategically use data to make decisions, the barriers to doing so, and approaches that could improve their efforts. To learn about their experiences before, during, and after their fellowships, Mathematica conducted a survey of alumni of SDP and EP fellowship programs. Data from the survey was used to address the following questions:

- How has the fellowship experience influenced the career paths of SDP and EP alumni?
- What insights into their agencies' strengths, goals, and challenges have fellows developed?
- What key barriers to data-driven decision making did alumni identify, and how can agencies address these barriers?
- How did the fellowship affect each alumnus's potential impact on the education sector?

**Survey methodology.** SDP and EP gave Mathematica contact information for alumni in their fellowship programs since 2009, when both programs began receiving funding from the Bill & Melinda Gates Foundation. We received contact information for 102 EP fellowship alumni and 35 SDP alumni.<sup>4</sup> Coordinators from each program notified alumni that Mathematica would be contacting them about participating in a survey about strategic data use.

The field period for the survey began in February 2014 and continued through May 2014. Alumni respondents could answer the 15- to 25-minute survey via the web, on paper, or over the telephone. The survey asked respondents about: (1) the activities they engaged in as fellows; (2) any barriers to using data strategically encountered by themselves and the agencies they worked at; (3) their opinions about the types of training and support education sector staff should receive and how they should receive them; (4) their current employment and activities; and (5) their employment before they became fellows. Respondents who completed the survey online received a \$25 Amazon gift card. To bolster participation, Mathematica made several follow-up attempts, including email reminders, postcard reminders, telephone call reminders, and mailings that included the survey packet. The overall response rate was 87.6 percent (120 out of 137 total alumni); 94.3 percent (33 out of 35) of SDP alumni and 85.3 percent (84 out of 102) of EP alumni responded to the survey. All surveys were completed via the web.

In this appendix, we first present information about the fellows' reported experiences before they joined SDP or EP. We then present information reported by alumni about work conducted during their fellowships. Finally, for the alumni who continued to work in the education sector after the fellowships, we present their reports about work conducted, future plans, and self-perceptions.

### **Pre-fellowship experiences**

Before their fellowships, EP and SDP alumni had been employed at a variety of jobs that ranged from junior-level entry positions to posts as senior-level professionals.

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<sup>4</sup> Due to requirements by the Harvard Graduate School of Education, contact information provided by SDP included only alumni who explicitly allowed SDP to share their contact information with Mathematica for survey purposes.

A minority of EP alumni reported that they had supervised employees (30 percent), managed a budget (22 percent), or set company or agency-wide goals prior to the fellowship (45 percent). The few EP alumni who reported having managed budgets reported managing very large budgets (an average of more than \$20 million) (see Table B.1).

Most SDP alumni reported that they had supervised employees (60 percent), managed a budget (54 percent), or set company- or agency-wide goals (66 percent) prior to the fellowship.

The SDP alumni were, on average, more experienced in senior positions than EP alumni before they began their fellowships. Moreover, among those who reported supervising employees or setting company- or agency-wide goals, SDP alumni reported being involved at higher levels.

**Table B.1. Experience of EP and SDP alumni before their fellowships**

	Percentage of respondents unless otherwise noted		
	All alumni	EP alumni	SDP alumni
Had at least one paid job	99.2	98.9	100.0
Supervised employees	38.7	30.2	60.6
Among those who supervised employees, average number of employees supervised	9.3	3.6	16.8
Managed a budget	31.1	22.1	54.5
Among those who managed budgets, highest total budget managed, in dollars	\$13,547,500	\$20,430,882	\$6,664,118
Set company- or agency-wide goals or implemented strategic initiatives	51.3	45.3	66.7
Average level of involvement in setting agency-wide goals <sup>a</sup>	3.7	3.5	4.1
<b>Number of respondents</b>	<b>119–120</b>	<b>86–87</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

<sup>a</sup>Involvement in agency-wide goals reported on scale from 1 (“not involved at all”) to 5 (“highly involved”).

Although the majority of both EP and SDP alumni said the desire to make an impact on the education sector was a reason for becoming a fellow, EP alumni were more likely than SDP alumni to become fellows in order to change their career paths (see Table B.2). SDP alumni were more likely than EP alumni to enter the fellowship to gain skills or experience (75 percent) or to learn about how to use and analyze education-related data (63 percent).

**Table B.2. Reasons for becoming a fellow**

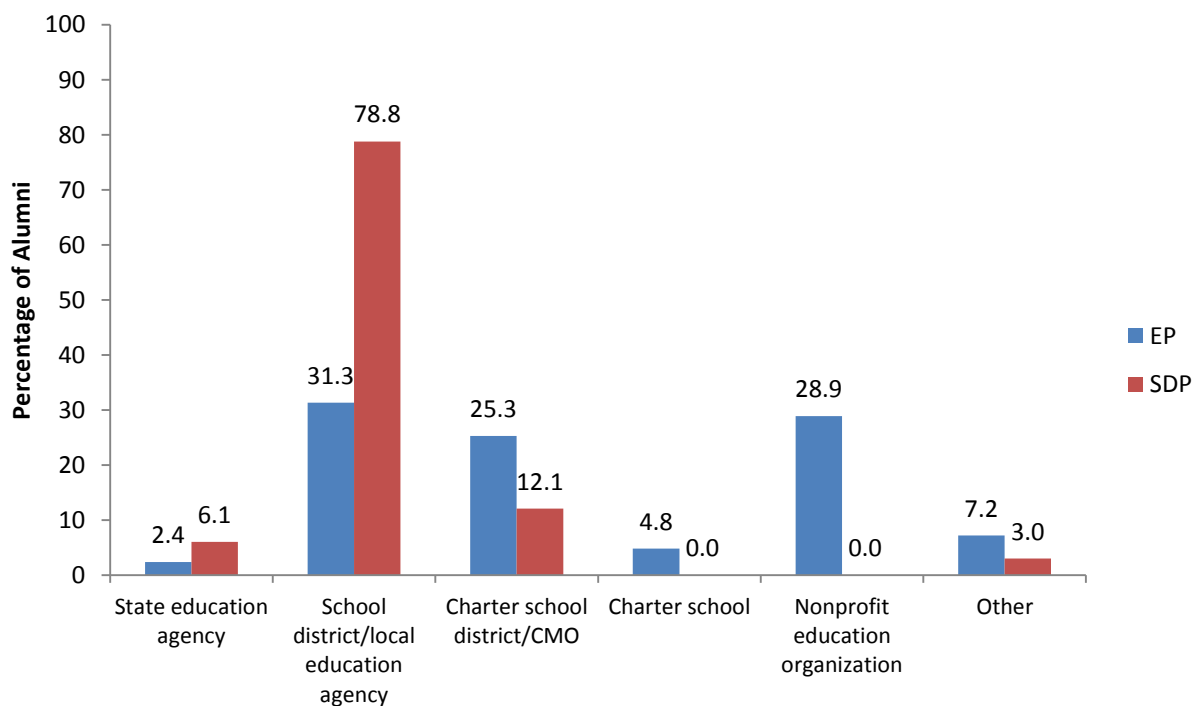
	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
To gain skills or experience	54.2	46.0	75.8
Recommended by a mentor or supervisor	6.7	1.1	21.2
To make an impact on the education sector	66.7	69.0	60.6
To learn about how to use and analyze education-related data	35.8	25.3	63.6
To change career path	38.3	47.1	15.2
Other	10.0	8.0	15.2
<b>Number of respondents</b>	<b>119–120</b>	<b>86–87</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who “strongly agree” with this reason for becoming a fellow.

### Experiences during the fellowship

Alumni reported they had worked in different types of education agencies during their fellowships. EP fellows most often reported working at school districts (31 percent), nonprofit education organizations such as Teach For America (28 percent), or CMOs or charter districts (25 percent) (Figure B.1). In contrast, most SDP fellows reported working in school districts (78 percent).

**Figure B.1. Type of placement site, by program**

Source: Survey of EP and SDP alumni conducted in spring 2014.

During their fellowships, SDP and EP alumni worked on a mix of analytic, project management, and communication activities. Across alumni from both programs, respondents most frequently reported being highly involved in such activities as using technical skills to conduct analyses (61 percent), creating and improving analysis tools (60 percent), and preparing data files (59 percent) (Table B.3). More than three-quarters of SDP alumni reported being highly involved in communication activities, such as presenting information to agency leaders (82 percent) and to teachers or school leaders (76 percent). A majority of all alumni (52 percent) were highly involved in providing project management and strategic planning support. A larger percentage of SDP alumni reported being highly involved in technical assistance and capacity building activities than EP alumni. For example, 55 percent of SDP alumni and 38 percent of EP alumni reported providing technical assistance to agency staff.

**Table B.3. Work conducted during fellowship**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
Supporting agencies' strategic priorities			
Enhancing longitudinal data systems	26.3	24.7	30.3
Developing a portal structure for the data system	19.5	15.3	30.3
Creating user-specific dashboards	46.6	45.9	48.5
Providing project management and strategic planning support	52.5	51.8	54.5
Examining indicators and outcomes	50.0	41.2	72.7
Informing strategies for allocating school and district resources	27.1	28.2	24.2
Providing capacity for data use			
Building a data quality research group	8.5	2.4	24.2
Providing technical assistance and training to agency staff	42.4	37.6	54.5
Providing technical assistance and training to school or classroom-level staff	24.6	20.0	36.4
Data collection			
Planning data collection procedures or activities	43.2	42.4	45.5
Administering surveys	31.4	25.9	45.5
Data analysis			
Preparing data files	59.3	55.3	69.7
Creating and improving analysis tools	60.2	63.5	51.5
Using technical skills to conduct analyses	61.0	61.2	60.6
Communication and reporting			
Creating parent guides	7.6	9.4	3.0
Developing school-level reports	43.2	38.8	54.5
Preparing information for teachers or school leaders or presenting information to them	50.0	40.0	75.8
Preparing or presenting information to agency leaders	55.1	44.7	81.8
Preparing or presenting information to community stakeholders	22.9	24.7	18.2
Other	6.8	5.9	9.1
<b>Number of respondents</b>	<b>118</b>	<b>85</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Table shows percentage of respondents who reported being "highly involved" in the activity.

Many alumni reported being satisfied with their placement agency's level of data-driven decision making at the conclusion of their fellowships. Overall, 55 percent of alumni (61 percent of EP alumni and 36 percent of SDP alumni) reported being satisfied or extremely satisfied with the quality of data-driven decision making at their placement agencies. When asked to explain the reason for reporting their level of satisfaction, one reported, "My organization had made great strides in developing systems and tools that were embedded in the day-to-day operations of the organization. I didn't feel like I needed to make the case for why data was important. That was already in place. It was more a matter of developing tools that would enable people to get more of the info that was useful more quickly and more easily." Another respondent wrote, "(The agency) had a very talented data team, and the organization as a whole was very committed to using data to improve teacher performance as well as to track/improve behavior in many other areas, including attendance, suspension, finances, classroom grades, et cetera."

However, some were dissatisfied with the level of data-driven decision making. Although only 19 percent of EP alumni reported being dissatisfied or extremely dissatisfied with data-driven decision making at their placement agency by the end of the fellowship, almost one-third (30 percent) of SDP alumni reported being dissatisfied or extremely dissatisfied. When asked to explain this, one respondent wrote, "Though certain aspects of decision making changed, the culture and atmosphere at the school district made real change nearly impossible. By the end of my time at the district, it was nice to see a strategic plan with data backing nearly every item and being used to measure the implementation of the plan, but paper is different from practice."

The difference in levels of satisfaction with agency data-driven decision making between SDP and EP alumni may have been partly attributable to differences in agency type. Only 40 percent of alumni who had worked in school districts were satisfied but 68 percent of alumni who had worked in CMOs were satisfied (not shown). When asked to identify the barriers to data-driven decision making, dissatisfied alumni were much more likely to identify "collaboration among departments within the agency" than satisfied alumni. Larger organizations with many departments may have had more difficulty executing data-driven decision making than smaller organizations with greater coordination among staff.

### **Experiences of alumni who continued in the education sector**

Overall, more than three-quarters of EP and SDP alumni reported continuing to work in the education sector after their fellowships (100 percent of SDP alumni continued in the field). Almost 70 percent of alumni who reported continuing to work in the education sector reported that they set agency-wide strategic initiatives, an overall increase in responsibilities and their pre-fellowship work experience (Table B.4).

**Table B.4. Experience in education sector, after fellowship**

	Percentage of respondents, unless otherwise noted		
	All alumni	EP alumni	SDP alumni
Employed in education sector	77.6	68.7	100.0
Supervised staff employees in the education sector	46.7	29.8	75.8
Among those who supervised employees, average number of employees supervised in the education sector	11.2	2.9	16.8
Managed budget in education sector	34.4	22.8	54.5
Among those who managed budgets, highest total budget managed in the education sector, in dollars	\$6,752,097	\$12,817,692	\$2,371,389
Set agency-wide strategic initiatives in the education sector	68.9	59.6	84.8
Average level of involvement in setting agency-wide goals in education sector <sup>a</sup>	4.3	4.2	4.4
<b>Number of respondents</b>	<b>90</b>	<b>57</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Involvement in agency-wide goals reported on scale from 1 ("not involved at all") to 5 ("highly involved").

<sup>a</sup>Involvement in agency-wide goals reported on scale from 1 ("not involved at all") to 5 ("highly involved").

Alumni who reported they had continued to work in the education sector after the fellowship reported working primarily on analytic and project management tasks. For example, 60 percent of all alumni who reported working in the education sector after the fellowship reported that they were highly involved in providing project management and strategic planning support, and more than half (54 percent) reported being highly involved in work to use technical skills to conduct analysis (Table B.5). A larger percentage of SDP alumni who reported working in the education sector after their fellowship reported that they were highly involved with preparing or presenting information to the agency leaders (73 percent of SDP alumni and 39 percent of EP alumni).

EP and SDP alumni who reported working in the education sector after their fellowships concluded worked in education agencies located primarily in the southwest, south, and northeast regions of the United States (Figure B.2).<sup>5</sup>

<sup>5</sup> The survey did not ask whether these agencies were the same as the fellowship placement sites. The location of the education agencies was identified using the reported zip code of the most recent education agency in which the alumni reported working.

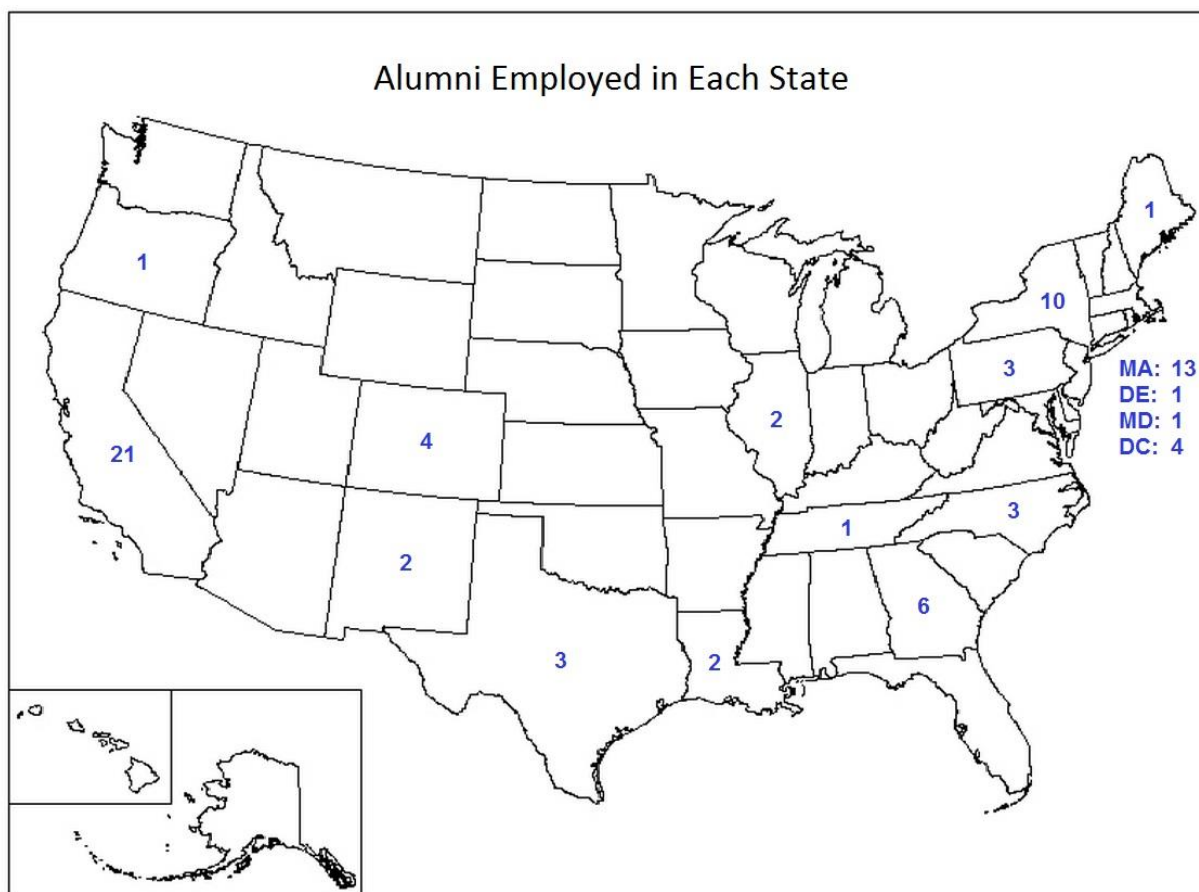


**Table B.5. Work conducted by alumni working in education sector after fellowship**

	Percentage of respondents		
	All alumni	EP alumni	SDP alumni
Supporting agencies' strategic priorities			
Enhancing longitudinal data systems	32.2	28.1	39.4
Developing a multiple or single portal structure for the data system	16.7	14.0	21.2
Creating user-specific dashboards	34.4	35.1	33.3
Providing project management and strategic planning support	60.0	61.4	57.6
Examining indicators and outcomes (college and career readiness and human capital, for example)	44.4	38.6	54.5
Informing strategies for allocating school and district resources	30.0	31.6	27.3
Providing capacity for data use			
Building a data quality research group	12.2	8.8	18.2
Providing technical assistance and training to staff within my agency	33.3	31.6	36.4
Providing technical assistance and training to school or classroom-level staff	23.3	15.8	36.4
Data collection			
Planning data collection procedures or activities	38.9	36.8	42.4
Administering surveys	23.3	21.1	27.3
Data analysis			
Preparing data files	46.7	42.1	54.5
Creating and improving analysis tools	50.0	50.9	48.5
Using technical skills to conduct analyses	54.4	54.4	54.5
Communicating with stakeholders			
Creating parent guides	6.7	7.0	6.1
Developing school-level reports	31.1	26.3	39.4
Preparing information for teachers or school leaders or presenting it to them	16.7	10.5	27.3
Preparing or presenting information to agency	51.1	38.6	72.7
Preparing or presenting information to community stakeholders	27.8	24.6	33.3
<b>Number of respondents</b>	<b>90</b>	<b>56</b>	<b>33</b>

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Shows percentage of respondents who categorized themselves as "highly involved" in the activity.

**Figure B.2. Locations of post-fellowship employment at education agencies**

Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Locations identified using reported zip codes of the most recent education agencies in which the alumni worked.

### Alumni future plans and self perceptions

EP and SDP alumni appear to be poised to remain in the education sector. More than half of EP alumni (56 percent) and almost all SDP alumni (88 percent) reported they were planning to work in the education sector for five or more years; two-thirds (64 percent) of SDP alumni reported they were planning to spend their entire careers in the education sector. However, alumni from the two programs differed regarding their future educational plans. More than 75 percent of EP alumni reported they planned to return to school to complete a master's degree or equivalent; a smaller percentage—24 percent—of SDP alumni planned to return to school to complete a doctorate. (Ninety-seven percent of SDP alumni had completed a degree beyond a bachelor's at the time of the survey; 57 percent of EP alumni had only a bachelor's degree at the time of the survey.)

Seventy-nine percent of alumni who said they were working in the education sector after their fellowships reported that the fellowship prepared them well or extremely well for a career in the education field. One respondent described the benefit of the program's network to support the level of preparation for work beyond the fellowship: "Being a fellow really helped me frame my day-to-day work in terms of the larger picture of education, schooling, and reform. The

cohort experience, and the regular check-ins in a national (or at least interstate) context really helped get me out of the world of Excel spreadsheets to think strategically about the big picture.” Another respondent said a benefit of the fellowship was learning how to function in a new environment, explaining, “I came to the [program] with no work experience in education and no coursework in education, so [the program] provided me with invaluable training in education practices, policies, and analytics. Following my fellowship, I’ve been able to move into a real leadership role and I feel I owe a lot of that to the training and mentoring that I received.”

Fellowship alumni described themselves as a mixture of “heart” and “brain,” using both words that emphasize their intellectual bent—curious, analytical, thoughtful, logical—and their strong desire to make a difference—passionate, driven, empathetic, optimistic, kind (Figure B.3).

**Figure B.3. Most frequently reported words SDP and EP alumni used to describe themselves**



Source: Survey of EP and SDP alumni conducted in spring 2014.

Note: Word Cloud generated using Wordle.net. The word cloud offers a visual picture by giving greater prominence to words that appear more frequently in the source text. The placement and orientation of the words (horizontally or vertically) do not correspond to the prominence of the words.

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