Understanding Data Use for Continuous Quality Improvement in Head Start

Preliminary Findings

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Introduction

Head Start and Early Head Start programs are expected to use data and information about communities, families, and children to guide local planning and program management. However, to date, little is known about how programs use data or the best practices for doing so. This brief presents six themes that emerged from a multidisciplinary literature review undertaken as part of a study on Head Start Leadership, Excellence and Data Systems (LEADS; Derrick-Mills et al. 2014). Furthermore, it explores how findings from other disciplines might apply in a Head Start setting by drawing on site visit data from the LEADS study (Derrick-Mills and Rohacek, forthcoming) and another recent project, School Readiness Goals and Head Start Program Functioning (the School Readiness study; Isaacs et al. 2015). The goal of this brief is to summarize common themes and findings that arose across both studies for the purpose of informing future research. The preliminary evidence collected through the LEADS and School Readiness studies provides a foundation from which further research questions and hypotheses might be developed in order to build a body of literature to support best data use practices in Head Start.

Head Start Programs must conduct an annual Self-Assessment and have a process to monitor progress toward the program goals. In addition, both the 2007 reauthorization of Head Start and the recent implementation of the Head Start Designation Renewal System place an increased emphasis on the role of ongoing assessments of children and the use of data about children's school readiness for program improvement. Grantees' ability to demonstrate that they are monitoring children's school readiness and using those data to improve the program over time is one of seven criteria used to determine whether a

grantee must compete for its funding under the Head Start Designation Renewal System. While programs have long used data about family and community needs to plan program services, there is still much to learn about data use in Head Start programs. To that end, the Office of Planning, Research and Evaluation contracted with the Urban Institute in 2012 to conduct the two studies drawn upon in this brief.

Continuous Quality Improvement: Conceptual Framework

The LEADS study is grounded in a multidisciplinary review of the literature on the processes, facilitators, and impediments to data use for continuous quality improvement (Derrick-Mills et al. 2014). That review reflects more than 50 seminal and current works that originate in empirical and professional sources in the fields of educational leadership and management, health care management, nonprofit leadership and management, public management, and organizational learning and development. Studies in the literature review were typically designed to identify characteristics of organizations or programs that were successful in implementing data use for quality improvement, but those studies did not explore the relative importance of each characteristic or the different effects of combinations of characteristics.

The study of organizational data use does not have a single language across fields. The terms "performance management," "continuous quality improvement," and "data-informed decision-making" are all descriptors of the internal organizational processes, functions, and elements for collecting, examining, and using data to improve program performance. This brief uses the term "continuous quality improvement" to reduce confusion and to emphasize the focus on data use for improving quality.
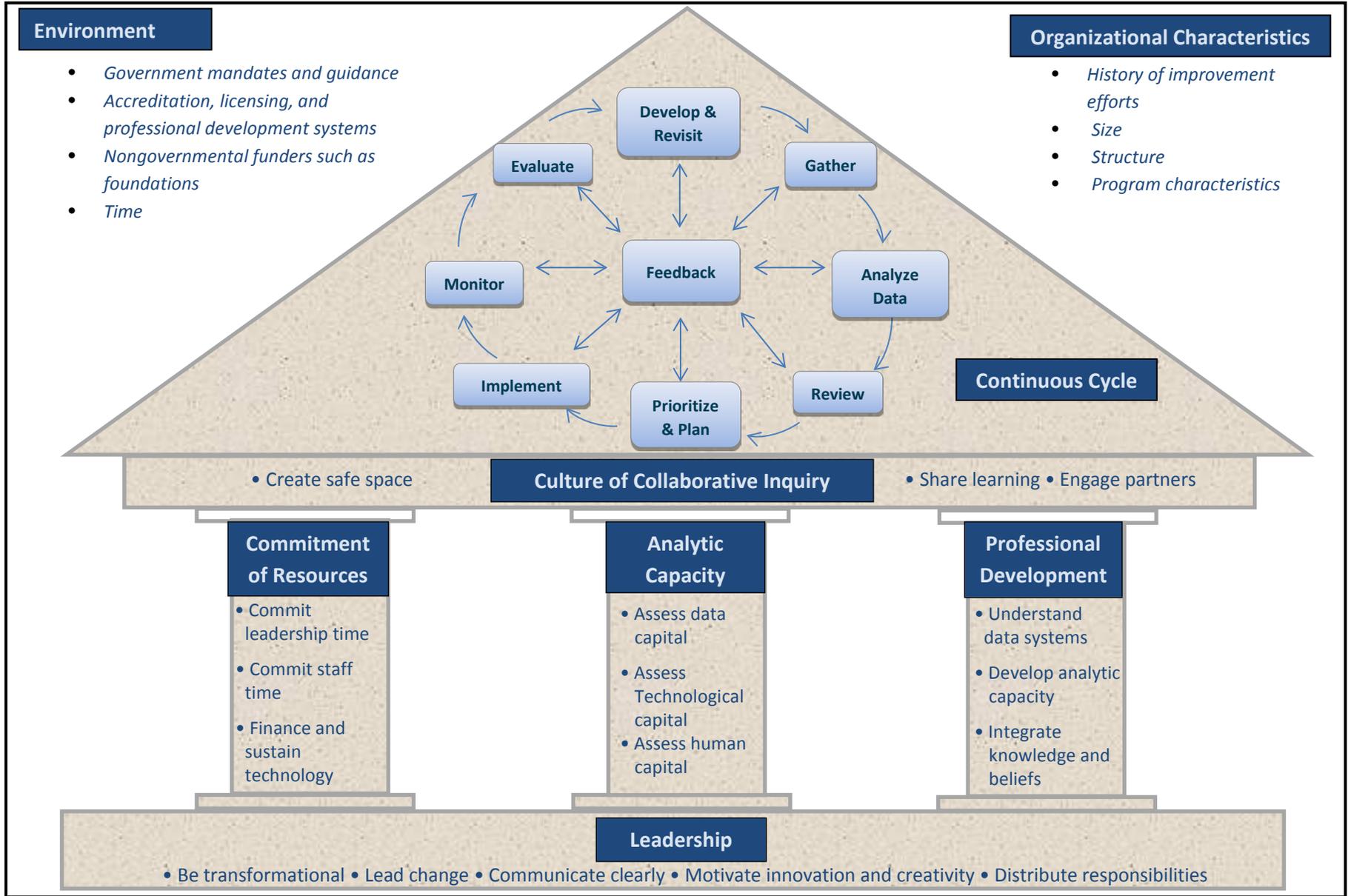
Eight organizational elements emerged from the literature as supporting data use for continuous improvement. These eight elements were integrated to construct a conceptual framework (figure 1). Specifically, the conceptual framework depicts the key elements posited to facilitate or impede the process of data use for continuous quality improvement in the form of a building. The framework is cautious in its representation of the relationships of elements to each other. It makes minimal use of directional arrows because the literature from other fields is primarily descriptive, cataloging elements but not relationships between elements.

Strong leadership was one of the two most common themes cited in the literature as influencing data use. Program leadership ensures the organization has the required resources, analytic capacity, and professional development to use data. Specifically, the literature identified certain leadership approaches (e.g., leadership that is distributed across staff) as important to building organizational features that are facilitators of data use (e.g., a culture of collaborative inquiry). For this reason, leadership is shown as the foundational slab of the building.

The pillars of the building represent the important facilitative supports leaders can put into place: commitment of resources, analytic capacity, and professional development. The literature suggests these factors are associated with the effective use of data, and the absence of any of these factors is likely to reduce an organization's ability to continuously and successfully use data for quality improvement. The pillars and foundation support a culture conducive to collaborative inquiry where staff learn together in an environment that fosters joint problem-solving, creativity, and innovation. The roof of the building represents the continuous cycle of data use, or data-informed decision-making.

FIGURE 1

Continuous Quality Improvement Conceptual Framework

Environment

- *Government mandates and guidance*
- *Accreditation, licensing, and professional development systems*
- *Nongovernmental funders such as foundations*
- *Time*

Organizational Characteristics

- *History of improvement efforts*
- *Size*
- *Structure*
- *Program characteristics*

Develop & Revisit

Evaluate

Gather

Monitor

Feedback

Analyze Data

Implement

Review

Prioritize & Plan

Continuous Cycle

• Create safe space

Culture of Collaborative Inquiry

• Share learning • Engage partners

Commitment of Resources

- Commit leadership time
- Commit staff time
- Finance and sustain technology

Analytic Capacity

- Assess data capital
- Assess Technological capital
- Assess human capital

Professional Development

- Understand data systems
- Develop analytic capacity
- Integrate knowledge and beliefs

Leadership

• Be transformational • Lead change • Communicate clearly • Motivate innovation and creativity • Distribute responsibilities

Source: Derrick-Mills et al. (2014).

The processes and foundational factors occur within an organization but are influenced by the surrounding context, which includes both organizational characteristics and an organization's environment. Organizational characteristics include size; governance structure; the types of programs the organization operates; and history, including the history of related data, planning, and continuous improvement efforts. An Organization's environment refers to all of the factors that influence it, such as governmental mandates and regulations at the federal, state, and local levels; licensing, accreditation, and professional systems; nongovernmental funders (such as foundations); and time (the continual changing of the regulations, expectations, and other elements of the environment to which the organization must respond).

The eight organizational elements from the conceptual framework have been grouped into six key themes articulating what is needed to support continuous quality improvement:

1. Leaders must be strong, committed, inclusive, and participatory (leadership).

2. Analytic capacity is necessary and should not be assumed (analytic capacity).

3. Leaders must prioritize and commit time and resources to the data-use effort (commitment of resources and professional development).

4. An organizational culture of learning facilitates continuous data use (culture of collaborative inquiry).

5. Data use for quality improvement is a continuous process (cycle of continuous quality improvement).

6. The environment matters. It, too, is complex and dynamic (organizational characteristics and environment).

The remainder of the brief explores the extent to which these six principles, which are drawn from outside of Head Start, may apply to Head Start organizations. It draws preliminary evidence on this question from two research studies which, though different in their specific goals and research methods, both collected useful information on the use of data in Head Start settings.

Six Key Themes of Continuous Quality Improvement

Overview of Head Start Research Studies

Preliminary research findings are drawn from site visit data collected as part of the LEADS study and both survey and site visit data collected as part of the School Readiness study. Data for both studies were collected between October 2013 and June 2014.

■ The LEADS study involved site visits to eight purposively selected grantees across the country that were recognized by others in Head Start as high-performing in some aspect of data use or planning systems. The LEADS interview questions were shaped to explore the types of data

being collected, explore how the data are used for program planning and management, and understand the challenges and facilitators of data use.

- The School Readiness study collected data through a telephone survey of 73 Head Start and Early Head Start grantee program directors and managers across the United States and follow-up site visits with 11 of these grantees. Telephone survey results were weighted to represent all grantees other than Migrant and Seasonal, tribal, and interim grantees. The School Readiness study describes how local grantees set school readiness goals, how they collect and analyze data to track progress toward goals, and how they use these data in program planning and practice to improve program functioning.

Preliminary research from these two Head Start research projects shows that Head Start programs are using data for continuous quality improvement. Respondents to a telephone survey on school readiness goals rated the contribution of school readiness goals and associated data as "very to extremely useful" for: day-to-day program management (78 percent), teacher planning for daily classroom activities (91 percent), teacher's work with individual children (87 percent), and home visitors' work with individual children (75 percent). And within the School Readiness study sites, respondents noted that because of the school readiness goals mandate, they were using data more frequently and purposively. The LEADS study sites also described purposive, regular use of data to assess needs, modify service delivery elements, improve service delivery quality, plan for professional development needs, mentor and coach teachers, and individualize services for children.

Note that neither the School Readiness study nor the LEADS study assesses the effectiveness or quality of the services provided by the participant grantees. Thus, findings presented here should not be construed as hallmarks of high-performing programs. Instead, the data provide a foundation of knowledge on these topics to inform further research.

1. Leaders must be strong, committed, inclusive, and participatory.

The evidence from literature outside of Head Start suggests that leadership, both in formal roles and from staff not in formal leadership roles (distributed leadership), can be important. Only a few studies examine the relevance of governing board members, and the evidence in those studies on the importance of governing board interest and involvement in data use is mixed (Blumenthal and Kilo 1998; Kaplan et al. 2010; Reinertsen, Bisogano, and Pugh 2008). The literature suggests that effective leaders serve as role models for data use (Berwick 1996; Copland 2003; Cousins, Goh, and Clark 2006; Daly 2012; Hatry and Davies 2011; Honig and Venkateswaran 2012; Kaplan et al. 2010; Kee and Newcomer 2008; Mandinach, Honey, and Light 2006; Means, Padilla, and Gallagher 2010; Moynihan, Pandey, and Wright 2012; Morino 2011; Park and Datnow 2009; Sharratt and Fullan 2012; Van Wart 2003), they distribute leadership responsibilities and motivate staff to use data (Brown 2011; Copland 2003; Devers 2011; Harris et al. 2007; Kabcenell et al. 2010; Levesque, Bradby, and Rossi 1996; Park and Datnow 2009; Reinertsen, Bisogano, and Pugh 2008), and they clearly communicate their expectations around data use (Berwick 1996; Daly 2012; Honig and Venkateswaran 2012; Mandinach, Honey, and Light 2006; Sanger 2008).

The preliminary evidence indicates that some Head Start grantees exhibit the leadership characteristics identified as potentially important in using data for continuous quality improvement:

- **Serving as a role model.** Executive leadership in the eight programs included in the LEADS study took an active role in starting and participating in discussions about data and in shaping the use of data. They also used data in their own roles.

- **Distributing data responsibilities.** During LEADS site visits, staff at all levels talked about their roles in data collection, analysis, interpretation, and use. The School Readiness study suggests that many Head Start programs distribute data responsibilities beyond the director: 59 percent of sites indicate the education coordinator had been entrusted with overseeing the day-to-day work of setting goals.

- **Communicating clear expectations.** Interviews with staff during LEADS study site visits show that the directors were clear in communicating the message that data were part of the daily work of all staff and that data played an important role in short- and long-term planning.

- **Providing some governing board and Policy Council involvement.** The governing board members interviewed for the LEADS study tended to indicate awareness of data use by the program and a familiarity with the data; it was harder for the Policy Council members to articulate data use, but it did seem that data were shared with them. Similarly, in the School Readiness study telephone survey, all programs reported sharing aggregate data on school readiness with the Policy Council, and 99 percent reported sharing such data with the governing body.

2. Analytic capacity is necessary and should not be assumed.

The literature from other fields frequently discusses analytic capacity as a barrier to data use. Analytic capacity includes the appropriate data, appropriate technology, and staff capacity. Appropriate data include quality observations, information, and numbers that may be sorted and aggregated to provide meaningful insights (Bernhardt 2003, 2009; Hatry et al. 2005; Hatry and Davies 2011; Kelly and Downey 2011; Means, Padilla, and Gallagher 2010; Moynihan 2007; Poister 2004; Roderick 2012; Supovitz 2012; Wholey 2001). Appropriate technology supports efficient data collection, secure data storage, data sorting and aggregating, and appropriate data analyses (Bernhardt 2003; Hatry and Davies 2011; Mandinach, Honey, and Light 2006; Means, Padilla, and Gallagher 2010; Marsh 2012). Human capacity refers to the extent to which the staff understand (1) what appropriate data are, (2) how to analyze and make meaning from the data, and (3) how to use that information to improve the quality of their work (Bernhardt 2003; Blumenthal and Kilo 1998; Copland 2003; Daly 2012; Hatry et al. 2005; Hatry and Davies 2011; Idealware 2012; Marsh 2012; Park and Datnow 2009; Poister 2004; Sanger 2008; Sharratt and Fullan 2012; Wholey 2001).

The preliminary evidence shows that Head Start grantees are grappling with analytic capacity challenges similar to those identified in other fields:

- **Data capacity.** Both the School Readiness study and LEADS study indicate that grantees are collecting large amounts of data, much of which is required by Head Start Performance Standards. Other specific data elements are informed by the comprehensive assessment instruments they use in their work with children and families. How much data grantees are able to use and how well they can use it is determined by their technological and human capacities.

- **Technological capacity.** School Readiness study survey findings show about three-quarters of grantees report they have the technology needed to manage and analyze their data. The LEADS study interviews reveal that grantees frequently have multiple data systems. Though those data systems may be sufficient to handle the needed data, and those systems frequently have been commercially developed specifically to support Head Start programs, the ability to extract the needed data and analyses in the formats desired requires particular human capacities. In addition, grantees often recognize that they could make better use of the data by combining across systems, but capacity (both human and technological) for doing so is inconsistent.

- **Human capacity.** Survey responses from the School Readiness study show mixed levels of grantee capacity to handle data: about two-thirds of grantees report staff are knowledgeable about collecting valid, reliable data, but only about one-third report staff are knowledgeable about interpreting data reports. Nearly two-thirds of grantees report that analyzing data related to goals is a medium-to-big challenge; about half report that interpreting data to understand children's progress is a medium-to-big challenge. About half also report that accounting for circumstances of particular groups is a medium-to-big challenge. Although the LEADS study sites were recognized by others within the Head Start community as possessing greater capacity to use data than the typical Head Start program, they also reported challenges in configuring and using data systems, interpreting the data, and using the data to improve quality. However, LEADS study sites expressed confidence in calculating simple statistics, and they displayed an understanding of how to select appropriate measurement instruments.

3. Leaders must prioritize and commit time and resources to the data-use effort.

Evidence from other fields suggests leaders must not only possess certain characteristics but also demonstrate their commitment to data use for continuous quality improvement by channeling resources to support and sustain technology (Hendricks, Plantz, and Pritchard 2008; Hoefer 2000; Idealware 2012; Park and Datnow 2009; Sanger 2008); devoting their time to these efforts (Blumenthal and Kilo 1998; Forti and Yazbak 2012; Hatry and Davies 2011; Honig and Venkateswaran 2012; Kabcenell et al. 2010; Means, Padilla, and Gallagher 2010; Park and Datnow 2009; Sanger 2008); allocating staff time to support data collection, analysis, and use (Bernhardt 2009; Daly 2012; Hendricks, Plantz, and Pritchard 2008; Honig and Venkateswaran 2012; Idealware 2012; Means, Padilla, and Gallagher 2010; Park and Datnow 2009; Sanger 2008); and providing staff with professional development to increase their ability to collect, analyze, and use data appropriately (Berthleson and Brownlee 2007; Cousins, Goh, and Clark 2006; Curtis et al. 2006; Honig and Venkateswaran 2012; Kabcenell et al. 2010; Kelly and Downey 2011; Lipton and Wellman 2012; Little

2012; Mandinach, Honey, and Light 2006; Marsh 2012; Means, Padilla, and Gallagher 2010; Park and Datnow 2009; Reinertsen, Bisogano, and Pugh 2008; Rohacek, Adams, and Kisker 2010; Sanger 2008).

The preliminary evidence suggests Head Start leaders are recognizing the need to commit time and resources to the data-use effort including:

- **Committing leadership time.** The School Readiness study survey shows that in just over half of grantees, the program director provided overall direction and supervision for the goal-setting process and in nearly half (46 percent) they reported responsibility for compiling information for reports on school readiness goals. In all the LEADS study sites, Head Start staff from across the organization report that leadership staff were actively involved in data-use activities.

- **Allocating staff time.** Among the LEADS study grantees, leaders have fully embraced the need to incorporate data analysis, interpretation, and use into their daily routines and management structures. Across those sites, nearly all staff meetings include discussions about data, and many have regular meetings where data is the focus. Of School Readiness study survey respondents, nearly three-quarters reported that finding time to engage in the school readiness goal-setting process was a medium-to-big challenge. The survey results show that nearly one-quarter of grantees have invested in a staff person with the title of "data manager," "data analyst," "evaluation manager," or something similar; among the LEADS study sites, slightly more than half had such a person. A common theme across School Readiness study sites was concern about the burden on teachers caused by the amount of data collected and entered at the classroom level; some LEADS study sites expressed similar concerns, but many said familiarity with the systems and scheduling some time away from the children for compiling and entering documentation made teacher expectations manageable.

- **Investing in technology.** The School Readiness study survey showed that nearly two-thirds of grantees made improvements to technology because of the goals requirement. All of the LEADS sites had multiple data management systems, and many sites reported they were upgrading systems, especially those that had previously attempted to develop their own.

- **Providing professional development.** LEADS study sites reported that professional development on measurement tools was frequently provided through the commercial developers of the tools and related data management systems. In sites where data-focused positions had been established, data specialists typically provide data orientation and training on how to appropriately enter and use the data. Education managers or coordinators also frequently provided professional development and provided or oversaw mentoring or coaching to help teachers make better use of their data.

4. An organizational culture of learning facilitates continuous data use.

The synthesis of literature from other fields shows learning culture is evidenced by a safe space where staff can openly discuss whatever the data might reveal about program operations and outcomes, interpret what the data mean together, and determine what to do about it (Berlowitz et al. 2003;

Bernhardt 2009; Berwick 1996; Blumenthal and Kilo 1998; Copland 2003; Crossan, Lane, and White 1999; Daly 2012; Forti and Yazbak 2012; Hatry and Davies 2011; Honig and Venkateswaran 2012; Kabcenell et al. 2010; Kaplan et al. 2010; Lipton and Wellman 2012; Little 2012; Marsh 2012; Means, Padilla, and Gallagher 2010; Morino 2011; Park and Datnow 2009; Torres and Preskill 2001; Schilling and Kluge 2008; Weick, Sutcliffe, and Obstfeld 2005). A learning culture facilitates continuous data use for quality improvement (Berwick 1996; Blumenthal and Kilo 1998; Hatry et al. 2005; Hendricks, Plantz, and Pritchard 2008; Hoefer 2000; Honig and Venkateswaran 2012; Idealware 2012; Lipton and Wellman 2012; Morino 2011; Moynihan, Pandey, and Wright 2012; Sanger 2008; Wholey 2001). Finally, learning cultures attempt to involve both staff and stakeholders (Forti 2012; Kabcenell et al. 2010; Reinertsen, Bisogano, and Pugh 2008; Robinson 2011; Sanger 2008), typically clients, in making sense of the data and determining where to focus improvement efforts.

The preliminary evidence shows that many Head Start grantees are working to build learning cultures within their programs rather than simply analyzing data to comply with specific Head Start Performance Standards:

- **Creating a safe space and emphasizing learning.** Over three-quarters of the School Readiness survey respondents strongly agreed that having school readiness goals will be useful to the program. However, about 60 percent indicated that building an understanding of how the goals would help was a medium to big challenge. The LEADS sites recognize the challenge in balancing accountability and creating a safe space for learning. In some sites, they specifically talk about dividing supervision from coaching or mentoring activities to assure staff have safe opportunities to learn from the data and to proactively use the data to make improvements.

- **Learning and interpreting together.** The LEADS sites all have regular data review meetings ranging from quarterly to weekly. Staff discuss data across and within functional areas and at multiple levels within the organization. For example, executive management and middle management may have separate meetings that cut across functional areas, but site supervisors meet together within a functional area and similarly family support managers meet with their family support teams.

- **Including stakeholders.** The School Readiness study survey shows that most grantees share aggregate data more than once per year with stakeholders such as parents (64 percent), the Policy Council (92 percent), and the governing body (82 percent).

5. Data use for quality improvement is a continuous process.

The literature review found effective data use to improve quality involves a continuous, cyclical process of goal-setting, data collection, data examination, and data-informed action (Bernhardt 2009; Berwick 1996; Blumenthal and Kilo 1998; Hatry and Davies 2011; Levesque, Bradby, and Rossi 1996; Lipton and Wellman 2012; Mandinach, Honey, and Light 2006; Means, Padilla, and Gallagher 2010; Morino 2011; Sharratt and Fullan 2012; Torres and Preskill 2001). Reflecting on organizational and program goals, data users identify key data elements and the questions they want to address. They collaboratively

analyze the data and interpret the findings. Through the expertise and experience of data users, the information becomes knowledge. That knowledge tells users how the program is performing and which areas of the program need improvement. These areas are prioritized to create a concrete action. During implementation, observations and data are fed back into the continuous improvement loop so progress toward goals and performance objectives can be monitored. Progress and quality are evaluated against internal goals or external benchmarks. The end of every cycle is the beginning of a new cycle.

The preliminary evidence shows that many Head Start grantees are attempting to use their data regularly for program improvement: many are aggregating, analyzing, and discussing data more frequently than required:

- **Cycle frequency.** In the School Readiness study survey, all grantees reported aggregating and using school readiness goals data more than once a year, with 17 percent doing so monthly and 7 percent doing so weekly. Just over two-thirds of grantees planned to revise school readiness goals every year; others planned to revise every few years and still others planned to revise throughout the year. LEADS study grantees aggregate and review multiple sources of data quarterly to weekly; most LEADS study sites are on a monthly routine.

- **Cycle configuration.** LEADS study sites typically had many data cycles occurring simultaneously. For example, directors of each functional area may meet together to discuss data across the agency while also meeting with staff within their functional area to discuss the pertinent data.

- **Cycle connectivity.** Many LEADS study grantees reported a purposeful effort to create discussions and cross-cutting cycles to avoid compartmentalization of information. The separation of data into multiple data systems, however, sometimes caused difficulties in linking data across functional areas.

6. The environment matters. It, too, is complex and dynamic.

The multidisciplinary literature shows that two primary contextual elements influence the use of data to improve quality in programs: the organization in which a program operates and the larger environment in which an organization operates. Organizational characteristics, such as size, structure, and history of efforts may influence the extent to which and how supports for data use are provided and data are used (Berwick 1996; Blumenthal and Kilo 1998; Copland 2003; Daly 2012; Forti and Yazbak 2012; Honig and Venkateswaran 2012; Idealware 2012; Means, Padilla, and Gallagher 2010). Similarly, organizations are influenced by their policy, regulatory, accreditation, and funding environments (Blumenthal and Kilo 1998; Copland 2003; Curtis et al. 2006; Daly 2012; Derrick-Mills 2012; Derrick-Mills and Newcomer 2011; Forti 2012; Gunzenhauser et al. 2010; Hendricks, Plantz, and Pritchard 2008; Hoefer 2000; Honig and Venkateswaran 2012; Idealware 2012; Kaplan et al. 2010; Kee and Newcomer 2008; Mandinach, Honey, and Light 2006; Means, Padilla, and Gallagher 2010; Morino 2011; Rohacek, Adams, and Kisker 2010; Weiner et al. 2006), and the influence of these environments evolves over time (Derrick-Mills 2012).

The preliminary evidence suggests efforts to use data in Head Start programs are influenced by organizational and environmental characteristics:

ORGANIZATIONAL CHARACTERISTICS

- **Agency type.** No clear evidence emerged about differences in data use by agency type. Neither auspice nor operation through a multipurpose organization yielded any clear advantages or disadvantages.

- **Agency size.** Larger organizations were more likely to create staff positions focused specifically on data use; smaller organizations typically added that function to an existing position. Each option has pros and cons for supporting data use.

- **Head Start program characteristics.** School Readiness study data suggest that Early Head Start grantees may be less confident than Head Start grantees that they have the capacity to collect reliable data related to school readiness. Site visit data in both studies show that grantees had a harder time determining the appropriate data to collect and collecting the data for home-based services than for center-based services.

ENVIRONMENTAL CHARACTERISTICS

- **Head Start.** The Head Start Program Performance Standards and the technical assistance resources play important roles in the types of data that grantees use to inform decisions and the goals they select. Head Start Program Performance Standards determine what data must be collected, what kinds of goals must be set, and what types of self-assessment and planning must take place. These requirements form the base from which grantees then choose what data to use. The LEADS study interviews show that much of the data used to inform decisions was required data harnessed to serve an internal learning function.

- **Funders other than Head Start.** Almost one-third of School Readiness study survey respondents reported that requirements of funders other than Head Start were considered when setting goals. Similarly, the LEADS study interviews show that other funders required tracking of particular kinds of data and sometimes required particular measurement instruments.

- **State requirements.** Interviews show that state expectations, including QRIS (the Quality, Rating, and Improvement System) and early learning guidelines had some influence on the types of data collected, information regularly reviewed, and school readiness goals grantees set.

- **Changing nature of requirements.** The LEADS study grantees explained that they tried to forecast coming changes and prepare for likely requirements. Thus, they considered the right types of data to collect and use and the values to emphasize in their programs based on both current and probable future requirements.

- **Local education agencies.** Both local education agencies' kindergarten requirements and partnerships with those agencies were discussed as shaping goals for child outcomes, thereby shaping data collected to determine if goals had been met.

The preliminary evidence reveals an influence not specifically identified through the review of the multidisciplinary literature: the role of commercially developed assessment tools and related data management systems. In both the School Readiness and LEADS study interviews, it was apparent that the availability of valid, reliable instruments to measure areas of interest considerably influenced items that grantees chose to measure, the measurement of the items (as prescribed by the instruments), and the benchmarks sought (as prescribed by the instruments). Similarly, the data management systems designed to capture children's developmental progress are paired with curricula and provide grantees with measurement techniques, "widely held expectations" for benchmarking child performance, and guidance on how to improve child outcomes by pairing children, offering suggestions for individualization, and presenting suggested group activities. The assessment instruments and data systems within Head Start are more than data measurement and data management tools; they exert considerable influence in the ways that grantees consider what and how to measure and how to interpret and act upon results.

Conclusion and Research Implications

The preliminary evidence collected through the LEADS and School Readiness Goals studies provides preliminary support for the constructs depicted in the conceptual framework. Head Start grantees appear to experience many of the same facilitators and impediments to data use as organizations in other fields. The studies presented here indicate that effective data use in Head Start may be driven by factors such as the involvement of the Head Start program director, the program's technological and human capacity to analyze data, the allocation of staff time and resources for data collection and analysis, and the organizational culture and larger environment.

Additional research might examine data use practices associated with the desired outcomes, how best practices differ by setting or program characteristics, and the factors that promote the use of best practices. What follows is a list of possible research questions that, if addressed, would help build a body of literature to support recommendations for best data use practices in Head Start:

- What are the associations between the various elements of the conceptual framework? And is one element more important than the others? Interviews for the LEADS study suggest technological capacity may depend, in part, on human capacity. For example, programs may have very strong technological systems that could meet many of their needs and facilitate linking of data, but they don't have the staffing knowledge or time to utilize them fully. Interviews across sites using the same system with different results suggest this is the case. Additional research in this area could point toward important training opportunities and needed support systems, and it may lay the foundation for better linking Head Start with other data sharing efforts.

- Does data use in Head Start differ from other organizations because of the way Head Start is structured? For example, is data use affected by the leadership structure specified in the Head Start Program Performance Standards and the roles of the Policy Council and the governing body? For Head Start programs that are embedded within larger organizations, do quality improvement efforts differ? Do quality improvement efforts differ by other program structures such as delegates and child care partnerships? The existing multidisciplinary literature does not address such questions, so Head Start research designed to explore variation could help build knowledge across the disciplines about how such characteristics facilitate or impede data use. Studying these elements could also reveal ways that technical assistance may need to be differentiated (e.g., for compact programs as opposed to large, networked programs).

- How is data use for continuous quality improvement affected by the widespread use of commercially developed assessment tools and related data management systems in Head Start settings? Both the LEADS and School Readiness studies report considerable influence of these tools and systems in determining what grantees measure and how they judge their success in improving their program quality and meeting desired outcomes. Are there lessons to learn from other fields that use commercially developed data systems? What is their influence in the Head Start field?

- Do Head Start programs adopting the characteristics and actions associated with data use for continuous quality improvement actually exhibit improved quality? Are they able to improve services for children and families and outcomes for children? Moreover, how are the elements of the framework associated with indicators of program quality and child outcomes in different domains?

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