

Executive Summary

This review summarizes research on the processes, facilitators, and impediments to data use for continuous quality improvement; develops a conceptual framework representing the elements of data use for continuous quality improvement; and provides linkages between the disciplines from which the literature was drawn and the Head Start field. The review reflects 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. The literature summarized includes research found in peer-reviewed journals; reports from foundation-funded evaluations and pilot projects; government-sponsored research; and practitioner-targeted books, blog posts, and other materials. We were intentionally broad in the sources included because much of the knowledge in the field of data use for quality improvement comes from practitioner-oriented work rather than formal research studies.

Conceptual Framework

The key principles that emerged from the scholarly and applied literature reviewed for this study were integrated to construct a conceptual framework. Specifically, the conceptual framework depicts the following eight elements posited to facilitate or impede the process of data use for continuous quality improvement: leadership, commitment of resources, analytic capacity, professional development, a culture of collaborative inquiry, a cycle of continuous quality improvement, organizational characteristics, and the environment.

It is important to note that research across the fields tends to be exploratory rather than causal. Studies are typically designed to identify characteristics of organizations or programs that have been successful in implementing data use for quality improvement. The studies typically do not explore the relationships between the characteristics, and most of the studies do not examine whether quality was actually improved. Some of the studies focus on the barriers to implementing data use for quality improvement; some focus on facilitators. Thus, this research helps us identify facilitators and challenges within programs and organizations, but it does not tell us which characteristics or combinations of characteristics are most important to success.

Key Findings

Six key findings emerged from the literature. These six findings informed the eight elements embodied in the conceptual framework. The report has been organized around the key findings. In each section, we identify and discuss the literature that supports that finding, organized by the elements of the conceptual framework. Additionally, we discuss how to translate the interdisciplinary knowledge for use in Head Start. At the end of the report, we summarize implications for Head Start research in community-based Head Start programs.

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

The evidence suggests that leadership both in formal roles and across the organization 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. Key findings from the literature include:

- *Effective leaders are transformational, serving as role models for data use in decision-making* (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).
- *Effective leaders distribute leadership responsibilities among staff, motivating staff to use data and contribute to decision-making processes* (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).
- *Effective leaders clearly communicate their expectations around data use* (Berwick 1996; Daly 2012; Honig and Venkateswaran 2012; Mandinach, Honey, and Light 2006; Sanger 2008).
- *Governing bodies may contribute to increased data use by demonstrating their interest in data and continuous improvement efforts, but evidence on governing body influence is mixed* (Blumenthal and Kilo 1998; Kaplan et al. 2010; Reinertsen, Bisogano, and Pugh 2008).

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

The literature typically discusses analytic capacity as a barrier to, rather than a facilitator of, data use. Analytic capacity includes the available data, technology, and staff knowledge. Key findings from the literature include:

- *Analytic capacity may be grouped into three primary buckets—appropriate data, appropriate technology, and human capacity.*
 - *Appropriate data are quality observations, information, and numbers that can be aggregated and sorted to provide meaningful insights for decision-making. Specific decisions require specific types and levels of data* (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 allows for efficient data collection, secure data storage, data sorting and aggregating, and appropriate data analyses to provide meaningful and timely insights for decision-making* (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 the data in meaningful ways 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).

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

Leaders must not only possess certain characteristics, but they must also demonstrate their commitment to data use for continuous quality improvement by channeling resources to support and sustain technology; devoting their time to these efforts; developing staff knowledge; and increasing staff ability to collect, analyze, and use data appropriately. The key findings from the literature include:

- *Leaders must prioritize their own time to participate directly in the data-use 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).
- *Leaders must recognize that staff time is required to collect, enter, examine, and use data* (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).
- *Leaders must allocate resources to technology needed to house and analyze data* (Hendricks, Plantz, and Pritchard 2008; Hoefer 2000; Idealware 2012; Park and Datnow 2009; Sanger 2008).
- *Professional development of staff to facilitate understanding, analyzing, and using data is needed in the same way that staff need professional development in their particular areas of specialization (child development, parent education, nutrition, health care, curriculum assessment, etc.)* (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).

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

A learning culture is evidenced by a safe space where staff can openly discuss whatever the data might reveal about program operations and outcomes—good or bad—without fear of reprisal. Learning cultures also create opportunities for shared learning where staff can discuss data together to determine what the data mean and what to do about it. Finally, learning cultures attempt to involve both staff and stakeholders, typically clients, in making sense of the data and determining where to focus improvement efforts. The key findings from the literature include the following:

- *An organizational culture that values learning 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).
- *Creating safe spaces and facilitating shared learning through reflection on and interpretation of data demonstrate a culture that values learning* (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).

- *Engaging stakeholders in a process of shared learning is another element of a learning culture* (Forti 2012; Kabcenell et al. 2010; Reinertsen, Bisogano, and Pugh 2008; Robinson 2011; Sanger 2008).

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

Reflecting on organizational and program goals, data users identify the data they have and the questions they want to address. They collaboratively analyze the data and interpret the findings. With the expertise and experience of the data user, the information becomes knowledge. That knowledge tells the user 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 that 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 key finding from the literature is the following:

- *Effective data use to improve quality requires a continuous cyclical process of goal-setting, data collection, data examination, and data use* (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).

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

The literature points to two primary contextual elements that appear to influence the use of data to improve quality in programs: the organization in which the program operates and the larger environment in which the organization operates. Key findings from the literature include:

- *Programs exist within organizations. Organizational characteristics such as size, structure* (Berwick 1996; Blumenthal and Kilo 1998; Daly 2012; Forti and Yazbak 2012; Honig and Venkateswaran 2012; Idealware 2012; Means, Padilla, and Gallagher 2010), *and history of efforts* (Blumenthal and Kilo 1998; Copland 2003; Forti and Yazbak 2012; Means, Padilla, and Gallagher 2010) *may influence the extent to which, and how, supports for data use are provided and data are used.*
- *Organizations exist within policy and regulatory environments, accreditation and licensing requirements, governmental and nongovernmental funders, and professional communities. Types of data collected and used are influenced by these entities* (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).

- *Policies, regulations, requirements, and community values evolve and therefore have differing influences on the practices or organizations and programs at different points in time* (Derrick-Mills 2012).

Implications for Head Start Research

This interdisciplinary literature review and resulting conceptual frame (figure 3) provide a starting place for examining data use for quality improvement in Head Start programs. Head Start programs are similar in many ways to (1) the schools and school systems investigated in the educational leadership and management literature, (2) the governmental organizations described in the public management literature, and (3) the nonprofit organizations explored in the nonprofit management literature. The interdisciplinary review reveals that across all the fields, there are some common barriers and facilitators to data use for quality improvement.

Reflecting on the similarities of Head Start programs to the other organizations studied indicates that Head Start researchers can draw directly from the framework in their examination of Head Start. Head Start's similarities with governmental organizations, nonprofits, and school districts suggest that it is likely to face similar challenges in moving from data systems and a culture developed to meet external accountability requirements to systems and a culture designed to foster internal learning. The literature suggests that like these other organizations, Head Start programs would benefit from transformational leaders to support the transition.

However, community-based Head Start programs have three key characteristics not explored in the literature that Head Start researchers need to consider as they design studies: prescriptive roles, programs within organizations, and grantee-delegate/grantee-child care partnerships. Although many of the programs studied face prescriptions from their funders, the defined roles of the Policy Council, governing bodies, and leadership positions in Head Start exceed that level of prescription. Additionally, local Head Start programs are often embedded within larger organizations, and the relationship of the program to the organization needs to be explored. Similarly, Head Start programs often operate through a network of organizations—grantees, delegates, and child care partnerships. Researchers will need to carefully examine those dynamics.

Finally, the conceptual framework implies relationships between elements, but those relationships have not been tested. Head Start research should examine how the elements represented in the framework reflect the facilitators and impediments to data use in Head Start programs, but testing of relationships would better position the Office of Head Start to help Head Start programs improve practice.