Tools

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Toolkit for a workshop on building a culture of data use

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Overview

This field-tested workshop toolkit guides facilitators through a set of structured activities to develop an understanding of how to foster a culture of data use in districts and schools. The conceptual framework draws on five research-based elements known to support an effective culture of data use. Supporting materials—a facilitator guide and agenda, a slide deck, and participant handouts—provide workshop facilitators with all the materials needed to lead this process in their own setting.

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This report is available on the Regional Educational Laboratory website at http://ies.ed.gov/ncee/edlabs.

Summary

This workshop toolkit arose from questions about effective district and school use of data posed by education leaders in two Regional Educational Laboratory Northeast & Islands (REL-NEI) research alliances who were interested in furthering their work on using data. Their questions included:

- What is a culture of data use? What are its key elements?
- How can professional development leaders impart the varied skills, knowledge, and abilities needed for effective data-use practices?
- Is there specific guidance for professional development workshops led by district and school leaders to improve their culture of data use?
- What are the right leverage points to start using data effectively?
- Is there a continuum of practice that educators can follow as their culture shifts toward more consistent implementation of data-use practices?

To help answer these questions, REL-NEI researchers reviewed current research and identified five essential elements found in districts and schools with effective data-use practices:

- Participating in the flow of information for data use.
- Communicating professional expectations for data use.
- Providing resources and assistance to make meaning from data.
- Providing professional development on data-use knowledge and skills.
- Providing leadership to nurture a culture of data use.

This guide enables a facilitator to present a conceptual framework aligned with these five elements. It also offers professional development materials to support district and school leaders in engaging their administrators, teacher leaders, and data team members to explore how to establish, maintain, and nurture a culture of data use.

This step-by-step guide includes an agenda for a one-day professional development session (or a series of shorter sessions), guiding ideas to scaffold participant learning, and suggestions for participant activities. The handouts offer research reviews, vignettes, tools, and resources that highlight effective practices in each of the five framework elements. By engaging with these resources, participants will clarify their current cultural practices and explore strategies for improvement in key framework elements.

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Introduction

The Building a Culture of Data Use in Districts and Schools Workshop is geared toward administrators, district staff, principals, school data team members, and board of education members who make decisions about how data-use practices are developed and sustained across their educational institutions. It grew out of the work of two Regional Educational Laboratory Northeast & Islands (REL-NEI) research alliances: the Urban School Improvement Alliance and the Northeast Rural Districts Research Alliance. In their summer 2012 Research Agenda Workshops, these alliances identified the culture of data use as an area in which members needed further training.

The workshop draws on a conceptual framework of five elements that, collectively, are shown in the research as necessary to develop a data-using culture. By engaging in this work, and through dialogue grounded in ideas outlined in the Culture of Data Use Framework case studies and vignettes, participants will apply key elements of this framework to their own contexts. The vignettes and case studies allow participants to explore best practices and templates for next steps to extend and improve current district and school practices.

The guiding questions are:

- What does the research say about effective district and school data-use practices? What are the essential characteristics of an effective culture of data use?
- What do districts and schools with an effective culture of data use do? What are examples of the essential characteristics in practice? What can participants learn from case studies of districts with an effective culture of data use?
- Which of these practices can be applied in participants' own settings to deepen or extend current practice?
- What is the role of district and school guidance to support systemic change in data-use practices?

The goals for this workshop are to:

- Explore the five elements that contribute to an effective culture of data use in districts and schools.
- Learn strategies to extend and deepen the culture of data use in districts and schools.

This workshop is designed to help leaders develop more effective practices, policies, and guidance that will support systemic practices to deepen their district's or school's culture of data use. Following completion of this workshop, participants will have the necessary information and tools to lead district or school sessions for developing or improving their own culture of data use.

This workshop does not address strategies for using classroom or school data, such as how to collect and analyze data for improvement. For these skills, REL-NEI offers a separate workshop entitled Practitioner Data Use in Schools with an associated toolkit (Bocala, Henry, Mundry, & Morgan, 2014).

Those new to the topic of developing a culture of data use may wish to view REL-NEI's online workshop, Building a Culture of Data Use in Schools and Districts, which provides background on the culture of data use and presents five elements needed to develop a culture of data use (http://workshop.relnei.org/module-list). In the online workshop, presenters highlight examples of practices in each element, offer guidance on sustaining key practices in each area, and provide an approach for schools or districts to explore their own culture of data use. In addition, there are examples of professional development, district and school communication, hiring practices, and policy changes that can help shape and sustain a culture of data use.

The workshop described in this toolkit is designed as a one-day, in-person workshop. However, it can be structured in various ways, with the caveat that activities should be followed in the order that they are presented (as learning is scaffolded throughout the workshop). For example, it could take place over one full day, four two-hour sessions, or five 90-minute sessions. Facilitators and leadership teams can decide the best workshop format for their district or school.

This guide has four parts: this introduction, the facilitator guide, the workshop handouts, and references. The accompanying slide deck is available at http://www.relnei.org/tools-resources.

The facilitator guide gives a step-by-step presentation for each segment of the workshop to be used in conjunction with the workshop handouts and the slide deck. The workshop handouts contain all the tables, case studies, and vignettes used in the one-day session. The handouts section can be printed out and distributed at the beginning of the workshop, or sections can be printed by topic. Each topic section and each handout begins on a new page for flexible printing. Optional activities are noted in the facilitator guide. The slide deck can be customized for individual presentations, and the facilitator guide notes which slides need customization.

Facilitator guide

This section provides a general overview on using the guide, suggested agendas, and step-by-step guidance on presenting 11 topics on building a culture of data use.

How to use this guide

This guide supports local education leaders in facilitating the Building a Culture of Data Use in Districts and Schools Workshop in their own settings. It provides background for each agenda segment and guidance for each learning activity.

Throughout this guide symbols are used to highlight key aspects of the material:

Symbol	Meaning
	Important facilitation process note.
	Additional idea a facilitator might be interested in raising around a particular topic.
	An essential idea. If this foundational idea is missed, it may compromise learning in later activities.
	Materials to be copied prior to the session.

Some additional helpful hints:

- Workshop participants should attend in district or school teams (typically five to eight members) to help build a supportive network of practitioners engaged in developing a culture of data use at their district or school. A district's or school's data team is the logical choice for who should participate in the workshop.
- Depending on the size of the district or school, team membership may vary in size and role. Examples of data team members include district curriculum and instruction directors, district assessment directors, principals, teacher leaders, coaches, secondary school department heads, assistant principals, and teachers.
- These workshop materials can be used in large groups or with one team at a time, depending on district or school need.

Workshop preparation

Facilitators should prepare and bring the following supplies and materials:

- Newsprint or chart paper and easels for group note taking.
- Large sticky notes.
- Markers.
- Copies of worksheets and handouts in this guide for each participant.
- A computer and projector for the slides, which can be downloaded from http://www.relnei.org/tools-resources.

Handouts

All handouts are in the workshop handouts section of this guide. They can be copied and handed out as a packet at the beginning of the workshop or copied in sections according to their agenda topic and passed out at the beginning of the session.

Pre-reading

The pre-reading frames the definition of the culture of data use used in the workshop. If this workshop is conducted over multiple sessions, the article can be assigned as homework between sessions. The suggested pre-reading for the full-day session is at the link below and in the workshop handouts section.

> Ronka, D., Geier, R., and Marciniak, M. (June 2010). *A practical framework for building a data driven district or school: How a focus on data quality, capacity and culture supports data-driven action to improve student outcomes*. Educational White Paper. Boston, MA: Public Consulting Group. http://www.publicconsultinggroup.com/news/post/2010/06/28/A-Practical-Framework-for-Building-a-Data-Driven-District-or-School-How-a-Focus-on-Data-Quality-Capacity-and-Culture-Supports-Data-Driven-Action-to-Improve-Student-Outcomes.aspx.

Agenda

The agenda below details the topics, learning objectives, duration, and corresponding slides for this workshop. Modify the agenda as needed to suit local interests. Also modify the participant agendas in handout 1.1.

Topic	Learning objective	Duration	Slides	Handouts
1: Welcome and background	· Understand the role of Regional Education Laboratory Northeast & Islands and alliances in preparing this content. · Welcome and introduce facilitators and participants.	5 minutes	1–3	1.1: Participant agenda and handouts overview
2: Workshop overview and goals	· Clarify what the workshop will cover and will not cover. · Review the agenda. · Identify overall learning outcomes and success criteria.	15 minutes	4–6	

Topic	Learning objective	Duration	Slides	Handouts
3: Defining a culture of data use	• Explore the idea that data literacy, by itself, is not sufficient to ensure data is used to guide instruction. • Clarify that a culture of data use implies that data-use practices happen when nobody is looking.	20 minutes	7–11	3.1: Definition of a culture of data use
4: Identifying participant and presenter assumptions	• Uncover assumptions that individuals bring to this work.	15 minutes	12–13	
5: Introducing the Culture of Data Use Framework	• Explain each of the five elements in the Culture of Data Use Framework. • Explore the research that undergirds the framework. • Understand that all five elements of the framework are equally important in practice.	50 minutes	14–27	5.1: Culture of Data Use Framework: Initial reflections on five elements 5.2: Culture of Data Use Framework: Five research summaries 5.3: Culture of Data Use Framework: Findings from research
6: Exploring district and school practices aligned with the Culture of Data Use Framework	• Develop images of practice for each element of the framework. • Begin to identify a range of practices that support work in each framework element.	60 minutes	28–34	6.1: Culture of Data Use Framework: Vignettes 6.2: Culture of Data Use Framework: Effective data-use practices
7: Considering changing expectations of data use	• Identify how education data-use practices have been framed in recent years. • Note current placement on a continuum of practice.	20 minutes	35–41	7.1: Changing expectations of data use: Teacher activities on the continuum
8: Exploring district data-use practices over time	• Explore through a case study how district and school data-use practices have changed over time. • Discuss a range of data-use practices that align to the framework.	55 Minutes	42–45	8.1: Culture of data use: District case study
9: Reviewing templates, tools, and strategies that support consistent implementation of data-use practices	• Learn to use each of the framework elements to guide discussions about current practice and next steps. • Explore implementation barriers and strategies to address those barriers.	45 minutes	46–56	9.1: Discussion protocol: Identifying implementation strategies for a culture of data use 9.2: Barriers to a culture of data use, by framework element 9.3: Examples of policy and guidance to support a culture of data use, by framework element 9.4: Examples of district and school guidance to support a culture of data use, by framework element
10: Selecting strategies to further implement key framework elements	• Identify areas of focus for high-level strategies to consider in local settings.	50 minutes	57–60	10.1: Discussion prompts 10.2: Guiding questions for developing policy or guidance to support a culture of data use, by framework element 10.3: Examples of policy and guidance to support a culture of data use, by framework element
11: Reflection and closing	• Reflect on new learning. • Clarify next steps.	15 minutes	61–67	

Topic 1: Welcome and background

- Duration: 5 minutes
- Handout 1.1: Agenda and handouts overview
- Slides 1–3

Facilitator guidance

Facilitators introduce the workshop and identify why this topic is a useful district or school focus. Be prepared to discuss participants' specific goals and expectations. Slide 3 gives a brief overview of how work on establishing a culture of data use in schools originated.

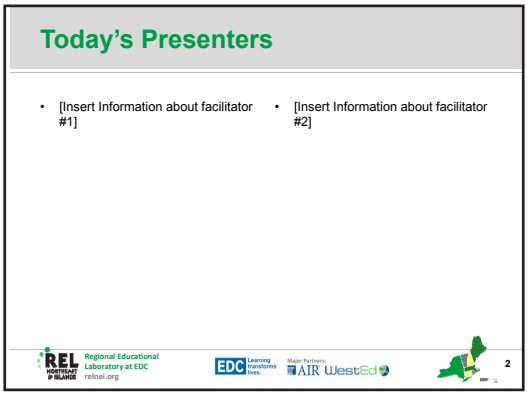
Presentation slides and participant activities

Slide 1:

Explain that this workshop presents a framework for developing a culture of data use in which participants will identify their areas of strength and weakness and develop areas of focus to improve the culture of data use in their district or school.

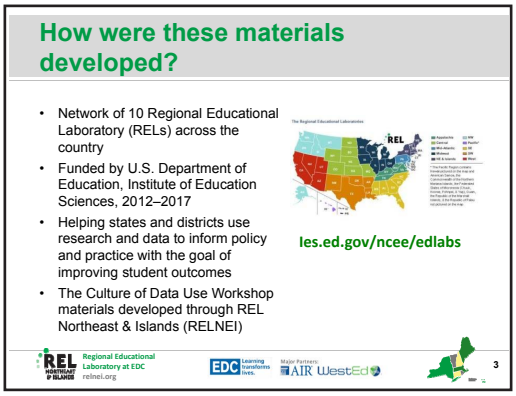
Provide a personalized workshop introduction, including why you selected this topic for this group.

Slide 2:



Customize slide 2 to provide information about the facilitator. Introduce yourself and allow participants to briefly introduce themselves, giving their names and positions in relation to education data use.

Slide 3:



Information to elaborate on slide 3

Regional Education Laboratory Northeast & Islands (REL-NEI) is one of 10 regional educational laboratories across the country charged with helping states and districts systematically use data and analysis to answer important issues of education policy and practice with the goal of improving student outcomes. The Regional Educational Laboratory Program is funded by the Institute of Education Sciences at the U.S. Department of Education.

REL-NEI builds research capacity and a knowledge base across the region by:

- Assisting states, districts, and schools in using their data systems.
- Conducting and supporting high-quality research and evaluation that focuses on four regional priorities.
- Providing opportunities for practitioners to engage with education research.
- Helping education policymakers and practitioners incorporate data-based inquiry practices into regular decisionmaking.

The Culture of Data Use Workshop materials were developed to support the work of two alliances that are part of REL-NEI. Alliance members were interested in learning more about what is required to support an effective culture of data use in their districts and schools. These educators asked REL-NEI to help them think about what is valuable, beyond preparing data sets and providing professional development to build teachers' and administrators' use of data to support and sustain effective data practices. The Culture of Data Use Workshop grew out of this request.

Topic 2: Workshop overview and goals

- Duration: 15 minutes
- No handout
- Slides 4–6

Facilitator guidance

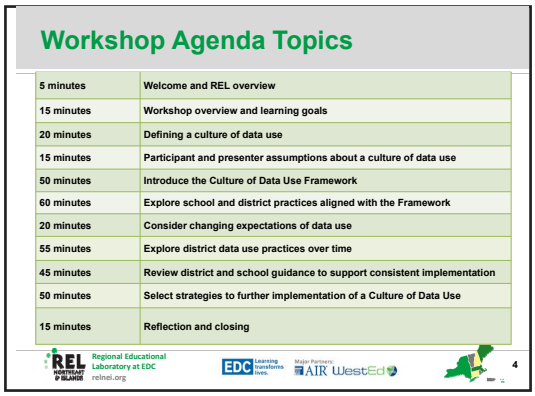
This section provides a strategic understanding of how to support data-use practices over time. In addition, the materials point to key elements of data use in districts and schools, so that participants can think about these elements more strategically. Participants will not necessarily walk away with a sense of what to "do." Rather, they will gain an understanding of how a framework with five elements can be used to consider and analyze current practices and to establish ways to better leverage and support educators' data practices over time.

The workshop materials are designed to support teachers, teacher leaders, and district and school leaders regardless of where they are in their current data-use practices. The workshop goals are organized to help teams or individuals better understand their current practice, with respect to the framework, and clarify areas of practice that would benefit from additional support.

This workshop does not focus on developing specific data-use skills, such as using data dialogue, conducting data analysis through an inquiry cycle, or applying specific strategies for how to link data to instruction or how to set up a database for storing and accessing data.

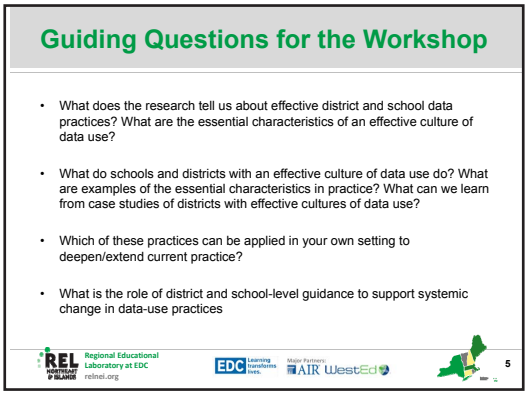
Presentation slides and participant activities

Slide 4:



Review the agenda, noting any modifications. This agenda provides six hours of facilitated content.

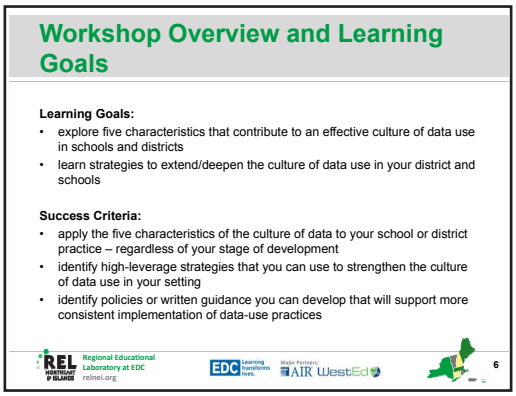
Slide 5:



Raise the guiding questions for this workshop:

- What does the research say about effective district and school data practices? What are the essential characteristics of an effective culture of data use?
- What do districts and schools with an effective culture of data use do? What are examples of the essential characteristics in practice? What can you learn from case studies of districts with an effective culture of data use?
- Which of these practices can be applied in participants' own setting to deepen or extend current practice?
- What is the role of district and school guidance to support systemic change in data-use practices?

Slide 6:



Outline the goals and success criteria for the workshop.

Learning goals

- Explore the five elements that contribute to an effective culture of data use in districts and schools.
- Learn strategies to extend and deepen the culture of data use in districts and schools.

Success criteria

After this workshop, participants will be able to:

- Apply the five characteristics of the culture of data to their district or school practice—regardless of their stage of development.
- Identify high-leverage strategies that they can use to strengthen the culture of data use in their setting.
- Identify policies or written guidance they can develop to support more consistent implementation of data-use practices.

Topic 3: Defining a culture of data use

- Duration: 20 minutes
- Handout 3.1: Definition of culture of data use
- Slides 7–11

Facilitator guidance

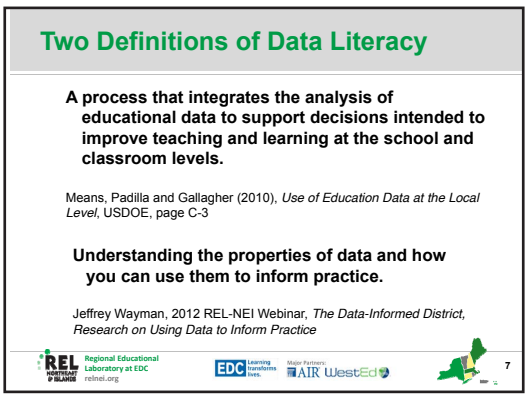
This section helps participants understand the definition of this workshop's key term: culture of data use. Because this term is used throughout the workshop, it is important to give participants time to explore the definition and compare it to their current understanding of the term. While participants will deepen their understanding throughout the workshop, at the close of this section they should be able to share their understanding of the term, as used in the pre-reading.

This section focuses on the intersection of effective data use and culture, with the aim of improving the daily practices of educators to support teaching and learning. The definition of the culture of data use in the pre-reading (Ronka, Geier, and Marciniak, 2010) provides key information about the elements in play in an effective culture of data use. This definition begins a dialogue, which will extend throughout the workshop, related to the culture of data use, elements of continuous improvement, collaboration, a vision for data use, modeling, and instructional change.

The facilitator's primary role in this session is to help scaffold participants' understanding by moving through three main ideas: What is effective data use? What is culture? And—when these two terms are put together—what is the definition of a culture of data use? Facilitators can use dialogue prompts to engage participants and further their understanding of these terms.

Presentation slides and participant activities

Slide 7:



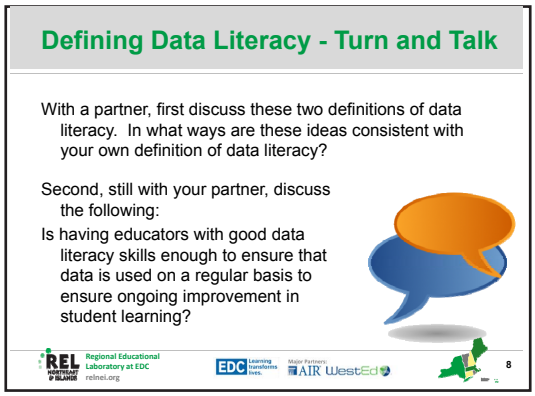
This section focuses on the intersection of data literacy and culture with the aim of improving the daily practices of educators to support teaching and learning. Data literacy is a foundational skill for educators, but research suggests that data literacy skills alone are not enough to guarantee broad use.

Introduce the two definitions of data literacy in slide 7.

Note that slide 7 addresses question 1 with two definitions of data literacy rooted in using data to support teaching and learning. While data are in play at every level of the education system, the materials and resources referenced here focus on student-learning data.

For example, in the second definition, the term *practice* refers to instructional practices that support teaching and learning.

Slide 8:



Ask participants to talk to the person next to them using the prompts on slide 8.

- Are the two definitions of data literacy consistent with your own definition?
- Is it enough to have educators with good data literacy skills to ensure that data are used on a regular basis to ensure ongoing improvement in student learning?

Provide about two minutes for the first discussion prompt, then about two minutes for the second. Responses to the second question may include several topics that will be raised in upcoming slides, so hearing those now can help frame the upcoming work.

Finally, ask a few participants to report to the entire group to hear the kinds of things that were discussed in answer to the two questions.

A question for the groups to consider

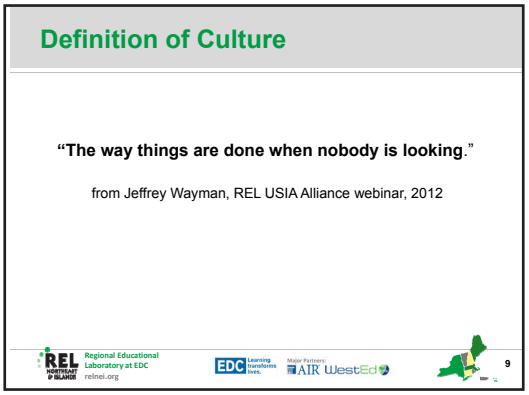
Beyond good data literacy skills, what else did you identify as necessary to ensure that data are used on a regular basis?

Participants are likely to raise these ideas:

- Leadership.
- Technology.
- Access to useful data.
- Access to instructional data.
- Collaboration.
- Time to make meaning from data.

Make note (on paper or a flip chart) of the topics participants raise. These topics are likely to be elements within the Culture of Data Use Framework.

Slide 9:



Note that slide 9 deals with the second question: "What is culture?"

Discuss this definition of culture:

- "The way things are done when nobody is looking" (Wayman, 2012).

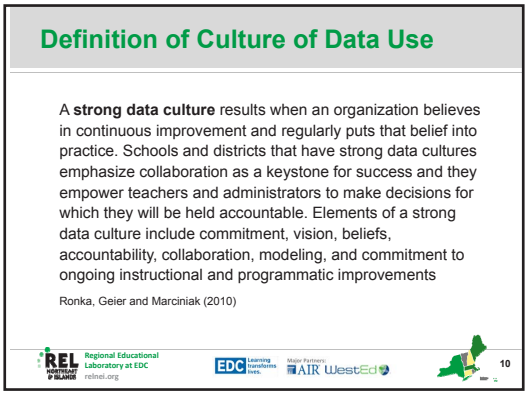
Ideas to build on slide 9 and lead into slide 10

In applying this definition of culture to thinking about what makes a culture of data use, several ideas emerge:

- In the context of data use, culture implies that data use takes place throughout the organization in a way that is part of "how business gets done"—in other words, how things happen when nobody is looking.
- In the context of data use, culture then refers to the organizational perceptions and practices related to data use.
- In these environments, data-use practices are not seen as "another thing"; they are seen as a tool to get the daily work of teaching and learning done well.
- In these ways, a culture of data use implies that there is more in place than just data literacy skills.

This workshop looks closely at what is in place in schools with effective cultures of data use, so that districts and schools can determine how to establish and deepen a culture of data use.

Slide 10:



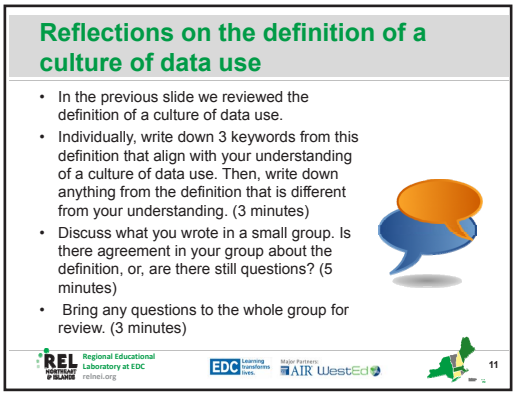
Note that slide 10 addresses the third question: "What is a culture of data use?"

KEY POINT

This definition is crucial for the rest of the workshop and will ground participant experiences as they move forward. Read the definition in slide 10, and let participants reflect on this definition as outlined in slide 11.

As a group activity, call attention to handout 3.1 as you begin to talk about this definition. Have participants use the printed definition for the activity outlined on slide 11.

Slide 11:



Ask participants in their groups to:

- Identify three keywords that they think are most important to this definition.
- Write individual responses, then share them with others in the group.

Reconvene the large group and have each group summarize its discussions. If time permits, use the prompts below for a large group discussion.

Prompts to deepen dialogue for a large group review of slide 11

- How is your definition of the culture of data use similar to, or different from, the Ronka, Geier, and Marciniak (2010) definition?
- Which aspects of data use are you most interested in exploring as we work through today's session?

Participants should now have a sense that "a culture of data use" means that organizational systems and structures are in place to ensure this work is ongoing, supports continuous improvement, and happens "when nobody is looking."

Topic 4: Identifying participant and presenter assumptions

- Duration: 15 minutes
- No handout
- Slides 12–13

Facilitator guidance

This section models presenter assumptions and identifies participant assumptions.

Individual assumptions about data-use practices, and particularly about developing a culture of data use, can greatly impact this work. For example, if an assumption is that teachers will use data in the course of their own daily work, it follows that the system would need to set up regular, frequent times during which teachers can review data. Similarly, if an assumption is that teachers need to have time to use data in the course of their daily work, then asking teachers to bring this task home, or to do it after school, would not align with that assumption.

If an assumption is that it helps to identify these assumptions, then it helps to begin the process of having teams identify their assumptions, so that they can collectively improve their approach to this work.

It is normal for people in different roles to come at this work with different assumptions. Thus the agenda allows 15 minutes for facilitators to model the process of raising and discussing their own assumptions that may frame the way they approach this work. If more time is available, an optional team activity is available.

First, facilitators can select three or four assumptions from the list below or develop their own list to include on slide 12. When sharing these assumptions, facilitators should highlight their understanding of why it is important to consider these assumptions.

For example, suppose the facilitator selected the assumption "Evidence informs professional judgment; it does not replace professional judgment. Recognize teachers' wealth of tacit knowledge as a starting point." The facilitator might explain the assumption by saying that teachers' professional judgment is at the heart of data-analysis practices. The purpose of the culture of data use is to have more educators using data more often to come to better decisions. For this to take place, teachers' professional judgment will be tapped to explore key questions about what inference can be accurately made from the data, and what can be done to improve a program, a curricular goal, or an instructional action to support improved outcomes. The facilitator might assume that professional judgment is the glue that holds this work together—it is what helps move from "data analysis activities" done independently from learning to a data-using culture, which is what happens with data "when nobody is looking."

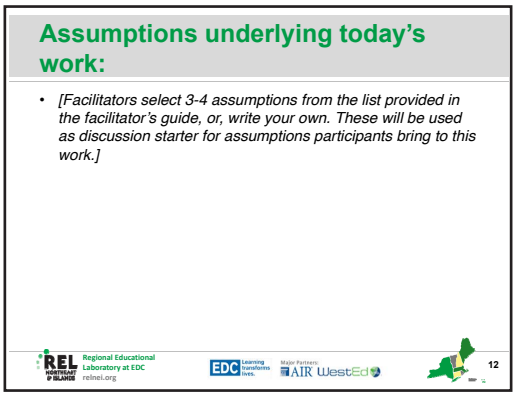
This assumption was offered as a starting point for dialogue. Other assumptions from this list are equally effective starting points and may speak more to the facilitator's background, beliefs, or experiences.

Assumptions that relate to developing a culture of data use include:

- There is a tension between compliance-driven data use and inquiry-based data use (for example, where teams examine data on a specific instructional issue and take time to explore multiple ways to solve the issue) that impacts the framing of a culture of data use. The more accountability driven, the potentially greater the challenge to build norms of inquiry and to create a safe environment necessary for effective data use.
- The goal of having a data-using culture is that everybody's practice improves.
- Interpreting evidence is not a solo act; meaning comes from how a variety of individuals at different levels of the education system understand and make sense of data.
- Evidence informs professional judgment; it does not replace professional judgment. Recognize teachers' wealth of tacit knowledge as a starting point.
- Data do not, by themselves, lead to improvement.
- Educators need professional development on instructional decisionmaking that considers the role of data.
- Culture of data use is built only when you set up the structures and practices, not the other way around.
- The context, the setting, and the environment in which data are delivered all matter.
- Personnel in effective data-using cultures use data in the course of their work, not in addition to their regular work.
- It is essential for educators at all levels of the education system to build multiple fluencies regarding data use. This is a key underpinning of a data-using culture.

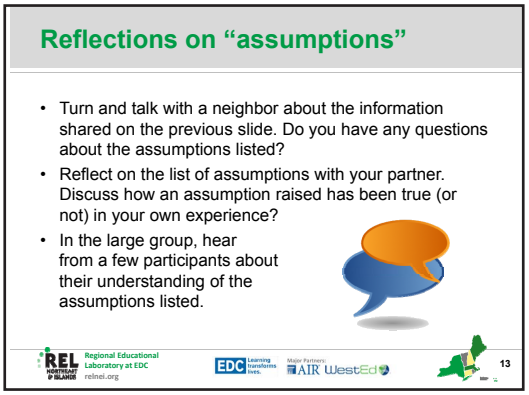
Presentation slides and participant activities

Slide 12:



List your selected assumptions on slide 12 and share them with the group. Explain why you think your assumptions are correct. Allow participants to challenge your assumptions.

Slide 13:



Optional exercise for connecting participants with their own assumptions

If more time is available, ask participants to select one of the assumptions in slide 12 with which they agree or disagree. Show slide 13 and ask participants to discuss with a neighbor their experience with one of the assumptions—does it hold true in their experience? Provide about three minutes for the partner discussion and two to three minutes for a large group discussion. Listen to two or three reports, then do a quick summary. Keep in mind that this is a quick review. If complex ideas or disagreements arise, note them on a flip chart for review at a later time.

Topic 5: Introducing the Culture of Data Use Framework

- Duration: 50 minutes
- Handout 5.1: Culture of Data Use Framework: Initial reflections on five elements
- Handout 5.2: Culture of Data Use Framework: Five research summaries
- Handout 5.3: Culture of Data Use Framework: Findings from research
- Slides 14–27

Facilitator guidance

This section introduces the research that undergirds the Culture of Data Use Framework.

The Culture of Data Use Framework stems from work in districts and schools over the past 15 years to support implementing various kinds of data-use practices—including training data coaches, supporting implementation of professional learning communities, leading content-based professional learning related to data use, and supporting leadership coaching. This work yielded five elements necessary for establishing data-use practices that become cultural norms.

The initial design of the framework put leadership as the foundation for the four other elements (figure 1). Along the right side, the focus is on teachers' learning new skills and knowledge: the top right panel describes making meaning from data through collaborative inquiry skills, and the bottom right panel addresses deepening content knowledge and skills to use the data. Along the left side, the topics are structured around communication: the top left panel addresses the importance of establishing systems that ensure access to usable data, and the bottom left panel covers communicating a vision of effective data use, with a focus on how these practices will support instructional improvements (and develop teacher capacity) over time.

Figure 1. Culture of Data Use Framework: Initial reflections on five elements

Ensuring access to data Data are accessed, coordinated, filtered, and prepared in ways that allow educators to quickly and efficiently analyze and interpret data to answer key questions and address important teaching and learning issues.	**Making meaning from data** Protected time is provided to allow users of data to collectively make sense of what the data indicate and to explore how to move from data to evidence that will inform instruction. This time is focused on making meaning from data and is supported by the use of consistent inquiry-based practices.
Clarifying expectations for data use There are clear expectations about how to use data, and these expectations change over time as skills for data use grow. District, school, and teacher leaders frame consistent messages about how data can be used to support teachers' professional capacity and student learning.	**Building knowledge and skills to use data** Adequate professional learning takes place regarding data use, assessment literacy, and using data to inform instruction. Professional learning is integrated into daily practices and supports teachers in building content knowledge over time. Professional learning is differentiated to support teachers' specific learning needs.
Leading a culture of data use Leadership nurtures and supports a culture of data use and develops organizational structures that include time and resources to conduct ongoing data dialogue and feedback that will support users to act on new knowledge. Acting on knowledge is supported at the administrative, teacher, and student levels. Leaders' use of data is central to helping educators interact around issues that will lead to improved learning outcomes.	

This framework is intentionally neutral in relation to specific interventions designed to improve data culture, and it does not attempt to address how an effective culture of data use is developed. There are several reasons for this. First, there is not yet enough knowledge from research about which interventions, under what circumstances, are most effective (Hamilton et al., 2009; Marsh, 2012). Second, many districts and schools are not set up to provide specific interventions. For example, if a school is not able to create a schedule that includes structured time for data team meetings, it is a shared responsibility, working with the school leadership team, to identify how to organize time for data analysis in other ways. Time might be provided during early release days, within faculty meetings, at department meetings, or in a "data room" (a room at the school where teachers can post, discuss, and give feedback on student data). While these intervention methods might not meet the full measure of continuous work in data analysis, with the right structures and protocols, they can be effective in helping schools move forward in their data-use practices.

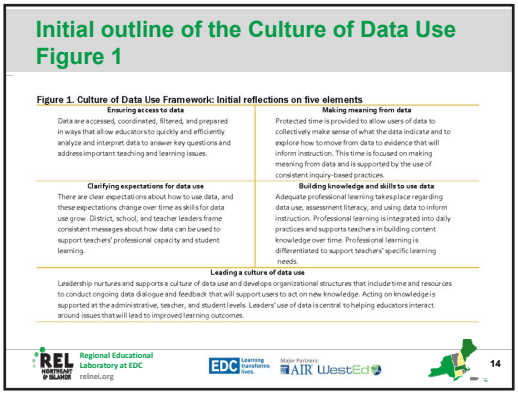
After outlining this initial framework, 60 studies were reviewed on developing a culture of data use—studies that focused beyond just data literacy and looked at the range of practices necessary to support effective use of educational data at the district and school levels. Five studies in particular focused on naming the practices required for this work. These studies are outlined in slides 20–22.

In this section participants will be exposed to the five elements of figure 1 and, in an "each teach" activity (described below), will review and share key ideas that undergird each element. This activity provides a cursory review of the Culture of Data Use Framework with the goal that participants understand that each of these five elements is fairly well understood in the literature.

It is not necessary at this time to address all questions related to this framework. More work will be done with the framework through the course of the workshop. At this point, the introduction to each element is sufficient.

Presentation slides and participant activities

Slide 14:



Show slide 14 (same as figure 1 and handout 5.1), which gives an overview of the initial understandings of five major areas of work necessary for data use to become systemic and to happen "when nobody is looking." This slide shows the five elements together, four of

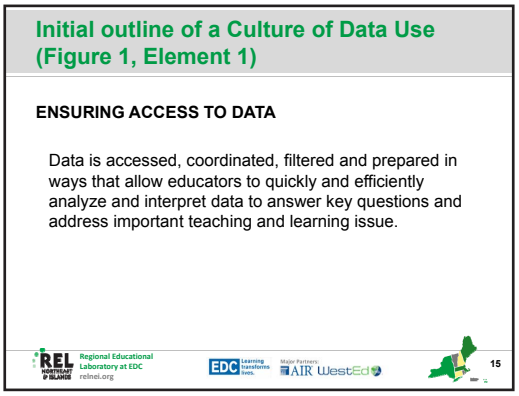
them resting on the base of leadership. The elements are pulled apart in slides 15–19 for a closer look.

Review slide 14, pointing out how the ideas are organized:

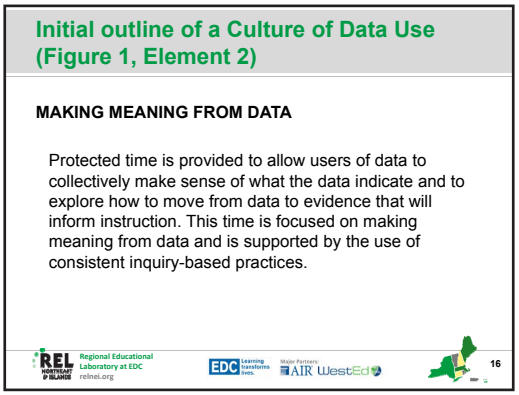
- Entry points at the school level are often through the elements on the right side. The top right "Making meaning from data" panel focuses on developing collaborative inquiry. Just below, the "Building knowledge and skills to use data" panel focuses on ensuring teachers are supported to explore and deepen their content knowledge and focus on pedagogical data literacy (or the ability to apply data to instruction in a specific content area).
- Along the left side, the primary focus is communication. The top left panel, "Ensuring access to data," focuses on the importance of establishing systems that provide access to usable data. Just below, the "Clarifying expectations for data use" panel relates to communicating how data-use work supports instructional improvements and helps build teacher capacity over time.
- The bottom, or foundation, is leadership. Leadership of data practices is required to support the four other elements of the framework.

Briefly highlight each element in slides 15–19. There will be time during the "each teach" activity outlined in slide 20 for participants to discuss each of these five framework elements.

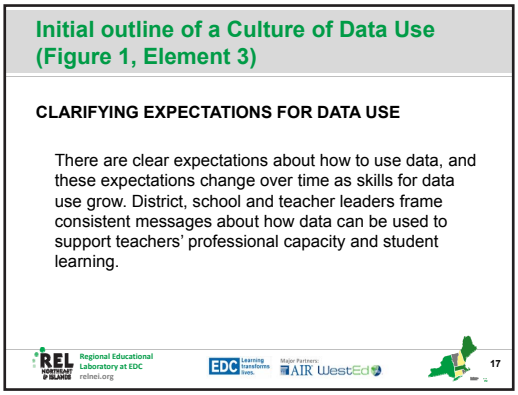
Slide 15:



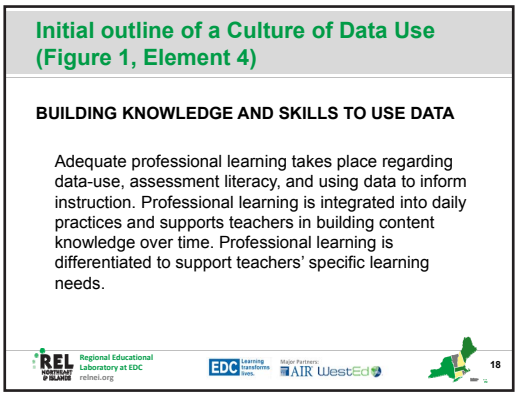
Slide 16:



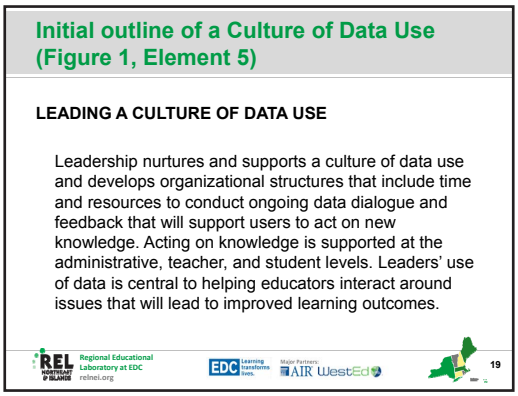
Slide 17:



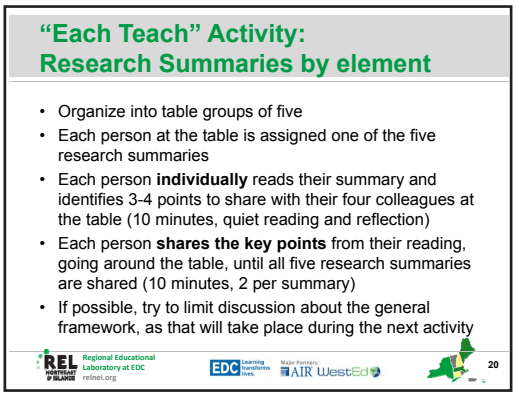
Slide 18:



Slide 19:



Slide 20:



Organize groups of five people. Call attention to handout 5.2. Assign each person in the group to read and share information from one of the five research summaries.

The goal of this 20-minute activity is for participants to gain a grounding in the kinds of research that support this framework and to begin to form some pictures of best practice in each framework element.

Note that the five research summaries are designed to help shape an understanding of best practices in each area. Taken from studies and research syntheses, the summaries focus on the best of what can be done in each of these areas. Ultimately, this workshop can clarify what is possible based on examples of where this work is going well. More examples of best practice will be provided through the workshop. This exercise is meant to prime the pump and to spark a dialogue about a range of things that are effective within each element.

Reconvene the large group and return to the slides.

Do not have a large group discussion about what each group has done. This will come after the next group activity. The goal is for this dialogue and the dialogue in the next activity to focus on what is known about highly effective practices.

Slides 21–23 move the discussion from the research that supports each element of the framework to the research that supports the entire framework—all five elements needing to be in play at the same time, which is discussed in the next section. For these slides, simply share the big idea:

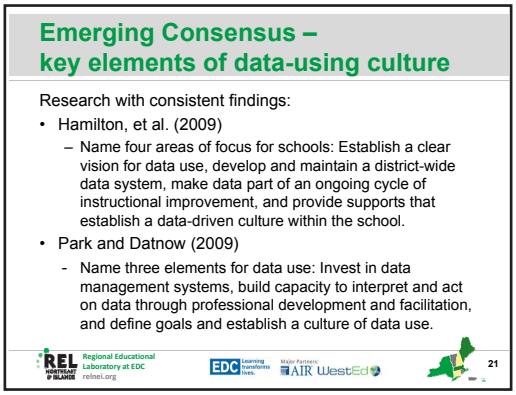
There is an emerging consensus that the five elements discussed here are consistent with what researchers have found as they have looked at schools that are more effective at using data in a way that is ongoing and part of the culture.

Slides 21–23 point to different ways that researchers have framed these topics.

More on framework elements

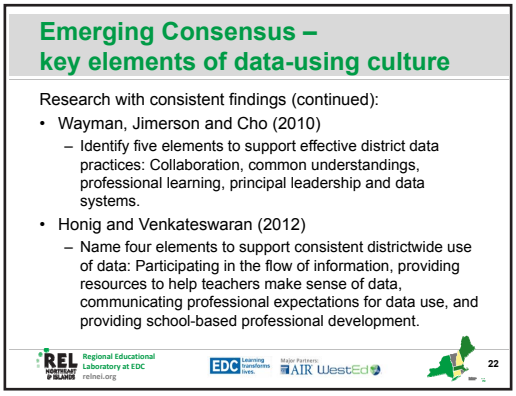
For those interested in learning more about framework elements, Jeffrey Wayman's 2012 webinar for the REL-NEI Urban School Improvement Alliance (http://www.relnei.org/events/event-archive/the-data-informed-district.html) has a good overview of these elements based on his team's research.

Slide 21:



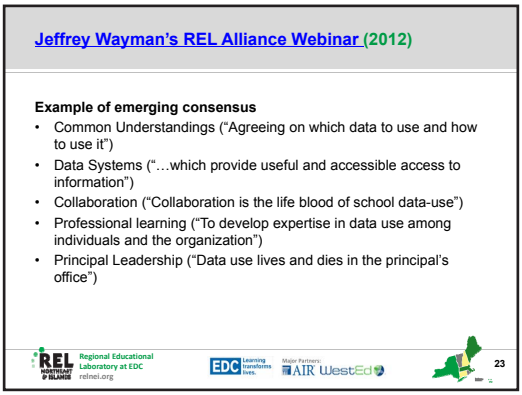
Read slide 21, stressing the words that correspond to framework concepts: vision, data system, cycle of improvement, data-driven culture, invest in systems, build capacity, define goals, and culture of data use.

Slide 22:



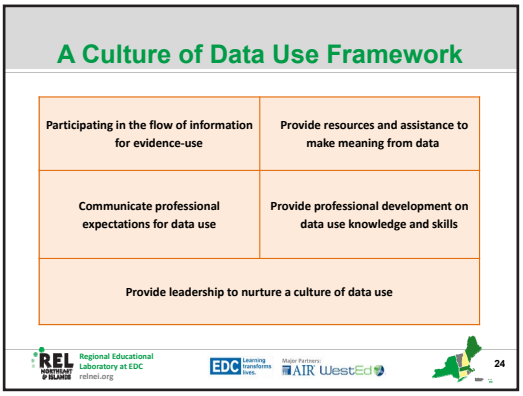
In slide 22, note the phrases: "collaboration, common understandings, professional learning, leadership, systems" and "flow of information, resources, make sense of data, communicating expectations, professional development."

Slide 23:



There is emerging consensus in the research, which is highlighted in several studies. Wayman's language is most closely aligned with the Culture of Data Use Framework used in this workshop. His quotes on each line were shared during the REL-NEI webinar in 2012.

Slide 24:



The five elements of the Culture of Data Use Framework that will be used throughout the remainder of the workshop are highlighted in this slide. The titles of each element of the framework have been changed to reflect how researchers have addressed these five key findings. Though the researchers' language is quite different, the main ideas are consistent with what we have observed and what district and school leaders identify when addressing the important elements of a culture of data use. Take time to review each of the elements above.

This would be a good time to stop for questions about the five elements and about the specific attributes of each element.

Additional guidance for slide 24

A question that often comes up at this point is why is the framework organized this way? Why is it not set up to show interrelationships among the various elements? The answer is that researchers know only that all these elements are important, but they do not yet fully understand the interrelationship among the five elements. Answers to questions about where to start, or what sequence to follow, are not yet clear. But it is clear that these five elements contribute to effective practice.

Slide 25:

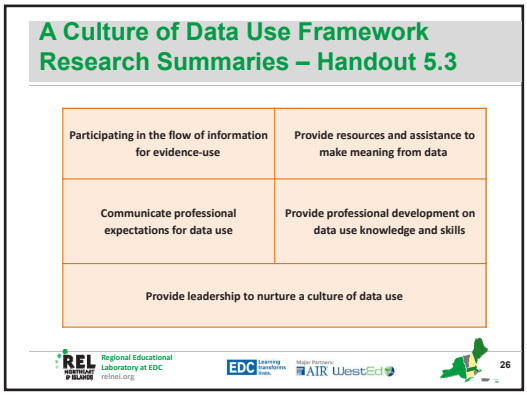
Point out that as a gymnast must train simultaneously in the five elements noted on slide 25, districts and schools must also attend to all five elements in the framework at the same time. Gymnasts who develop one element over the others do not perform as well, overall, in competitions. Thus they must work each day to address each of the five elements of practice. This is a helpful way to think about district and school support: What is being done each day to support each of the five elements?

KEY POINT

All five elements of the framework are equally necessary and must be attended to simultaneously.

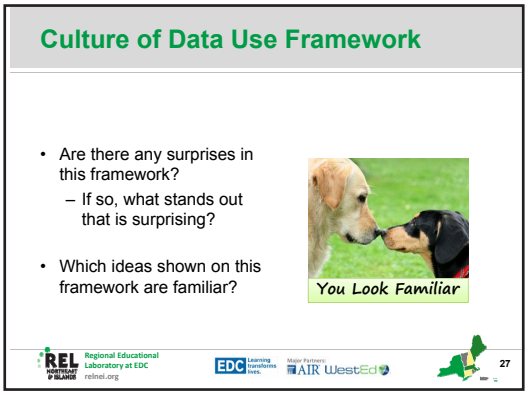
- Districts may have focused on only one or two elements, or some elements may be underdeveloped, which may affect other elements. For example, lack of access to data negatively impacts teachers' collaborative inquiry.
- The ability to identify which elements are more or less developed at a particular district or school is a skill that should come out of this workshop.

Slide 26:



As you show slide 26, refer to handout 5.2. Point out that slide 26 shows the research ideas that support the five elements of the framework.

Slide 27:



Use the prompts on slide 27 to guide discussion of handout 5.2. A long discussion is not necessary at this time; just take a moment to review and explore the main ideas discussed so far—that each of the five elements are necessary and that each is fairly well understood in the research.

- Are there any surprises in this framework? If so, what stands out that is surprising?
- Which ideas in this framework are familiar?

Transitioning to district and school practices

It might be helpful to know that many people, when seeing this framework for the first time, report that these ideas are familiar and that they have personal experience with some of them. Having people think about this briefly will help frame the transition into the next activity, in which participants will engage with some examples, or vignettes, that capture key practices in each framework element.

Topic 6: Exploring district and school practices aligned with the Culture of Data Use Framework

- Duration: 60 minutes
- Handout 6.1: Culture of Data Use Framework: Vignettes
- Handout 6.2: Culture of Data Use Framework: Effective data-use practices
- Slides 28–34

Facilitator guidance

To use the Culture of Data Use Framework, participants need to have a sense of what practices look like in each of the five framework elements. This section has participants explore vignettes that highlight examples of practices in each of the five elements. It responds to one of the guiding questions for the workshop:

- What do districts and schools with an effective culture of data use do? What are examples of the essential characteristics in practice?

Nearly all of this section is allocated to reviewing vignettes, which takes place in a "jigsaw" activity. A jigsaw provides a streamlined efficient mechanism for participant learning and dialogue. The activity involves two rounds of discussion with small groups formed in different ways. In round 1, "expert" groups are formed, with each examining one of the framework elements. In round 2, "teaching" groups are formed, each with one person from each of the five round 1 groups. Each "expert" member reports the findings from his or her round 1 group. To conduct this jigsaw, a minimum of 10 participants are required to make five expert groups and two teaching groups. (For workshops with fewer than 10 participants, individuals can read each vignette and then share their findings, or an individual can read a vignette and share key points as described below, in the guiding questions for round 1.)

Consider the following timing for this activity:

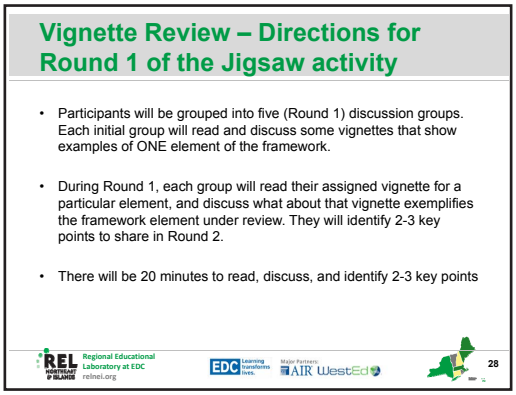
- 5 minutes for introduction and setting up the jigsaw groups.
- 20 minutes for expert group reading and review of main points.
- 20 minutes for teaching groups to form and discuss the findings from each expert group member.
- 15 minutes to review slides 30–34, highlighting handout 6.2, and debrief participant learning.

The goal is to explore the framework elements in the examples of practice in schools that have developed successful data-use practices. Keep the dialogue focused on the vignettes to help participants think about best practices. Later, participants will have time to explore their own practice.

Presentation slides and participant activities

During the jigsaw activity, help the groups keep track of time. Ensure that groups identify two or three key points during round 1, and that they move through discussion of all five vignettes during round 2.

Slide 28:



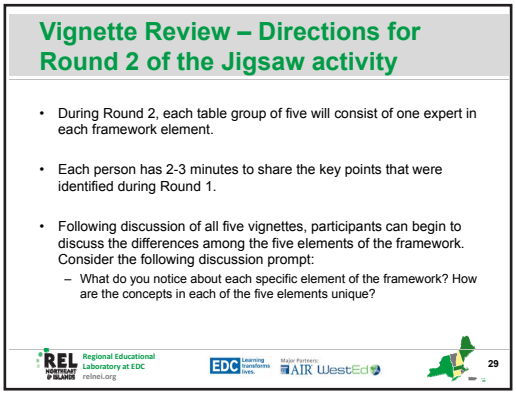
Form participants into five groups. These initial groups will be called the expert groups. Assign each expert group one element of the framework.

Call their attention to handout 6.1. Each vignette deals with one of the framework elements. Ask each group to read and discuss the vignette corresponding to the framework element it was assigned and to develop two or three key points about how the vignette exemplifies the framework element.

Offer the groups these guiding questions for round 1:

- How did this vignette exemplify the element of the framework?
- What are examples of practice that illustrate this element of the framework?
- How did this practice contribute to building a culture of data use?

Slide 29:



Reorganize the groups so that there is one "expert" on each framework element in each group. The groups for round 2 are the "teaching" groups.

In the new groups, each expert shares two or three key points about how the vignette exemplified his or her framework element as raised in round 1.

Next, group participants discuss the differences among the five elements. Consider these discussion questions:

- What do you notice about each element?
- How are the concepts in each element unique?

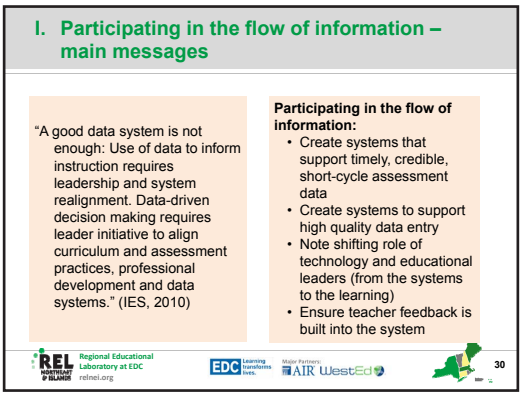
Following round 2, use either of the following two methods for a 15 minute debrief of the activity:

- Use slides 30–34 to show key points that were likely raised in the vignettes. On the left of each slide is a quote from the research that captures an important idea for that framework element. On the right of each slide are examples of practice from the vignettes. These slides provide a quick summary of the key points.
- Conduct a more general, large group debrief of the jigsaw activity. To structure this debrief, listen for key points that come up during the group discussions and ask participants to share those points with the large group, or ask for general comments through the following prompts:
  - What did groups discuss during the round 2 dialogue that helped them see how each of the five framework elements is unique?
  - Where did groups notice overlap or wonder about how these ideas intersect or are dependent on each other?

Debriefing from the "jigsaw" activity

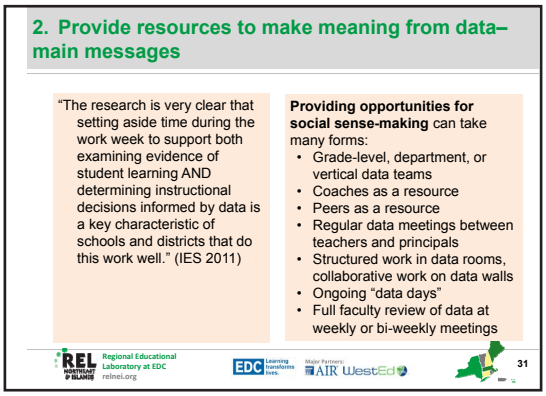
A large group debriefing discussion focused on the second prompt about overlaps among the five elements might move dialogue forward around the topic of how the framework elements are interrelated. All five elements are necessary, and attending to each requires specific knowledge and practices. Continued examples throughout the workshop should help participants better understand how to approach each element to improve their culture. A goal of this workshop is to help participants better understand how to tease these concepts apart for more clarity about how to move forward in each area. In other words, understanding each element helps participants understand the specific knowledge and skill development that must take place in each element.

Slide 30:

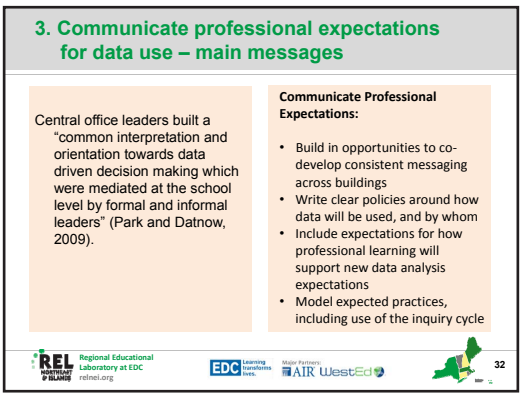


For element 1, point out the research finding on the left and the examples from the vignettes on the right. Ask participants if they found any other examples. Use the same technique on slides 31–34.

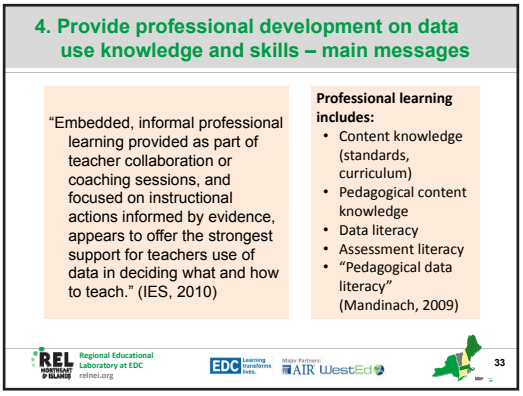
Slide 31:



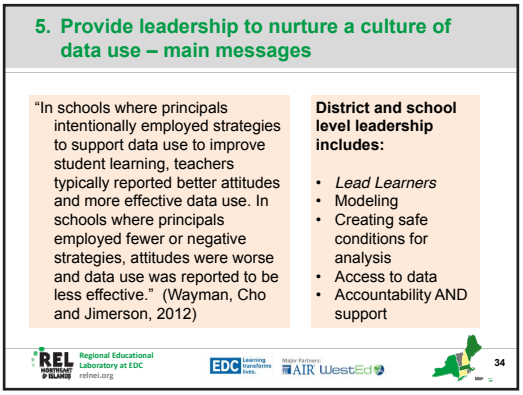
Slide 32:



Slide 33:



Slide 34:



If you debrief using slides 30–34, close with a brief (2 minute) discussion for the large group.

Topic 7: Considering changing expectations of data use over time

- Duration: 20 minutes
- Handout 7.1: Changing expectations of data use: Teacher activities on the continuum
- Slides 35–41

Facilitator guidance

This section briefly addresses the shift in data-use practices as districts and schools move away from an accountability-based approach for teacher review, toward an approach that includes student learning data. Participants will reflect on where they see their district or school on this continuum and use this knowledge later in the workshop as they explore appropriate next steps.

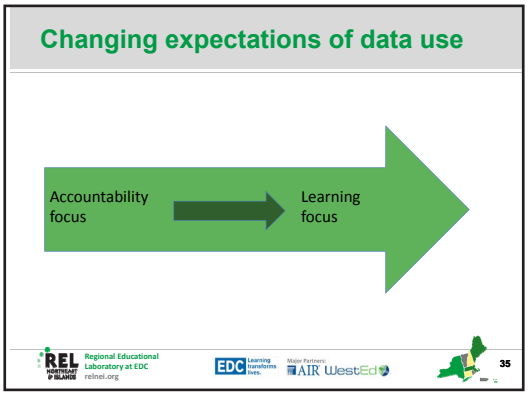
This frame will help participants explore the culture of data use district case study in topic 8, which shows how this continuum took shape over multiple years in one district.

Presentation slides and participant activities

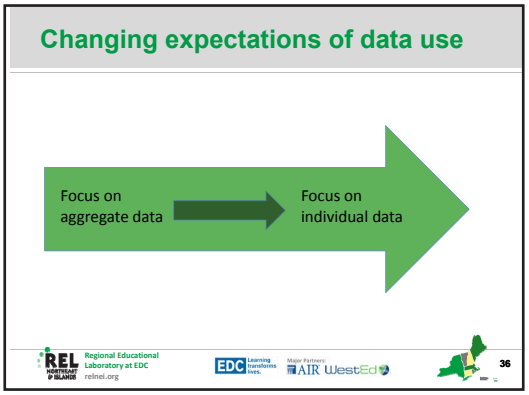
Since the beginning of the standards movement, there has been an increase in the use of accountability assessments and a corresponding increase in the use of large-scale data to guide education decisionmaking. Over the past several years, there has been a shift toward considering a variety of data types—formative, interim, and benchmark—to inform and support teaching and learning.

Slides 35–37 show characteristics of the shift from an accountability focus to a learning focus.

Slide 35:

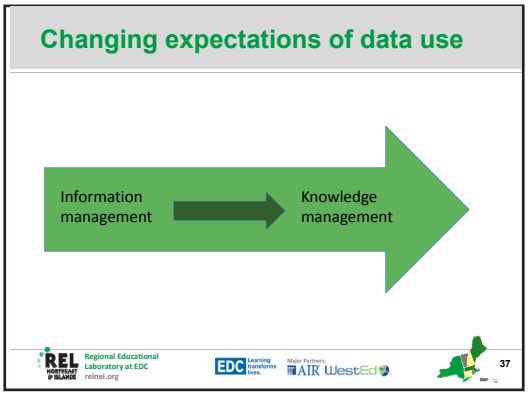


Slide 36:



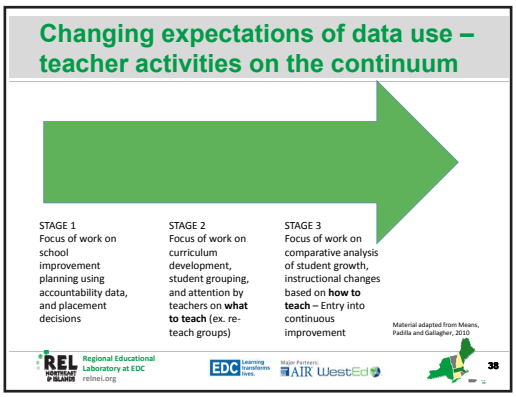
Accountability characteristics are shown on the left (tail) of the arrow. Data practices that involve a strong accountability focus rely primarily on large-scale, aggregate data. This shift reflects a stronger emphasis on gathering useful individual data on student learning, collecting the data more frequently, and ensuring that teachers have access to and can use the information.

Slide 37:



An accountability focus involves a heavy emphasis on information management, or the collection and dissemination of organizational information related to student assessment results. The shift is toward supporting knowledge management, or thinking about ways districts and schools can best support developing knowledge and skills to support data use at the classroom level.

Slide 38:



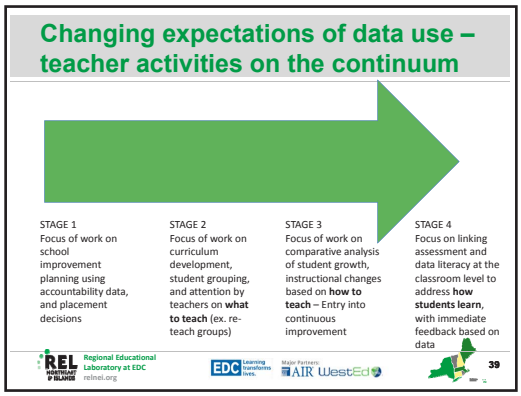
Slide 38 is adapted from research by Means, Chen, DeBarger, and Padilla (2011), who highlight this continuum of practice and the types of activities that might be seen at each of these three levels.

In stage 1, school improvement teams and school leaders use primarily state assessment data to inform decisionmaking. State assessment data might inform curriculum decisions, teacher placements, and student placements. Often, during this stage there is heavy reliance on state assessment and accountability data, in part because of limited access to other types of data. In this stage 1 there is very little use of data to guide instructional decisions or classroom actions.

In stage 2 there is initial use of other types of data, and data users apply data decisions to focus on what to teach. Data are reviewed to see whether specific standards have been met and to determine how subgroups are performing. Data-use strategies focus on analysis of curriculum and standards to ensure that key standards are being addressed and to determine whether specific students or student groups should be supported with additional content or instructional time. In this stage there is often a new reliance on benchmark or interim assessments. The overarching focus is on what is being taught.

In stage 3 the primary focus is on instructional practices—on how to teach. Teachers are using data more frequently, and additional data are available to provide information on current student performance. Data analysis strategies are focused on looking at assessment data to determine which instructional actions benefited students the most and on exploring ways to improve instruction based on these outcomes. There is an increasing focus on more "formative" classroom data, which are seen as a tool to support daily teaching and learning.

Slide 39:



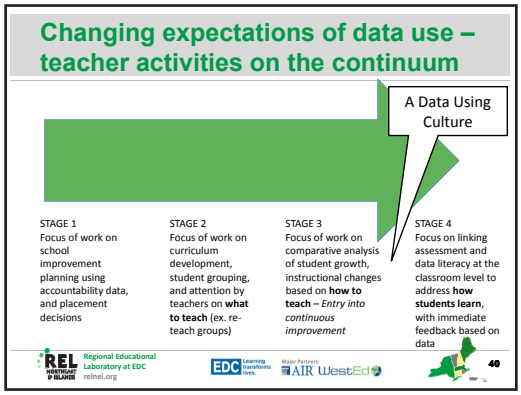
KEY POINT

Stage 4, addressing how students learn, links assessment and data literacy in the classroom and provides immediate feedback to the teacher. At this point on the continuum, the purpose of using data has shifted from compliance to helping students learn.

In stage 4, teachers use student achievement data formatively to understand what students know and can do through daily classroom assessments. Stage 4 work involves daily focus on student-learning data, especially on what students know and what they need to address in the next steps in instruction. The data analysis skills from stages 1–3 are evident in

stage 4 but are increasingly focused on understanding the evidence and making real-time instructional adjustments to best meet student-learning needs.

Slide 40:



Stage 4 requires a data-using culture. The Data Quality Campaign (2009) points out that the shift from compliance to a student-focused culture of data use involves a much greater focus on supporting people rather than "things." Support from district and school leaders becomes increasingly important to help educators move into stages 3 and 4.

Slide 41:

To close this section, ask participants to reflect on where they are along this continuum. To keep this time "safe," do not press participants to talk. Individual reflection is a way for them to begin to think about their practice and to frame some very preliminary ideas about their next steps.

Topic 8: Exploring district data-use practices over time

- Duration: 55 minutes
- Handout 8.1: Culture of data use: District case study
- Slides 42–45

Facilitator guidance

This session explores a case study of how a suburban school district developed a culture of data use over a decade. Participants will explore how the district moved along the continuum introduced in topic 7 and discuss what steps were taken and what stage was reached. The case study is a realistic blend of good practices and setbacks. A key point is to understand the amount of preparation and commitment it takes to progress along the continuum.

Participants will work in groups of three to review the case study and then explore questions about the changes in district practice over time. A goal is for participants to have a dialogue that relates to key aspects of implementation:

- How data-use practices develop over time, and how district and school leaders can support that development.
- How district and school leaders can consider and respond to the changing needs of teachers as they adopt new data-use practices.
- How to identify and address barriers to consistent data-use practices.

This case study is not an exemplar for best practice. Rather, it is a real example in which the district did some things very well and had some missteps along the way (which is fully expected in this work).

Because the case study is long, this activity has been set up as a "trio reading." Each person in the trio reads a section of the case and shares it with others.

This section concludes with a large group debriefing that builds on the dialogue in the small groups. The debriefing question raises the idea that it can take districts and schools a long time to move toward full implementation of a culture of data use. Participants may or may not agree as to whether the case district made it to stage 4 implementation (there are valid points on both sides). The larger idea is to help participants explore the case study to understand how long this work takes and to plan how to continue to support teachers over time. This key point is made after the final slide. Additional discussion questions and activities using the case study are presented at the end of this section.

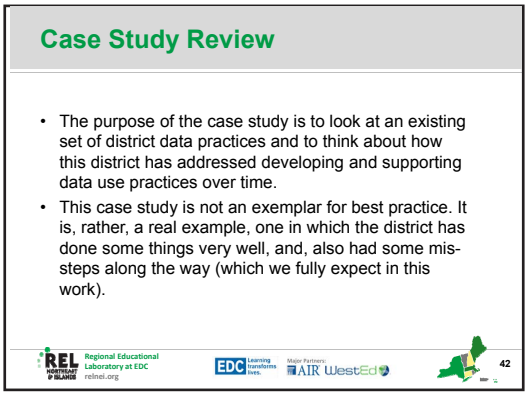
Presentation slides and participant activities

To set up this activity, organize participants into groups of three. Make sure that each group of three has space to work, as it will be difficult to concentrate if other groups are very close by (for example, at the same table).

The total time is 55 minutes, sequenced as follows:

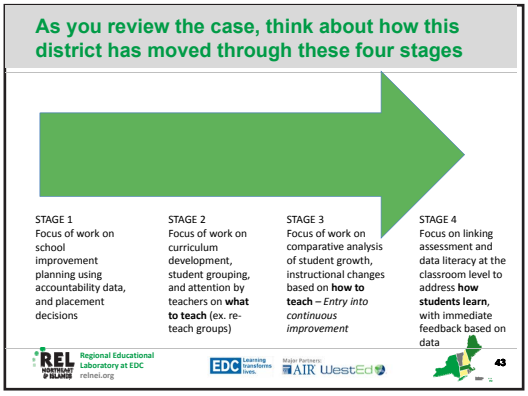
- 5 minutes to review the initial slides and set up groups.
- 20 minutes to read and identify three to four key points to share.
- 15 minutes to share and discuss ideas about how the district moved through the four stages in the continuum.
- 15 minutes for large group debriefing.

Slide 42:



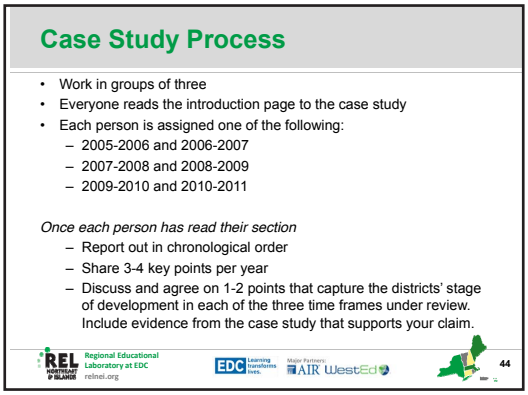
Refer to the case study, Handout 8.1: Culture of data use: District case study, and describe the purpose of the assignment.

Slide 43:



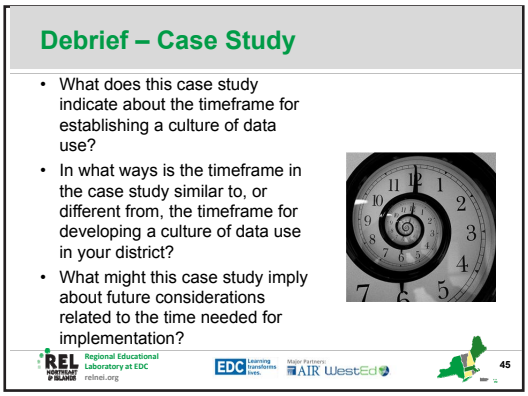
Review the four stages and note that participants will learn how a district passed through these stages over a decade.

Slide 44:



Describe the process of the case study activity in slide 44. Working in groups of three, participants should read the time spans indicated. Each person reports in chronological order, and the groups discuss and agree on one or two points that capture the district's stage of development in each timeframe along with supporting evidence.

Slide 45:



After the activity, debrief the large group with the three questions in slide 45.

What does this case study indicate about the timeframe for establishing a culture of data use?

In what ways is the timeframe in the case study similar to, or different from, the timeframe for developing a culture of data use in your district?

What might this case study imply about future considerations related to the time needed for implementation?

Additional optional questions are below.

Consideration of timeframe is a significant takeaway for participants. Developing a culture of data use takes years and involves consistent attention and a focus on addressing the next steps. Leaders have shared again and again that this work takes far longer than they anticipated and often involves a long-term approach to resource allocation and professional development in ways that were not considered in the early stages. Dialogue related to this issue can be helpful at any stage, with notable value in the early stages.

Debriefing from the case study

This case study can also lend itself to dialogue about a number of issues, from specific examples of practice to exploring issues of district and school interactions around data use. The following ideas may come up naturally in group dialogue. Depending on district or school next steps, these prompts may also be useful during the debriefing:

- What structures were put in place over time to support teachers in using data?
- What leadership competencies did the district work to develop? What are some examples of these?
- What faculty and staff competencies did the district work to develop? What are some examples?
- What barriers did the district face in building a culture of data use? How did the district overcome those barriers?
- An area of lesser focus for this district was the framework element, "Participate in the flow of information for evidence use." What are some examples of that from this case? What impact might this have had on their overall work?
- In this case, what worked well in one year but did not when tried again later? What is the takeaway from this experience?

The optional activity below helps teams take the ideas they learned in the case study and apply them to their own setting. This activity involves developing a case study for their own school or district. Once done, this written reflection of data practices can be a useful tool to clarify work done in the area of data use, identify gaps, and plan next steps in developing a culture to support data use.

Optional activity

- Create a bulleted list identifying data practices at your school or district over the past five years. Use the case study as an exemplar. Involve as many people as you can to recall the different district- or school-wide data-use practices introduced over time. This is best done as a group but can also be done independently and then brought to a team meeting and shared.
- Once the bulleted outline is done, map it to a blank Culture of Data Use Framework template. Have group members identify which items on the list go in which "box" of the framework.
- After aligning case study elements to the framework, ask the following questions:
  - Which of the five characteristics are more fully attended to?
  - Which have been less attended to?
  - What might be some next steps as you see the information organized in this way?

Topic 9: Reviewing templates, tools, and strategies that support consistent implementation of data-use practices

- Duration: 45 minutes
- Handout 9.1: Discussion protocol: Identifying implementation strategies for a culture of data use
- Handout 9.2: Barriers to a culture of data use, by framework element
- Handout 9.3 Examples of policy and guidance to support a culture of data use, by framework element
- Handout 9.4 Examples of district and school guidance to support a culture of data use, by framework element
- Slides 46–56

Facilitator guidance

Topics 9 and 10 address the final set of guiding questions for this workshop:

- Which of the practices highlighted in this workshop can be applied in your own setting to deepen or extend current practice?
- How can you create or better support systemic change in data-use practice using district- or school-level guidance?

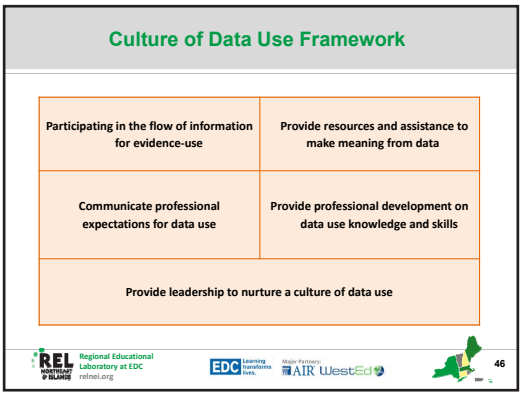
Participants will explore materials in one framework element of their choosing. The process involves working through a discussion protocol while reviewing three workshop handouts. Participants will identify one framework element and then review barriers, discuss examples of guidance and policy for the elements that other districts and schools have used, and highlight how ideas from those examples can be applied within their own setting.

Depending on the number of participants, the work in this agenda topic can be structured to provide opportunities to review all five framework elements. For example, with 20 participants, five groups of four could each discuss one of the framework elements and then report their findings. Facilitators can identify what might work best in their setting.

A primary goal of this section is to familiarize participants with the tables and examples of the culture of data use so that these resources can be used beyond this workshop. While it is beyond the allotted timeframe to have every participant engage with every handout, data teams from districts or schools can easily use the discussion protocol to work through each of the five framework elements, ultimately identifying areas of focus or next steps in all five elements.

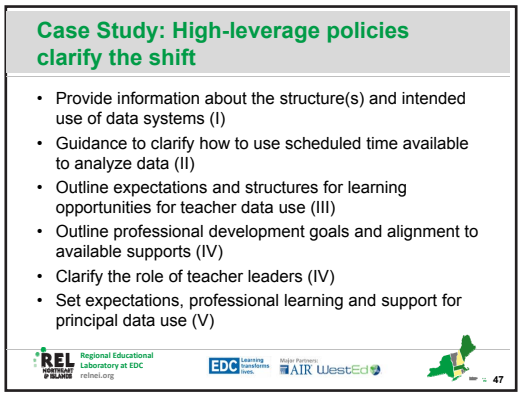
The structure of this topic is designed to provide a scaffold that helps individuals or team members develop, revise, adapt, or reconsider district and school guidance in light of what they have learned in this workshop. The debriefing of this section is structured to have the large group come to agreement about the value of improved documentation and guidance in developing a culture of data use. The next agenda item (topic 10) addresses this work.

Slide 46:



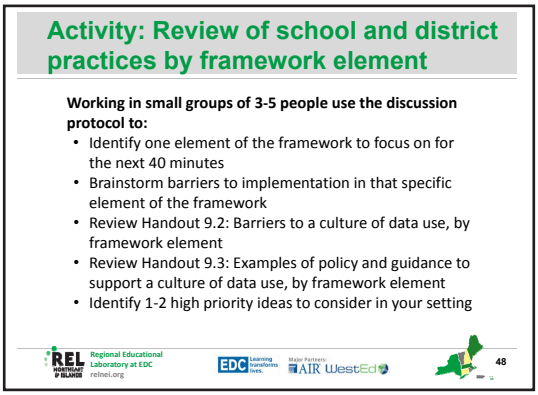
Use slide 46 to remind participants that this section is focused on using the Culture of Data Use Framework. This section examines barriers to implementing the elements and how to develop guidance and policies to foster each element.

Slide 47:



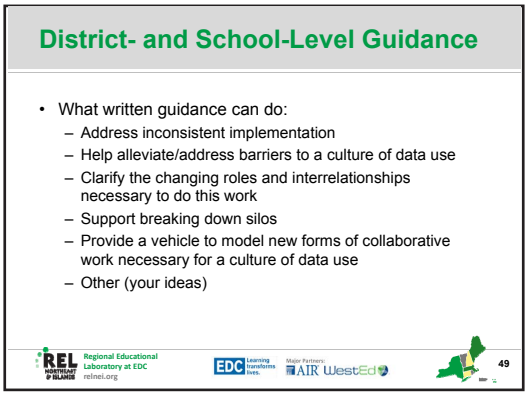
Slide 47 shows examples of high-leverage policies that the case study district (in topic 8) considered as it moved toward developing a culture of data use. The roman numerals show which Culture of Data Use Framework element corresponds to these policies. Use this slide to introduce the examples that will be highlighted in this segment. The goal is for participants to begin to frame effective practices from the workshop to apply in their own setting.

Slide 48:



Use slide 48 to introduce the activity for topic 9. Each group selects one element of the framework, brainstorms barriers to its implementation, and identifies one or two high-priority areas of that element for its home district or school. Groups will have 40 minutes to work on this activity. Throughout this time, visit each group, support group processes, and provide guidance on materials. Times for each question are listed on the discussion protocol.

Slide 49:



Bring the groups together and use slide 49 to debrief the activity and discuss why having written guidance or policies is important to developing a culture of data use. Ask participants to add their own ideas about why this is important.

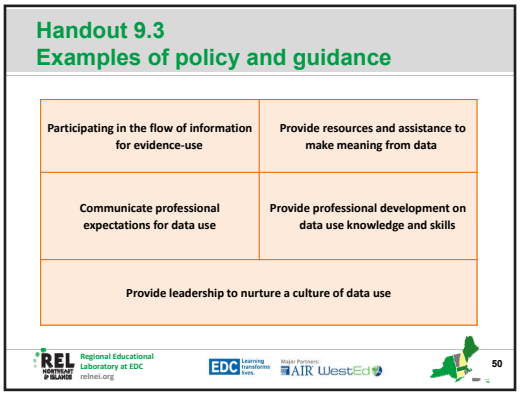
Consider using this slide as a prompt for large group dialogue about the value of this work in increasing understanding and commitment to establishing more consistent practices. As explained in the vignettes and research summaries, written guidance and policies help districts develop clear, consistent messages about data use and support cultural changes toward more effective inquiry and data-use practices. This is a useful time to revisit this point.

Debriefing the discussion protocol activity

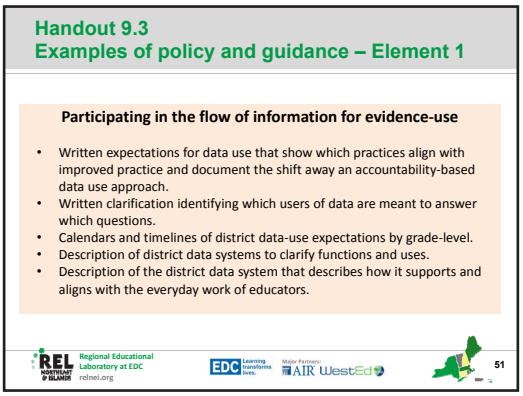
Slides 50–55 are optional debriefing slides for this agenda segment. They provide a chance to discuss or review the examples of policy and guidance more deeply. Using these slides to debrief may be more useful with groups that are new to this work, are beginning to form a vision of what is possible, or are beginning to discuss a range of potential practices. Show the slides in conjunction with handout 9.4 to show participants actual examples of written guidance for each element.

To streamline this review, consider using these slides to highlight only one example per element or to ask participants who worked in each framework element to capture what strategies they discussed at their tables. Note that slide 56 offers an activity to debrief this in more detail.

Slide 50:

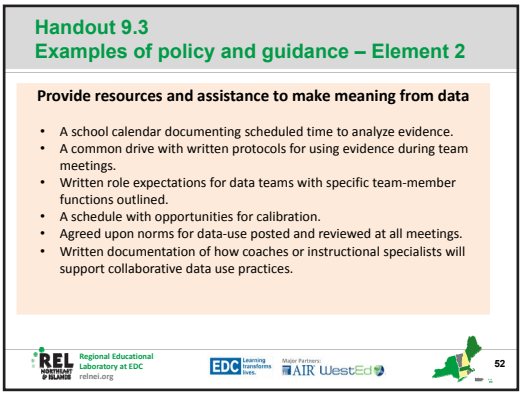


Slide 51:



Also call attention to handout 9.4.

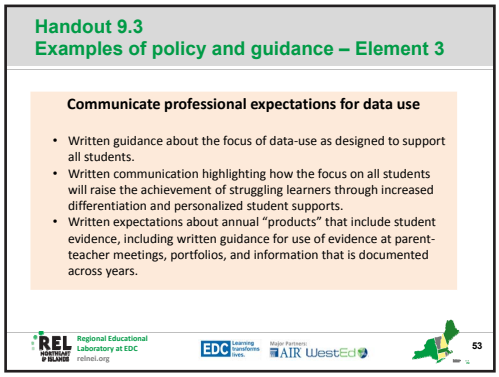
Slide 52:



See sample guidance in handout 9.4:

- Common formative assessment tuning protocol.
- Collaborative assessment project: Professional learning team member roles.
- Professional learning team common formative assessment review: Team data analysis protocol: Five-phase data review.

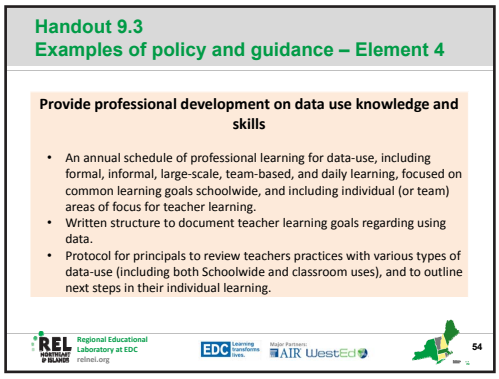
Slide 53:



See also in handout 9.4:

- District guidance on organizing scheduled data reviews.
- Planning for a coherent assessment system.

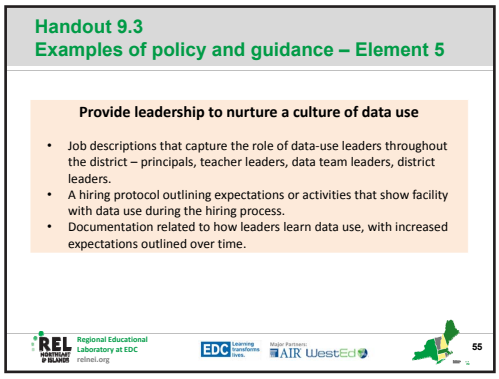
Slide 54:



See also in handout 9.4:

- Rural middle school data team (embedded professional learning).
- Data literacy and assessment literacy toolkit topics.
- Role description of data coach.

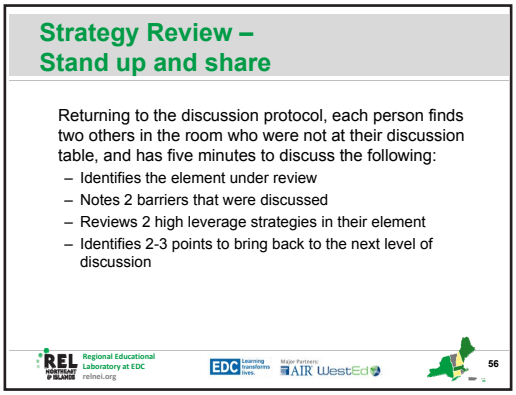
Slide 55:



See also in handout 9.4:

- Example of input to district policy: Changing principal job description.
- Building leadership team development activity to establish agreed upon actions for principals to strengthen data-use practices.

Slide 56:



Use slide 56 for a group of 10 or more. For small teams, no debriefing is required. In a larger group, this dialogue can help quickly share some key points. It offers participants a chance to get feedback on what they have discussed and to check it against how others approached the same topics. This brief sharing gets participants ready to move into the next agenda item.

Topic 10: Selecting strategies to further implement framework elements

- Duration: 50 minutes
- Handout 10.1: Discussion prompts
- Handout 10.2: Guiding questions for developing policy or guidance, by framework element
- Handout 10.3: Examples of policy and guidance to support a culture of data use, by framework element
- Slides 57–60

Facilitator guidance

Participants will select one or two framework elements and craft guidance to support consistent implementation and practice. Once education leaders see the examples in these materials and discuss other effective practices (either from their own experience or from readings), this work flows quite easily. Writing guidance while the ideas are still fresh from the workshop is helpful. Remind participants that there is no road map or manual of how to do this work. Each district and school needs to work within its own context and use the framework to identify the critical elements to focus on for implementation.

During this session, facilitators introduce handout 10.1 to guide dialogue. The discussion prompts can be revised to meet the needs of the district or school. If this workshop takes place over several sessions, there may have been internal dialogue about the kinds of guidance needed. Before or after the workshop, facilitators should consider input about who should be involved with this work over time.

Using the optional assignment

If participants have completed the optional assignment of developing a district or school case to review in topic 8, this is the time to bring it out for review. Areas of focus can be generated from the mapping process, by noting, for example, which areas have not yet received attention or where there have been barriers to practice.

The majority of this session will be group dialogue and writing, and planning for next steps. Facilitators should check in with all groups during this stage. In the last 10 minutes of this segment, facilitators can bring the entire group together to debrief and clarify next steps. If facilitators are able to collect the work done in this session, it can be used to support deeper review and implementation as next steps are taken.

Slide 57:

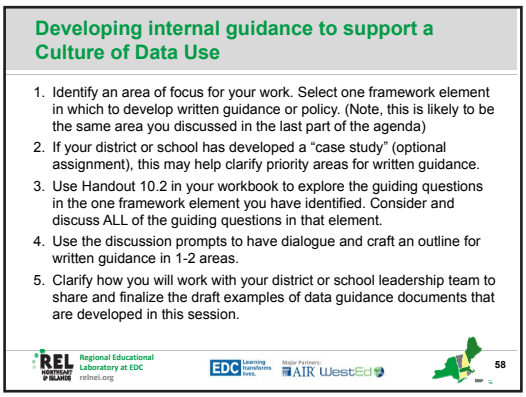
The metaphor of the Iditarod dogsled race in slide 57 is apt for developing a culture of data use. In the original Iditarod, dogsled drivers had to get from point A to point B, but they did not have to follow a particular path. Rather than use precise route, drivers considered their expert knowledge of the terrain, the environment, and the conditions to make their way. The idea that there is no roadmap indicates that there is no step-by-step manual that can support a culture of data use. In developing a culture of data use, leaders require expert knowledge, a vision of what data use can look like in their setting, and a deep understanding of current practices in this domain.

Other metaphors for not having a roadmap

Share this metaphor, use your own, or ask participants to raise their own ideas about what it means to have no roadmap.

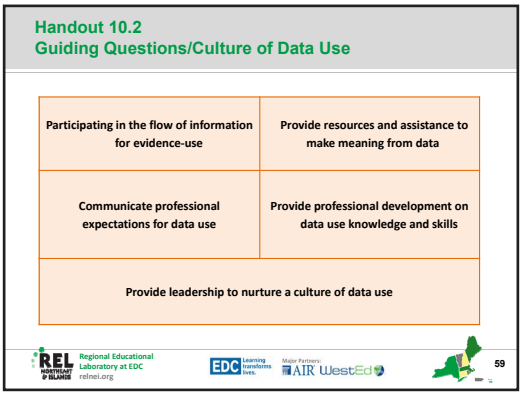
The Iditarod metaphor does not imply that we have no idea how to create a culture of data use. Rather, it implies that each district will have to clarify its path forward by understanding and attending to the unique conditions in its setting. Knowledge of the terrain and existing conditions will help create a successful route, and attending to changing conditions over time will add to that success.

Slide 58:



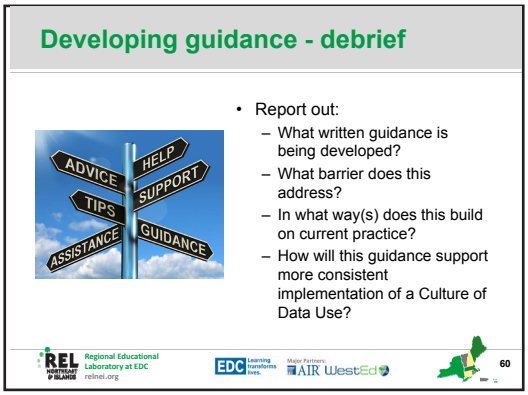
Show slide 58, which is a review of handout 10.1. These discussion prompts, in conjunction with handout 10.2, will lead to an initial draft of written guidance that can be shared with district or school leaders. For teams that might be having trouble identifying an area on which to focus, handout 10.3 provides some ideas of the types of policy that can be helpful. The next steps will likely focus on ensuring that the right district or school leaders have the opportunity to review it and that there is a plan to carry it through.

Slide 59:



Ask participants to take out handout 10.2 (summarized in slide 59). Use this document to consider areas where guidance might be needed. At this point in the day, participants may be quite ready to narrow and focus on one or two areas where they see gaps and want to address that with written guidance. If that is the case, handout 10.2 might help them clarify and have some final dialogue about those one or two areas as they move into crafting written guidance. Following the brief review, give groups about 40 minutes to use handout 10.2.

Slide 60:



Bring the groups back together to report on their progress and next steps, as outlined in slide 60. At this time, it is helpful to capture and document agreed upon next steps and to collect notes and initial drafts of written guidance. Help clarify who has a primary role in moving this work forward and any timelines that have been identified.

Topic 11: Reflection and closing

- Duration: 15 minutes
- No handout
- Slides 61–67

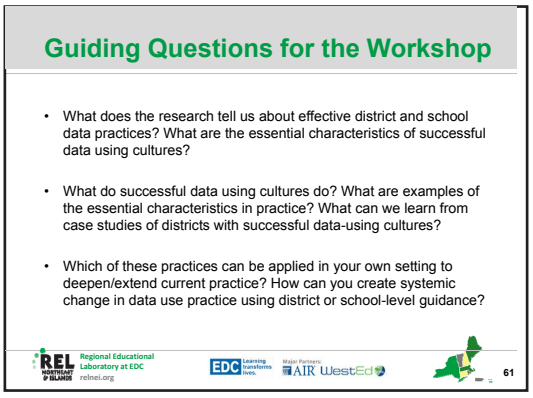
Facilitator guidance

This section allows participants to capture learning and supports group understanding of how that learning will help as participants develop a culture of data use in their setting. The slides focus on recalling the learning goals, success criteria, and guiding sessions for the workshop, providing some ideas to consider as they take the next steps, and then finally, sharing participant learning.

Slides 61–65 are meant to be shared by the facilitator but not yet discussed. They lead up to an opportunity to discuss workshop outcomes on slide 66. Facilitators should move through slides 61–65 in about five minutes, leaving most of the session for presentation of content on slide 66.

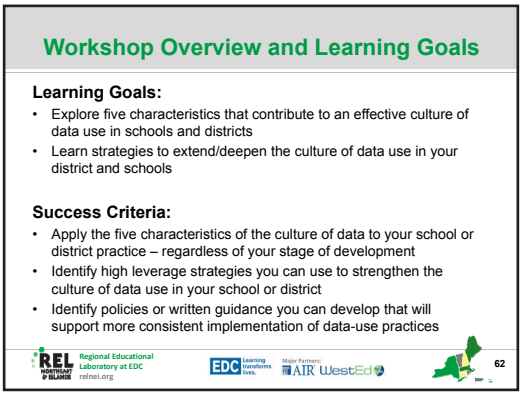
Presentation slides and participant activities

Slide 61:



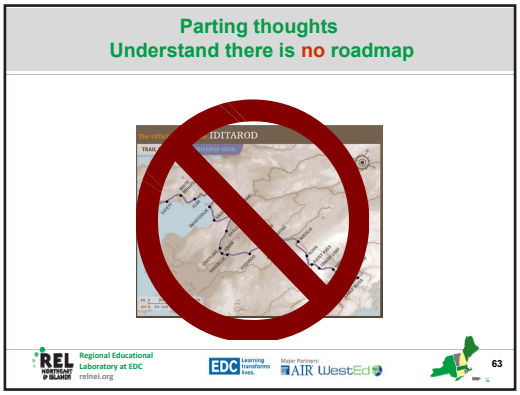
Ask participants to reflect individually on the degree to which these guiding questions were addressed in the workshop.

Slide 62:



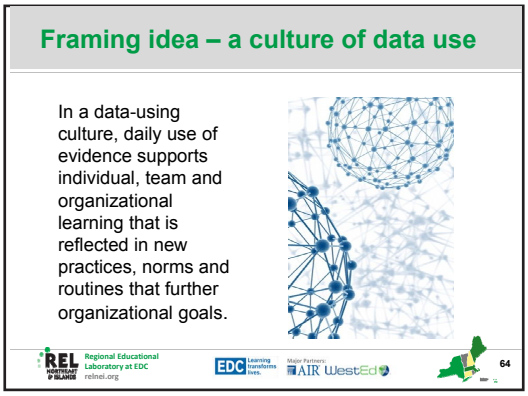
Again, ask participants to pause and individually reflect on the degree to which these learning goals have been met.

Slide 63:



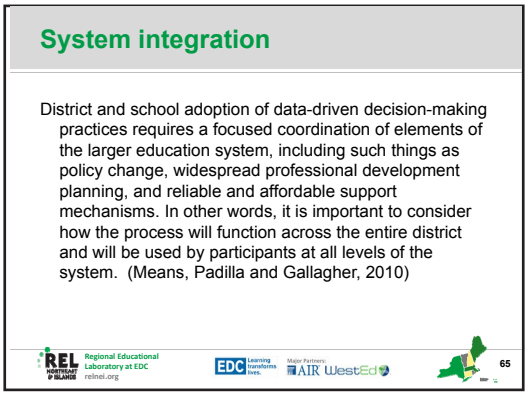
Show slide 63 as a reminder that individual districts must clarify their own course, based on their current context and needs.

Slide 64:



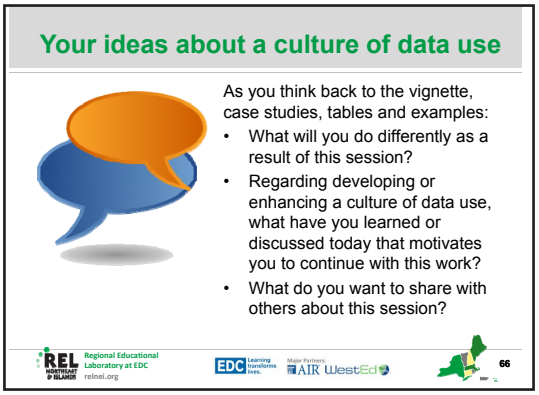
Stress that developing a culture of data use is a core practice to help meet education goals.

Slide 65:



Ask participants to read and reflect individually on this quote from researchers who offered support to this workshop. Hold discussion for the next slide.

Slide 66:



Use slide 66 to offer participants a chance to reflect on what they have learned. One strategy is to have them discuss these three questions in pairs or trios, then report on their discussions.

- What will you do differently as a result of this session or workshop?
- Regarding developing or enhancing a culture of data use, what have you learned or discussed today that motivates you to continue with this work?
- What do you want to share with others about this session or workshop?

Whatever facilitation strategy is used, it is important to hear participant reflections about their overall learning. Ask them to reflect back to examples of practice in the vignettes and case studies, and raise ideas around developing and implementing a vision of a culture of data use.

Slide 67:

Handouts

Pre-reading

A practical framework for building a data-driven district or school: How a focus on data quality, capacity, and culture supports data-driven action to improve student outcomes.

Authors: David Ronka, Robb Geier, and Malgorzata Marciniak

The current age of greater accountability in schools has challenged educators to seek effective ways to incorporate data into their decisionmaking processes from the central office to the classroom. However, this is not just a matter of collecting more data. For data to inform decisions about policy, programs, practice, and student placement, three critical factors need to be taken into consideration: data quality, data capacity, and data culture. This White Paper describes a research-grounded model for data use and discusses these three factors, why they are important, and how they support effective data use in schools and districts.

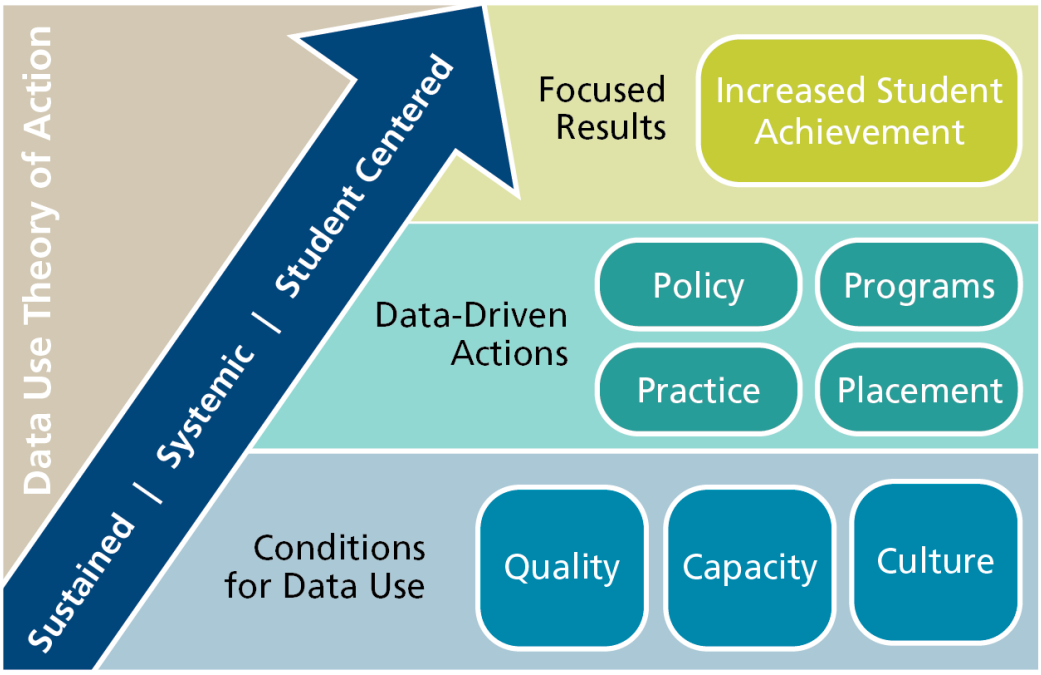
Schools rely on "random acts of improvement" (Bernhardt, 2006, p. 30) when educators do not set clear targets for improvement and then use data to track progress against measurable indicators to reach those targets. Data can be used to formulate appropriate and effective education policy and to measure the effectiveness of programs and instructional interventions. Data can also be used to measure individual student progress, guide the development of curriculum, determine appropriate allocation of resources, and report progress to the community. But despite the leverage that can be gained by using data effectively, many schools still struggle with data-driven decision-making (Mason, 2002; Ingram, Louis, & Schroeder, 2004; Boudett & Steele, 2007; Stid, O'Neill, & Colby, 2009). This paper discusses a theory of action that links the conditions necessary for data use to the types of decisions that can be informed by data to improve student outcomes. The paper will present the overall theory of action followed by a discussion of the two primary components (conditions for data use and examples of data-driven decision making in schools) and will end with a discussion of the implications for district and school leaders.

Theory of action

Fifteen case studies published between 2002 and 2009 were analyzed to identify conditions in schools and districts that support data-driven decision making at the district, school, and classroom levels. Specific data-driven actions were documented within and across the cases in order to formulate a description of what effective data-driven decision-making looks like in a district and school. The theory of action that emerged is represented in the graphic below. It contains three foundational conditions for data use (conditions), that enable different types of data-driven actions related to policies, programs, practices, and student placement (actions), and that together are linked to improved student outcomes (results).

According to the theory of action, if the necessary conditions for data use (data quality, data capacity, and data culture) are in place, and data are being used to formulate policy,

Figure 1. Public Consulting Group's data use theory of action



evaluate and design programs, guide practice, and place students in appropriate instructional settings, then increased student achievement will result. However, it does appear that for data use to have a profound impact on student achievement, data use must be sustained over time, take place systemically throughout all levels of the organization, and be student centered. This theory of action, which emerged through a coding of the case studies, has been reinforced by our work with schools and districts over the past decade.

Conditions for data use

There has been much progress in the area of data use by educators at the district, school, and classroom level. However, many schools and districts still only use data superficially. Superficial data use happens when data are used inconsistently and/or inappropriately in pockets of the organization without systematic procedures, expectations, and accountability in place. In these environments, there may be some who engage in effective data use practices. However, in the same school or district, data may also be used to punish educators, to justify the status quo, or to make critical placement decisions based on single data points (e.g., one assessment's results) that restrict options and opportunities for students. Systemic data use, on the other hand, is where data are routinely and collaboratively used at all levels to inform organizational, program, and instructional improvement decisions directed at improving student outcomes. But this doesn't just happen. It takes a concerted and deliberate effort for district and school administrators to put the necessary conditions in place that support and empower data-driven actions. In this paper we are primarily focused on student outcome data—that is, information about student learning (e.g., assessment or test data) and student engagement (e.g., attendance, conduct, graduation rates). There are many types of data that can inform schools of their progress toward goals (e.g., incidents of vandalism,

number of certified teachers, number of students enrolled in advanced classes). Our focus in this paper is on how schools and districts can most productively use data directly related to student outcomes to identify and understand issues related to curriculum, instruction, and assessment and make changes in how they operate in order to improve those outcomes.

Successful conditions that were present in many of the case study schools and districts can be distilled into three categories: data quality, data capacity, and data culture. It appears that these conditions are fundamental to effective data-driven decision-making. These three areas synergistically interact to create an environment where data use is powered by high quality data, enabled by various data capacities, and supported by a culture of accountability and collaboration. In the next sections of this paper, each of these is discussed.

Data quality

Access to high quality data can lead to greater levels of systemic data use and ultimately to improved student outcomes.

Data quality includes:

- Using *multiple measures* to ensure relevance and the ability to triangulate from more than one data set;
- Making sure data are *well organized* and presented in *data displays* that are easy to interpret;
- Using accurate data that have been standardized and cleansed;
- Making data available to stakeholder groups *before the data "shelf life" has expired;* and
- *Disaggregating* data for analyzing across multiple factors.

Without high quality data, stakeholder groups can lose faith in the value of data and become discouraged. At worst, educators can use poor quality data — data that are old, that are not disaggregated, or that are presented in confusing or inaccurate ways — and draw false conclusions about district or school needs. This can result in "data-driven" actions that can actually cause harm. It is important for districts and schools to put safeguards in place to address data quality.

Data capacity

Data capacity is the next condition for data use. Without the capacity to access, understand, and use the data that are available, no amount of data (high quality or not) will lead to meaningful data use. In fact, without data capacity, the more data an organization has, the less it will be able to do with it. If data quality is the fuel, data capacity is the engine that converts the fuel to energy. Data capacity includes:

- *Organizational factors* such as team structures, collaborative norms, and clearly defined roles and responsibilities that support data use;
- *Technology* that can integrate data from multiple sources;
- *Data accessibility* that allows multiple users to have access to data in *formats that are easy to interpret*; and
- *Data literacy* and *assessment literacy* skills so data consumers know how to analyze multiple types of data and properly interpret results.

Schools and districts can improve data capacity by ensuring there has been adequate staff training on how to analyze and interpret test results, setting aside time for instructional and administrative teams to meet and discuss data, and establishing processes and procedures for accessing relevant data.

Data culture

A culture of data use can only develop if data quality and capacity are in place. A strong data culture results when an organization believes in continuous improvement and regularly puts that belief into practice. Schools and districts that have a strong data culture emphasize collaboration as a keystone for success and they empower teachers and administrators to make decisions for which they are held accountable. Elements of a strong data culture include:

- *Commitment* from all stakeholder groups to make better use of data;
- A clearly articulated *vision* for data use;
- *Beliefs* about the efficacy of teaching and the value of data in improving teaching and learning;
- *Accountability* for results coupled with empowering teachers to make instructional changes;
- A culture of *collaboration* at all levels;
- *Modeling of data use* by district and school leaders; and
- Commitment to making *ongoing instructional and programmatic improvements*.

Questions to consider when assessing the extent to which a culture of data use is present within a district or school include:

- Is there commitment by all key stakeholders to use data for continuous improvement?
- Are people held accountable for the use of data at the school and classroom level?
- Is collaboration among staff highly valued?
- Do school leaders model data-driven decision making as a key aspect of their roles and responsibilities?
- Do teachers believe that data can and should be used to inform instruction?
- Are teachers open to changing their instruction based on data about student learning?

Data-driven action

Data quality, capacity, and culture are the conditions necessary for systemic data use to exist within a school or district. But they are not the same as data-driven action. Rather, they are the foundation for data-driven action. Our analysis of the 15 case studies was framed by two key questions: What does a data-driven school or district look like? What kinds of data-driven actions do schools and districts take that successfully use data to improve student achievement? Four categories of data-driven actions emerged from our analysis. These categories also have been evident in our work with schools and districts across the United States and in Canada. Successful data-driven districts and schools use data in four key areas: to formulate sound policy, design and evaluate educational programs, guide classroom practice, and inform student placement.

Policy

Policy decisions lay the groundwork for educational practice. Data driven policies can have a powerful impact on needs assessment and planning processes, professional development, resource allocation, and teacher evaluation. Schools that model effective data use determine overall school needs through data drawn from multiple sources. Student performance data are used to drive the school- and district-improvement planning process. Professional development is informed by gaps identified in student performance data as well as by instructional data collected during walkthroughs and classroom observation. Resources such as time and staff are allocated based on the identified needs of students, and student assessment data are used as supplementary information in the performance evaluation of teachers.

Programs

Educational programming is the vehicle for ensuring that instruction is appropriate, targeted to identified learning needs, and aligned to established curriculum frameworks and benchmarks. In schools and districts that strive to continuously improve student outcomes, data are used to identify best practices across classrooms, to identify gaps in the curriculum, and to determine which programs are effective and which programs should be discontinued.

Practice

What happens in school hallways and classrooms in terms of practice directly influences student learning. These are the habits and actions that, taken collectively, form a learning environment that either supports or hinders growth. Data-driven practices include sharing and discussing performance data with students and parents, using data to develop lesson objectives, and adjusting teaching strategies based on evidence of student learning. Examples of what this looks like include teachers observing one another's classrooms, leaders sharing data about progress toward school improvement goals, and instructional teams developing action plans to address specific areas of need identified through data analysis.

Placement

Finally, data should be used to ensure student placement into educational settings that are appropriate and optimally designed for student success. Teachers and administrators can use data to identify students who are at risk of academic failure or of dropping out, to guide flexible groupings of students for more focused and differentiated instruction, to identify appropriate supports and interventions, and to monitor the progress of students.

What does effective data use look like in practice?

In order to show how these conditions and data-driven actions look in actual schools and districts, this section of the paper presents five short descriptions of data use drawn from the 15 case studies that were analyzed. These "snapshots" reflect data use practices found in schools and districts throughout the United States during the past 10 years. These summaries demonstrate the interplay between data quality, capacity, and culture,

and demonstrate how data use practices emerge when leaders are deliberate about putting in place these conditions for effective data use.

Supovitz and Klein (2003) conducted a study highlighting how different schools and districts use multiple measures to gauge student performance. They reported that the schools in their study drew achievement data from three primary sources: external standardized tests, schoolwide periodic formative assessments, and classroom-based customized assessments. The most prevalent of these sources was external data from the state and district. A few of the schools began to experiment with systematic school-wide assessments intended to provide interim feedback on progress toward school and grade-level goals. In classrooms, individual teachers fashioned creative and highly customized assessments. School leaders systematically analyzed a variety of student performance data at both the classroom and school levels. Rather than just relying on one individual test to provide guidance, innovative school leaders built more comprehensive systems of assessment that provided better interim information from multiple perspectives. By introducing this type of comprehensive system of assessments, teachers and school leaders could support an inquiry-oriented approach that involved ongoing and sustained investigations into the kinds of teaching that produced greater student learning.

Assuring access to quality data turned out to be critical to reducing the dropout rate in one urban district (Stid, O'Neill, & Colby, 2009). The case study illustrated how a district with only 54 percent of its high school students graduating was able to significantly address the dropout problem over the course of one calendar year. The district collected data that allowed them to conduct an initial diagnostic analysis that focused on the characteristics of students who were dropping out of high school. On the basis of this analysis, middle schools prepared reports which listed struggling students and data about their academic performance, attendance, behavior, and information about whether they had faced certain life challenges (e.g., pregnancy and parenting, homelessness, placement in foster care). These reports were provided to high school leaders early enough in the school year for them to identify and implement focused and tailored interventions for these at-risk students at the beginning of their first year in high school. In the case of ninth-grade students from one high school, such actions based on the right data at the right time resulted in a 25-percentage-point reduction in the number of students experiencing three or more core class failures in the ninth grade, which was identified as a critical threshold to prevent students from dropping out.

A study of six schools in another urban district (Mason, 2002) demonstrated the process of building capacity as a necessary intermediate step between collecting data and taking strategic action based on the data. The schools in the study faced several critical challenges: sustaining a commitment to transform data into knowledge, making data use a high priority, putting an effective data management and integration system in place, developing analytic skills in school leaders, and building capacity to link data to school improvement planning. The district engaged the schools in a two-year project that provided training and support. Some schools experienced moderate successes, but not without some hard lessons. Participants of the project realized how challenging it was to develop collaborative norms, build the necessary internal support for the data use initiative, build the capacity among staff to use and analyze data, and then apply that knowledge strategically. At the

end of the project, participants agreed that the process of using data needed a continuous and systematic focus, intensive professional development, and commitment to incorporate data use into everyday operations.

Brunner et al. (2005) looked specifically at data use actions taken by effective teachers. The study reported that these teachers regularly used data to meet the needs of diverse learners, identify struggling students, create differentiated and individualized assignments, and provide learning materials appropriate to students' levels. Teachers used data reports in conversations with other teachers, parents, administrators, and students. Many of the teachers used data to reflect upon the effectiveness of their own instruction and to shape their own professional development. Teachers also encouraged self-directed learning by giving the data to students to help them take ownership over their academic performance and learning.

Ronka (2007) conducted interviews of school leaders at an elementary school during their first year of implementing a schoolwide data use initiative. The case demonstrates the importance of attending to the organizational and cultural aspects of introducing data use into the school environment. Specifically, the principal established a data team comprised of members who were representative of the school staff and who were critical to bringing about the kinds of programmatic and instructional change that might result from effective data use. The team met monthly throughout the year to monitor progress and to lay the groundwork for continuous data use by planning professional development on various uses of data, identifying data quality issues, taking action to address those issues, and coordinating data use across content areas and instructional teams. Stakeholder commitment at multiple levels was evidenced by the amount of time committed to planning and monitoring activities, and the principal's strong leadership created an environment that was based on collaboration and focused on continual improvement.

Implications for schools and districts

In the case studies reviewed for this paper, each school or district applied a data-driven decision making approach for inquiry and action. The specific approach chosen, however, does not appear to be the major determinant for successful change over the long term. Making the approach "stick" requires a long-term vision for changing the way educators in the system make decisions and work to improve student results. It is this vision for changing the way decisions are made, when broadly communicated and shared throughout the organization, which guides sustainable growth through a particular data use approach. It is the task of district and school leaders to establish the vision and work toward it with strategic attention given to the three conditions for data use previously described.

Using the theory of action presented in this paper as a guide, leaders can create strategic plans to improve data quality, capacity, and culture. This can lead to a productive inquiry and action process focused on improving the conditions that support effective data-driven action. The table below presents questions schools and districts can ask to identify areas for improvement in the three foundational conditions for data use.

Table 1. Conditions for data use: Guiding questions

Conditions for data use	Guiding questions
Quality	• What data do we have that can help answer the questions we are currently asking about student learning? • What improvements to our data quality would expand our ability to ask and answer these and other questions?
Capacity	• What are the organizational structures and systems that enhance (or impede) our ability to use data effectively? • Do all members of our school or district have the data they need to make effective decisions? • Do all members of our school or district have the knowledge and skills necessary to make use of the data available to them?
Culture	• Are we basing the decisions we need to make on data and evidence? • Are we using data to communicate our decisions in ways that foster engagement by all stakeholders in improvement efforts?

Careful and thoughtful attention to the conditions in which data are being used is an essential component of leadership in today's educational environment. The proliferation of data and data systems has afforded educators the opportunity to fundamentally change the way they meet the needs of diverse students. When fostering and monitoring these conditions is a priority, then data-driven actions in areas related to policy, programming, practice, and student placement can be strategically focused on improving student achievement.

Conclusions

The theory of action presented in this paper advocates effective data use when making decisions about initiatives and instructional changes intended to improve student learning and achievement. When planning additions to the types and extent of data collection, enhancements to data systems, or data use professional development, we encourage education leaders at all levels to also consider the components of the theory presented in this paper. Assessing the extent to which specific strategic actions are supported by multiple types of data and a skilled culture of data use exists will enhance the likelihood that district and school improvement efforts will gain traction and ultimately lead to improved student results.

Data use initiatives too frequently fail to thrive and grow because of inattention to one or more aspects of data quality, capacity, or culture. Initiatives to expand data collection, increase data access, or foster data use that are not connected to authentic and important data-driven actions (policy, programs, practice, and placement) are not sustainable over time if the extra work they require doesn't lead to transformative change and positive student results.

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Handout 1.1: Participant agenda and handouts overview

Topic	Learning objective	Duration	Slides	Handouts
1: Welcome and background	• Understand the role of Regional Education Laboratory Northeast & Islands and alliances in preparing this content. • Welcome and introduce facilitators and participants.	5 minutes	1–3	1.1: Participant agenda and handouts overview
2: Workshop overview and goals	• Clarify what the workshop will cover and will not cover. • Review the agenda. • Identify overall learning outcomes and success criteria.	15 minutes	4–6	
3: Defining a culture of data use	• Explore the idea that data literacy, by itself, is not sufficient to ensure data is used to guide instruction. • Clarify that a culture of data use implies that data-use practices happen when nobody is looking.	20 minutes	7–11	3.1: Definition of a culture of data use
4: Identifying participant and presenter assumptions	• Uncover assumptions that individuals bring to this work.	15 minutes	12–13	
5: Introducing the Culture of Data Use Framework	• Explain each of the five elements in the Culture of Data Use Framework. • Explore the research that undergirds the framework. • Understand that all five elements of the framework are equally important in practice.	50 minutes	14–27	5.1: Culture of Data Use Framework: Initial reflections on five elements 5.2: Culture of Data Use Framework: Five research summaries 5.3: Culture of Data Use Framework: Findings from research
6: Exploring district and school practices aligned with the Culture of Data Use Framework	• Develop images of practice for each element of the framework. • Begin to identify a range of practices that support work in each framework element.	60 minutes	28–34	6.1: Culture of Data Use Framework: Vignettes 6.2: Culture of Data Use Framework: Effective data-use practices
7: Considering changing expectations of data use	• Identify how education data-use practices have been framed in recent years. • Note current placement on a continuum of practice.	20 minutes	35–41	7.1: Changing expectations of data use: Teacher activities on the continuum
8: Exploring district data-use practices over time	• Explore through a case study how district and school data-use practices have changed over time. • Discuss a range of data-use practices that align to the framework.	55 minutes	42–45	8.1: Culture of data use: District case study

Topic	Learning objective	Duration	Slides	Handouts
9: Reviewing templates, tools, and strategies that support consistent implementation of data-use practices	• Learn to use each of the framework elements to guide discussions about current practice and next steps. • Explore implementation barriers and strategies to address those barriers.	45 minutes	46–56	9.1: Discussion protocol: Identifying implementation strategies for a culture of data use 9.2: Barriers to a culture of data use, by framework element 9.3: Examples of policy and guidance to support a culture of data use, by framework element 9.4: Examples of district and school guidance to support a culture of data use, by framework element
10: Selecting strategies to further implement key framework elements	• Identify areas of focus for high-level strategies to consider in local settings.	50 minutes	57–60	10.1: Discussion prompts 10.2: Guiding questions for developing policy or guidance to support a culture of data use, by framework element 10.3: Examples of policy and guidance to support a culture of data use, by framework element
11: Reflection and closing	• Reflect on new learning. • Clarify next steps.	15 minutes	61–67	

Definition of Culture of Data Use

A **strong data culture** results when an organization believes in continuous improvement and regularly puts that belief into practice. Schools and districts that have strong data cultures emphasize collaboration as a keystone for success and they empower teachers and administrators to make decisions for which they will be held accountable. Elements of a strong data culture include commitment, vision, beliefs, accountability, collaboration, modeling, and commitment to ongoing instructional and programmatic improvements

Ronka, Geier and Marciniak (2010)

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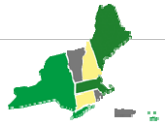

Handout 5.1: Culture of Data Use Framework: Initial reflections on five elements

Ensuring access to data Data are accessed, coordinated, filtered, and prepared in ways that allow educators to quickly and efficiently analyze and interpret data to answer key questions and address important teaching and learning issues.	**Making meaning from data** Protected time is provided to allow users of data to collectively make sense of what the data indicate and to explore how to move from data to evidence that will inform instruction. This time is focused on making meaning from data and is supported by the use of consistent inquiry-based practices.
Clarifying expectations for data use There are clear expectations about how to use data, and these expectations change over time as skills for data use grow. District, school, and teacher leaders frame consistent messages about how data can be used to support teachers' professional capacity and student learning.	**Building knowledge and skills to use data** Adequate professional learning takes place regarding data use, assessment literacy, and using data to inform instruction. Professional learning is integrated into daily practices and supports teachers in building content knowledge over time. Professional learning is differentiated to support teachers' specific learning needs.
Leading a culture of data use Leadership nurtures and supports a culture of data use and develops organizational structures that include time and resources to conduct ongoing data dialogue and feedback that will support users to act on new knowledge. Acting on knowledge is supported at the administrative, teacher, and student levels. Leaders' use of data is central to helping educators interact around issues that will lead to improved learning outcomes.	

Handout 5.2: Culture of Data Use Framework: Five research summaries

Read the assigned summary and identify three to four key points to share with colleagues.

Research summary 1: Ensure access to data: Participate in the flow of information for evidence use

Investing in data management systems is an essential first step in supporting data-use practices at the district and school levels (Honig, 2004; Means, Padilla & Gallagher, 2010; Wayman, Snodgrass-Rangel, Jimerson, & Cho, 2010). Decisionmakers at different levels of the education system have different information needs, and depending on their role, they need to access information in different ways. Developing an effective information system requires first identifying and analyzing the needs of decisionmakers (Breiter & Light, 2006; Park & Datnow, 2009). Any information system should be flexible enough to accommodate multiple users of data (Mandinach, Rivas, Light, Heinze, & Honey, 2006) and should be structured to ensure that data are available in simplified and comprehensible forms. Ideally, data systems should be organized such that users can ask questions that address current education issues and needs (Means et al., 2010) and should allow teachers to focus on specific questions of student achievement (Hamilton et al., 2009). Marsh (2012) indicated that a key element that increases the likelihood that data will be used for improvement is making data usable, safe, and easily digestible.

In a national survey of data-use practices conducted by Means et al. (2010), teachers reported that they rarely prepared data on their own. Teachers relied on district, school, and data-team leaders to collect and prepare data for review. When lacking effective data management systems, teachers in one study reported significant time spent compiling data, resulting in their feeling constrained by a lack of time to explore instructional actions that might arise from data analysis (Wayman, Cho, Jimerson, & Spikes, 2012). Typically, the central office serves a critical role in organizing and providing data management systems, but schools have an important role as well. In a study of urban school leadership related to data use (Knapp et al., 2010), principals in many schools used the district's data system only as a starting point. In these schools, principals and teacher leaders created their own within-school data systems to provide continuous feedback to teachers and teacher leaders about student learning. This frame of having both district and school data systems relates to the ideal of having differentiated access based on the needs of data users.

As leads in ensuring access to data, districts are also cautioned not to be singularly directive in their role as data managers. In a study of central office processes related to district data use, Honig and Venkateswaran (2012) found that the role of the central office is to support data use both "top down" and "bottom up." Central offices that encouraged strong bottom-up flow of information had stronger evidence-use practices and were more likely to access important information from schools that would inform central office support over time. Viewed from a different vantage point, in a study of social networking, Daly and Finnigan (2010) reported that when schools have weak ties with the central office, the "top down" nature of information from the central office can limit rather than enable schools' use of data in decisionmaking. Ensuring access to data that are useful and transparent seems to be helped by ensuring strong central office and school communication about the purposes and applications of data use at the school level.

Summary of research findings

Themes: Access, usability, transparency, ease of use:

- Districts work in cooperation with schools to develop data systems that ensure appropriate data for classroom, school, and district use.
- Districts and schools coordinate how to centralize and streamline data reporting.
- Districts and schools work together to clarify when data analysis needs are changing and to revise systems to accommodate emerging needs.
- Both the central office and schools may have a role to ensure that data reports meet the needs of teachers and can address the questions of teacher teams.

Research summary 2: Clarify expectations: Communicate professional expectations for data use

Hamilton et al. (2009) recommends establishing a clear vision for data use that includes a written plan that articulates activities, roles, and responsibilities for all data users in the system. Developing a common vision is an entry point toward consistent communication regarding expectations for data use. Common understandings provide a vehicle for articulating goals and for fostering meaningful conversations about teaching and learning (Wayman, Jimerson, & Cho, 2012). At the school level, expectations for data use are communicated primarily by principals and teacher leaders and can be conveyed in multiple ways. Schedule changes that promote time for teacher reflection and dialogue, for instance, help communicate that data-driven inquiry has value and will be supported through structured time. Similarly, schools that document common understandings that emerge from team dialogue can move closer to an aligned vision of teaching and learning (Wayman, Snodgrass-Rangel, Jimerson, & Cho, 2010).

Spillane (2012) describes how schools redesign organizational routines and expectations to continually frame the changing expectations regarding instructional practices. In these environments, over time, data can help to establish more consistent language and instructional practice throughout the school (Wohlstetter, Datnow, & Park, 2008). Setting expectations at the district level is an important role of central office leaders. Establishing consistent data-use practices that are used at the principal and school levels appears to support more focused data-use practices (Park & Datnow, 2009; Honig & Venkateswaran, 2012). Central office administrators also play an informal role in disseminating understandings of data-use practices. The degree to which district leaders have positive informal relational networks among school staff supports data use in schools (Daly, 2012). Marsh (2012) suggests also that relational trust within schools is an important prerequisite to data use and that the ways in which principals and teacher leaders communicate clear expectations about the use of protocols, norms, and language can impact teachers' comfort with data-use practices.

Principals' ability to filter information from the central office, to shift from messages about accountability to messages focused on the central issues of teaching and learning, may be able to strengthen the impact of key messages at the school level (Knapp, Copland, Honig, Plecki, & Portin, 2010). School leaders' ability to reframe district messages helped teachers internalize improvement practices. In other words, principals reported that when leaders found ways to capture district messages to help support schools' own improvement practices, the improved coordination helped support internal values of teachers working collaboratively to meet internal school improvement goals.

Summary of research findings

Themes: Vision, alignment, consistency, networks:

- Districts and schools establish and communicate a common interpretation and orientation toward data-driven decisionmaking.
- The district and schools provide clear messages about how data use supports improvements in student learning.
- District data-use expectations are mediated at the school level by formal and informal school leaders, so that establishing professional expectations shifts over time, as the disposition and skills to use data grow.
- District and school leaders clarify when data needs are changing.
- Expectations for data use are communicated through presentations, policy documents, and modeling of expected practice.

Research summary 3: Provide resources and assistance to make meaning from data

Research has fairly well established that analyzing data, and moving from analysis to instructional action, is most likely to occur in collaborative teams. Data use in schools is primarily a process of interpretation (Coburn, 2010; Lachat & Smith, 2005) in which teachers are engaged in making sense of data (Spillane, 2012; Little, 2012; Wohlstetter et al., 2008). Collaborative teams provide a vehicle for this analysis. Structured collaborative time for teachers is essential to help teachers move from analysis of data to instructional action (Wayman & Stringfield, 2006). Collaborative team practices should take place regularly within subject area and grade-level teams (Hamilton et al., 2009), where data analysis can be focused on developing common expectations for student learning and consistent instructional practices (Lachat & Smith, 2005; Halverson, Grigg, Pritchett, & Thomas, 2007). Teams can also be structured as vertical or cross-subject-area collaboration, to provide time for teachers to develop and align consistent instructional practices and review broader student-learning needs (Knapp, Swinnerton, Copland, & Monpas-Huber, 2006; Datnow, Park, & Wohlstetter, 2007). Marsh (2012) highlights the value of both horizontal- and vertical-teaming practices as an important component of successful interventions. Similar findings are described in a case review of data-use practices in high-performing, high-poverty schools (Gleason & Gerzon, 2013), where vertical teams deepened teachers' content knowledge and horizontal (grade-level or departmental) teams focused on developing teachers' use of inquiry.

Using an inquiry approach to data analysis in collaborative teams is a fairly well established practice (Nelson, Slavitt, & Deuell, 2012). A variety of inquiry models are reviewed in the literature (see Hamilton et al., 2009; Mandinach, Honey, Light, & Brunner, 2008; Means et al., 2010; National Forum on Education Statistics, 2012; Ikemoto & Marsh, 2007), and emerging evidence suggests that teams' use of a structured cycle of inquiry can lead to improvements in student learning. Gallimore, Ermeling, Saunders, and Goldenberg (2009) found that more frequent data team meetings led to improved practices. Similarly, Slavit, Nelson, and Deuel (2013) frame that the use of an inquiry cycle can support teacher learning that is ongoing and focused on instruction, teachers' knowledge of content, and learning goals.

Collaborative teams appear to benefit from a sense of safety (Marsh, 2012; Means et al., 2010) that ensures that conversations about data, and the data themselves, will not be used

in punitive ways. Teams also benefit from relational trust within the group (McLaughlin & Talbert, 2006; Talbert, 2009), the use of well established norms (Louis, 2006), and having at least one person on the team with strong content knowledge (Nelson, Slavit, & Deuell, 2012). Collaborative teams also benefit from a distributed leadership model, whereby team members are provided with opportunities for leadership and ongoing professional learning (Hargreaves & Fink, 2006).

For collaborative inquiry to support data analysis that leads to instructional (and student learning) changes, teachers must be willing to work in teams to explore their current instructional practices in light of evidence (Little, 2012; Horn & Little, 2010). Nelson et al. (2012) explore the idea of measuring the conversational routines of teams. In a five-year analysis they determined that professional learning communities with conversational routines that are consistently focused on improving student learning resulted in more transformational changes in teachers' beliefs, values, and instruction compared with teachers whose conversational routines focused on proving what students knew. Groups focused on improving student learning through inquiry carefully examined student data, openly wondered about what they could do differently to better support student learning, and were willing to change their practice. In these teams "knowledge became a dynamic, ongoing negotiation of learning goals, student understandings, and implications on practice" (Nelson, Slavit, & Deuel, 2012, p. 16). Further, the authors submit "a teacher group's stance toward student learning data can determine the nature of their collaborative work" (Slavit et al., 2013, p. 1).

Summary of research findings

Themes: Inquiry, trust, norms, safety, relationships:

- District and school staff work together to ensure that teachers have adequate structures and supports to review data.
- Educators are supported in participating in collaborative inquiry in order to make sense of data and apply findings to instruction and improvement.
- Educators from multiple levels of the education system work together to collectively understand how to use evidence from data analysis in decisionmaking.
- District and school leaders work together to ensure that teachers apply new knowledge to improve classroom instruction or school-level practices.

Research summary 4: Provide professional development on data-use knowledge and skills

In their study of current data-use practices in U.S. schools, Means, Padilla, DeBarger, and Bakia (2009) identified that teachers report two major barriers to implementing data use: a lack of preparation on how to use data and a lack of staff technical skills to use data systems. Teachers' level of individual skills and knowledge is essential to being able to make meaning from data in collaborative teams (Marsh, 2012). Professional development for data use helps teachers develop skills for collaborative work, such as understanding data literacy and assessment literacy (Mandinach & Gummer, 2013), applying interpretive frames of reference for data analysis (Knapp et al., 2006), and understanding how to move from data analysis to using information to support instructional or administrative practice (Mandinach & Honey, 2008; Mandinach & Gummer, 2013). Means et al. (2010) note that only half of districts surveyed provided training to teachers on how to use data to inform instructional practice.

Professional development that focuses on educators' expanding their repertoire of instructional strategies helps them better respond to the needs of individual students or groups of students identified during data analysis (Breiter & Light, 2006). This focus on deepening instructional practice through data, with regards to professional development, indicates that professional learning should be customized to meet the specific needs of teachers. The Means et al. (2010) survey indicates that a majority of teachers want more training on how to interpret data and connect it to instructional practices. Orland (2012) suggests that data literacy for teachers must necessarily differ by content area because the kind of data that teachers are asked to interpret differs from grade to grade and across curriculum areas. In other words, professional development should be differentiated based on teachers' needs (Wayman, Snodgrass-Rangel, Jimerson, & Cho, 2010) and focused on deepening content knowledge to help them identify instructional changes that will lead to student improvement (Timperley, 2009).

Honig, Copland, Rainey, Lorton, and Newton (2010) identify the role of the central office as essential to supporting professional development for data use in schools. Central office leaders appear to be a main provider of professional development and have a particular focus on helping school staff build capacity to use evidence. Datnow, Park, and Wohlstetter (2007) recommend providing professional development for district leaders who can then provide turnkey training to district and school staff as necessary. This is a strategy for building internal capacity and for developing consistent practices across schools. Wayman, Snodgras-Rangel, Jimerson, and Cho (2010) note that when a district did not embed data use and associated learning opportunities in the regular workday, teachers opted out of data-use practices entirely because of the additional work they entailed.

Summary of research findings

Themes: Content knowledge, data literacy, assessment literacy, internal capacity building:

- Districts and schools provide opportunities for professional learning that builds educators' capacities to identify data, interpret data, make meaning from evidence, and use evidence to inform instruction.
- Professional development should combine information about data literacy and assessment literacy with content expertise to build knowledge of how to apply data findings.
- Learning opportunities should include expanding teachers' repertoire of instructional strategies to ensure that teachers can more effectively transition from analysis to classroom practices that are informed by the evidence.
- Whenever possible, learning opportunities should take place during the school day and be conducted by internal leaders.

Research summary 5: Provide leadership to nurture a culture of data use

Leaders' recognition that data analysis processes support the real work of teaching and learning appears to serve as an important leadership frame through which data analysis can take hold. In this way, leading for data use is largely consistent with leading for improvement (Knapp et al., 2010). In a study of urban leadership practices, Knapp and his colleague find that leadership for data use is strongly focused on issues of teaching and learning, identifying innovative resources to support teachers and teacher leaders, structuring time to attend to issues of teaching and learning, and providing a consistent focus on

using evidence to guide instructional improvement. Schools with a high level of data use exhibit more effective practices to support teachers to use data, including providing structural supports to ensure time for collaborative team meetings (Wayman, Cho, Jimerson, & Spikes, 2012), modeling data-use practices with faculty (Young, 2006), and distributing internal expertise among faculty (Anderson, Leithwood, & Strauss, 2010).

Schools with a focus on continuous improvements in learning often see a "proliferation of individuals engaged in within-school instructional leadership" (Knapp et al., 2010, p. 11). Involving multiple teacher leaders in playing roles in supporting collaborative inquiry, professional development, and communication allows for more internal capacity building related to developing inquiry-based practices. Deepening the connection to student learning can be enhanced through the use of distributed leadership models. Gallimore et al. (2009) found that using teacher-facilitators during inquiry team meetings opened the door for coaches, content experts, and principals to take on more informal leadership roles in meetings, providing necessary support and leadership to teacher teams. In this way, informal teacher leaders provide much needed support to ensure that data practices can take hold. Similarly, when principals support teachers and teacher leaders in sharing developing strategies for data analysis, it can lead to more effective team practices, as team members come to understand and implement more useful collaborative inquiry practices (Nelson, Slavitt & Deuell, 2012).

Central office personnel play an important leadership role in developing a culture of data use. As leaders, they can frame key messages, provide resources and supports for school implementation, convene cross-school dialogue groups to streamline data-use practices, and develop strategies to build capacity for data use over time. A central focus of their role is to support principals to use data themselves. Luo (2008) finds that if the central office implements models in which principals are held accountable to use data, there is an overall positive impact on principals' use and comfort with data. The central office can help schools set aside time needed for collaborative inquiry and streamline the use of inquiry practices (Wayman, Cho, Jimerson, & Spikes, 2012).

Leadership for data use is not a one-way street, nor is it only top-down. Data-use processes in central offices depend on schools. Honig and Venkateswaran (2012) note that school staff can support central office staff to make sense of evidence about school progress and can help the central office use this evidence in its decisionmaking. This two-way focus toward leading for data use may ensure greater transparency in data use. Marsh (2012) identified data transparency as a key element that increased the likelihood that data would be used for improvement, because transparency assures teachers that they will not be evaluated based on data findings.

Summary of research findings

Themes: Distributed leadership, shared roles, differentiated support, teaching and learning

- The principal recognizes and models how data use informs instruction and fosters shared mental models of how data use can improve teaching and learning.
- Principals and superintendents ensure access to resources that establish a data culture, such as setting aside time for data practices, ensuring a safe environment for teachers to engage in dialogue about best practices, and modeling effective data-use practices.

- The role of the central office includes ensuring that the principals' data responsibilities are clearly defined and manageable.
- The central office should both empower principals to use data to make decisions and hold principals accountable for data-use practices in their schools.
- Leaders report having more successful data-use and inquiry practices using shared or distributed leadership models that include teacher leaders in a variety of roles.

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Handout 5.3: Culture of Data Use Framework: Findings from research

Participate in the flow of information for evidence use

- Districts work in cooperation with schools to develop data systems that ensure appropriate data for classroom, school, and district use.
- Districts and schools coordinate how to centralize and streamline data reporting.
- Districts and schools work together to clarify when data analysis needs are changing and to revise systems to accommodate emerging needs.
- Both the central office and schools may have a role to ensure that data reports meet the needs of teachers and can address the questions of teacher teams.

Provide resources and assistance to make meaning from data

- District and school staff work together to ensure that teachers have adequate structures and supports to review data.
- Educators are supported in participating in collaborative inquiry in order to make sense of data and apply findings to instruction and improvement.
- Educators from multiple levels of the education system work together to collectively understand how to use evidence from data analysis in decisionmaking.
- District and school leaders work together to ensure that teachers apply new knowledge to improve classroom instruction or school-level practices.

Communicate professional expectations for data use

- Districts and schools establish and communicate a common interpretation and orientation toward data-driven decision making.
- The district and schools provide clear messages about how data use supports improvements in student learning.
- District data-use expectations are mediated at the school level by formal and informal school leaders, so that establishing professional expectations shifts over time, as the disposition and skills to use data grow.
- District and school leaders clarify when data needs are changing.
- Expectations for data use are communicated through presentations, policy documents, and modeling of expected practice.

Provide professional development on data-use knowledge and skills

- Districts and schools provide opportunities for professional learning that builds educators' capacities to identify data, interpret data, make meaning from evidence, and use evidence to inform instruction.
- Professional development should combine information about data literacy and assessment literacy with content expertise to build knowledge of how to apply data findings.
- Learning opportunities include expanding teachers' repertoire of instructional strategies to ensure that teachers can more effectively transition from analysis to classroom practices that are informed by data.
- Whenever possible, learning opportunities should take place during the school day and be conducted by internal leaders.

Provide leadership to nurture a culture of data use

- The principal recognizes and models how data use informs instruction and fosters shared mental models of how data use can improve teaching and learning.
- Principals and superintendents ensure access to resources that establish a data culture, such as setting aside time for data practices, ensuring a safe environment for teachers to engage in dialogue about best practices, and modeling effective data-use practices.
- The role of the central office includes ensuring that the principals' data responsibilities are clearly defined and manageable.
- The central office should both empower principals to use data to make decisions and hold principals accountable for data-use practices in their schools.
- Leaders report having more successful data-use and inquiry practices using shared or distributed leadership models that include teacher leaders in a variety of roles.

Source: Hamilton, Halverson, Jackson, Mandinach, Supovitz, & Wayman, 2009; Honig & Venkateswaran, 2012; Mandinach and Jackson, 2012; Means, Padilla, and Gallagher, 2010; Spillane, 2012; Wayman & Conoly, 2006; Wayman, Jimerson, & Cho, 2012; Wayman, Jimerson, & Cho, 2010.

Handout 6.1: Culture of Data Use Framework: Vignettes

Element I: Participate in the flow of information for evidence use

This rural high-poverty K–12 district has a limited data infrastructure. It has recently implemented an off-the-shelf student information system (SIS), which is poorly understood and has had numerous technical glitches. The person tasked with the role of technology director teaches technology at the local high school and, while knowledgeable about software, has limited knowledge of infrastructure. There are no data coaches and one K–8 literacy coach who travels to three schools. The district has extremely limited financial resources.

When a new district superintendent arrives, she recognizes that data-use practices are extremely limited at both the district office and at the classroom level. The superintendent establishes a district data leadership team, whose role is to prepare data for review, develop visual data displays, and serve as the "lead learners" who will learn about and disseminate information on key data-use practices. The district data leadership team membership is:

- District technology coordinator.
- District curriculum coordinator.
- District K–8 literacy coach.
- Two lead teachers from each school.
- Two principals.
- Two guidance counselors.

In its first year, the team focused on learning about data-use practices in schools. It attended two summer trainings run by the state department of education, one on using data in schools (with Nancy Love, author of *The Data Coaches Guide*) and the other on data-based dialogue (with Bruce Wellman and Laura Lipton, authors of *Data Driven Dialogue: A Facilitator's Guide to Collaborative Inquiry*). At the urging of the superintendent, it planned to "get the lay of the land" prior to implementing any new data initiatives.

In its first year, the team met monthly to complete the following tasks:

- Met with all teachers (by school-based, grade-level teams) in the district to discuss current data-use practices.
- Developed an assessment map documenting the current assessments in use at each grade level and in each school.
- Developed an assessment inventory documenting available data for program and curricular review.
- Researched how high-performing schools are using data with teachers and at the central office.
- Researched data-management systems to replace or complement the current student information system.
- Learned how to analyze commonly used data types, in preparation for teaching teachers how to streamline analysis.
- Analyzed issues and prepared a report related to data collection and data quality in the district (and its relationship to the quality of data the district is reporting to the state).
- Created teacher focus groups to give twice-yearly feedback to the district data leadership team.

- Prepared data reports showing critical information on state assessment results.
- Made recommendations to the superintendent and school board related to new technology and staffing to support data-based practices (including a new student information system and a data-entry clerk position).
- Worked with school leaders to establish data-use role expectations for the principals and sent principals to five-day summer intensive training on leading data use.

In the second year, the District Data Leadership Team met biweekly to complete the following tasks:

- Revised the assessment map to develop consistent common assessments (across schools) by grade level and subject area.
- Created a plan to introduce new student assessment tools (beginning the following year) to address gaps in assessment.
- Developed new job descriptions for the technology director and the curriculum director, to focus on two discrete aspects of data systems and use.
- Established new written guidance on the principal's role in data use and incorporated this into the principal's job description.
- Provided guidance and direction to the newly hired data entry clerk.
- Continued twice-yearly focus groups with teachers at each school related to data use and professional development.
- Developed a partnership with the local university to run an assessment literacy course for interested teachers, at reduced cost and available for graduate credits.
- Worked with principals to identify lead teachers who will receive intensive professional learning to lead data teams.
- Continued to advocate for a data warehouse system and to create written justification for the expense to present to the town fiscal committee during budget negotiations.

Element II: Communicate professional expectations about data use

This suburban school district introduced several new district assessments within a year of being identified as "in need of improvement." In addition to district-mandated assessments, schools were also adding new assessments where they recognized gaps. It was a confusing time, as neither school leaders nor teachers were clear as to how these assessments would be analyzed or by whom. Different leaders in the district expressed different expectations, with some leaning on district or principal analysis of new benchmark data and others indicating teachers should be the primary users of all student assessment data.

The district leadership team decided to take action by developing a one-page overview document to clarify expectations about different assessments, identify who was to use different types of assessment data, and begin to clarify training and support needed for different users of different types of data. Table 6.1 outlines its initial work, which was co-developed by district and building leaders.

Over the course of the year following the development of table 6.1, the district curriculum director met with school principals monthly to clarify how data and assessment work was progressing, to identify areas for professional development, and to guide the work of district academic coaches. During these meetings principals were expected to bring examples of data, to work together to learn how to review new forms of data, and to clarify expectations

for teacher and administrator use of various types of data. The curriculum director worked with principals to develop buildingwide strategies to model data use and to use data to help clarify and identify areas of instructional need and program review.

Work over the year led to a more detailed policy document, created by the district and then refined at the schools, which further clarified roles and responsibilities for data use.

Element III: Provide resources and assistance to make meaning from data

This Title I suburban elementary school has been focused on increasing data-use practices for several years. Its focus has been on developing a building-based structure that allows for teachers to use data to inform school improvement—every day—through an integrated team structure. Each teacher participates in a weekly grade-level data team meeting, which reviews current academic data in literacy and math and plans for next steps in instruction. Teachers are members of two additional teams that each meet biweekly. One is a vertical team focused on developing academic content through the grades, and the other is a learning team focused on researching and introducing new pedagogy that teachers identify each year, such as technology, formative assessment, and supporting a diverse student body.

These teams intersect around using data to inform school improvement. Each team meeting begins with a review of relevant evidence—the data could be academic, demographic, behavioral, or program-based. Every team is responsible for using data to determine an understanding of baseline practice and for setting measurable performance goals for teamwork. In some cases these performance goals are for student learning; in other cases they are for program implementation or teacher adoption of new practices.

The role of grade-level data teams

Academic coaches as a resource. Grade-level data teams focus on review of commercial diagnostic assessments (Dynamic Indicators of Basic Early Literacy Skills, Developmental Reading Assessment) as well as monthly district benchmark assessment data. During the first five years of operation, two academic coaches (one in math and one in literacy) received additional training to support the use of tools and protocols in data analysis. Prior to data team meetings, academic coaches would prepare data displays for team review, select data-use protocols for analysis, and create spreadsheets that facilitated the analysis of multiple data points. Academic coaches also facilitated placement in the response to interventions, based on current results. The primary focus of teachers during data team meetings is to explore instructional actions to support next steps in student learning.

Peers as a resource. A unique aspect of the school's data team practice is a structured model to encourage teachers to learn from other grade-level teachers "in the moment." At any time, if a teacher is not certain how to implement a new instructional technique raised in the team meeting, he or she can visit a peer within a day or two to watch the instructional practice under discussion. The visiting teacher has his or her class covered and visits (with the academic coach) to observe a lesson or two. These structured reviews, supported by academic coaches, help teachers "make sense" of how to revise instruction based on data and over time create agreement among grade-level team members about what constitutes "rigor" and what it means to "raise the bar" for all students. This peer visitation model is used frequently by many veteran and novice teachers.

Table 6.1. District academic assessments: Determine types and roles for data analysis

Assessment type(s)	Assessment tools	Expectations for users of data			Focus for professional learning
		Teachers	Students	School/district	
Daily: Classroom formative	Questioning White boards Exit tickets Observational records	Monitor student understanding of learning goals and revise instruction based on data	Self-monitor progress toward learning goals and make adjustments as needed		Use data to set learning goals with students Use data "on the fly" to change instruction Develop flexible groups Track formative data
Periodic: Diagnostic assessments and progress monitoring tools	Dynamic Indicators of Basic Early Literacy Skills Developmental Reading Assessment Aimsweb (math)	Place students into intervention groups, using the district response to intervention mode Increase understanding of student-learning needs	Self-monitor progress toward learning goals Understand placement decisions	Provide early identification of students who require targeted interventions	Diagnose individual knowledge and skills Group students for instruction Establish intervention groups Identify next steps for learning
Weekly or biweekly: "Common" assessments designed by grade level and aligned to standards and calendar	Weekly assessments developed by teacher teams Evidence reviewed in grade-level data teams to guide instruction	Check individual and class progress against learning goals Guide dialogue about next steps in instruction	Check progress toward learning goals Clarify what has been learned and what comes next	Identify students who require additional supports and students who are ready to move to higher level work	Identify patterns in proficiency Placement considerations Guide re-teach and enrich groups
Periodic: Unit testing: high school competency assessments	End of unit tests High school competency assessments	Determine grades and promotion	Gauge progress toward meeting standards and share with parents at conferences	Conduct department- and grade-level team analysis of mastery	Clarify grading and reporting for formative versus summative assessments Communicate with parents
Quarterly: Benchmark assessments	Fountas and Pinnel Benchmark Assessment District benchmark assessments in math, science, and social studies Northwest Evaluation Association assessments (grades 6–12)	Analyze which students need additional interventions or targeted services and which can benefit from advanced work Analyze learning trends for individual and groups of students compared to national norms	Gauge progress toward meeting standards and share with parents at conferences	Analyze trends in student performance overall and across grades and buildings Identify which students are meeting the standards and which are not	Identify area of student growth Use effective instructional strategies Identify patterns in proficiency Placement considerations
Annual: State assessment	New England Common Assessment Program	Analyze curricular focus areas for improvement Align curriculum to state standards		Identify broad areas of strengths and weakness in the curriculum, determine degree of progress, and in which areas students are not meeting standards	Train leadership to use common protocols at the school to support effective use of state assessment evidence, including patterns of student achievement, instructional programs, additional knowledge, skills, or resources for staff

Immediate system response to assessment results. As teachers are given multiple supports to meet the needs of students, they are also held accountable to maintain those high standards. If, for example, benchmark data show that a certain percentage of students are not meeting performance targets, coaches respond immediately. Coaches work with teachers to figure out, and resolve, any outstanding issues. This might mean that a more expert coach takes over the teaching role for several days, while the classroom teacher observes, to showcase issues of content delivery, scaffolding, pacing, formative assessment, or grouping strategies that address identified learning needs. Teachers report that this process pushes them to pay attention to daily instructional data to ensure that students are on track to master standards.

The role of vertical teams

Vertical teams are led by teachers, and their main goal is to set performance goals, outline agreed-upon learning outcomes for key standards, and align assessments to those standards. As content is revised, vertical teams set a structure for ongoing review of academic content to consider alignment among grades and to look at student development over time. Teams review data from benchmarks across grades, review classroom grading over time on key academic standards, and identify trouble spots in the curriculum that may need more resources or professional learning. Through alignment tools, the vertical teams ensure that the intended curriculum is taught and that any content-based training is fully implemented in the classroom (and if not, they identify the supports necessary to ensure full implementation). Team members work with their grade-level teams to share findings from vertical meetings and, in particular, to review assessment data across grades. Time is set aside at grade-level meetings for vertical team representatives to review data-analysis findings in each content area and to adjust instruction accordingly.

The role of learning teams

Learning teams are organized by teachers and designed to develop areas of interest among faculty. Teachers self-select from a variety of learning teams, each focused on using an action research model to bring new instructional resources and tools to the full faculty. Learning teams pilot new techniques, and if these techniques are successful in engaging students or improving outcomes, a new instructional practice or program is brought to the faculty for review.

Learning team meetings include review of a wide variety of types of data—including demographic, program, behavioral, and climate data. Thus, teachers need to know how to look at various types of data displays and must be knowledgeable about the inferences that can be made given specific datasets. Over time, the principals and academic coaches work with each learning team to develop skill sets in data literacy—conducting mini-lessons on such topics as how to read different tables, graphs, and data displays, determining what inferences can be drawn from certain data types, developing useful student survey questions, and understanding outlier and trend data. These impromptu mini-lessons are designed to deepen teacher expertise in data use. The school math coach has put together a set of mini-lessons that are ready as new data literacy topics emerge in teams.

Element IV: Provide professional development on data-use knowledge and skills

This high-achieving K–8 rural school does not have access to data coaches or external staff who can lead data practices. This school began intensive work on data analysis seven

years ago and focused on teacher teams using student data, including classroom (teacher-developed) benchmark assessments and diagnostic and progress monitoring tools such as Dynamic Indicators of Basic Early Literacy Skills and Developmental Reading Assessment. Teacher teams are organized in multigrade groups (one team for grades K–2, one team for grades 3–5, and one team for grades 6–8). Teams meet weekly for 75 minutes to review current data and plan for next steps in instruction. Teams have another 45 minutes of scheduled time each week to talk about topics "other than data."

The principal articulates data use as a long-term process that requires developing skills and knowledge that build on what teachers know and can do. Each year, the faculty gives input to schoolwide goals that clarify expectations for school improvement in the area of data use and instruction. Schoolwide goals, over time, indicate deepening expectations for teachers to use data. In addition, teachers develop annual learning goals for their evaluation process that are based on their classroom data. The school leadership team, comprising one person from each data team, plus the school principal, finalizes schoolwide learning goals, and leads the professional development for all faculty.

The multigrade data teams include subject-area teachers and special education teachers, working together to review the week's data and plan classroom instruction and use of the daily "re-teach and enrich" time. Data analysis protocols are used to review student assessment data and help teachers document performance for each student against each standard. Teams also spend time on other tasks related to standards, instruction, and assessment, including clarifying learning goals, developing aligned assessment tasks, and aligning new content standards.

While teachers in multigrade teams review classroom and benchmark data, the schoolwide leadership team attends to a close review of large-scale accountability data, identifying areas where the entire school can improve. Each year the school sets annual performance goals related to one or two high-leverage areas of focus. In past years this has included improving academic vocabulary, developing clear learning objectives, and providing useful feedback to students from each assessment. The principal, who heads the school-level data review, incorporates these goals into the data collection tool for the schoolwide walkthroughs, and teachers receive ongoing feedback on their progress towards these goals.

To ensure ongoing professional learning for the whole school, the principal negotiates a change in district contract language each year whereby teachers agree to shift three days of professional development contracted for August to be distributed as monthly afterschool professional learning sessions. This change has been negotiated each year since 2006. Afterschool sessions, which take place following faculty meetings, allow for monthly 2.5-hour whole-school professional development sessions.

Examples of schoolwide learning goals and related professional learning frameworks over several (nonsequential) years:

2007/08

Expectations for teacher learning

- Data teams will learn and apply the use of three protocols for structuring the review of student classroom work.

- Data teams will be able to apply a process to review state assessment data in reading, writing, math, and science to establish curriculum focus areas for improvement.
- Data teams will learn how to develop and apply SMART (specific, measurable, achievable, relevant, and time-bound) goals to address specific areas for improvement based on the state assessment data review.

Whole-school professional development (approximately 30 hours, as determined by contract)

- The school leadership team attends summer *Critical Friends* training to learn team dialogue protocols and bring them back to their school. In addition, the leadership team examines written resources to identify other protocols to meet goals for the coming year.
- The school data team introduces and runs a protocol with teachers focused on analysis of student achievement results from state assessment data. The faculty develops data summary statements to highlight areas for further investigation. Data teams use these statements to focus areas for improvement in the coming year and to develop their SMART goals.
- In monthly afterschool professional development meetings, teachers are introduced to a variety of data-use protocols from the *Critical Friends* training and from other sources that the leadership team has identified. Teachers apply these protocols with their own student work samples. After each session teams develop plans to apply specific protocols to address current team data-analysis needs.
- Teachers participate in a voluntary full-year book study on *Results: The Key to Continuous School Improvement* (1999), by Mike Schmoker, at monthly breakfast meetings, with breakfast provided by the principal.
- The School Leadership Team shares schoolwide state assessment data and celebrates significant academic gains, particularly with Title I and special education students. Academic areas of focus for the next year are identified by teachers.
- At the last meeting of the year, teachers share their SMART goals, describe the assessments used to monitor the goals, and outline how content and instructional practices were revised based on assessment evidence. Teachers work together to clarify what is different in practice and to provide input into the schoolwide learning goals for the following year.

2009/10

Six faculty members attend a state summer conference on effective data use in schools. They use this information to scaffold professional development for the year. The leadership team focuses new learning on assessment literacy (how to develop effective assessments), data literacy (how to analyze multiple sources of data at once), and effective teaming practices (how to ensure that time is spent addressing next steps in instruction for all students).

Expectations for teacher learning

- Teachers, supported by their data teams, will refine quarterly benchmark assessments that measure identified power standards, outlined in the district curriculum maps.
- Teachers will use a range of evidence to determine next steps in instruction for all students.
- Data teams will practice new data-analysis tools to analyze multiple sources of data and uncover underlying student-learning needs.

- Data teams will learn how to use various data-use protocols to ensure that, at each data meeting, they are better able to identify student-learning needs, and have time to identify key instructional actions for each of the "re-teach and enrich" levels for the following week.

Professional development

- The School Leadership Team runs two sessions on developing effective benchmark assessments. It covers topics such as aligning assessment questions with learning goals, developing and using distracter questions, and focusing on appropriate depth of knowledge. It provides a checklist for faculty to measure their fidelity to these topics; teams later use the checklist to review peers' benchmark assessment development.
- During afterschool professional development, teachers participate in "vertical alignment" work to clarify learning goals in key "power standards" by grade level. Teachers are given time to clarify changes to assessments based on their refined vertical alignments in each content area.
- Summer conference attendees present to all faculty two new data-use protocols, the Data-Driven Dialogue protocol (from Love et al., *The Data Coach's Guide*) and the Grid protocol, which helps teams analyze proficiency data from multiple assessments. Teachers discuss the types of data analysis practices these tools support.
- The faculty book study is Marzano (2007), *The Art and Science of Teaching.* Teachers spend 30 minutes at their monthly breakfast meeting reviewing high-leverage instructional strategies, with a particular focus of how to apply instructional approaches in their weekly "re-teach and enrich" block.
- The faculty invites a district office staff member to introduce the root cause analysis protocol, a process used to help uncover student learning issues. Two afterschool sessions are spent learning and practicing the protocol. Teams discuss when they are most likely to use the protocol.
- At the last meeting of the year, teachers share their SMART goals, describe the assessments used to monitor the goals, and outline how content and instructional practices were revised based on assessment evidence. Teachers work together to clarify what is different in practice, and provide input into the schoolwide learning goals for the following year.

2012/13

At the close of the 2010/11 school year, the leadership team recognized that teachers were no longer applying the "re-teach and enrich" blocks. They realized that faculty members were using core instructional time to support individualizing instruction for all students. Rather than being "taught," this process was a natural progression. As teachers became familiar with using data to inform instruction, they began to share that evidence with students and parents and began to develop instructional strategies to ensure students were fully aware of their next steps in learning. To support teachers in this transition, the leadership team looked closely at formative assessment literature, attended a summer conference on formative assessment, and before the start of the 2012/13 school year, finalized its professional development and learning goals.

Expectations for teacher learning

- Teachers will use evidence of student learning to give feedback to students about their progress on learning goals.
- Teachers will learn strategies such as using portfolios, student self-assessment, and peer-assessment to help students better understand how to meet the learning goals.
- Teachers, supported by their teams, will explore using model products to showcase excellent student work, and to clarify learning goals with students.
- Teachers will continue to use differentiation and flexible grouping based on a range of data points.

Professional development

- As they begin the year, teachers indicate what has changed in their instructional practice over the past five years and where they see next steps for continuous improvement. Topics that come up align well with the leadership team planning. Teachers set and share new individual learning targets that align with schoolwide learning goals and outline expectations as to how they will measure their progress.
- The principal leads the monthly faculty book study on Susan Brookhart's *How to Give Effective Feedback to your Students* (2008). Teachers agree to try each of the main strategies in the book over the course of the year and report their findings at book study meetings.
- Two whole-school faculty sessions are devoted to using instructional rubrics with students. Teachers incorporate ideas raised in these sessions into their upcoming lesson plans, and the principal works with each teacher to clarify what he or she will see in daily walk-throughs as a result of this new work.
- Teachers explore how to incorporate key features of formative assessment, including peer assessment and self-assessment strategies. Teachers model existing practice and invite others to their classrooms to see strategies in play. All teachers agree to try a range of peer assessment strategies in the following month and then return with ideas on how to better manage the work. Teachers identify the kind of feedback they wish to receive on this work during upcoming peer walk-throughs.
- Two faculty sessions are spent reviewing how to track formative assessment data and coming to schoolwide agreement about what data needs to be recorded and how. This continues to be an area of challenge for teachers, and many questions are raised about the expectations for schoolwide practice in this area.
- At the last meeting of the year, teachers share their SMART goals, describe the assessments used to monitor the goals, and outline how they have revised assessment practices to include more classroom formative assessment practices. Teachers highlight how they revised instruction based on formative evidence. Teachers work together to clarify what is different in practice and to provide input into the schoolwide learning goals for the following year.

Element V: Provide leadership to nurture a culture of data use

This 200-student K–8 school is in a historically rural area with recent development making it more suburban. The school principal was previously a literacy coach in the same school and has served as principal for approximately 15 years. The school has access to a district literacy coach and a district math coach, who each visit about once a week. A half-time assistant principal is also a half-time teacher at the school.

This school has always scored at or above average on state assessments until No Child Left Behind Act reporting began and results were disaggregated. Shortly after the act's implementation, the district was identified as in need of improvement in math, mainly because of the scores of the special education and Title I populations. No K–8 schools were identified as in need of improvement due to small sample size.

Following identification as a district in need of improvement, the district leadership team explored strategies for using data to guide instructional changes. Over the course of a few years (2005–08) the district implemented new interim assessments (such as the Northwest Evaluation Association's Measures of Academic Progress) to monitor student progress, introduced a new set of elementary diagnostic tools for math (First Steps in Math) with accompanying professional development for K–4 teachers, completed a K–12 curriculum-mapping project to ensure curricular alignment to math standards, and provided teachers with resources and time to develop common formative assessments in math. In addition, the district required schools to implement data teams by grade level, and lead teachers attended three days of professional development provided by the state on how to develop data teams.

Between 2005 and 2008 district state assessment scores improved, but not remarkably. In 2007 the principal at the aforementioned K–8 school decided to provide leadership in each building to support the numerous changes related to teachers' expectations of data use. She did the following:

- Implemented a schedule of quarterly data-review meetings with each teacher to:
  - Review individual classroom data.
  - Set academic goals for students.
  - Discuss the teachers' use of instructional strategies to improve learning.
- Established and led a school data leadership team to learn about key data-use practices, including:
  - Assessment literacy (how to design common assessments, use distracters, and write assessment questions).
  - Data literacy (how to organize data for different purposes, how to prepare its own data for team meetings, how to look at multiple sources of data at once).
  - Collaborative teaming (how to select and use data analysis protocols, set team goals, facilitate team meetings, and use team norms).
- Participated in all grade-level data team meetings. At each meeting, the principal identified one area of progress to celebrate—often something that might have been "unsafe" to discuss (because it was often rooted in initially low performance) but that saw improved student performance through analysis and dialogue.
- Re-structured professional development days to be informed by school performance data to include such topics as:
  - Strategies and protocols to analyze multiple data points to better understand student performance.
  - Curricular alignment based on recent performance data.
  - "Tuning" activities around assessment design and moderating the use of assessment rubrics.
  - Identifying and exploring ways to use exemplars of student work on key academic standards.
- Redesigned faculty meetings to focus on schoolwide evidence of improvement.

- Designed a schoolwide walk-through model for school leaders to "look for" evidence of data use in classrooms. Evidence collected from walk-throughs included:
  - Data clearly used for flexible groups, with group learning goals aligned to evidence.
  - Students able to articulate what the data showed about their learning and what they needed to do next.
  - Formative assessment strategies in place, including entrance and exit slips, observation checklists, and quick pre-assessments.
  - Students tracking their own evidence of learning through journals or portfolios.
  - Evidence of student learning displayed in classrooms.
- Taught "intervention and extension" lessons in math.

The principal's leadership was centered on two goals, both designed to ensure that teachers receive the support necessary to make significant and schoolwide improvements in learning. First, the principal set clear expectations that teachers would be held accountable for using evidence of learning to guide instruction. Then, the principal provided a variety of supports to teachers to ensure that they would be able to apply and integrate new instructional practices. Between 2008 and 2011, school state assessment scores in math increased more than 20 percent, perhaps in part because of the increased use of data strategies to inform daily instruction.

Handout 6.2: The Culture of Data Use Framework: Effective data-use practices

Participate in the flow of information for evidence use

- Identify and invest in data management or warehouse systems.
- Select appropriate data for classroom, school, and district use.
- Limit the number of research-based programs schools can consider.
- Provide data reports tailored to school specific requests.
- Establish structures to encourage a strong bottom-up information flow from the school to the central office.
- Prepare data reports for school review.
- Identify staffing or personnel to support data functions (data entry, clerical support) that can be used or shared across schools.

Provide resources and assistance to make meaning from data

- Assist schools in finding ways to secure time for data analysis at the school level.
- Facilitate building-level discussions of progress over time.
- Support the idea that in most data-analysis practices, educators are juggling multiple forms of evidence at once.
- Support the development of data teams, as they are shown to help make data accessible for teacher use.
- Engage school staff to set performance goals and benchmarks that establish agreed upon learning outcomes and to create assessments aligned to those outcomes.
- Organize and lead data retreats for school principals, both at their level and across levels.
- Create consistent tools and processes (protocols) for data review.

Communicate professional expectations for data use

- Recognize teachers' wealth of tacit knowledge as the starting point for data review.
- Model professional norms of behavior, including effective dialogue skills and use of the inquiry cycle.
- Use evidence of improvement to provide feedback to system leaders.
- Set the tone for accountability among staff members to ensure data review meetings are purposeful and lead to improved practice.
- Write a clear data-use policy that outlines expectations for data use with students, teachers, parents, principals, and district office staff and that addresses challenges to effective data use.
- Support consistent messaging to the community and parents about how the district engages with evidence of student learning at different levels of the system.
- Ensure safety and security of student information and evidence.

Provide professional development on data-use knowledge and skills

- Ensure that districts provide funding, expertise, and training for varied data-use practices across the district.
- Ensure that districts provide professional learning for principals to use data at the building level and with teachers and teacher teams.
- Encourage professional learning that focuses on building leadership and schoolwide expertise on using data to inform instruction.
- Provide ongoing learning to a cadre of teacher leaders (often identified instructional specialists or coaches) who can lead data teams in grade-level and departmental configurations.
- As teachers become proficient with analysis, professional learning shifts to supporting an expanded repertoire of instructional strategies to address data findings.
- When training for new data systems, focus on the data; how it can be accessed, and what the system will do to support teachers and teams.
- As much as possible, structure professional learning for data-use practices in small groups, using current district data.

Provide leadership to nurture a culture of data use

- Ensure that leaders champion data analysis practices.
- Have districts address principal leadership in a structured way to build knowledge of data use and of how to lead data use in schools.
- Provide opportunities for "tuning" practices to build consistency and coherence across districts and schools.
- Ensure that the central office requires principals to use data and holds them accountable for doing so over time.
- Have the central office create and lead opportunities for principals to come together to share data-use practices at their building level and to analyze their data together.
- Have principals intentionally employ strategies to support data use to improve student learning in order to see teachers report better attitudes and more effective data use.

Changing expectations of data use – teacher activities on the continuum

STAGE 1
Focus of work on school improvement planning using accountability data, and placement decisions

STAGE 2
Focus of work on curriculum development, student grouping, and attention by teachers on **what to teach** (ex. re-teach groups)

STAGE 3
Focus of work on comparative analysis of student growth, instructional changes based on **how to teach** – Entry into continuous improvement

Material adapted from Means, Padilla and Gallagher, 2010

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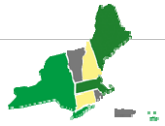

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Handout 8.1: Culture of data use: District case study

The following case study documents the development of a data-using culture in a suburban school district. The Keystone School District has seven schools (five elementary schools, one middle school, and one high school) and is located just outside a large metropolitan area. In 2012/13, K–12 enrollment was 5,600 students.

Prior to being identified as a district in need of improvement in 2005, the Keystone School District primarily employed a site-based management model, where school leaders had significant autonomy in decisionmaking and school planning. Some school faculties were beginning to review and analyze student performance data. One school, for example, had adopted "critical friends groups," where teacher teams analyzed and received feedback on student work samples and teachers discussed instructional changes to address student-learning needs. At another elementary school, faculty had been introduced to elementary literacy assessments through a Reading First grant and employed a new classroom literacy coach to support teachers' analysis and application of student-learning data. Other district schools had used staff development days to review state assessment scores—days that were highly challenging because of the extreme limitations of the state's technology dissemination tools. Teachers left those sessions with evaluation comments such as "Just leave me in my classroom and let me be" and "What a total waste of time."

From 2000 to 2005 data use was primarily building-led: few clear messages came from higher levels about data-use practices, and teachers (with the exception of the Critical Friends Group site) largely had negative dispositions about data use. Meeting notes from that time show teachers, and to some extent leaders, discussing their frustration with state-level and large-scale data use. Notes include statements like "These meetings are all about accountability. … All this emphasis on data just takes away what makes me a good teacher—my creativity" and "This data is so old by the time we see it, it doesn't tell me anything I don't already know about my students."

The needs improvement status was based on low performance in English language arts by two subgroups: special education and English learner students. Many educators in the district were surprised because they had a sense that district students were high achieving. There were widely divergent responses across the district among educators. Some felt that the label was a good thing because it could spur the district to take action and support the poorest performing students. Others thought the designation did not offer anything of value and anticipated that it would cause more harm than good as teachers were asked to spin their wheels dealing with state mandates that were unlikely to impact instruction. These lines of demarcation hardened quickly. About a month after the designation, at a meeting facilitated by an outside consultant, the two camps were visible—to the point of sitting on different sides of the room. One group saw the data as a useful lever for change. The other saw the data as fundamentally flawed and wished to leave things the way they were.

This polarization took place before the district superintendent could clarify a coherent message about the results or a clear plan of action. At the meeting, with the dividing lines clear, she conveyed a message that was repeated often over the next year: "We are not going to lose what is best in us, nor are we going to downplay these results. We are going to work together to make sure that our programs and instruction are supporting all students. It is no longer enough to say most of our kids are doing well. We will look closely at the

evidence we have, clarify where we can do better, and work together to figure out how to improve."

Over the next several years, the district office increased data-use practices at the school and classroom levels, established common practices for inquiry, and increased shared understandings for student-learning outcomes. Below are key highlights of district practices from 2005 to 2011.

Group 1

2005/06

The district conducted a summer retreat for building leaders to establish common districtwide expectations for data collection and use. Building teams developed data plans that were then calibrated by level (elementary or secondary).

Another summer retreat was conducted for literacy teacher leaders to identify data expectations for literacy use in grades K–12 and streamline literacy data use across schools. This resulted in district plans to provide common training for teachers in literacy data-use practices.

When 2006 state testing data were released, building leaders were taught an inquiry model of data use for large-scale data review. In a train-the-trainer model, building leaders were taught to implement this model with their faculty, and principals were tasked to complete this work with faculty at an "early release" professional development session.

Principals came together after the common data-analysis protocol was used districtwide to share findings from teacher dialogue about state assessment evidence. The leadership team collected and shared the teachers' data analysis findings with district content teams. In addition, the principals debriefed use of the common protocol and agreed on process revisions for the following year.

After a district review of fall literacy data (which were triangulated from four sources), a literacy review team was established to study current districtwide literacy practices. The team's recommendations were to align standards, instruction, and assessment and to establish common K–8 literacy instructional practices districtwide.

2006/07

The district convened a team to begin clarifying how different types of assessments were used throughout the district. Using Rick Stiggins' (2008) "Balanced Assessment Systems" as a model, it developed a data-using chart that was shared with all teachers. While teachers thought there was still a lot of data for them to review, they reported being pleased that some types of data analysis were "taken off their plate."

A teacher survey of data-use practice revealed three primary ideas that were discussed and adopted by the district leadership team. First, teachers asked for time to complete data review for their students. Second, teachers asked for more "useful" (that is, short-cycle and aligned) data. Third, teachers asked for opportunities to learn how to apply their data

results to classroom instruction. These three requests served as a guiding framework for building-level professional development and coaching.

The district sent a team of 40 teacher leaders to a regional six-day professional development session focused on identifying essential standards and crafting "common formative" assessments aligned to those standards. Grade K–6 teachers focused on literacy, and grade 7–12 teachers focused on their content teams.

The assistant superintendent for curriculum and instruction convened all assistant principals for weekly meetings from January through May to redesign building-level structures to support data use and establish schedules to accommodate weekly collaborative meetings for every teacher. The assistant principals presented the new elementary, middle, and high school schedules to the superintendent and the district leadership team for review. All teachers have at least one hour weekly to discuss data in team meetings.

Group 2

2007/08

During the summer of 2007, the district convened teacher leaders to develop an assessment calendar, by level, for the district. The team identified the range of data sources available for collaborative review in data teams, which current data were to be analyzed, and during which timeframe assessments would be administered and reviewed. The assessment calendar was used to guide the work of grade-level and departmental data teams.

Also during the summer of 2007, approximately 200 teachers worked in small groups (assigned by level and content area) with content and assessment experts to learn common data-use protocols for use in data teams. The protocols and tools varied by type of assessment data, by level, and by content area.

Following up on the six-day training the previous year, the district convened K–6 teacher leaders to align curriculum, instruction, and assessment in reading and writing. The team of 40 teachers was given monthly release time to clarify essential standards in literacy and to develop weekly "short-cycle assessments" that could be administered and reviewed in data teams. These assessments were developed by teachers and validated by an outside literacy expert.

In a district leadership meeting in November, the principals noted that grade-level teams were "all over the map" in data use, with only minimal implementation of the protocols introduced in summer workshops. They decided to run monthly afterschool sessions to build consistency across the district in team data practices. The district offered a small stipend to teacher leaders who attended. During the sessions, teacher leaders asked that the principals not attend because they wanted to be free to talk about what is going wrong in their meetings. The principals chose to attend despite the request, with a message that they expect teachers to be in different places of adoption. These monthly afterschool sessions continued through the year.

The district convened a working group to explore the purchase of a new data management system. The group reviewed options and submitted a request to the superintendent. It was decided that that cost was too significant at the time.

The superintendent convened a group of 22 teachers, leaders, and school board members to visit a district in another state that had had dramatic improvement after applying the same model of using short-cycle assessments aligned to essential standards. After a three-day site visit, the superintendent and school board convened a series of school and community meetings at which teachers and principals discussed what they learned and shared an increasingly clear vision for the work.

District leaders worked with various groups throughout the year to identify new assessments that could be used to more effectively inform students' ongoing progress. New interim assessments were purchased for K–8 literacy and math.

2008/09

Beginning in the summer of 2008, middle and high school content teams selected essential standards and crafted short-cycle assessments for each essential standard. Teacher teams met monthly throughout the year and included all content areas, including specialists. Assessments were designed to be used mid-unit and to support teacher dialogue about next steps in learning within a unit of study.

In a district survey, the majority of teachers said they were spending, on average, an additional one to two hours a week coordinating and preparing data. Focus groups were conducted to determine whether this activity was encroaching on instructional time. Teachers reported being frustrated because they were largely doing additional data work on their own time, and not all teachers were doing it.

The district clarified a set of roles for data team members and developed job descriptions for each role. Teachers who took on the roles of "team facilitator" or "data expert" received extra professional development opportunities and a stipend for that work. The goal was to build capacity for individuals across the district to prepare data for team meetings and lead team protocols and dialogue, and to provide funding for those doing extra work.

In November, the K–6 literacy team completed its work selecting essential standards and developing aligned common formative assessments. Teacher leaders (one for each grade-level team across the district) received training on effective implementation and use of these assessments. Teacher leaders brought these assessment tools and accompanying protocols to their teams. Teams were tasked with using the data from these common formative assessments to inform weekly instructional planning. Some grade-level teams begin to set up informal "re-teach and enrich" sessions as a way to re-group students for instruction based on these assessment results.

Newly purchased K–8 interim assessments in literacy and math were introduced with much difficulty. Teachers reported they were not clear about how to use the assessments and were confused by different messages from academic coaches and principals.

Literacy coaches worked with an external consultant to explore ways to help teachers "triangulate" data during team meetings so they could integrate the new assessment data. New expectations were placed on teams to review multiple data sources, and the coaches identified this as an area for skill development. The coaches developed a fairly complex template that aligned data by standard and student, but teachers dismissed it as too time consuming to use in a data meeting.

The district's state assessment scores improved significantly over two years, and the district was removed from "needs improvement" status. The district leadership team congratulated teachers for leading and guiding student improvement through evidence use.

Group 3

2009/10

The District Leadership Team met over the summer to outline next steps in data-use professional learning for their teachers. It reported overall growth in teams using data effectively, with pockets of excellence and also some examples of limited practice. Two new approaches for professional learning for data use were instituted this school year. The first was to ensure every teacher has a professional growth goal related to the building's data goals. The second was for principals to visit each team monthly to support the teams' taking next steps in their learning.

Official "re-teach and enrich" groups were established in all five elementary schools. Schedules were revised to ensure a 120-minute literacy block, 30 minutes of which was used for re-grouping across a grade level to focus on targeted student needs. K–6 data teams focused almost exclusively on preparing and analyzing data from weekly, short-cycle assessments and on planning for the re-teach and enrich blocks.

Additional time was devoted to teacher leaders at the middle and high schools to complete content-area short-cycle assessments that could be used mid-unit to guide instruction. The process of sharing these assessments and implementing them with teacher teams was largely hit or miss, with some positive adoption and some negative adoption—where the assessments appeared to be used to punish students rather than to guide next steps in instruction. Teacher leaders reported being frustrated.

After successfully offering stipends and supports for teachers to take on data team roles the previous year, the district offered the same support—but this time required that teachers take turns leading different aspects of the data team work. There was significant backlash, with teams reporting that they had learned various tasks and now the district was making them take on new roles "for no good reason." The district message—that a goal of this support is to build capacity widely—seemed not to have been understood this time around.

Parents were complaining on Facebook that teachers were "never there" and "always at training." The superintendent and school board crafted a shared response. At a public meeting, the school board chair documented improvements in student learning over time and talked about the impact of new instructional techniques on his daughter's learning and about the power of this work to improve learning outcomes for all children. The board

asked parents to commit to another year of "intensive time" for teachers to develop effective assessment and data practices.

Annual state assessment data continued to improve, with one elementary school showing significant gains in English language arts for lower achieving students. Credit was given largely to a site-based response to intervention model that had been introduced at that site about 18 months earlier. Other principals were encouraged to learn more about this research-based model and consider implementation.

2010/11

Summer work focused on teachers developing strategies to "extend" learning for students doing well on short-cycle assessments. Teachers developed learning progressions for literacy standards (in grades K–6) and unit standards (grades 7–12). Teachers worked with consultants and internal teacher leaders to develop rigorous instructional strategies to address students scoring well on specific standards. Sample lesson plans and instructional guidance were developed to lead more effective "enrich" lessons.

The state sponsored a summer workshop on implementing professional learning communities, and a large group of K–12 teachers attended. They returned to the district saying, "We're already doing this," but they added a set of protocols to their online data toolkit that were introduced to teams the following year.

At the beginning of the school year, the District Leadership Team stated there would be no more new data expectations introduced during the academic year. On the first day of school, the superintendent stated this in the teacher welcome meetings. The superintendent cataloged the current data-use expectations at the individual, team, school, and district levels and asked teachers to "keep getting better" over the course of the year. Widespread delight greeted this announcement, especially the news that several data-analysis expectations had been shifted from teacher teams to building-level analysis.

Principals continued to work with data teams monthly through the year to clarify outcomes and support team learning.

Principals continued to work with each teacher to set an annual learning goal focused on data use. Principals reported that many teacher goals had moved from a focus on team analysis of data to a focus on analysis of their own classroom data.

After intensive work supporting data teams, state assessment results showed dramatic gains in high school (for the first time) in English language arts and math scores. All other levels showed some improvement, particularly among lower achieving students. However, the percentage of students at the highest proficiency level decreased in all K–8 schools.

In spring 2011 principals met to explore ways to share excellence across schools and grade levels and to enhance widespread capacity to use evidence. They decided to celebrate their best practices. To do this, they planned a K–6 "data-driven instruction fair" to take place during the first two days of a back-to-school workshop in August. Sixty teacher leaders were identified by their principals and coaches as having outstanding examples of best practice in 15 areas. These teachers were convened in May 2011 and worked in teams of

three to four, by area of excellence, to develop a 50-minute presentation to their peers. Examples of topics included "Using evidence of learning during peer assessment" and "Incorporating individual student evidence during conferring." The presenting teachers were given stipends to work during the summer to refine their presentations. The workshop days were rated as the most successful professional learning ever to take place in the district, and since each teacher only attended four of the sessions, the work continued the following year in various ways.

The Keystone District knows this work is ongoing and that it has more work to do. Over multiple years it has accomplished building an emerging culture of data use, in which, even when no one is looking, teachers and leaders know which data to use, know when to use data, and know how to use data to make decisions about teaching and learning.

Handout 9.1: Discussion protocol: Identifying implementation strategies for a culture of data use

1. Working with colleagues, identify one of the five framework elements to work with, in order to develop some initial ideas for implementation strategies. (5–10 minutes)

   Framework element/focus area: _____

2. Brainstorm and list three or four barriers that impact implementation in the framework element that you selected in item 1. (5 minutes)

3. In handout 9.2 review only the framework element that you identified in item 1. Discuss and then list one or two more barriers from the handout that apply in your setting. (5–10 minutes)

4. In handout 9.3 review and discuss the strategies designed to support consistent implementation for the framework element that you identified in item 1. Then address the following questions. (10–15 minutes)

   a. How do these examples build consistent data-use practices?

   b. Would any of these example practices help address the barriers you listed above? How?

   c. How are these examples similar to, or different from, strategies you've tried in your setting?

   Note key points from your discussion:

5. In handout 9.4 review and discuss the guidance for the framework element that you identified in item 1. Then address the following questions. (5 minutes)

   a. What additionally do these examples add to your discussion of this framework element?

   b. In what ways do these examples provide further ideas around developing consistent practices that further data use work in this framework element?

   Note key points from your discussion:

6. What are some thoughts related to next steps that can support deepening a culture of data use in your setting? What are one or two high-priority ideas to move forward from this discussion?

Handout 9.2: Barriers to a culture of data use, by framework element

Participate in the flow of information for evidence use

- Data management systems are cumbersome, inefficient, and frustrating for teachers to use.
- Technical limitations of data systems suppress data use.
- Educators go to great lengths to compensate for a lack of integration with data systems and might even have built their own systems to address the lack of a district system.
- Teacher leaders take on the task of coordinating and preparing data for teacher team meetings, usually during their own time.
- Educators can become frustrated with the amount of time it takes to access and analyze data, most frequently because of a lack of system integration.

Provide resources and assistance to make meaning from data

- Data are used, but there is little evidence of collegiality.
- Protocols for data use are followed but only at the most procedural and basic level. Team dialogue does not focus on dialogue about instructional change.
- Structures and protocols for collaboration are not used or understood.
- Teachers who believe in data-use practices do it on their own time—before school, after school, or at lunch.
- Ineffective access to data prevents collaboration and dialogue about instructional practices.

Communicate professional expectations for data use

- Data are mistrusted and are seen as a compliance tool rather than an instructional support.
- Teachers have competing time demands for data use and analysis.
- Formal district policies around data use do not exist.
- Educators appear to be negative about data use, but deeper questioning reveals that it is not the idea of data use in itself that concerns educators. Rather, it is the perceived difficulties that arise with data use—the amount of time required, the lack of access to data, and so on—that prompt the negative responses.
- Different data-use expectations are in play across district and schools.

Provide professional development on data-use knowledge and skills

- Professional development occurs in large group settings and does not address skill development using teachers' own data.
- Professional development takes place in the early stages of data use, but as teachers shift to more challenging practices (for example, interpreting evidence to use during instruction), professional learning is no longer focused on data use.
- Evidence about teachers' current practices and learning needs is not collected, and professional learning is not aligned to teacher learning needs.
- Different messages from competing professional development providers hinder coherence and application of new practices.

Provide leadership to nurture a culture of data use

- Time is not provided for collaborative review of data, or the time that is available is barely monitored for effective practices.
- The culture is one in which teachers do not feel safe revealing where they need to improve practice, and leaders (inadvertently or not) punish teachers for sharing areas of weakness or concern.
- Decisions at the district or school level are made "from the gut" and do not model effective data-use practices.

Handout 9.3: Examples of policy and guidance to support a culture of data use, by framework element

Participate in the flow of information for evidence use

- Written expectations for data use that show which practices align with improved practice and document the shift away from an accountability-based data-use approach.
- Written clarification identifying which users of data are meant to answer which questions.
- Calendars and timelines of district data-use expectations by grade.
- Description of district data systems to clarify functions and uses.
- Description of district data systems that describe how they support and align with the everyday work of educators.

Provide resources and assistance to make meaning from data

- A school calendar documenting scheduled time to analyze evidence.
- A common location (computer drive) with written protocols for using evidence during team meetings.
- Written role expectations for data teams with specific team-member functions outlined.
- A schedule with opportunities for calibration.
- Agreed upon norms for data use posted and reviewed at all meetings.
- Written documentation of how coaches or instructional specialists will support collaborative data-use practices.

Communicate professional expectations for data use

- Written guidance about the focus of data use as designed to support all students.
- Written communication highlighting how the focus on all students will raise the achievement of struggling learners through increased differentiation and personalized student supports.
- Written expectations about annual "products" that include student evidence, including written guidance for use of evidence at parent-teacher meetings, portfolios, and information that is documented across years.

Provide professional development on data-use knowledge and skills

- An annual schedule of professional learning for data use, including formal, informal, large-scale, team-based, and daily learning, focused on common learning goals schoolwide, and including individual (or team) areas of focus for teacher learning.
- Written structure to document teacher learning goals regarding using data.
- Protocol for principals to review teachers' practices with various types of data use (including both schoolwide and classroom uses) and to outline next steps in their individual learning.

Provide leadership to nurture a culture of data use

- Job descriptions that capture the role of data-use leaders throughout the district: principals, teacher leaders, data team leaders, district leaders.
- A hiring protocol outlining expectations or activities that show facility with data use.
- Documentation related to how leaders learn data use over time, with increased expectations outlined over time.

Handout 9.4: Examples of district and school guidance to support a culture of data use, by framework element

Element I: Examples of participating in the flow of information for data-use policy and guidance

District implementation of student data systems

Excerpted from Means, B., Padilla, C., & Gallagher, L. (2010). Use of education data at the local level: From accountability to instructional improvement. *Washington, D.C.: U.S. Department of Education, Office of Planning, Evaluation and Policy Development. http://www.ed.gov/about/offices/list/opepd/ppss/reports.html#edtech.*

One large, suburban district has spent over a decade trying to make data available to its schools. The district's development of a data system to support these efforts has been an iterative process that has included ongoing development of new data systems to replace outdated ones and the incorporation of new technology as it is developed. Their current student information system (SIS) was developed locally over seven years ago. When the system was first implemented, information from the data warehouse was exported into the SIS to make it more accessible to teachers. Unfortunately, teachers did not use the system because it did not meet their needs and was not user friendly. The same result occurred with a commercial assessment system. According to the executive director of information systems and support: "Technically you can make most anything work. [We had a] good vision of where we wanted to go, but when it came down to sitting down with the individuals [vendors], it was difficult to get an end product. … It took from 1999–2000 to 2008 to get a tool that was teacher-friendly. That was our objective up front, but now it has finally evolved into a true teacher tool. The district has always had lots of data, but there was a challenge turning data into information." From these experiences district staff learned that they needed to involve subject-matter experts to develop data system solutions.

Through an ongoing process of soliciting feedback from users, this first district has begun to replace the current SIS with a new system that utilizes commercial software to make data more intuitive and teacher-friendly (teachers have drill down capabilities for their own classes and individual students). The district maintains two commercial data warehouse systems—one is a legacy system used for state reporting and keeping records of students with special needs. Within the last two years, the district has acquired an assessment system that was implemented districtwide during the 2007–08 school year. This system contains district benchmark data that is made available to teachers five times a year within 24 hours after test administration. The assessment system also contains links to district standards, pacing guides, and an item bank aligned with state tests. In 2006–07 the district implemented a locally developed Web-based portal so that teachers can access data anywhere any time; the portal also helps to support the interoperability of the districts' various data systems. Over the next few years, the district will continue to manage the transfer of student data to its new SIS, try to improve the linkages between the assessment system and the curriculum management system, and link electronic teacher gradebooks with the SIS. The district will also try to find a way of storing portfolio-based information that current data systems do not support.

One of the strengths of the second large district has been its capacity to build its own data systems customized to the needs of district and school staff. The district's data warehouse was locally developed. Using this system, district and school staff can generate standard

accountability reports or district and school report cards, and record daily class attendance and disciplinary actions. The data system is the primary tool used by schools for drafting and revising school improvement plans. Their data warehouse has the capability to link student performance data to student subgroups so that school and district staff are able to disaggregate data to perform different data queries, and student performance data can be linked to specific teachers, teacher characteristics, and specific instructional programs so that staff can examine student performance in different classrooms or programs. When the district found that their off-the-shelf assessment system did not fully meet their needs, they decided to develop their own. District staff are working in conjunction with a commercial firm to design an assessment system that includes an item bank (items that are aligned with state standards and the district pacing guides) and provides links to instructional resources. The assessment system will be linked to the data warehouse to support aggregating data and longitudinal analysis, and a new interface will highlight for teachers and principals where potential problem areas might be and let them drill down to access the relevant information. This district is also in search of a data system that is capable of storing student portfolios and other nontraditional forms of data.

Element II: Examples of communication policy and guidance

District guidance: Organizing scheduled data reviews

This guidance brief supports school staff to schedule time for frequent data meetings to ensure that teachers have structured time during the school day to review student performance data.

Data review task	Data for analysis	Key players	Focus for analysis	Schedule
Overall achievement and trends	· Graduation rates · Attendance · State assessment	Entire staff, school data team	· Program review · Curricular review · Patterns and trends of overall student learning · Areas of focus for professional development	Beginning and end of year
Student growth	· District benchmarks · End of course assessments · Common assessments · Student work	Teacher and administrator	· Patterns of student performance over multiple years · Instructional strategies to address specific learning needs over time · Professional growth for teachers based on student learning	Three times per year
Whole class and individual performance	· Common assessments of student work · District benchmarks · Behavior data · Competency assessments (high school)	Grade-level (elementary) or department (middle or high school) teams	· Clarify next steps in learning for groups or individual students · Share instructional practices · Group students for intervention · Response to Intervention	Every two weeks (team time)
Whole class and individual performance	· Student work samples · Common assessments · Unit assessments · Competency assessments (high school)	Elementary learning teams, or secondary department meetings	· Patterns and trends in performance · Instructional strategies to address needs · Explore strategies for students to set learning goals based on data · Develop classroom and formative assessment tasks	Elementary: two weeks High school: four weeks
Student goal setting	· Student portfolios · Student work samples · Common assessments · District benchmark assessments	Teachers and students	· Goal setting · Portfolio review · Strategies for success	Elementary: two weeks High school: four weeks

Source: Adapted from National Staff Development Council (2009).

Planning for a coherent assessment system

Assessment type(s)	Assessment tools	Expectations for users of data			Focus for professional learning
		Teachers	Students	School/district	
Daily: Classroom formative	Questioning White boards Exit tickets Observational records	Monitor student understanding of learning goals and revise instruction based on data	Self-monitor progress toward learning goals and make adjustments as needed		Use data to set learning goals with students Use data "on the fly" to change instruction Develop flexible groups Track formative data
Periodic: Diagnostic assessments and progress monitoring tools	Dynamic Indicators of Basic Early Literacy Skills Developmental Reading Assessment Aimsweb (math)	Place students into intervention groups, using the district response to intervention mode Increase understanding of student-learning needs	Self-monitor progress toward learning goals Understand placement decisions	Provide early identification of students who require targeted interventions	Diagnose individual knowledge and skills Group students for instruction Establish intervention groups Identify next steps for learning
Weekly or biweekly: "Common" assessments designed by grade level and aligned to standards and calendar	Weekly assessments developed by teacher teams Evidence reviewed in grade-level data teams to guide instruction	Check individual and class progress against learning goals Guide dialogue about next steps in instruction	Check progress toward learning goals Clarify what has been learned and what comes next	Identify students who require additional supports and students who are ready to move to higher level work	Identify patterns in proficiency Placement considerations Guide re-teach and enrich groups
Periodic: Unit testing *High school competency assessments*	End of unit tests High school competency assessments	Determine grades and promotion	Gauge progress toward meeting standards and share with parents at conferences	Conduct department- and grade-level team analysis of mastery	Clarifying grading and reporting for formative versus summative assessments Communicating with parents
Quarterly: Benchmark assessments	Fountas and Pinnel Benchmark Assessment District benchmark assessments in math, science, and social studies. Northwest Evaluation Association assessments (grades 6–12)	Analyze which students need additional interventions or targeted services and which can benefit from advanced work Analyze learning trends for individual and groups of students compared to national norms	Gauge progress toward meeting standards and share with parents at conferences	Analyze trends in student performance overall and across grades and buildings Identify which students are meeting the standards and which are not	Identify area of student growth Use effective instructional strategies Identify patterns in proficiency Placement considerations
Annual: State assessment	New England Common Assessment Program	Analyze curricular focus areas for improvement Align curriculum to state standards		Identify broad areas of strengths and weakness in the curriculum, determine degree of progress, and in which areas students are not meeting standards.	Train leadership to use common protocols at the school to support effective use of state assessment evidence, including patterns of student achievement, instructional programs, additional knowledge, skills, or resources for staff

Common formative assessment tuning protocol

How to use this tool:

- Select a recently implemented common formative assessment task.
- Complete this reflection tool individually.
- Bring your completed reflection tool, the assessment used, and your planning documents to your team meeting. Discuss your reflections with colleagues.
- Clarify what worked well with this common formative assessment and what you might like to change.

Upon reflection, to what extent did this common formative assessment:

Reflections prior to group review	Very well				Not at all	Group discussion notes
1. Clearly align with the learning goal?	4	3	2	1	0	
	Comments:					
2. Address the knowledge and skills that are documented in the learning progression?	4	3	2	1	0	
	Comments:					
3. Identify and elicit the content or skills where students have misconceptions?	4	3	2	1	0	
	Comments:					
5. Provide the teacher with useful (that is, new) information about each student's level of understanding?	4	3	2	1	0	
	Comments:					
6. Provide the teacher with useful information for adjusting instruction?	4	3	2	1	0	
	Comments:					
7. Lead to a change in instruction? If so, what changed?	4	3	2	1	0	
	Comments:					
8. Lead to an exchange of feedback between student and teacher?	4	3	2	1	0	
	Comments:					

After shared review of responses, discuss the overall trends.

- If your common formative assessment did provide useful guidance to the teacher, what might you take away regarding future strategies for developing or implementing common formative assessment tasks?
- If your common formative assessment did not provide useful guidance to the teacher, what might you change in this assessment? What might you want to do differently as you develop or implement your next common formative assessment?

Document your feedback, and share key findings from your discussion with your team and, through team notes, with your administrators.

School district collaborative assessment project

Professional learning team member roles

- Come prepared to share data and student work samples.
- Discuss and analyze data as they relate to the standard.
- Group students for interventions and extensions.
- Develop lessons for interventions and extensions.
- Adhere to established data meeting protocols.
- Learn to use multiple forms of data, including common formative, benchmark, and diagnostic tools.
- Focus on learning goals.
- Know when to ask for support.
- Focus on continuous improvement to better support student learning.
- Co-develop lesson plans to include new instructional techniques.
- Provide feedback on common assessments for annual revisions.

Professional learning team roles eligible for "pay for performance"

Facilitator. A team facilitator is a "neutral" person who supports the team in using and developing process skills for more effective and efficient use of team time. Individuals in this role provide advance preparation for meetings, learn and practice meeting facilitation skills, and work to keep the team focused and on task throughout the meeting. Four days of afterschool and summer training will be provided to all team facilitators, with reimbursement at the district stipend rate. Primary facilitation tasks are:

- Ensure that materials are organized and prepared before the meeting.
- Create a risk-free environment that encourages collaboration and makes room for mistakes.
- Keep discussions focused on standards, assessment, and improving student achievement.
- Encourage curriculum and assessment to be aligned and consistently implemented.
- Pose difficult questions and offer opportunities for courageous conversations.
- Facilitate the team's identification of teaching strategies that will be used during classroom instruction.
- Facilitate the team's identification of teaching strategies that will be used during interventions and extensions time.
- Keep the moral imperative and greater purpose in the forefront of all work.
- Allocate equitable and appropriate time, training and resources to support professional learning team work.

Data analysis leader. The data analysis leader demonstrates the ability to lead teams in analyzing multiple sources of data to identify improvement needs, symptoms, and instructional issues and in working with teachers and school leaders to determine improvement goals based on that data. Four days of afterschool and summer training will be provided for all data leaders, with support in using the district information management system, using excel spreadsheets, and preparing data displays for team analysis. It is hoped that in future years training can be continued on data literacy for leaders in this role. Primary data analysis leader tasks are:

- Collect and record assessment data prior to professional learning team meetings.
- Provide appropriate data in a user-friendly format and in a timely fashion.

- Share whole group, subgroup, and item analysis with professional learning team members.
- Lead professional learning team in analyzing classroom- and grade-level results to guide instructional decisions.
- Share data with school leadership or other teams for further analysis schoolwide.
- Assist team in generating revisions in classroom instruction based on analyzed data.
- Assist team in monitoring goal progression throughout the school year.
- Display data in a visible way so that data are transparent and understandable.
- Support the team in making data queries where needed.

Note taker. The note taker maintains team notes, records data findings/data statements, and keeps an accurate record of instructional decisions the team has discussed to address findings from the data. The note taker distributes notes to the team and maintains a team electronic notes folder that is easily accessible by any team member. Primary note taker tasks are:

- Take notes during professional learning team meetings.
- Distribute notes to team members regularly.
- Maintain accurate records of data analysis reports and protocols.
- Maintain accurate records of instructional practices that are chosen based on data.
- Ensure records are kept in a place where other teachers are able to readily access for review.
- Provide regular communication with building leaders about team progress.
- Work with team to maintain an instructional binder for each essential standard in literacy and math.

Team data analysis protocol: Five-phase data review

Stage 1: Predict (5 8 minutes)	**Stage 2: Go visual (5 8 minutes)**	**Stage 3: Observe and analyze (10 15 minutes)**	**Stage 4: Infer, question, and clarify (15 minutes)**
The goal during this time is to think about the team's collective knowledge and experience of this standard prior to collective data review. Key questions: What are we thinking about this standard? Are there noticeable misconceptions or challenges students had learning this specific standard? Conversation starters include: · I predict… · I assume… · When I taught this standard I was wondering…	Each team member reviews the data quietly for a few minutes and then shares key facts from the data. Key questions: What do you notice about these data? What "data statements" can be made in reference to these data? What important points seem to "pop out"? Conversation hints: · Share only factual statements · Resist saying "because"	During this collective data analysis, team members look for patterns and trends in the data. Key questions: What patterns and themes are emerging from the data? How does this information compare to the predictions the team made earlier? What do you notice about trends or outlier information from this data set? Conversation starters include: · I notice that… · I see that…	Team members move from looking at causes to determining instructional actions. Key questions: In what ways do these data offer suggestions for next steps to extend student learning? In what ways do these data offer suggestions for next steps to provide interventions for students who require it? Which instructional strategies might we apply? Conversation starters include: · A clear student-learning need is… · The data suggest that… is a specific area of weakness…
Notes:	Notes:	Notes:	Notes: Areas of learning to revisit: Areas of learning needs to extend:
Stage 5: Action planning			
Instructional actions for specific identified needs for "revisiting" key standards:			
Instructional actions related to next steps in learning for students who are meeting key standards:			

Grade 1 professional learning team meeting notes template

Date: _____

Facilitator: _____

Note taker: _____

Timekeeper: _____

Attendee	Please initial	Attendee	Please initial
Teacher name		Specialist name	
Teacher name		Literacy coach name	
Teacher name		Administrative liaison name	
Teacher name		Special education teacher name	

Standard: _____

Stage 5: Agreements and recommendations for intervention and extension groups

Action plan: Teacher assignments and next steps for re teach. Recommendations to response to intervention team.

Copy of agreements and recommendations sent to:

Shared drive _____ Literacy coach _____ Team administrative liaison _____

Rural middle school data team: Embedded professional learning

This plan represents a first-year of implementation of a rural middle school data team. This team was supported by an outside consultant, but all embedded professional learning and faculty presentations were led by the data team members.

Schedule of data analysis activities and teacher and team support

Team goal for the academic year: Provide "embedded" professional learning to all teachers by leading data analysis sessions, introducing protocols for data review, and providing strategies to use evidence of learning to guide student academic goal-setting.

To meet this goal the data team will:

1. Learn and apply protocols and tools for looking at evidence of student learning—particularly in helping teachers look at evidence of learning during common planning time meetings.

2. Be out ahead around data analysis and interpretation—including knowing how to use existing data sources (Northwest Evaluation Association, Performance Pathways, Aimsweb, state assessment) and how to support teachers during common planning time.

3. Define and help frame consistent schoolwide data analysis practices, including understanding a range of analysis protocols to employ with different types of data (student work, unit assessments, interim assessments, diagnostic assessments, and large-scale assessments).

4. Make sure common planning teams have the information they need to do data analysis, to establish student-learning goals based on data, and to begin to use data to inform daily instruction.

Data team processes: Supporting data use in common planning time

The data team agreed that there would be four data-focused engagements with common planning teams through the year, in which common planning teams would review data using a common protocol. This work will be led by data team members. Each of these data-use activities will help teachers learn how to analyze and use different types of evidence of student learning.

The four data review processes are:

1. Diagnostic assessment data review (October).

2. Interim assessment data review (November and April).

3. Analysis of student work on research writing rubric (January).

4. State assessment data review (March).

Annual calendar of data team activities

(Meetings are scheduled every two weeks; team members are paid a stipend.)

September

- Plan for diagnostic assessment review with common planning teams.
  - Complete advance review of classroom data sets for new math diagnostic data tool.
  - Identify content strands on which to focus grade-level review: number sense, measurement, operations, patterns and relationships, data (streamline).
  - Agree on protocol for data review and analysis (select from common planning team materials) and clarify process for moving from analysis to instructional actions.
  - Prepare class datasets for review in common planning team.

October

- Debrief meetings with common planning teams related to review and analysis of diagnostic assessments.
  - Identify and record what worked well and where to improve in "train the trainer" model.
- Plan for interim assessment review with common planning teams.
  - Clarify which interim assessment reports to review with teams.
  - Prepare goal sheets for individual students to set learning goals based on interim data.
  - Practice using interim online materials and resources (with tech coordinator).
  - Identify goals for common planning teams and clarify protocol and process to complete interim assessment review that leads to students using interim data to set learning goals. Share with common planning teams in advance.

November

- Finalize materials for review of interim assessment data with common planning teams.
- Work with common planning teams to complete review of interim assessment data process.
- Develop a strategy to collect examples of research and reports from across grade levels for review at common planning team meetings in January.
- Identify one of the Looking at Student Work protocols from the common planning team binders to implement in January common planning meetings. Practice completing the protocol and debrief to deepen leadership and training approach.

December

- Finalize materials for review of student work and writing rubric with common planning teams. Clarify approach to capture schoolwide findings across teams to guide next steps in cross-curricular writing instruction.
- Debrief work with common planning teams related to review of interim assessment data. In particular, clarify how common planning teams are using interim data to establish student-learning goals.
- Continue to develop data team skills around assessment design and use. Invite district math consultant to share approach to developing common math assessments

for grades 1–5. Discuss data analysis protocols that have been introduced with elementary grade-level teams to review common assessments in math.
- Explore how colleagues at other schools are developing and using common assessments and provide some recommendations to transformation team about how to develop and use common assessments at the middle school.

January
- Conduct analysis of student work and writing rubric with common planning teams.
- Complete analysis of findings across common planning teams to begin to identify schoolwide focus for next steps in writing instruction. Discuss with principal and prepare materials to share at faculty meeting for review.
- Debrief analysis of student work and writing rubric, noting process strengths and areas where faculty needed additional support.

February
- Prepare and bring information to leadership team regarding what the data team has learned about schoolwide data review practices through common planning teams.
- Review annual state assessment data for identification of schoolwide trends, subgroup performance, and areas of curricular focus.
- Prepare state assessment data into charts, graphs, and tables that can be used in faculty data review.
- Identify a data-analysis protocol to use at a whole-school meeting to have faculty engage with state assessment data and determine key data findings.

March
- Report to school leadership team about key state assessment findings and initial review of next steps based on data.
- Work with faculty to review state assessment data and set schoolwide and curricular goals based on data findings.
- Prepare second round of interim assessment results for review at common planning team meetings. Clarify expectations around using assessment data to support student goal-setting.
- Identify and model best practices for student goal-setting based on October interim review process. Identify examples of how the student goal-setting process supports schoolwide emphasis on student portfolios and student-led conferences.

April
- Finalize materials and protocols for interim assessment data analysis process.
- Implement interim assessment data review with common planning teams.
- Coordinate with school leadership team to support analysis of data for program improvement review and to set improvement goals based on current data.
- Coordinate with school leadership team to review high-leverage strategies for improvement, including the use of shorter-cycle common assessments. Participate in dialogue about how that work might take shape in future given current knowledge and skills in data analysis.

May

- Work in common planning teams to debrief interim assessment review process. Clarify success in helping students set learning goals based on interim data. Reflect on this process and review next steps in this work—How do we engage student in their performance data to help them understand their strengths and areas where they need more focus?
- Continue to educate and reflect on the work this year in common planning teams related to data use. Prepare content for May early-release session to build faculty understanding of current data-use practices and to have teachers frame learning goals for next year related to data-use practices.

June

- Reflect on data team progress this year, clarify what has worked well and where additional supports are needed, and prepare report for transformation team regarding next steps for data team.
- Develop a calendar of activities and goals for data team during 2012/13 school year.
- Develop learning goals for data team for summer and upcoming school year, with focus on assessment literacy and developing shorter-cycle common assessments.
- Identify agreed upon summer reading list for data team members.

Data literacy toolkit topics

The following list is adapted from a report by Means, Chen, DeBarger and Padilla (2011). This resource offers case examples that data coaches or data team members can work through to improve their data literacy skills.

Knowing which data to select

- Identify the datasets needed to address specific learning or behavioral needs.
- Understand how to analyze multiple data sets simultaneously.

Interpreting data accurately

- Identify data in a table or graph.
- Understand different data displays (bar graphs, histograms).
- Manipulate and compare numbers in complex data displays.
- Understand limitations of sample size and the ability to generalize based on sample size.
- Appreciate the impact of extreme scores on the mean.
- Understand key assessment concepts, such as test validity and measurement error, and the impact these issues have on developing valid inferences.

Using data for instructional decisionmaking

- Understand how to differentiate instruction based on data findings.
- Clarify instructional actions for whole group, small group and individuals based on evidence.
- Understand what the progression of learning looks like for subject-specific content at the students' grade level.
- Identify appropriate resources for students' next steps in learning.

Engaging in collaborative inquiry

- Understand and use the inquiry cycle.
- Work collaboratively to reduce interpretation errors and support logical reasoning across the data team.
- Select tools and protocols to support and focus team dialogue throughout the data inquiry cycle.

Role description of data coach

The primary role of the school data coach is to work collaboratively with teachers to analyze student achievement data and assist teachers in using that data to improve student learning. The following is an example of a written role description for a school data coach:

> Under supervision of the school principal, the data coach coordinates, plans, summarizes, manages, and maintains assessment data. Working collaboratively with classroom teachers, site administration, and the leadership team, the data coach supports teachers in developing effective data analysis practices and in using the findings of data analysis to guide instruction. The data coach works with teachers and teacher teams to identify instructional approaches to address identified learning needs, provides model lessons that show effective strategies to modify instruction, and supports teachers in identifying resources or materials that will best meet student-learning needs. Through observation, dialogue, and data analysis the data coach contributes to identifying professional learning topics and will work with teachers to outline individual learning goals related to data analysis and instructional improvement.

Responsibilities

- Assist classroom teachers in collecting, analyzing, and using student achievement data to guide instruction.
- Provide model lessons for classroom teachers, using evidence-based teaching.
- Prepare data presentations for the school principal and staff.
- Work with the district data coordinator to ensure that teachers can access the longitudinal assessment database.
- Identify site staff development needs using student achievement data.
- Work with teacher teams to monitor benchmark assessments by student, teacher, grade level, standard, and subgroup and plan for extended learning.
- Coordinate and support data use by response to intervention team.
- Meet regularly with the principal and leadership team to review progress towards goals.
- Plan, schedule, and conduct site staff development activities aligned with district and site goals.

Knowledge and skills

- Able to facilitate the use of data analysis protocols during data team meetings.
- Familiar with the district's data inquiry model.
- Skilled in instructional planning.
- Able to use and analyze multiple types of student assessments and related data.
- Understands and applies knowledge of adult learning and development.

Example of input to district policy: Principals rewrite their job descriptions

Upon districtwide development of common short-cycle assessments and school data teams, principals asked to rewrite their job descriptions to address changing responsibilities. Principals developed this list and submitted it to district leaders for final revisions.

- Lead the school data team, set biweekly agendas, and prepare datasets for team review.
- Identify and support school data leaders.
- Schedule time for teachers to analyze and take action from data.
- Lead annual analysis of data for school improvement plan.
- Develop a schoolwide calendar of data-use expectations showing how grade-level or department data teams will review evidence through the year.
- Continue to develop fluency in data-use knowledge and skills.
- Support teachers in developing skills for both data use and assessment literacy.
- Work with teachers to use classroom data to set teacher annual learning goals.
- Model and support developing habits of mind for data use.
- Create procedures for teams to learn from one another.
- Create norms of safety and trust when discussing data findings and exploring next steps.
- Support the development and use of short-cycle assessments that are aligned to curriculum and measure desired outcomes.
- Organize data-use technologies.
- Use current evidence of learning in parent dialogue.
- Identify funds for and support data-entry staff.

Building leadership team development activity to establish agreed upon actions for principals to strengthen data-use practices

This team activity can take place at the building leadership team level or with principals working together with the district leadership team.

- Begin by having pairs identify the high-leverage strategies that principals can take to strengthen and support data-use practices in the building.
- Once pairs have a prioritized list, share these lists with the rest of the team. Work within the building leadership team to develop a prioritized (and manageable) set of actions the principals can take.
- Clarify what supports or structures are necessary for any new responsibilities.
- Develop a timeline for implementation.

Handout 10.1: Discussion prompts

These discussion prompts are designed to structure team dialogue that will support identifying, clarifying, and crafting written guidance to support enhancing the culture of data use in your setting.

1. List the one or two high-priority areas of focus that have been identified in your work group or team:

2. Identify the Culture of Data Use Framework element in which these priority areas reside:

3. Review handout 10.2, which outlines some questions to further explore developing guidance, and handout 10.3, which shows examples of guidance. Discuss the questions in the framework element(s) under consideration. (8–10 minutes)

4. Discuss what you know about the issue to be addressed by written guidance. (5–10 minutes)

    a. How widespread is it?

    b. What do others say about it?

    c. In what ways has it been addressed in the past?

5. Based on what your team has reviewed in this workshop, discuss examples of effective practice in your district or school. Which practices can the team build on to document and craft written guidance for this work? (5–10 minutes)

6. Discuss and review current internal guidance that currently addresses this issue.

    a. What formal guidance has been developed? How has it been disseminated?

    b. What informal expectations are in play?

7. Ensure agreement about the specific guidance to develop during this time. Take the remaining time to begin to craft written guidance in the high-priority area identified.

8. Outline information about next steps:

    a. Who needs to review this guidance prior to implementation?

    b. How will this guidance be shared with identified reviewers?

    c. What is the internal timeline for finalizing this work?

    d. Who is primarily responsible for moving this work forward?

Handout 10.2: Guiding questions for developing policy or guidance to support a culture of data use, by framework element

Participate in the flow of information for evidence use

- Do all members of the district and school have the data they need to make effective decisions?
- What data do we have that can help answer the questions we are currently asking about student learning?
- What improvements to data quality and presentation would expand our ability to answer these and other questions?
- Does technology for data use enhance data-use practices by educators?
- What more can be done for system integration to ensure that teachers do not have to compensate for limited technology use?

Provide resources and assistance to make meaning from data

- What are the organizational structures and systems that enhance our ability to use data effectively?
- Is there sufficient and consistent structured time for teachers to analyze evidence and explore how to change instruction based on that evidence? Is this time scheduled during the school day?
- Do cultural norms allow educators to share real problems of practice, both positive and negative?
- Are there opportunities provided to "calibrate" the social sense-making processes required of data use, so that consistent practices are developed throughout the organization?

Communicate professional expectations for data use

- Is there a common, shared understanding of how data use contributes to a culture of excellence in our district or school?
- Is there a common, shared understanding that evidence of student learning enhances (and does not replace) the professional judgment of our educators?
- Do district and school practices align with stated expectations?
- Do district and school practices clarify that data use is for continuous improvement of instructional practice, rather than externally driven for accountability and compliance?

Provide professional development on data-use knowledge and skills

- Do all members of our district or school have the knowledge and skills necessary to make use of the data available to them?
- Have we built the internal capacity of all educators to use evidence effectively to support learning?
- Does professional learning take place frequently? Is it differentiated to meet the needs of different educators?
- Do educators report that what they learn in professional development is immediately useful?
- Are informal opportunities for professional learning—where important knowledge is shared among colleagues to build district- and schoolwide capacity—made possible?
- Does professional learning include data use and expanding the repertoire of instructional strategies as a result of the data?

Provide leadership to nurture a culture of data use

- Are the leadership roles and responsibilities to support evidence use in our schools and at the district level clearly defined?
- Are there formal opportunities for those in leadership roles to learn and practice how to model and lead effective evidence use?
- Do written role descriptions outline the work that principals or other leaders must do to lead data-use practices?
- Is there agreement about the role that district leaders play to help schools and teachers improve their evidence-use practices?

Handout 10.3: Examples of policy and guidance to support a culture of data use, by framework element

Participate in the flow of information for evidence use

- Written expectations for data use that show which practices align with improved practice and document the shift away from an accountability-based data-use approach.
- Written clarification identifying which users of data are meant to answer which questions.
- Calendars and timelines of district data-use expectations by grade level.
- Description of district data systems to clarify functions and uses.
- Description of district data systems that tell how they support and align with the everyday work of educators.

Provide resources and assistance to make meaning from data

- A school calendar documenting scheduled time to analyze evidence.
- A common location (computer drive) with written protocols for using evidence during team meetings.
- Written role expectations for data teams with specific team-member functions outlined.
- A schedule with opportunities for calibration.
- Agreed upon norms for data use posted and reviewed at all meetings.
- Written documentation of how coaches or instructional specialists will support collaborative data-use practices.

Communicate professional expectations for data use

- Written guidance about the focus of data use as designed to support all students.
- Written communication highlighting how the focus on all students will raise the achievement of struggling learners through increased differentiation and personalized student supports.
- Written expectations about annual "products" that include student evidence, including written guidance for use of evidence at parent-teacher meetings, portfolios, and information that is documented across years.

Provide professional development on data-use knowledge and skills

- An annual schedule of professional learning for data use, including formal, informal, large-scale, team-based, and daily learning focused on common schoolwide learning goals, and including individual (or team) areas of focus for teacher learning.
- Written structure to document teacher learning goals regarding using data.
- Protocol for principals to review teachers' practices with various types of data use (including both schoolwide and classroom uses), and to outline next steps in their individual learning.

Provide leadership to nurture a culture of data use

- Job descriptions that capture the role of data-use leaders throughout the district: principals, teacher leaders, data team leaders, district leaders.
- A hiring protocol outlining expectation or activities that show facility with data use. Documentation related to how leaders learn data use, with increasing expectations over time.

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