Using Data Effectively

OUTCOME

Your leadership team will be prepared to guide your school in using data to improve instruction.

LEARNING GOALS

Your team will:
1. Develop an understanding of how the use of multiple data sources can improve instruction
2. Analyze data to trace the causes of—and find solutions to—low achievement
3. Articulate how the team can support teachers' use of data to improve instruction

AGENDA ITEMS

Launching the Module

☐ Launch: *UDE Handout 1* (5 minutes)

Learning Goal 1: What data sources should we consider?

☐ Explore: Scaling the data pyramid, *UDE Handout 2* (15 minutes)

Learning Goal 2: How can we use data to find causes of and solutions to low achievement?

☐ View: *Data Walls* (15 minutes)
☐ Explore: Boosting achievement at Green Middle School, *UDE Handouts 3* and *4* (25 minutes)

Learning Goal 3: How can we support teachers' use of data to improve instruction?

☐ View: *Data Carousels* (15 minutes)
☐ Apply: Supporting data use at our school (25 minutes)

Now What?

☐ Apply: Next steps, *UDE Handout 5* (20 minutes)

Success AT THE Core
How Teams and Teachers Transform Instruction

The Data Pyramid

DIRECTIONS

As you read, use three symbols to annotate the text:

✔ **= Affirms my prior understanding**

❗ **= Surprises me**

❓ **= Provokes a question and/or interest in further learning**

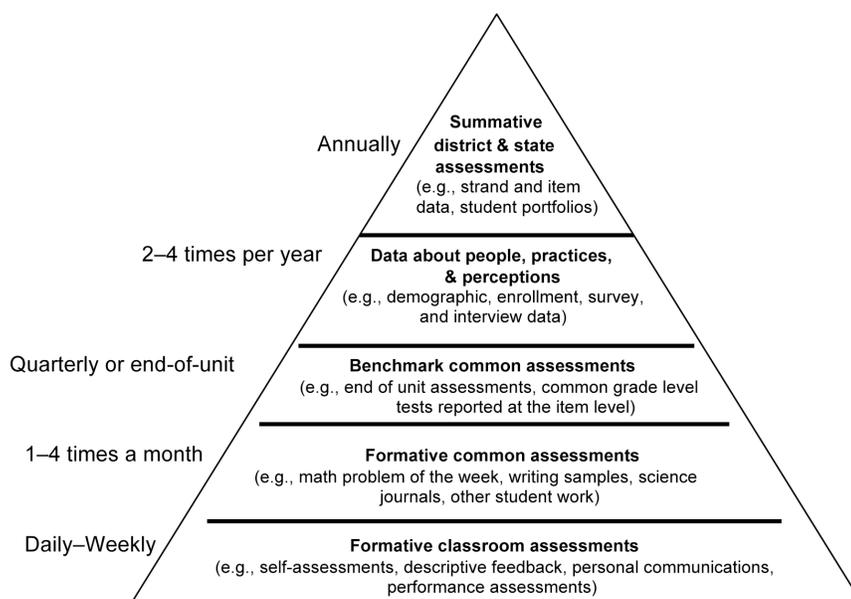### What Are Data-Literate Schools?

Data-literate schools understand that examining only one source of data (typically state test results) at one point in time (typically in the fall, after a teacher's current students have gone on to the next grade) contributes little to continuous instructional improvement. Rather, teachers at these schools consider a variety of sources of data, some on a daily basis, some monthly or quarterly, and some annually. They analyze data together to explore how to advance student learning through improved instruction.

What Tools Do Data-Literate Schools Use to Assess Learning?

Data-literate schools rely on both formative and summative assessments.

- Teachers gather *formative assessment data* while learning is in progress to diagnose student learning needs, plan next steps, and provide students with feedback.
- Teachers gather *summative assessment data* after learning experiences to determine if students have met the intended learning goals.

The figure below illustrates five different types of data and provides guidelines for how frequently each should be gathered and analyzed in schools for continuous improvement.

Annually — **Summative district & state assessments** (e.g., strand and item data, student portfolios)

2–4 times per year — **Data about people, practices, & perceptions** (e.g., demographic, enrollment, survey, and interview data)

Quarterly or end-of-unit — **Benchmark common assessments** (e.g., end of unit assessments, common grade level tests reported at the item level)

1–4 times a month — **Formative common assessments** (e.g., math problem of the week, writing samples, science journals, other student work)

Daily–Weekly — **Formative classroom assessments** (e.g., self-assessments, descriptive feedback, personal communications, performance assessments)

Source: Love, N., Stiles, K. E., Mundry, S., & DiRanna, K. (2008). *The data coach's guide to improving learning for all students: Unleashing the power of collaborative inquiry.* Thousand Oaks, CA: Corwin Press (p. 129, Figure 4.1). Reprinted with permission from Corwin Press. All rights reserved.

What is the Purpose of Each of the Five Types of Data?

An overview of the five types of data depicted in the Data Pyramid—in order of frequency of use—follows.

Formative classroom assessments: Teachers use these assessments in their classrooms on an ongoing basis to track students' progress. Data sources include student self-assessments, descriptive feedback to students, use of rubrics, multiple methods of checking for understanding, examination of student work, and tests and quizzes.

> These assessments inform teachers' instructional decisions—day-to-day, even minute-by-minute—and serve as the basis for feedback to students to help improve their learning.

Formative common assessments: Teachers administer these assessments one to four times per month to identify student learning problems within grade levels or content areas. Data sources are similar to those of formative classroom assessments, the difference being that teams of teachers collaboratively administer and analyze these assessments.

> These assessments generate short cycles of improvement and allow teachers to frequently monitor progress toward learning goals.

Benchmark common assessments: All teachers in a school or district administer these assessments—quarterly or at the end of units—to gauge students' understanding of discrete concepts and skills. Data sources include end of-unit tests and common grade level assessments by content area (e.g., science, mathematics, English Language Arts).

> These assessments closely align with the local curriculum. Teachers can access results quickly and at the item level (i.e., student results are reported for each item, with the items themselves available to teachers for analysis). Item analysis provides useful information on problematic concepts or skills.

Data about people, practices, and perceptions: Researchers recommend that schools and districts analyze this data two to four times a year to gain insight into the quality and equity of learning environments. Data sources can include survey, observational, and interview data about student populations, teacher characteristics, course enrollment, and dropout rates.

> Often overlooked in schools, such data can help schools: explore systemic causes of under-achievement; monitor results related to the implementation of action plans; and assure that diverse voices—by role (e.g., student, teacher, family, and administrator), by race/ethnicity, and by economic, language, and educational status—are brought into data-focused dialogues.

Summative district and state assessments: State agencies and school districts oversee the annual administration and analysis of these assessments to ensure schools and districts are meeting goals and standards for student outcomes. Data sources include state and district standardized tests.

> These assessments promote accountability for student learning. Used in conjunction with the data sources described above, they help schools identify learning strengths and weaknesses and set annual improvement targets. Because they provide limited information about how to improve the performance of specific students in specific classrooms, they occupy a small portion of the data pyramid.

Source: Adapted from Love, N., Stiles, K., E., Mundry, S., & DiRanna, K. (2008). *The data coach's guide to improving learning for all students: Unleashing the power of collaborative inquiry.* Thousand Oaks, CA: Corwin Press. (pp. 130–131.) Reprinted with permission from Corwin Press. All rights reserved.

Simulation: Data, the Causes of Low Achievement, and Improvement Strategies at Green Middle School

The education field has made great strides in data collection and analysis. Yet, educators often expend their energy on finding and interpreting data, leaving them little time to use the data to inform instruction. Most schools also lack the kinds of collaborative structures that enable teachers to modify their instructional practices based on data results.
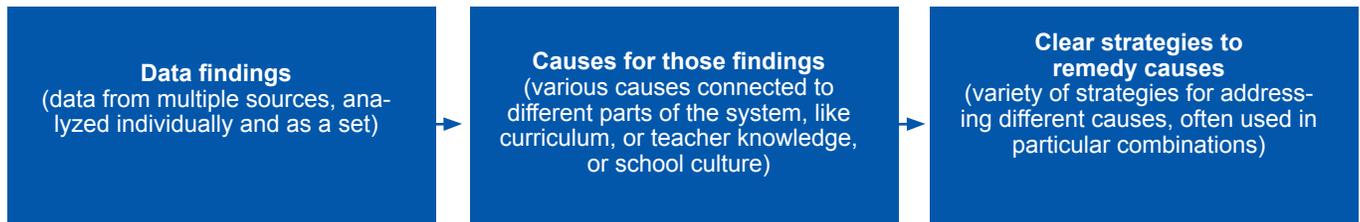
What Does Using Data to Improve Instruction Look Like?

It would make educators' lives easier if using data to inform instruction were as straightforward as this:

Data findings	→	Single cause for those findings	→	Clear strategy to remedy cause

Unfortunately, this simplistic formula does not work for real issues in real schools.

Aware of the limitations of single-source data analysis, educators today strive to interpret data from multiple sources—like those discussed in *UDE Handout 2*. But considering multiple sources of data complicates analysis. Educators must make judgments about which findings connect to the specific issues they seek to address, understanding that few issues have a single cause. Only after analyzing findings from multiple sources can educators consider appropriate strategies to address the issue.

A more accurate model for using data to inform instruction looks like this:

Data findings (data from multiple sources, analyzed individually and as a set)	→	Causes for those findings (various causes connected to different parts of the system, like curriculum, or teacher knowledge, or school culture)	→	Clear strategies to remedy causes (variety of strategies for addressing different causes, often used in particular combinations)

REFLECT

What makes using data to improve instruction challenging?

Green Middle School and English Language Learner Low Achievement

DIRECTIONS

1. Individually read the Simulation Overview and review *Table 1: Key Data Findings*.
2. In your small group:
    *   Discuss specific causes that might contribute to the data findings. Refer to the Cause cards for ideas. If your group identifies additional causes, use the blank Cause cards to record your ideas.
    *   Discuss possible solutions to the causes you identified. The Solution cards offer some ideas. If your team identified additional causes, be sure to record possible solutions for these causes on the blank Solution cards.
3. Share the causes and solutions your group has identified with the larger team.

Simulation Overview: How Can Teams Trace the Roots of Low Achievement?

Your leadership team needs to be able to work with data findings to consider multiple causes for *low achievement*. In this simulation, you will practice an effective process to sift through and make sense of data findings. The data you will use—from "Green Middle School"—relate to low achievement in mathematics and English language arts by English Language Learner (ELL) students. The data come from four sources: school demographic data, Washington Assessment of Student Learning (WASL) results, benchmark assessments, and student interviews. Table 1 presents the school's four key data findings.

Assume for the purposes of this exercise that you are a leadership team at Green Middle School, faced with the issue of low achievement by ELL students. Considering data findings and identifying potential causes will prepare you to consider possible strategies to remedy those causes. Draw on the context of *your* school when considering possible causes (e.g., the status of curriculum and materials in *your* school) of the data findings presented.

Table 1: Key Data Findings	
Status of ELL Students at Green Middle School	**Data Source**
1. The school has experienced a steady increase in English Language Learners (ELL) over the past five years, from 12.4% to 18.6%.	• school demographic data from the past 5 years (data about people, practices, and perceptions)
2. ELL students consistently struggle more with reading and writing than the student population at large; there has been little improvement over time.	• WASL data from the past 5 years (summative state assessments)
3. ELL students can perform mathematical computations but perform lower than other students at the school on problem solving and explaining their thinking.	• benchmark assessments and WASL data from the past 3 years (benchmark common assessments and summative state assessments)
4. ELL students feel that they do not have enough time to complete assignments and struggle to obtain extra help.	• recent interview data (data about people, practices, and perceptions)

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Cause and Solution Cards

Cause: Curriculum
- ☐ Curriculum does not align with standards
- ☐ Curriculum pacing results in certain standards not being addressed
- ☐ Curriculum pacing results in certain standards being taught repeatedly, without new levels of challenge
- ☐ Curriculum and assessments are not aligned
- ☐ Additional ideas

Solution: Curriculum
- ☐ Align the curriculum with the standards
- ☐ Expand the curriculum
- ☐ Adopt new curriculum
- ☐ Develop technology-supported supplements to the curriculum
- ☐ Align curriculum and assessments
- ☐ Additional ideas

Cause: Student Assessment
- ☐ Few assessment options (e.g., only paper-pencil tests, limited performance-based tasks)
- ☐ Language used in assessments makes them inaccessible to ELL students
- ☐ Assessments are not aligned with the curriculum and/or standards
- ☐ Assessments are not used to identify the learning needs of ELL students
- ☐ Additional ideas

Solution: Student Assessment
- ☐ Buy, adapt, or develop effective assessment tools
- ☐ Align assessments with the curriculum and/or standards
- ☐ Schedule time for teachers to analyze data and discuss instructional modifications
- ☐ Additional ideas

Cause: Teacher Knowledge & Practice
- ☐ Teachers lack specific knowledge to make instruction relevant and rigorous for ELL students
- ☐ Teachers lack proficiency in using instructional practices most likely to help ELL students
- ☐ Teachers lack the resources to support the learning of ELL students
- ☐ Additional ideas

Solution: Teacher Knowledge & Practice
- ☐ Provide professional development to build content knowledge
- ☐ Ensure that teachers have knowledge about students and their backgrounds
- ☐ Provide professional development in instructional strategies
- ☐ Support collaboration among teachers across content areas (e.g., literacy infused into content area instruction)
- ☐ Additional ideas

Cause: Instructional Materials
- ☐ Physical materials are insufficient to support teachers' implementation of the curriculum
- ☐ Language in instructional materials makes them inaccessible to ELL students
- ☐ Instructional materials don't adequately support differentiating instruction
- ☐ Additional ideas

Solution: Instructional Materials
- ☐ Procure materials to support teachers' curriculum implementation
- ☐ Modify/supplement instructional materials to support ELL students
- ☐ Enhance instructional materials to support differentiating instruction
- ☐ Additional ideas

Cause: Extra Supports for Students
- ☐ ELL students do not have enough time to learn the content
- ☐ Some ELL students require specialized supports that they are not receiving
- ☐ Additional ideas

Solution: Extra Supports for Students
- ☐ Provide more time-on-task (time before or after school, use of recess, lunch, or other "free" times)
- ☐ More individualized supports for students within the class (tutors, paraprofessionals, specialists, and volunteers)
- ☐ Additional ideas

Cause and Solution Cards continued

Cause: School Systems	**Solution: School Systems**
☐ ELL students are not placed in appropriate programs for their levels of achievement and/or abilities	☐ Scheduling that allows for longer classes
	☐ Teams of school professionals that examine and make recommendations on individual students' needs and potential supports
☐ The school schedule and/or curriculum pacing provides too little time for in-depth learning	
☐ Additional ideas	☐ Scheduling that allows for teaming amongst teachers
	☐ Structured opportunities for teachers to collaborate
	☐ Additional ideas

Cause: School Culture	**Solution: School Culture**
☐ ELL students lack access to academically challenging coursework	☐ Provide more equitable access to instructional expertise and supports
☐ Teachers do not collaborate to share strategies for supporting ELL students	☐ Take steps to deliberately encourage the development of a collaborative culture
☐ Additional ideas	☐ Additional ideas

Cause: _____	**Solution:_____**
☐	☐
☐	☐
☐	☐

Cause: _____	**Solution:_____**
☐	☐
☐	☐
☐	☐

Cause: _____	**Solution:_____**
☐	☐
☐	☐
☐	☐

Next Steps

DIRECTIONS

As a team, work through the Reflect, Commit, and Plan steps below.

Reflect

Circle the learning goal below that your team will pursue further.

1.   **Your team will develop an understanding of how the use of multiple data sources can improve instruction.**

2.   **Your team will analyze data to trace the causes of—and find solutions to—low achievement.**

3.   **Your team will articulate how the team can support teachers' use of data to improve instruction.**

Commit

Review and discuss the suggested next steps (pp. 2–3) for the learning goal your team selected to pursue. As a team, choose one next step that your team will take (from those listed or from ideas generated by the team). Record it below.

Next Step:

Plan

Identify 2–3 actions related to the next step your team identified. For each action, identify responsible team member(s) and related dates.

Action	Responsible Team Member(s)	Date(s)
1.		
2.		
3.		

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Now What?
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Suggested next steps

1. **Your team will develop an understanding of how the use of multiple data sources can improve instruction. (Learning Goal 1)**

1	**2**	**3**	**4**	**5**
Help!		We've made progress but real work remains		We've mastered it!

Next Steps:

✔ **If your team assesses its status as a 3 or below, consider the following:**
- ☐ Visit *Success at the Core*'s Teacher Development materials to learn more about assessment strategies that teachers can use to gather data about student learning
- ☐ Explore this module's resources (accessed from the module's landing page) to learn more about different sources of data
- ☐ Work with another *Success at the Core* module, Common Formative Assessments, to gain a better understanding of this data source

✔ **If your team assesses its status as a 4 or 5, consider the following:**
- ☐ Share the Data Pyramid (*UDE Handout 2*) with your colleagues at the school to build a shared understanding of the multiple sources of data that your school should use
- ☐ Recommend *Success at the Core*'s Teacher Development materials to teachers to build a schoolwide understanding of assessment strategies using data

2. **Your team will analyze data to trace the causes of—and find solutions to—low achievement. (Learning Goal 2)**

1	**2**	**3**	**4**	**5**
Help!		We've made progress but real work remains		We've mastered it!

Next Steps:

✔ **If your team assesses its status as a 3 or below, consider the following:**
- ☐ Explore this module's resources (accessed from the module's landing page) to learn more about using data to identify causes and solutions
- ☐ Schedule a meeting with your district's assessment expert or other experts in the local community to learn ways to use data to identify causes and solutions

✔ **If your team assesses its status as a 4 or 5, consider the following:**
- ☐ Convene your school's teachers to complete or extend the Green Middle School simulation from the EXPLORE activity in Learning Goal 2
- ☐ Explore this module's resources (accessed from the module's landing page) to learn more about ways to engage your faculty in using data (such as data walls)

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Using Data Effectively Module
Now What?
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3. **Your team will articulate how the team can support teachers' use of data to improve instruction. (Learning Goal 3)**

1	2	3	4	5
Help!		We've made progress but real work remains		We've mastered it!

Next Steps:

✓ **If your team assesses its status as a 3 or below, consider the following:**

☐ Explore this module's resources (accessed from the module's landing page) to learn more about how your leadership team can support teachers by giving them multiple sources of data and promoting data-driven dialogue

☐ View again the videos from this module, looking for more examples of how the featured leadership teams support data use at their schools

✓ **If your team assesses its status as a 4 or 5, consider the following:**

☐ Take one action that your team identified and posted on the note-taking template (from the APPLY activity in Learning Goal 3)

☐ Identify an area of low student achievement at your school whose underlying causes you have not analyzed and use the process from the simulation in Learning Goal 2 to identify possible causes and solutions

☐ Move on to another *Success at the Core* Leadership Development module

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