Data-Informed Instruction

Strategy Guide 2.0

Strategy Vision and Description

In this guide, we define **Data-Informed Instruction** as a robust set of ongoing practices that focuses on assessing student learning, analyzing assessment data, and adjusting instruction in response to the assessment data in intentional cycles (daily, weekly, etc).

Research has shown that the following components are necessary for an effective data system and data culture. It is important to note that while there is evidence to demonstrate the effectiveness of each component, these components are most effective when implemented together. For instance, if a school or district decides to implement collaborative structures for teachers but does not have a robust suite of assessments and does not have protocols to structure meetings to guide collaborative time, implementing collaborative structures will likely yield limited results. The following components are derived from various articles and research that articulate what a data culture should include:

1. Intentional Assessment of Student Learning
2. Data Analysis Structures and Routines
3. Instructional Practices Informed by Data Analysis

Evidence Base

ESSA defines levels of research based on the quality of the study (Levels 1-4). CDE requires that schools and districts identify the research base for strategies that they select for their Unified Improvement Plans, and for applications for school improvement funds in the EASI application.

The research on **Data-Informed Instruction** that is cited here meets the threshold for **ESSA Level 1-3**.

Necessary Preconditions

The following systems, structures, or practices should be established at the site before implementing this strategy, as they serve as a foundation for the practices described in this guide.

- A high-quality, standards-aligned curriculum
- A clear assessment vision, with regular assessments aligned to grade-level standards.
- An assessment or data-management system* (not required but strongly recommended)
- Professional Learning Communities (PLCs), or other regular teacher collaboration structure

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Contextual Fit

Possible Root Causes include inadequate, inconsistent or ineffective…

- Assessment practices
- Data Analysis practices
- Instructional planning
- Progress monitoring
- Lack of data culture

Is this strategy a good fit for your district/school?

- Before implementing strategies for effective data-driven decision making, is the school or district in a place where it can invest time and resources in building a solid foundation for system-wide change?
- Is the school system in a place where clear, grade-by-grade or competency based curricula can or has been adopted system-wide to include high-quality materials that are aligned to curriculum and pacing guides that clearly describe breadth and depth of content being taught are readily available?
- Is the school system able to create explicit norms and expectations regarding data use at the system and school levels?
- Is staff prepared to shift priorities in time to focus on data in terms of assessment building, lesson planning, collaborating, etc.?
- Does the school system have an assessment system that is user-friendly, comprehensible, easily accessible, quick with results, and able to grow with school and system needs?
- Is the school system able to invest in professional development on data-driven instruction and provide ongoing training when necessary?
- Is the school system able to create processes to help monitor progress toward goals for schools and for individual teachers?

Core Components, Elements & Activities

The Core Components presented below should be implemented sequentially, as each relies on the previous component. Regular interim assessments must be in place to generate data; data from those assessments must be made available to teachers, and teachers must have protected time in which to reflect on and use that date; and, finally, teachers must use their reflections to adjust approaches to instruction in order to meet demonstrated student needs.

Core Component 1: Intentional Assessment of Student Learning

The foundation of data-informed instruction is an assessment approach that collects valid and meaningful data on a regular cadence. This can be achieved through a set of high-quality assessments and a clear assessment administration process and schedule.

Elements or Activities	Description
High quality interim assessments are in place	In order to support data-driven or data-informed instruction, high quality assessments are in place. These assessments gauge student learning with respect to grade-level content and standards. Ideally, these assessments are aligned to end-of-year state assessments (e.g., CMAS, PSAT, SAT).

Assessments are administered regularly	A regular cycle of interim assessments gathers data on student performance throughout the school year.

Core Component 2: Data Analysis Structures and Routines

Once data is collected, teachers must be able to access it readily and they must have dedicated time for analyzing that data. Data analysis and reflections will help teachers to diagnose student learning needs in order to respond most effectively.

Elements or Activities	**Description**
Data management software and/or system.	"Data must be easily 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." Data management software is user-friendly and all educators understand the expectations for storing data. Please see CDE's policies on data privacy and security.
Ongoing professional development on data analysis and data-driven instruction	All teachers receive professional development on data use. Professional development is differentiated based on teacher experience and comfort utilizing data.
Staff schedules designate time for analyzing and responding to data	Providing educators with protected time on a regular basis to analyze data is essential in creating a data culture. Meetings need to have a clear and persistent focus on improving student learning and achievement.
Expectations for data-focused team structures are clearly articulated and implemented.	Meetings are structured and facilitated effectively by establishing group norms and using protocols to guide collaborative meetings. Leadership provides clarity about who will facilitate meetings, the norms teams by which will abide, the protocols to utilize, the expectations for what to bring and do during these meetings, and what the outcomes should be.
Leaders' schedules designate time to consistently monitor teachers' use of data.	Leaders routinely observe classrooms to ensure teachers are adjusting instruction based on assessment results. Leaders provide feedback to teachers individually and to collaborative teams, as needed, to ensure continuous improvement.

Core Component 3: Instructional Practices Informed by Data Analysis

Once teachers have collected and analyzed data from student performance, they must act on that data to address gaps in student understanding or mastery of skills and content. There are a variety of approaches to adjusting instruction based on data; the following table lists some sample practices or activities that teachers can use to address student learning needs that emerge from their data reflections.

Elements or Activities	Description
Sample practice: Lesson time devoted to re-teaching key skills for full class	When data analysis reveals class-wide gaps in student understanding of a concept or a skill, dedicating full class time to a short review or additional lesson on that content can help to provide students with additional at-bats to shore up their understanding. Incorporating dedicated time for "spiraling" or re-teaching content into a lesson plan template (e.g., 5-15 minutes per class period) can help ensure this time is available whenever it is needed. Alternatively, time for review and re-teach can also be set aside weekly (e.g., most or all of a class period one day per week).
Sample Practice: Small Group instruction to address gaps for some students	When data analysis reveals gaps in understanding or performance of a subset of students, small group instruction allows teachers to address the needs of that group of students while allowing other students time to work on other learning opportunities.
Sample Practice: Student Assessment Reflection	Having students reflect on their own assessment performance can help them to be more aware of and attentive to their own learning needs. One type of self-assessment asks students to identify why they answered questions incorrectly – due to a simple error or due to lack of understanding. This identification can help students understand what kind of steps they need to take to improve; i.e., slow down and give more attention to details during the assessment, spend more time practicing the skill, or get additional information to help fill in the gaps in their knowledge.

Guidance for Implementation

Implementation Element	Guidance or Considerations
Staffing and Teams	Classroom teachers will be the primary practitioners for this strategy. They will need strong support from Coaches to reinforce key practices and from school leadership to ensure adequate resources and capacity are available to support new practices. If teachers, coaches, and leaders are not already invested in or open to a data-informed approach, consider building a strong change management plan to build a healthy data culture in your school or system.
Training & Resources	**Structures & Systems:** • If an internal data-management system or data-tracking approach does not already exist, it will need to be created. • Both teachers' and leaders' schedules must include designated time for analyzing and reflecting on data. **Routines & Practices:**

	• Clear lesson-planning expectations will help teachers and coaches to ensure that lessons regularly include opportunities for adjustments based on data reflection (e.g., through regular "re-teach" modules). **Assessment Approach:** • Determine what will be the best methods or assessments to gather the data you need (e.g., How often do you want the data? What subject areas?). • Be careful to not select too many assessments AND be strategic in your use of assessments. Administering more assessments and expecting teachers to analyze too many sets of data can often decrease the effectiveness of data use. • Also consider your intervention programs and their corresponding assessments. Work to ensure there is cohesion between all assessments. **Professional Development:** • Classroom teachers and coaches will need training both before and during the school year to develop their capacity in the following areas: o Assessment design (if not using externally provided assessments) and administration o Accessing assessment data o Data analysis and reflection protocols o Strategies for adjusting instruction based on data analysis and reflections. • School leadership will need training in data analysis so they are able to effectively monitor the progress of the strategy. **Coaching:** Consider having coaches focus observations and coaching meetings on strong data analysis practices and on how instruction is adjusted based on data.
Pacing	**Installation**: *These will need to be in place before the school year begins.* • High-quality assessments and assessment cycles must be established before DDI is adopted. If these are not already in place, they must be installed prior to the beginning of the school year, before data-informed practices are adopted. • Data management system or trackers are in place to gather assessment data and make it readily accessible by teachers, coaches, and leaders. If purchasing or contracting with external providers for assessments or data management systems, ensure there are sufficient resources earmarked to cover these costs ongoing.
Progress Monitoring	Leaders' schedules should designate time to consistently monitor teachers' use of data. Leaders should routinely observe classrooms to ensure teachers are adjusting instruction based on assessment results, and they should provide feedback to teachers individually and to collaborative teams, as needed, to ensure continuous improvement.
Change Management	If teachers, coaches, and school leaders are not already open to data-informed approaches, you will need a carefully designed change management approach to get them invested in the approach.

Sample Implementation Plan

Context: The following Sample Implementation Plan assumes that a school does not currently have a data-driven instruction strategy in place and is installing this strategy for the first time. Note also that the dates given in the table below are suggested approximate ranges for the given activities. A true action plan should specify precise dates and date-ranges for each activity.

Name	Description	Start/End Date	Key Personnel
Identify assessments and create assessment calendar	Identify which assessments will be used to collect interim data in each course area. Create an assessment calendar to identify when exams will be given.	June-July	Leadership, Lead teachers
Implement data management system	Create internal data collection systems and dashboards or trackers to ensure teachers can access and use assessment data.	June-July	Leadership
Adjust staff & leaders' schedules	Designate bi-weekly Teaching Team meeting times for data analysis and reflection. Designate weekly times for school leaders to observe classes and data reflection outcomes.	June-July	Leadership
Create expectations for data collaboration practices & protocols	Create protocols for data meetings and articulate expectations for team reflection activities.	July	Leadership
Professional Development to train teachers & coaches	Train teachers and coaches on team data collaboration expectations, key data analysis protocols and structures, and selected instructional responses to data (e.g., reteach practices).	Early August (BOY training days)	Teaching Teams, designated PD facilitator (internal or external)
Designate "Data Days" after major assessment cycles	Teaching Teams use these data days to analyze and reflect on assessment results, identify student progress and diagnose emergent student needs, and create plans for upcoming instruction.	October, December, March	Full staff & Content Area Teaching Teams
Schedule regular, ongoing data collaboration times.	Teaching Teams meet bi-weekly to examine data, collaboratively reflect, and adjust upcoming instruction to meet student needs.	August through May	Content-Area teaching teams

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Additional Resources

- CDE Data Privacy and Security: http://www.cde.state.co.us/dataprivacyandsecurity

Sources

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