

# Scalable Data Solutions for Instructional Improvement

Using student data to inform instruction is necessary for improvement. This is supported by the fact that the Bill and Melinda Gates Foundation includes the strategic use of data as part of its effective teaching model and that the federal Race to the Top funding requires a robust plan for ensuring that educators can access and use data.

Though districts have traditionally built data systems for compliance reporting purposes, they are now required to build systems that actually inform teaching and learning. Today's data systems not only need to measure student growth and achievement, but they also need to provide teachers and administrators with indicators and information that is helpful in analyzing what students know and what they don't know.

## Why is a Statewide Longitudinal Data System Important?

Although there are many reasons why a statewide longitudinal data system (SLDS) is important, the following are the key functions that an SLDS delivers:

### Standard, comprehensive information about each student

A statewide longitudinal data system (SLDS) is a definitive source of the student record that allows states to deploy proven local instructional improvement systems that can be controlled, modified and enhanced at the local level. Through the SLDS that includes a unique identifier for each student in the state, educators are provided with detailed formative/summative and instructional data for each student in addition to a common language for discussing the needs of students ... statewide. An SLDS links the student record, regardless of moving from school to school or district to district, to the key information that helps educators analyze why a group of student outcomes, or an individual student's outcomes, are what they are.

### Improved teaching and learning through data analysis

The power provided by the use of data cannot be exaggerated. Armed with the data and the ability to dig into the data, state educators are better prepared for in-depth analysis including identifying trends; making comparisons across districts and schools; and analyzing the impact of programs, instructional approaches, district policies, principals and teachers. Using real-time data, state educators are more prepared than ever to understand root causes and make changes to support their districts' needs in real time. Access to this information, from the individual student level to the state level, is transformative.

### Best practice identification and sharing

Actionable data means information that teachers can use, every day, to plan strategically for each and every student. Real-time data,



Looking at classroom data — sorted by standards and performance — has enabled one district's teachers to break out students in smaller groups for personalized instruction based on their RTI needs. Our data system “has really allowed our teachers to make informed instructional decisions about how they implement their curriculum. This is the number one reason why our data system works for us.”

ERIC S. GORDON, CHIEF ACADEMIC OFFICER, CLEVELAND METROPOLITAN SCHOOL DISTRICT, CLEVELAND, OHIO

at an individual student level, for the most formative to summative of assessments, along with the ability to share best practices and materials across the state makes data more actionable. Learning how similar populations of students across the state have met their achievement goals will decrease the academic mystery for others still on the path to increasing achievement.

As previously stated, an SLDS provides the foundation for local instructional improvement systems by creating a definitive source of a student record. Next, we'll discuss how educators at the district level can use instructional improvement systems to directly impact student achievement.

## What is an Instructional Improvement System?

Instructional improvement systems define the technology infrastructure that districts need to support teachers in achieving the transformative changes that result in dramatic improvements in student outcomes. *A local instructional improvement system (LIIS) collects and maintains individual student data; matches students to teachers and teacher data; and links student performance data with standards, instructional and assessment materials, and other critical indicators.* It is a singular platform that serves as the central hub for instructional data, bringing together assessment, curriculum, reporting, gradebooks, attendance, discipline, professional development, career management, Response-to-Intervention, Common Core Standards and more. The LIIS helps educators analyze the impact of their instruction and instructional materials, and can also be scalable to meet additional analytical and reporting needs at the classroom, building, district, state and federal levels.

Cleveland Metropolitan School District (CMSD) in Ohio is an example of a district that has implemented an LIIS. CMSD has been focused on using a common curriculum to help address student mobility and to facilitate conversations among teachers about the impact of instruction and materials. Under the leadership of Chief Academic Officer Eric Gordon, CMSD wanted to be able to confirm the six or eight standards that a student must learn in the first four weeks and in the first quarter of the year. To do so, CMSD uses an instructional information system to manage data. With an information system, CMSD teachers access class rosters online and look at student data sorted by standard. Teachers analyze students' past performance based on multiple measures of assessment, instructional materials used, student demographics, special programs, teachers, etc. Based on the data and their analysis, teachers objectively discuss student challenges and successes with other teachers. They collaborate to design targeted instruction — increasing each student's outcome. With this wealth of individualized and trend data, CMSD teachers make well-informed decisions for differentiating instruction to meet the specific needs of their students.

Albemarle County Public Schools in Virginia has deployed an LIIS that has taken data-informed decision-making from an annual process to a more formative weekly, bi-weekly and quarterly process. Luvelle Brown, former chief information officer, says that this transition has



Because of our data system, “our professional learning communities talk about individual students and their achievement strategies. The ability to get real-time data and information at the click of a button is making our conversations transparent around individual students, groups and schools. Those two things have been key and integral in our mission as we seek to eliminate the achievement gap and raise achievement for all students.”

LUVELLE BROWN, FORMER CHIEF INFORMATION OFFICER, ACCOUNTABILITY, RESEARCH AND TECHNOLOGY, ALBEMARLE COUNTY PUBLIC SCHOOLS, CHARLOTTESVILLE, VA.

made his district's instructional planning much more collaborative, strategic, transparent, user friendly and dynamic. The district can affect real-time instructional improvements in program offerings, interventions for students and professional development opportunities for teachers. Brown says the district has seen significant achievement gains for all students — especially for students of color and students receiving free or reduced lunch.

Furthermore, Brown says that district-wide access to their LIIS has spawned a district-wide culture shift toward regularly held professional learning community discussions about student achievement. Today, teachers rely on data to analyze what students know and still need to learn, and to strategize next steps for individual students and for groups with similar needs. Teachers and administrators would never have been able to engage in these objective, productive discussions without being able to look at data in a user-friendly format, or without being able to access that data quickly.

## What are the Key Characteristics of an Effective Instructional Improvement System?

While it is great to implement an IIS, it is better to implement an effective IIS which includes the following:

### Unique identifiers

Unique student identifiers that ensure data elements are non-redundant and accurately linked to a single student are critical to ensure the effectiveness of an IIS (or an SLDS). Through the use of unique identifiers, individual student data can be matched to other databases and unique identifiers (including district, school and teacher identifiers). Although creating a unique student identifier may seem easy enough to do in concept, many systems actually fail the redundancy test because of the sheer size and complexity of statewide systems. Data integrity and quality begins its journey with the ability of the system to handle the multiple data elements uniquely tied to one student.

Next, the system needs to be able to integrate data from various district student information systems, as well as other state systems, into one standard state database. This ability to weave different systems into one seamless portal of information is crucial for success.

“We have what we call a ‘digital door,’ a one-stop shop to display data in one day-to-day place. The display of the data is intuitive: it gives you the story — very reliable, very quick. It allows the educator a lot of freedom and they know, ‘What am I going to do tomorrow?’ That work was done manually before. Not knowing the answer to that was hard for a teacher, but now we have a simplistic way to know where all students are.

JASON MARTINEZ, DIRECTOR OF ACCOUNTABILITY AND ASSESSMENT TECHNOLOGY, DENVER PUBLIC SCHOOLS, DENVER, COLO.

#### Data profile including multiple measures and indicators

Assessment data at the state and national level remains a key part of any LIIS or SLDS. Comparisons of student performance from grade to grade can now go far beyond statistical data collection with leaders able to look at achievement from school to school and district to district. The system needs to be comprehensive with local benchmark data that is formative for daily instructional decisions while highlighting the latest summative data from the state and national assessments.

Indicators that foster teacher and school knowledge about a student’s learning needs must include other information such as basic demographics, course scheduling, attendance, discipline issues and other configurable LEA features.

Denver Public Schools in Colorado credits their data system with going beyond just warehousing data by providing key curriculum functions as well. The system has saved teachers on average 1½ hours per week when tracking down test scores and other critical information for teaching. Teachers are ready on day one with all the needed information concerning the students in their classroom



and principals know where to direct resources for RTI. Director of Accountability and Assessment Technology Jason Martinez translates this into a \$9 million savings across the district.

#### In Summary

With a nudge from the federal government, school districts around the nation are realizing the benefits of an IIS beyond just the compliance reporting purposes. An effective system, including characteristics such as unique identifiers and a data profile with multiple measures and indicators, can provide the data and analysis needed for teachers to dramatically improve student outcomes. The school district examples prove that implementing the right system can help transform education and raise student achievement throughout the nation.

#### Learn More

Additional information is available online about The Center for Digital Education ([www.centerdigitaled.com](http://www.centerdigitaled.com)) and Schoolnet, Inc. ([www.schoolnet.com](http://www.schoolnet.com)).



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