



**Indicator:** The district ensures that key pieces of user-friendly data are available in a timely fashion at the district, school, and classroom levels. (11)

**Explanation:** Districts have access to large quantities of information of relevance to school improvement, and must deliberately plan for how to make certain that user-friendly and timely data are available at all levels within the district. Districts typically use computer data systems to organize and manage these large quantities of data and share them with schools, and they must exert leadership to ensure that multiple data sources are used beyond annual standardized tests as they engage schools with continuous improvement processes. Data dashboards offer a way for districts and schools to consider multiple data sources in a timely and efficient manner, as well as provide schools with options to personalize learning as student progress is considered in real-time. Districts must develop plans for data use at all levels, time for schools to engage in data-based decision making, and professional learning for educators that is collaborative and relevant to their instructional context.

**Questions:** How does the district manage data to ensure that it is available in useful form to people throughout the district at the time that they need it? How does the district organize and manage multiple data sources and communicate them to the public? Are data aligned across multiple levels of the system? Does the district have a plan for collecting, interpreting, and using data? Is time dedicated for schools and teachers to use data for effective decision-making? What professional development is provided to ensure that principals and teachers use data effectively? Is this professional development directly relevant to educators' work, on-site, and involve collaboration as educators are trained? Does the district use multiple data sources to inform decision-making, and encourage schools to do the same? Does the district provide and encourage analysis of the type of fine-grained data and formative assessments that can impact daily instruction? How process does the district use to review annual assessment data and "dig deeper" to pinpoint areas in need of improvement?

Schools today are “awash in data and information, from test scores to grades, to discipline reports, and attendance... while additional streams of data feed into schools and districts from teachers and parents as well as local, regional and national policy levels” (Bowers, Shoho, & Barnett, 2014, p. 1). However, districts can help their schools improve by providing relevant data and assisting them in using it (Leithwood, 2010). Computer data systems offer an infrastructure and increased access to a variety of educational data, and include functionalities such as the integration and disaggregation of longitudinal data by various factors, and the projection of future academic performance (Means, Padilla, DeBarger, & Bakia, 2009; Wayman, Shaw, & Cho, 2017). Data systems offer the potential for educators to examine a wide range of information to inform classroom instruction, from taking a wide view of classroom performance overall to drilling down to individual student performance (Means, et al., 2009; Wayman, et al., 2017). Furthermore, computer data systems are not simply repositories that house student data, but have the potential to benefit educators' decisions for students through features such as links to outside instructional resources of relevance to the data being examined (Wayman, Cho, & Shaw, 2009). Data dashboards, which integrate data from assessments, educator observations, and learning tools, represent student progress in real time and allow for timely

and actionable feedback about student learning that can inform instruction (U.S. Department of Education, 2016). Not surprisingly, district investment in these types of technologies and computer-based data systems has grown rapidly over the past decade (Cho & Wayman, 2014). These types of data management systems make it easier for districts to ensure that user-friendly data are easily accessible at the district, school, and classroom levels so that educators share ownership and accountability for improvement, and are able to use the data to improve curriculum and instruction (Bottoms & Fry, 2009; Murray, 2014; Bottoms & Schmidt-Davis, 2010; The Center on School Turnaround, 2017).

*How Can Districts Make A Variety of User-Friendly Available to Guide School Improvement?*

Research suggests that school systems are highly influential in supporting schools and educators in their use of data, and alignment of data across multiple levels of the district (district, school, and classroom) is essential to ensure that these data are accessible, and data-based decision making strategies are implemented evenly and with fidelity (Anderson, Leithwood, & Strauss, 2010; Farrell, 2014). Data-based decision making has been defined as “teachers, principals, and administrators systematically collecting and analyzing various types of data, including demographic, administrative, process, perceptual, and achievement gaps, to guide a range of decisions to help improve the success of students and schools” (Hamilton, et al., p. 46). The capacity to gather, analyze, and distribute data has rapidly increased, and districts today typically leverage computer data systems to ensure that critical information is available to educators at all levels within the system (Wayman & Cho, 2014). Increasing and improving data access at the school level should be coupled with the district granting appropriate decision-making authority to school staff as they analyze their data and determine strategies for improvement (Datnow, Park, & Wohlstetter, 2007).

Annual assessment results at the classroom, school, district, or state level, are established components of federal and state accountability systems. However, annual assessments are relatively blunt instruments, and do not provide school leaders or instructional personnel with timely information that can influence real-time school operations and classroom practice (Perlman & Redding, 2011). Research suggests that school leaders often focus primarily on standardized test results as mechanisms

for teacher accountability, rather than analyzing how the data relates to factors influencing learning (Murray, 2014; Wayman & Cho, 2008). While annual state tests provide critical information for school improvement and accountability purposes, leaders in improving schools expand data to include sources such as benchmark and formative assessments, school climate surveys, school observations, attendance, post-secondary readiness, and teacher participation in professional development (Cawelti & Protheroe, 2007; Coburn & Turner, 2012; Knudson, Shambaugh, & O’Day, 2011; Murray, 2014). Proponents of continuous improvement advocate steering administrators away from relying exclusively or primarily on long-term outcome measures such as standardized test results to determine the effectiveness of school improvement initiatives and whether they should be scaled to other schools and districts (Herold, 2018). Instead, Bryk, Gomez, Grunow, & LeMahieu (2015) advocate implementing improvement strategies more methodically and then using fine-grained data to learn more about the strategies as they are implemented. Herold (2018) describes this approach:

Ideally... such a process would entail identifying the problem schools want to fix; developing a theory about how to improve it; and then helping the people closest to the problem—usually teachers, principals, and other school staff—to develop measures of day-to-day progress that are aligned to that theory. Technology tools should help schools monitor three things: whether they’re actually doing what they set out to do, whether it’s making a difference on the measures that educators developed locally, and how such efforts impact the kinds of long-term outcome measures that are typically used now.

Data dashboards also represent an example of a way for districts and schools to examine multiple data sources in a timely and efficient manner and connect relevant student data from these sources (Herman, 2016; Knudson, et al., 2011). Knudson, et al (2011) describe an example of a district’s use of these dashboards:

Fresno has developed a data dashboard that chronicles the district’s performance throughout the school year using indicators like student proficiency rates, EL redesignation rates, attendance rates, and student perceptions of their school. The Cycle of Review that takes place around the dashboard four times per year allows Fresno to address problems without waiting for state

test scores that arrive in late summer. Furthermore, the superintendent's evaluation is tied to the dashboard, ensuring accountability at the highest levels for the district's ongoing improvement. (p. 13)

The recent National Technology Education Plan also emphasizes the use of data dashboards at the school level, in the context of enhancing schools' capacity to implement personalized learning. Learning dashboards offer the potential to "integrate information from assessments, learning tools, educator observations, and other sources to provide compelling, comprehensive visual representation of student progress in real time...and...offer recommendations about resources to help students continue their learning progression as well as help identify students who may be a risk of going off track or even dropping out of school" (U.S. Department of Education, 2016, p. 60).

Hamilton, et al (2009) suggest that districts engage in the following practices to ensure that timely and actionable data are used to improve schools:

1. Develop or adopt a data system that enables analysis of student outcomes at multiple levels.
2. Develop a district-wide plan for collecting, interpreting, and using data. Dedicate time and develop structures for district schools and teachers to use data to alter instruction.
3. Train teachers and principals in how to interpret and use data to change instruction. A recent research summary concluded that teachers benefit from data-related professional learning that is collaborative and relevant to their current work, and that takes place within their immediate professional context (Wayman & Jimerson, 2014). Investments should be made to support teacher data use through the use of data/instructional coaches, and using data within Professional Learning Communities (PLCs) (Marsh, Bertrand, & Huguet, 2015).
4. Use annual state testing performance data to evaluate the overall effectiveness of instructional services provided by the district. Conduct deep analysis to determine areas in need of improvement.

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