Indicator: The principal collects and acts on data from a variety of sources and in a timely manner. (5148)

Evidence Review: Using Student Data to Drive Instruction

The *Using Student Achievement Data to Support Instructional Decision Making* practice guide published by IES defines data-based decision making as ". . .teachers, principals, and administrative, process, perceptual, and achievement gap, to guide a range of decisions to help improve the success of students and schools" (pp. 46). A number of activities and decisions undertaken by schools and districts involve data-based decision making, such as screening students for placement, using progress monitoring or formative assessments to determine curricular changes, and interpreting annual performance data to identify areas of weakness for future educational focus.

Data systems allow for the collection, interpretations, and use of student data. A universal screening system can be used at the beginning and middle of the school year to identify students who are academically on-track and those who are at-risk for difficulties in key critical content areas, such as reading and mathematics (Gersten, Beckmann, Clarke, Foegan, Marsh, Star, & Witzel, B., 2009; Gersten, Compton, Connor, Dimino, Santoro, Linan-Thompson, & Tilly, 2008). At-risk students can be selected to receive research-based interventions. Schools can then use progress monitoring data (collected on a frequent basis) to gauge the students' progress (or response to an intervention) towards critical academic outcomes (Tilly, 2008). Formative assessments can be collected in classrooms to give teachers feedback about students' understanding of the material presented and what minor adjustments to their instruction may be needed to improve students' understanding.

Employ the use of data systems in broader decision-making by utilizing annual state testing results to evaluate the effectiveness of their instructional systems. For example, a district may implement a new core reading series and analyze state testing results to determine if the new reading series is increasing student outcomes, or they may look at areas of poor performance in state testing results to determine where to allocate professional development dollars.

Action Principles

For District

1. Develop a data system or adopt an available data system that enables analysis of student outcomes at multiple levels (Hamilton, Halverson, Jackson, Mandinach, Supovitz, & Wayman, 2009).
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 (Hamilton, Havlerson, Jackson, Mandinach, Supovitz, & Wayman, 2009).
3. Train teachers and principals in how to interpret and use data to change instruction (Hamilton, Havlerson, Jackson, Mandinach, Supovitz, & Wayman, 2009).
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 (Hamilton, Havlerson, Jackson, Mandinach, Supovitz, & Wayman, 2009).

For School

1. Identify which students are at risk for difficulties with certain subjects, such as mathematics or reading, and provide more intense instruction to students identified as at risk (Hamilton, Havlerson, Jackson, Mandinach, Supovitz, & Wayman, 2009; Gersten, Beckmann, Clarke, Foegen, Marsh, Star, & Witzel; Gersten, Compton, Connor, Dimino, Santoro, Linan-Thompson, & Tilly, 2008).

2. Employ efficient, easy-to-sue progress monitoring measures to track the progress of students receiving intervention services toward critical academic outcomes (National Center on Response to Intervention, n.d.; Hamilton, Havlerson, Jackson, Mandinach, Supovitz, & Wayman, 2009; Gersten, Beckmann, Clarke, Foegen, Marsh, Star, & Wayman, 2009; Gersten, Beckmann, Clarke, Foegen, Marsh, Star, & Witzel, 2009; Gersten, Compton, Connor, Dimino, Santoro, Linan-Thompson, & Tilly, 2008).
3. Use formative assessments to evaluate learning and determine what minor adjustments can be made to instruction to enhance student understanding (The National Center for Fair and Open Testing, 2007).

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►**Using Student Data to Drive Instruction,** *SIG Handbook,* COI, pp. 113-115, www.centerii.org/survey

Using Operational Data, Including Classroom Observations

Student learning data tells us the results of the school's operations. To improve those results, we must also examine operational data. Operations include each teacher's delivery of instruction, but also teachers' instructional planning, their development and alignment of curriculum, and their teaching processes. Operations also extend the support services provided for students, the curriculum and course offerings, the schedule, and the allocation of resources. In other words, the school's operations are seen in the daily practices of adults in the building, people with responsibility for students' learning. In order to make the adjustments in practice that lead to improved student learning, information about the school's operations must be examined alongside student learning data. Results for students improve when the adults in the school change what they do that influences student learning.

The quality of school operations can be assessed by rating practices using indicators of effective practice, rubrics, and examples of evidence. States and districts provide instruments and assessment/planning tools for school teams to engage in continuous improvement cycles through regular examination of their operational practices (Redding, 2006).

Enhancing the quality of instruction is a key to school improvement. To improve teaching quality, data on classroom instruction is essential. These data may focus on teacher behavior only or on the interaction of teacher and student behavior. The former is common for teacher appraisal and the latter is common for understanding how variations in teaching behaviors affect gains in student achievement (Foorman & Schatschneider, 2003; Smith, Dickinson, Sangeorge, & Anastasopoulos, 2002; Taylor, Pearson, Peterson, & Rodriguez, 2003).

In the latter case the observation may include questions about student engagement and the fidelity with which a particular curriculum is implemented. In both cases, the observation instruments must have adequate reliability and validity if they are to be used for decision making. Reliability can generally be increased by increasing the number of times the teacher is observed or by increasing the number of observers. In order for a measure to be valid, it must be reliable, i.e., replicable. Thus, the goal of measuring instruction of inferential comprehension strategies is only realized if inter-rater reliability is adequate (Gersten, Dimino, & Jayanthi, 2007).

Action Principles

For State

1. Provide districts and schools with standards and indicators of effective practice along with tools for self-assessment and planning for continuous improvement.
2. Use a classroom observation tool for monitoring schools in need of improvement, in corrective action, or undergoing restructuring; make it a part of the leadership plans for instruction.

For District

1. Maintain a district-level improvement team that engages in continuous examination of district practices, guided by standards and indicators of effective district practice.
2. Use a classroom observation tool for monitoring schools in need of improvement, in corrective action, or undergoing restructuring; make it a part of district leadership and instruction plans.

For School

1. Maintain a school improvement team that engages in continuous examination of school practices, guided by standards and indicators of effective district practice.

2. The administrative team might use a classroom observation tool to link data on instructional practices to students' achievement. These data can be used to inform decisions regarding teacher professional development and the need for additional instructional resources.

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Evidence Review: Establishing Early Warning Systems

Nearly one-third of all high school students leave the public school system before graduating (Swanson, 2004), and the problem is particularly severe among students of color and students with disabilities (Greene & Winters, 2005). One important element of dropout prevention efforts is the early identification of students at highest risk for dropping out and targeting of resources to keep them in school. An early warning system that used indicators based on readily accessible data can predict, during students' first year in high school, whether the students are on the right path toward eventual graduation.

Research is clear that ninth grade is a "make or break" year. Moe students fail ninth grade than any other grade in high school, and a disproportionate number of students who are held back in ninth grade subsequently drop out (Herlihy, 2007). The most powerful predictors of whether a student will complete high school include course performance and attendance during the first year of high school (Allensworth & Easton, 2005; 2007). Therefore, systematic collection of student attendance and course performance data can be used to develop an effective early

warning system that can be tailored to local events.

There are several ways to use course performance information to gauge students' likelihood of graduating or dropping out. One of the most powerful is to calculate a version of the "on-track indicator" that has been customized to fit local contexts. The Consortium on Chicago School Research introduced the "on-track indicator" in 2005 by combining two highly predictive ninth-grade risk factors: course credits earned and course grades. First-year high school students in the Chicago Public Schools are classified as "on track" if they earn (a) at least five full-year course credits and (b) no more than one F in one semester in a core course during the first year of high school. On-track students are more than 3.5 times more likely than students who are off track to graduate from high school in 4 years (Allensworth & Easton, 2005). The on-track indicators reflect students' ninth grade academic performance. Additionally, attendance during the first year of high school is also directly related to high school completion rates. Even moderate levels of absences (1-2 weeks in the first semester of high school) are associated with lower rates of high school graduation (Allensworth & Easton, 2007). The biggest risk factor for failing ninth grade is the number of absences during the first 30 days of high school, and failing ninth grade is one of the most important predictors of dropping out (Neild & Balfanz, 2006).

Action Principles

For State

1. Use and monitor aggregate on-track rates to identify high schools and districts with high proportions of students at risk of dropping out in order to prioritize allocation of resources.
2. Create state-level data systems that incorporate on-track indicators and that allow incorporation of local data.
3. Provide professional development for district and school staff on how to conduct their own data analysis.
4. Identify context-specific early warning signs and use the data to the fullest extent.

For District

1. Create data collection systems that allow schools to easily collect key early warning data.
2. Use data to identify students at each school who are at the highest risk of dropping out.
3. Support continuous data analysis at the school level, across schools, and district-wide.
4. Provide data collection and analysis training to school level staff.
5. Target district funding and resources to support schools in identifying students early, intervention strategies for at-risk students, and collaboration among high schools across the district or region.
6. Develop continuous improvement strategies, so that indicators can be refined to improve their predictive power in the local context.
7. Include the "on-track" indicator or a local adaption of it as an accountability measure for the schools in the district (e.g., as done in Chicago Public Schools, see Allensworth & Easton, 2005.

For School

1. Develop or ascertain an early warning system based on evidence-based indicators (Heppen & Therriault, 2008; Heppen & O'Cummings, & Therriault, 2008).
2. Assign staff to create a plan to monitor indicators of risk over the course of the school year.
3. Identify and evaluate intervention strategies that support students most at risk for dropping out.
4. Use the data to tell the story and make the case for intervention programs/practices. For example, use the "on-track" indicator data to apply for additional local or state resources, to communicate needs, and identify common needs among at-risk students in the school.
5. Refine the early warning system indicators to reflect local context (see Jerald, 2006).

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Additional Tools:

►**Learning Indicators**, *The Mega System,* pp. 123-135, www.centerii.org/survey

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