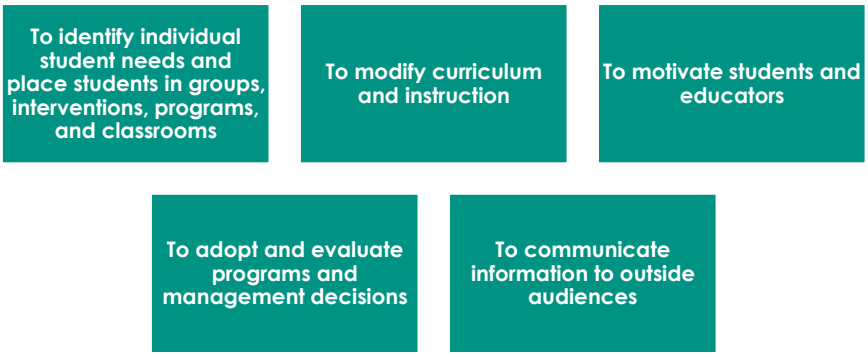
USING DATA TO SUPPORT STUDENTS AND STRENGTHEN SCHOOLS

UNDERSTANDING WHY DATA MATTERS

Collecting, analyzing, and reporting data supports a school's efforts to monitor the progress of individual students, evaluate the performance of specific programs and interventions, and inform the broader community.[2] Schools should assess multiple data points across multiple levels. Examining multiple data points instead of a single indicator in isolation provides a more complete picture of a school's performance, highlighting areas in need of improvement while celebrating successes.[3] Disaggregating data by gender, race/ethnicity, and other key characteristics – in addition to reporting overall results – enables schools to identify disparities and inequities across subgroups.[4] However, to keep data collection manageable and avoid overwhelming internal and external audiences alike, schools should focus on monitoring a targeted set of key performance indicators (KPIs), as discussed below.[5]

How Educators Use Data



Source: Dougherty[1]

SELECTING KEY INDICATORS

When chosen appropriately and monitored effectively, academic and behavioral KPIs help schools graduate students on time, fully prepared for postsecondary success. To that end, schools should collect data that not only relate to near-term outcomes, such as a student's likelihood of promotion to the next grade level, but also indicate longer-term college and career readiness, such as a student's completion of Algebra I in Grade 8.[6] Schools commonly use the following academic and behavioral KPIs to track student progress based on empirical evidence linking such data points to postsecondary success (e.g., college enrollment, persistence, and completion).[7]

ACADEMICS		BEHAVIOR	
–Course grades –Grade point average –Honors/AP enrollment –Dual enrollment –CTE enrollment –Completion of Algebra I in Grade 8	–State assessment scores –Third grade reading proficiency –ACT/SAT scores –AP exam scores –Grade-level retention –On-time graduation	–Attendance –Tardiness –Disciplinary incidents (e.g., number, nature, consequences)	–Class participation –Behavior grades –Extracurricular activities –Mobility (e.g., between schools, districts)

Aggregated from multiple sources[8]

© 2019 Hanover Research

CREATING AN EARLY WARNING SYSTEM

Schools can use a subset of these academic and behavioral KPIs to create an early warning system (EWS) that identifies students at risk of dropping out, not graduating on time, and/or failing to meet accepted college and career readiness benchmarks. Schools can then provide targeted supports to students given the nature of their risk.[9] To set thresholds for at-risk status, schools should use historical data (e.g., from the preceding five school years) to determine the characteristics of successful and unsuccessful students. In addition, schools also can seek guidance from the literature regarding the factors contributing to, and the indicators of, positive or negative outcomes for students, more broadly.[10] The figure below illustrates how an EWS does not simply classify students as on-track or off-track to meet a particular goal (e.g., on-time graduation), but also flags students at risk of falling off-track based on the predetermined thresholds. When functioning correctly, an EWS enables schools to support students *before* concerns escalate to a level at which intensive interventions become necessary.[11]

Watch this seven-step video series to learn more about implementing an ***Early Warning Intervention and Monitoring System.***

Early Warning System Levels

On-Track
- Measures of student behavior and/or performance linked to empirically derived thresholds, above which students have strong probabilities of achieving essential educational outcomes. Schools should continue to collect data on on-track students to support continued success or respond if they ever require interventions.

Early Warning
- Identify students who are moving towards thresholds of behavior and/or performance that indicate they are off track or away from thesholds that indicate they are on track. These can be empirically derived but are also sometimes based on educator knowledge and common sense. These flags can help prevent a student from moving off track and needing intervention.

Off-Track
- Measures of student behavior and/or performance linked to empirically derived thresholds, below which students have strong probabilities of not achieving essential educational outcomes unless effective interventions are applied. Students displaying off-track indicators require specific interventions that will help bring them back on track.

Source: Bruce et al.[12]

The following figure offers examples of thresholds used to assess at-risk status and direct students to the most appropriate supports and interventions.

Examples of Early Warning System Thresholds

ACADEMICS	-Unable to read at grade level by the end of Grade 3 -Failure in English or mathematics in Grades 6-9 -Grade point average less than 2.0	-Two or more failures in Grade 9 courses -Failure to earn on-time promotion to Grade 10
BEHAVIOR	-Missing 20 school days or being absent 10 percent of school days	-Two or more mild or more serious behavior infractions

Source: Bruce et al.[13]

© 2019 Hanover Research

FORMING A DATA TEAM

Schools can form teams to oversee data collection and management, in general, as well as EWS implementation, in particular. The following figure provides an overview of the functions typically associated with a data team.[14] In addition to aligning data use with a school's mission and vision, a data team can facilitate a school's data-related communications with stakeholders, thus increasing transparency and accountability.[15]

Vision and Policy Management

- Creates and articulates the vision for data use
- Sets and models expectations
- Implements and upholds policies for data use

Data Management

- Indentifies data to be collected
- Manages data infrastructure and access
- Designs meaningful data displays

Inquiry, Analysis, and Action

- Selects or develops models for inquiry and data use that will be used
- Models the inquiry process publicly

Professional Development

- Provides training and professional development to support departments, principals, and teachers in their use of data
- Uses data to identify professional development needs

Monitoring and Communication

- Monitors the school's progress toward achieving its vision for data use
- Establishes the lines of communication necessary for the sharing of results and best practices
- Communicates with stakeholders to determine their specific needs for data and training

Source: Washington Office of Superintendent of Public Instruction, Washington School Information Processing Cooperative, and Public Consulting Group[16]

When selecting data team members, schools should include staff with diverse roles across multiple departments who bring a variety of perspectives. Beyond staff involved in curriculum, instruction, assessment, and special education, schools should add principals and other school leaders such as department chairs.[17] Involving school leadership raises a data team's profile and increases the likelihood of its success and sustainability. Apart from possessing the requisite technical skills and understanding of the school context, data team members should demonstrate a commitment to data-driven decision-making.[18] When meeting, data team members should assign the following roles and responsibilities noted on the next page. Data team members can hold multiple roles, and roles can rotate over time.[19] However, *all* data team members should participate in meetings, "actively listening and contributing to discussions."[20]

© 2019 Hanover Research

Data Team Roles and Responsibilities

- **Facilitator**: Guides the team through the stages of data inquiry. When decisions need to be made, this person will lead the team through decision-making and consensus-building. If the team does not appoint referee or planner roles, the facilitator will also maintain responsibility for the tasks associated with those roles.
- **Time-keeper**: Keeps the meeting moving according to the schedule by beginning and ending on time.
- **Recorder**: Takes notes during the meeting and reports and disseminates to all team members following the meeting.
- **Referee**: Keeps the team on task during the meeting.
- **Planner**: Communicates with members about upcoming meetings and responsibilities.

Source: North Central Comprehensive Center at McREL[21]

After defining its purpose, the data team should set goals, establish norms, and develop a process for progress-monitoring.[22] Schools without a history of collaborative school improvement efforts may need to devote a data team's first six-to-nine months to building a culture that supports cooperation, inquiry, and data-informed decision-making.[23] For example, data teams may need to provide all school staff with professional development focused on how to collect data effectively and then use data to guide instructional and other decisions.[24] When considering the suitability of existing data for school improvement and other purposes, data teams and other school staff can use the following questions to guide discussions.

Guiding Data Questions

What external, internal, and student-specific assessments do we administer?

What content areas are assessed within each?

What other student-specific information do we gather?

When is each type of data collected?

How can teachers find these data?

How are the data used now?

What might be a more effective use of the data?

What data do we wish we had?

Source: Training and Technical Assistance Center, School of Education, William and Mary[25]

© 2019 Hanover Research

ENDNOTES

[1] Chart contents taken verbatim from: Dougherty, C. "How School District Leaders Can Support the Use of Data to Improve Teaching and Learning." ACT Research & Policy, April 2015. p. 2. http://www.act.org/content/dam/act/unsecured/documents/Use-of-Data.pdf
[2] "Administrator Data Literacy Fosters Student Success." Data Quality Campaign, 2018. https://files.eric.ed.gov/fulltext/ED586471.pdf
[3] Rothman, R. "What Data Dashboards Can Do." *Educational Leadership*, 73:3, November 2015. pp. 28–29. Retrieved from EBSCOhost.
[4] Nishioka, V., S. Shigeoka, and E. Lolich. "School Discipline Data Indicators: A Guide for Districts and Schools." Institute of Education Sciences, U.S. Department of Education, April 2017. p. 2. https://files.eric.ed.gov/fulltext/ED573680.pdf
[5] Rothman, Op. cit., pp. 28–29.
[6] Hein, V., B. Smerdon, and M. Sambolt. "Predictors of Postsecondary Success." College & Career Readiness & Success Center at American Institutes for Research, November 2013. https://ccrscenter.org/sites/default/files/CCRS%20Center_Predictors%20of%20Postsecondary%20Success_final_0.pdf
[7] [1] Ibid. [2[Bruce, M. et al. "On Track for Success: The Use of Early Warning Indicator and Intervention Systems to Build a Grad Nation." Civic Enterprises and The Everyone Graduates Center at Johns Hopkins University, November 2011. p. 14. https://files.eric.ed.gov/fulltext/ED526421.pdf
[8] [1] Ibid., p. 13. [2] Balfanz, R. "Missing School Matters." *Phi Delta Kappan*, 98:2, 2016. Retrieved from SAGEjournals. [3] "Issue Brief: Early Warning Systems." Office of Planning, Evaluation and Policy Development, U.S. Department of Education, September 2016. https://www2.ed.gov/rschstat/eval/high-school/early-warning-systems-brief.pdf [4] Nishioka, Shigeoka, and Lolich, Op. cit. [5] "Dropout Indicators." National Dropout Prevention Center. http://dropoutprevention.org/resources/familystudent-resources/help-someone-else-stay-in-school/dropout-indicators/ [6] Hein, Smerdon, and Sambolt, Op. cit.
[9] Bruce et al., Op. cit., pp. 11-13.
[10] [1] Frazelle, S. and A. Nagel. "A Practitioner's Guide to Implementing Early Warning Systems." Regional Educational Laboratory Northwest and Institute for Education Sciences, U.S. Department of Education, January 2015. p. 8. https://files.eric.ed.gov/fulltext/ED552306.pdf [2] Hoff, N., A. Olson, and R.L. Peterson. "Dropout Screening and Early Warning." University of Nebraska, Lincoln, March 2015. p. 9. https://k12engagement.unl.edu/DropoutScreening&EarlyWarning3-27-15.pdf
[11] Bruce et al., Op. cit.
[12] Chart contents adapted from: Ibid., p. 12.
[13] Chart contents adapted from: Ibid.
[14] While initially identified for data teams operating at the district level, such functions also reflect the work of school-level data teams. For more information, see: "District and School Data Team Toolkit." Washington Office of Superintendent of Public Instruction, Washington School Information Processing Cooperative, and Public Consulting Group, 2012. p. 14. https://www.esd105.org/cms/lib3/WA01920102/Centricity/Domain/42/Full%20Toolkit_10.19.12.pdf
[15] Ibid., p. 15.
[16] Chart contents taken verbatim with minor alterations to wording from: Ibid., p. 4.
[17] Ibid., p. 15.
[18] "Forum Guide to Early Warning Systems." National Forum on Education Statistics, November 2018. p. 4. https://files.eric.ed.gov/fulltext/ED594388.pdf
[19] "Using Data to Guide Action for School Improvement." North Central Comprehensive Center at McREL, 2012. pp. 31–33. https://files.eric.ed.gov/fulltext/ED565723.pdf
[20] Ibid., p. 33.
[21] Chart contents adapted from: Ibid.
[22] Ibid., p. 6.
[23] Love, N. et al. *The Data Coach's Guide to Improving Learning for All Students: Unleashing the Power of Collaborative Inquiry*. Corwin, 2008. p. 343. Excerpts from: https://www.amazon.com/Coachs-Guide-Improving-Learning-Students/dp/1412950015 or

© 2019 Hanover Research

https://books.google.com/books?id=WXMvy5mbSDsC&lpg=PP1&dq=The%20Data%20Coach%E2%80%99s%20Guide%20to%20Improving%20Learning%20for%20All%20Students%3A%20Unleashing%20the%20Power%20of%20Collaborative%20Inquiry&pg=PP1#v=onepage&q&f=false

[24] "Forum Guide to Early Warning Systems.," Op. cit., p. 17.

[25] Chart contents taken verbatim from: Sulzberger, L.A. "Creating and Guiding a Data Team to Support School Improvement." Training and Technical Assistance Center, School of Education, William and Mary, December 2007. https://education.wm.edu/centers/ttac/resources/articles/consultcollaborate/createandguide/index.php

© 2019 Hanover Research