

Understanding Student Learning: The Need for Education Data



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Schools have long collected information about students, from basic emergency contact details to daily attendance statistics. But only recently have schools used education technology to collect solid, reliable information (or data) about how students learn—as well as details about their strengths, challenges, and individual traits that impact their learning. Having this kind of individual learning data is one of the best ways schools can help students succeed academically.

What Types of Data Do Schools Collect?

Education data encompasses much more than test scores and “include[s] things like student attendance, demographics, college-readiness scores, student growth data, teacher impact on students, success in college, and other useful, appropriate information” that can inform a teacher’s instruction.¹

The data schools collect falls into one of three categories:

- **Personally identifiable information (PII)** identifies an individual student. It can include the student’s name, the name(s) of the student’s parent(s) or other immediate family member(s), the student’s or family’s home address, a personal identifier such as a social security number or student identification number, and personal characteristics or other information that would make the student’s identity easily traceable.
- **De-identified data** is information about an *individual* student, but with all the personally identifiable details, such as name and student number, removed. Schools and districts use de-identified data for research and training purposes. This type of data also is compiled into aggregate data, which is information about groups of students.
- **Aggregate data** is information about *groups* of students that does not contain personally identifiable information. Schools and districts use aggregate data to monitor how groups of students, such as English language learners for instance, perform relative to other groups, such as native English speakers, without identifying individual students. Aggregate data must include a sufficient number of students to protect the identities of students in the group.²

PII is the most important data to help students succeed in school because it includes a student's individual learning data, the information teachers collect to monitor a student's understanding and mastery of academic content and plan instruction to suit each student's individual learning needs. Teachers, parents, and even students themselves can use that learning data to identify a student's unique learning strengths and challenges. However, this data can contain sensitive personal information about a student and must be protected. For that reason, this data stays at the school and district levels. The federal [Family Educational Rights and Privacy Act \(FERPA\)](#) outlines how schools may use and disclose students' PII when necessary.³

Districts, states, and the federal government, meanwhile, use other types of data, such as aggregate data, to gather valuable details about how schools use education funds and identify schools and/or districts that need additional resources.⁴

How Do Schools Use Student Education Data to Help Individual Students?

Historically, schools have collected student learning data in traditional forms like report cards, standardized test scores, and classroom assessments. While this information can be valuable, it provides only a glimpse into how a student is performing. Richer, real-time sources of information, known as "formative assessment," help teachers understand what content and skills students have not yet mastered and where additional instruction or support is needed. Formative assessment refers to a wide variety of methods—including teacher observations, class discussions, student projects, digital content, and many other options—that teachers use to monitor student comprehension *during* a lesson. Unlike the typical standardized tests that measure a student's knowledge only at the end of a course or at the end of the school year, formative assessment provides a deeper picture about the progress of a student's learning each day.

With the help of technology, educators now can analyze multiple sources of learning data gathered through these various methods as well as from specialized computer software and high-quality, interactive digital content that allows teachers to track a student's academic performance both in the moment and over a long period. This real-time learning information, generated daily or even hourly, continuously shows how a student is progressing. Such tools do not just show what test

questions a student got right or wrong. Instead, they analyze how a student responds to specific types of instruction, how long a student takes to answer questions, and identify areas where a student would benefit from advanced or remedial material. Teachers then can use that data to personalize their instruction to suit an individual student's learning needs.

Who Needs Education Data?

Parents

The Alliance for Excellent Education believes parents and legal guardians must have access to their children's learning information to understand how their children are performing, ensure that their children receive the instruction they need to learn effectively, and ensure that student education records do not contain false or misleading information. However, providing parents with this information requires exploring new ways to collect and report data that give parents and teachers a complete picture about how each student performs. Report cards, standardized test scores, and parent-teacher conferences alone cannot address all the factors that affect a student's learning.

Teachers

The best teachers work diligently to help all of their students succeed, so they must understand the individual needs of each student they teach. Collecting learning information about an individual student's strengths and challenges allows teachers to analyze that student's academic performance comprehensively, make decisions about future instruction, and identify areas where remediation or enrichment should occur. This analysis and planning allows teachers to personalize the instruction for each student, representing a real improvement and evolution in teaching and learning.

Principals and Schools

Schools use data and learning information to measure students' learning schoolwide and hold teachers, and the school as a whole, accountable for student performance. Principals and other school administrators monitor student learning information across grade levels and work with teachers to identify those units, subjects, or classes where students are struggling. This information also allows teachers to collaborate as grade-level and subject-specific teams to identify learning trends among individual students, classes, or an entire grade level.

Armed with accurate and specific data about student learning, teachers can collaborate on teaching approaches and work with school administrators and instructional specialists to address the learning of individual and groups of students, often flexibly arranging students based on need to provide research-based interventions. Principals also use information about student learning to inform school building-wide decisions, such as how best to structure the school-day schedule, allocate staff support to teachers and students, and assign resources.

Districts

Districts use student learning information to

- identify trends in student achievement over time, both by grade level and by school;
- plan professional learning for teachers based on identified strengths and weaknesses of both teachers and students;
- identify instructional gaps and redesign curriculum to meet academic standards;
- plan effectively for staffing needs;
- create a budget that addresses the district's greatest needs; and
- provide technology resources that best meet the needs of all students.



States and the Federal Government

States and the federal government use aggregate data to understand which education policies work well at the local level and which ones need changes, and to identify areas that need new policies and resources. Federal law prohibits the U.S. Department of Education from receiving or storing individual student data. Aggregate data analysis fosters transparency and responsible government and ensures that local, state, and federal agencies spend taxpayer money appropriately.

For more information about how schools, districts, states, and the federal government use student education data, visit www.all4ed.org and the Data Quality Campaign at www.dataqualitycampaign.org.

Endnotes

- ¹ Data Quality Campaign, "Why Education Data?," <http://www.dataqualitycampaign.org/why-education-data/> (accessed February 20, 2015).
- ² ———, "Who Uses Student Data?," [http://www.dataqualitycampaign.org/files/Who Uses Student Data Infographic.pdf](http://www.dataqualitycampaign.org/files/Who%20Uses%20Student%20Data%20Infographic.pdf) (accessed February 20, 2015); Privacy Technical Assistance Center, "Data De-identification: An Overview of Basic Terms" (Washington, DC: U.S. Department of Education, May 2013), http://ptac.ed.gov/sites/default/files/data_deidentification_terms.pdf (accessed March 4, 2015).
- ³ U.S. Department of Education, "FERPA General Guidance for Parents," <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/parents.html> (accessed February 20, 2015).
- ⁴ Data Quality Campaign, "Who Uses Student Data?"

The **Alliance for Excellent Education** is a Washington, DC-based national policy and advocacy organization dedicated to ensuring that all students, particularly those traditionally underserved, graduate from high school ready for success in college, work, and citizenship. www.all4ed.org