

Learning Analytics Case Studies: Putting Insights Into Action

Learning analytics allows educators to help pick and choose a student's learning experience so that they have the potential to pursue whatever career pathway they wish.

Often the vast amounts of education data and research fails to lead to practical changes and actions within school districts. Educators simply lack the time to extricate and analyze valuable data points specific to learning in an easy, actionable way. And educators can't gauge the effectiveness of their curriculum on assessment scores alone. This is where data-based learning analytics comes into play.

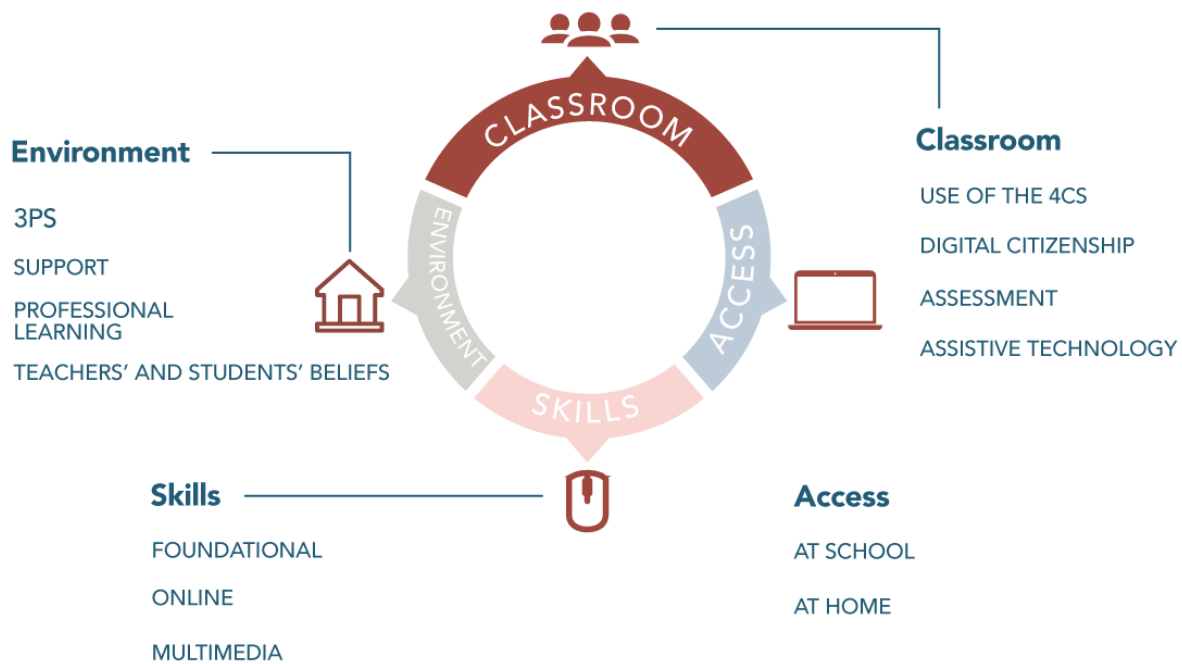
With learning analytics, analyzing data and identifying gaps is relatively simple: it's the actionable application to everyday learning that can be the challenge. But this is where the process can become truly magical, where a gifted educator can learn what is happening with a student in greater detail than ever before, and utilize this information to not only boost the academic potential of students, but to build stronger and more equitable school cultures. This involves deftly analyzing identifying markers and coming up with strategies that positively challenge students and instill confidence.

But what does learning analytics look like in-the-trenches? In real schools and institutions?



Real-World Results

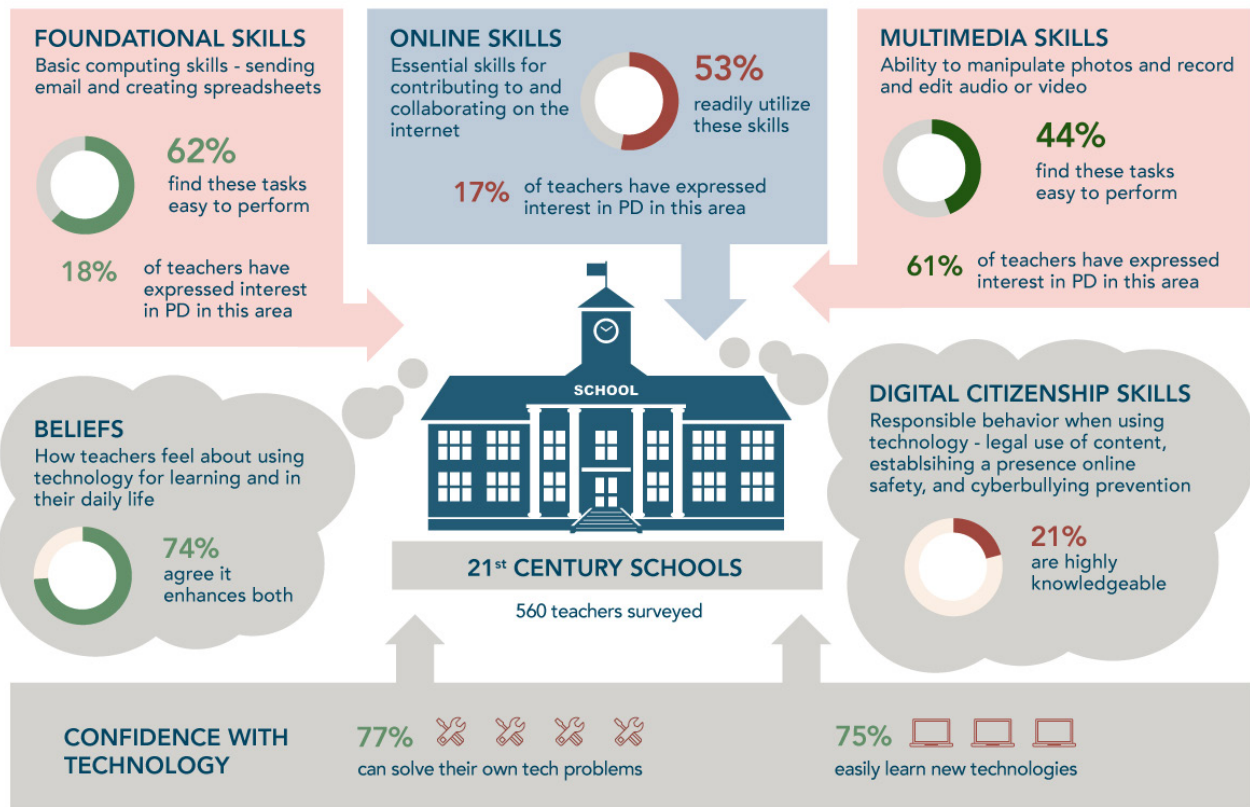
Virginia's Norfolk Public Schools participated in [a survey by BrightBytes](#) that combined input from administrators, teachers and students to understand the factors that shape the impact of technology in a school district. The CASE (Classroom, Access, Skills and Environment) Technology Framework is used to improve the impact of technology on learning outcomes.



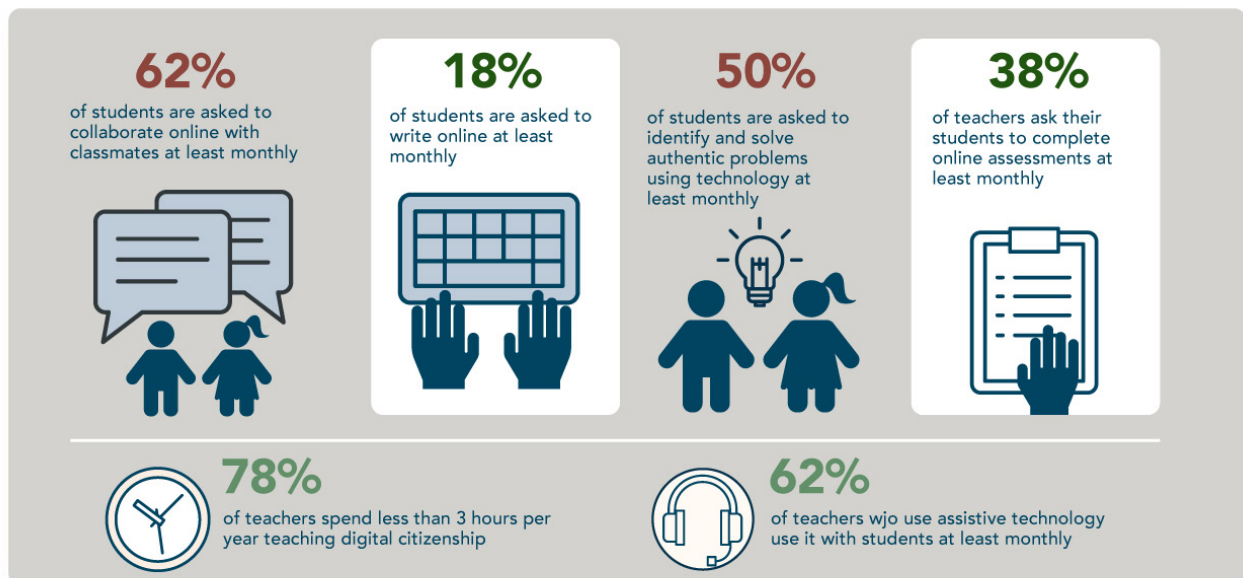
The district received a 1068 CASE score (proficient) in 2016, due to its abundance of classroom technology that supports student success.

The district has seen a steady increase in its CASE score as its Senior High and Elementary buildings went 1:1. In addition, teachers received vital support in effectively using these devices. At one school, the building principal devised a training and support plan that would work for her teachers. Moving forward, Norfolk Public Schools worked to ensure that students were creating, collaborating, communicating, and problem solving with the devices. The survey showed the district that providing devices wasn't enough. To make a big difference, they had to support teachers as well.





In the Spring of 2016, the North Allegheny School District administered the BrightBytes survey to gather data from students in grades 3 - 12 as well as K - 12 educators. The results of the survey designated North Allegheny as "**Proficient**" on a five-level CASE maturity scale: Beginning, Emerging, Proficient, Advanced, and Exemplary.



The Florida Assessment for Instruction in Reading (FAIR) uses reading assessment scores to [predict a student's potential for future academic success](#) while Michigan's Eastern Upper Peninsula Intermediate School District (ISD)—an educational support organization for public schools and small districts located in rural areas—uses analytics software and consistent data collection on assessment results. Educators have used this data regarding student performance to implement classroom changes. Within each school, teachers and the principal set annual goals for improvements in student performance. Using the collected assessment data, teachers and principals set annual student improvement goals and create strategies for helping students who may be under-performing, and then monitor student progress throughout the year.

The result? Schools in the Eastern Upper Peninsula ISD were once ranked near the bottom for student performance, and now [meet or exceed statewide average results](#) for math and reading in grades 3 through 8.

“Using data from our end-of-year assessments, principals and teachers can identify the remediation opportunities that need to be offered in summer school, and jumpstart programs and classroom learning that kicks off the new school year,” says Eastern Upper Peninsula ISD director of general education Michelle Ribant.

Smart ALEKS

Baywood Learning Center in Oakland, California is an alternative school for gifted children. The school uses ALEKS—an online learning platform—to [allow students to work at their own level and pace](#). Educators receive a snapshot of assessment results and progress reports that provide insights on how students are learning and retaining skills and concepts. This enables educators to examine learning rates, time spent learning, and how students are progressing between placement assessments.

Similarly, Horizon School in Pewaukee, Wisconsin [uses ALEKS with their Pre-Algebra students at the sixth grade level](#). Educators are able to create Individualized Learning Plans (ILPs) for all students. Learning goals are set depending on a student's pace and level of understanding. The school has seen tremendous growth for the majority of students using ALEKS. As a district, the Pewaukee School District uses Measure of Academic Progress (MAPs) as one of their standardized benchmarks.

New York State's Peeskill Middle School uses [ALEKS self-contained special education classes](#). The program allows students to work independently and receive instant, direct feedback on their progress and tasks. The school has seen very good progress with respect to individual needs and functioning levels. They can self-monitor themselves and receive direct feedback; allowing them to self-adjust as necessary.



The State of Analytics

When the state of Delaware won \$119 million in [Race To The Top \(RTTT\) funding to support a variety of education reforms](#) back in 2010, they became learning analytics pioneers when part of their funding went towards expanding the capabilities of the longitudinal data system that captured information about students and teachers. Many stakeholders began to acknowledge the value in the result: the ability to conduct focused analytics and the utilization of diagnostic analyses to highlight issues and urge district leaders to respond with appropriate plans.

Some of the information they gleaned included:

- Teacher characteristics (race, gender, years of teaching experience) differed markedly between high- and low-poverty schools.
- The least academically prepared students (elementary and middle school) were more likely to be placed with the most inexperienced teachers.
- Teacher impact on student achievement increased the most in the first few years of teaching.
- Teacher impact on student achievement varied widely across the state.
- On average, a math teacher's impact on student achievement was predictive of future impact — but there was movement between impact groups.
- A large share of newly hired teachers (> 36%) left teaching in Delaware within four years.
- Charter schools tended to have higher turnover than traditional schools.
- High-poverty schools had higher rates of teacher turnover.

“What we saw is that...you can go from having very little information to having really good information and taking it public. Then you can create a situation where you have both support and pressure: support to make changes in policy, combined with pressure on schools, districts, and legislative leaders to make better human capital decisions. That is remarkable,” said former Delaware Secretary of Education Mark Murphy at the time.



Taking Education Higher in Higher Ed

A Question of Retention

Two of the University of Maryland's historically black institutions used analytics and institutional data about students to address problems with student recruitment and retention.

Using a dashboard that provides actual data as well as targets for key performance indicators specific to admission, retention, and progress toward graduation, the University of Maryland Eastern Shore began taking strategic steps to increase retention for an at-risk student population. After witnessing a three-year slide in average SAT scores, retention rates, and graduation rates, UMES worked to increase the number of transfer students while increasing the quality of incoming students by developing support services. An analytics tool set was developed to generate, in real time, lists of students who might benefit most from the services.

UMES used analytics to increase average incoming SAT scores by 65 points and transfer-student enrollment by 150 percent, while still maintaining strong enrollment growth.

While Bowie State University didn't need to increase the number of transfer students to balance out classes, it did need to deal with a significant number of at-risk entering students. BSU used a student-centered approach to address how to apply analytics to improve students' success.

Inspired by recommendation systems implemented by companies such as Netflix and Amazon, Austin Peay State University (APSU), in Clarksville, Tennessee, developed a course-recommendation system called Degree Compass that pairs students

with the courses that best fit their program of study. This system uses predictive analytics techniques based on grade and enrollment data to rank courses according to factors that measure how well each course might help the student progress through a chosen program.

To Assess an LMS

To take its existing data analysis efforts deeper, Chico State University studied how student achievement is related to Learning Management System use and student characteristics. Among the project's initial findings were the importance of LMS data filtering and that students from low-income families used the LMS more frequently (and longer) than students from higher-income families. Chico State University's faculty members teamed up with instructional designers to redesign courses to increase student engagement.

Trendspotting

Pennsylvania's Montgomery County Community College adopted tools to investigate trends in enrollment, learning outcomes, and student engagement. These tools let decision makers generate custom, live reports to help teams composed of faculty within a specific discipline to significantly redesign developmental math, English, and reading courses. The collaborative team structure proved to be especially beneficial when completing periodic academic program reviews; utilizing 35 data/analytical reports in the academic program review process.

For a data-informed decision-making process to thrive, institutions must place value on reporting and analytics. MCCC built data and analysis into the strategic plan as a means to measure the institution's impact on student access and success.

Other Learning Applications

TechBac is a professional program for 14-19 year-olds. Its Skills Zone portal brings together workplace skills training with a mentoring program, business challenges and an online CV builder. Predictive learning analytics helped tutors predict areas of risk to the learner's progress and allowed them to intervene at the right time, and an integration with Mozilla's Open Badges recognized the Learner's competence in each of seven skill areas by awarding Mozilla Open Badges.

The Egyptian Knowledge Bank (EKB) for Schools is an educational project designed to provide life-changing opportunities to Egypt's children and young people by enabling them access to the world's best learning technologies and resources with the help of learning analytics, allowing for administrator reports offering valuable insights previously unavailable, the ability to segment content usage, and identifying content gaps to guide procurement.

View Additional Resources

Check out the rest of the Learning Analytics tools and resources on the [K-12 Blueprint](#).

A Holistic Picture of Student Learning and Growth

As these success stories attest, learning analytics allows educators to help pick and choose a student's learning experience. Standardized assessment data can be a starting point, leading to the curation of actual performance tests, getting real-world insights into daily teaching moments. It's about creating a learning trajectory that students deeply engage with as they can see and feel their success moving forward, and realize that they have the potential to pursue whatever career pathway they wish.

