



Using Data to Drive Student Success

Introduction

The education industry is among several that can benefit most from advanced data analytics. Colleges and universities as well as K-12 school systems increasingly are improving student outcomes through an enhanced understanding of data available today across the education community. This impact can be measured for everything from improved test scores and early intervention for elementary students to lower student attrition and increased applicant yield at the university level.

Data is emerging as an essential tool for predicting enrollment decisions, detecting need for intervention, enabling academic performance analysis, and delivering on the promise of student success. It can even be used to manage constituent relations and enhance donations from alumni. The ability to mine extremely large data sets with robust analytical platforms and tools provides an unsurpassed capability to uncover and resolve a limitless array of education industry concerns.

As more state education departments and higher education organizations seek to harness and transform all data for greater insight, it is becoming more critical than ever to evaluate solutions that can help collect data across all channels to be managed and analyzed and improve efficiencies. Cloudera is the industry leader in delivering solutions that enable real-time decision making and a complete 360 degree picture of students, faculty and staff.

State Education Agencies

With the scrutiny on improving student outcomes at the K-12 level, an achievement that is often tied to Federal funding, it is no surprise that many state education agencies are looking to data for further insight. By analyzing student data, agencies can begin to see trends and patterns of both achievement and need. By allowing data to follow the student throughout their lifecycle, and tracking their progress against others, patterns begin to develop and trends identified. Teachers working in the state can also be viewed and performances evaluated to ensure that they are meeting the requirements of the department and being supported in their progress. Big data can provide valuable insight into students' learning and improve classroom teaching as a clear picture of their capabilities and needs are developed earlier, when intervention is more likely to change outcomes positively. This insight is made possible through a comprehensive data platform.

K-12 School Systems

Each of the top twenty-five K-12 school systems in the United States manage between 100,000 and 1,000,000 students every year and must maintain records on everything from test scores to building maintenance, all while reporting achievement data to the Federal government to justify funding. In public education, data analysis offers a foundation for better decision making but school systems need visibility into all data to be truly informed. Traditionally siloed systems only allow officials to view pockets of data and don't provide a true picture of the individual student needs against larger state or county-wide samples and often share snapshots in time instead of providing a vision of clear long-term trends. District and school leadership teams must have immediate access to every data point necessary for teaching, learning, and accountability. For data to truly make a difference, school systems need to invest in a platform that allows administrators to make easy and direct correlations, conduct cross-referencing, and access comprehensive student profiles in an on-demand, data-rich environment. Access to the right data can close achievement gaps and make public education work by delivering a clear picture of the needs of both the school system as a whole and the student as an individual.

Colleges and Universities

The primary focus of Colleges and universities is on the student and as competition for degree-seeking high school graduates increases many are looking to data to attract and retain the right individuals, and using data to provide insight and drive success once they matriculate. With just over half of college students completing their postsecondary degree in six years while costs for obtaining that degree increase, it's more important than ever for institutions to seek measures to improve graduation rates and build a campus culture that allows students to thrive. While each department has different goals in data analysis they are all focused on improving the overall student experience. For admissions officers, data can target the right student and provide a personalized experience that results in a greater chance of matriculation. Campus administrators must oversee the needs of students on campus and intervene when patterns of distress are evident. In addition, they are tasked with cost containment that can be achieved by understanding the data around maintenance, such as delivering cost effective energy solutions for dorms or overseeing campus vehicles that transport students both on campus and off. Cloudera is actively engaged with several institutions to deliver a big data platform that will provide a cost-effective way to ingest and

store all data to support any number of campus needs. With ever-increasing higher education costs, these organizations require methods to ingest and analyze data that help reduce unnecessary expenses and can serve the needs of students, faculty and staff for years to come.

Community College Systems

Community colleges have their own unique opportunities and challenges, with many who are supporting the needs of continuing and non-traditional students. This has resulted in a treasury of data that can aid administrators who seek to provide the support needed by each student in this diverse setting. Aggregated data is critical to understanding the community college population and can be used to make predictive analyses around everything from enrollment to staffing to understanding why students don't complete a course of study. Creating a personalized experience is just as important for community college administrators as it is for more traditional four-year institutions and can be more complex as they serve a student body that includes both recent grads and mature students who are attending classes while working full time and supporting a family. Data insight can help community colleges understand how to balance the shared faculty and other resources between multiple campus environments, which is critical as community colleges aim to provide cost-effective and fulfilling academic coursework. Analytics can also aid community colleges in attaining accountability measures put forth by federal, state and local entities, given that they often operate with limited financial and human resources, while focusing on workforce development as well as academic success. The ability to transform operations, as presented by a modern data platform like Cloudera, could allow two-year institutions to focus on their mission while providing each student with the personalized experience they desire at a price they can afford.

The Future of Education Analytics—What's Next?

Access and insight to the ever-increasing quantities of education data generated will lead to further inroads—higher test scores, fewer dropouts, targeted learning paths, and more. Advanced data analysis can be used to expand parental awareness at the K-12 level, customize curriculum, detect warning signs for student disengagement and address resource allocation on campus or between multiple campuses. In the near-term, the education community can:

- Employ data analysis platforms and tools to determine how to best support individual students, and provide intervention when needed for support and redirection
- Seek visibility into all data in order to better manage the recruitment and retention of post secondary students and guide them on a path to success
- Better manage facilities by containing energy and maintenance costs through sensory data and the Internet of Things

The Cloudera platform is available as open-source software and, as such, it continues to help make these advances available to institutions on a global scale. By employing an open-source approach, both institutions and state departments of education can help to drive significant positive change in how education is delivered and make achievement accessible for all students.

For more information on how Cloudera supports the public sector and education, please visit: www.cloudera.com/solutions/publicsector