Keeping online students on track

How IBM software can help you identify at-risk students and help them stay the course

Overview

While there are now several hundred colleges offering students the opportunity to earn either part or all of a degree online, the cost and convenience advantages they promise are often offset by poor completion rates—sometimes as low as 10 percent. Predictive analytics software can help colleges take advantage of data they already have to improve completion rates for online classes—by predicting early on which individual students are at risk of either failing or withdrawing and identifying individualized intervention strategies.

At first glance, the idea of completing a college degree online can be very appealing both to the schools offering online degree programs and to students looking for a less costly and more convenient way to earn a degree. So it hardly comes as a surprise to learn that online college course enrollment increased by 29 percent between 2010 and 2013. What's more, it's estimated that some 7 million students—representing approximately a third of all those enrolled in college—are enrolled in online classes.[1]

Degree programs offering either some or all their classes online can help broaden access to higher education for many potential students whose finances or schedules might not allow them to participate in a traditional education model on a regular basis. But research shows that despite the advantages, completion rates for fully online classes and degree programs have been disappointing.

Because it's less expensive to retain a current student than to recruit a new one, there are clear financial reasons why today's colleges very much want all their students to succeed. In fact, student retention has been identified as an area of critical focus in over two-thirds of university-wide strategic plans throughout the U.S.[2]

Colleges offering online classes and degree programs are now facing important questions about the differences between the way they approach "traditional" and online students. But with 7 million students taking online classes, how is it possible to determine which of them need attention before it's too late to help? This paper discusses how predictive analytics software solutions can help you take advantage of data you already have on hand to identify those online students who are most at risk and offer the right support at the right time.

How predictive analytics works

Standard business intelligence and reporting methods are designed to summarize the past, delivering a retrospective analysis and describing what has happened. This is helpful for identifying historical trends—but by itself, it won't help you predict what will happen next semester or next year and plan accordingly.

Predictive analytics uncovers patterns, trends and relationships hidden within all types of data to help inform decision making by predicting future outcomes. Advanced algorithms process historical data, "learn" what has happened in the past and create models that can be applied to make decisions about current or future cases.

Predictive analytics, rooted in statistical techniques and mathematical algorithms, is a blend of artful creativity and data-backed science that combines data-driven insights with human experience, intuition and situational understanding. The true power of predictive analytics reveals itself by translating these insights within an organizational context and allowing decision makers to transform them into actions. It's a "closed loop" solution that continually incorporates valuable feedback into the decision-making process, using the outcome of today's decisions to guide tomorrow's. IBM offers a full suite of predictive analytics solutions to help colleges of virtually all types and sizes improve the student experience, resolve those issues potentially blocking a student's path to success and ultimately bolster retention.

The earlier the intervention, the better the outcome

Students who find themselves falling behind often have a hard time catching up by the semester's end. That's especially true for first-year students, who are also adjusting to all the changes and challenges that come along with being new to college or an online learning environment. For some, that first semester can end up being their last—whether they're participating in on-campus or online classes. IBM predictive analytics software can provide important insights early on, allowing you to determine which individual students are at risk of abandoning their online studies and identify individualized intervention strategies rooted in data and organizational knowledge. With IBM predictive analytics solutions, college administrators and staff can uncover patterns hidden in student data to proactively flag at-risk students and intervene before it is too late.

Retention efforts for online students receive low grades

Effective student retention programs incorporate multiple approaches to help ensure that students succeed. But the extent to which the focus of those programs reaches beyond academic concerns can vary considerably—especially where online students are concerned. One recent study showed that just 49 percent of the schools surveyed targeted online students with retention-related programming.

What's more, while some 75 percent of all undergraduate students and fully 83 percent of freshmen in "traditional" programs were offered an opportunity to receive academic tutoring or coaching, only 33 percent of online students were offered that same opportunity. An average of 51 percent of traditional institutions also said they had programs in place to provide intervention in cases of academic difficulty for undergraduates, compared with only 17 percent of online programs.

While it's become increasingly clear that financial issues also play a major role in student attrition, just 12 percent of online programs offer their enrolled students debt management advice, compared to an average of 28 percent of traditional schools.[3]

Gain important insights from your own data

Think about all the student data you maintain. It's very likely that for each student, you've already collected—or are in the processing of collecting—everything from standardized test scores and financial aid assessments to attendance records, academic performance evaluations, demographics and survey responses. It's also likely that information is filed away in ever-expanding databases, underutilized and undervalued.

IBM predictive analytics software can help you use that data to gain meaningful insights into what your students need to succeed. It starts by consolidating all that information and organizing it within a single framework for analysis that, after applying a series of advanced statistical algorithms, uncovers hidden patterns. The results allow you to extract valuable insights that can help you identify which individual students are likely to develop the kind of problems that lead to failure or dropping out before it's too late to turn things around.

Discover the right steps to take for each situation

Once your at-risk students are identified, IBM predictive analytics software can apply your college's specific business rules, policies and student demographic information to suggest intervention strategies tailored to each student. The system can even rank those recommendations—so you can evaluate all the available options and make an informed decision about which approach to take.

For example, a US university system providing distance learning to more than 70,000 students around the world used IBM SPSS Modeler—a powerful predictive analytics platform—to identify those variables critical to student retention and build intervention strategies to keep students on track to graduation. With its built-in statistical algorithms, the software analyzed hundreds of variables and identified the ones most likely to drive student retention, allowing the institution to develop actionable insights. As a result, administrators can predict with almost 80 percent certainty whether a student will drop out, allowing them to focus resources on high-risk cases and optimize student retention.

Because the software is continually learning, the college is also able to use the platform to assess the effectiveness of intervention strategies on different student situations over time. For instance, by analyzing the relationship between student retention and specific intervention approaches, the institution's student advisors and counselors can assess which ones are the most effective in particular student scenarios.

Why traditional strategies may not work with online students

The differences between students taking notes in lecture halls and those sitting in front of computer screens at home may be greater than you think. One study of online course outcomes at two large US statewide community college systems found that online students were more likely to be at least 25 years old, to have dependents or to be employed full time. The same study also found that failure and withdrawal rates for students enrolled in online classes were anywhere from 8 to 13 percent higher for online classes than for those taken in a traditional face-to-face setting. [4]

It's easy to understand why students who are balancing multiple demands on their time find the inherent flexibility of online classes so appealing. For those same reasons, it's also easy to understand why so many of them struggle to stay engaged in those courses.

That can also explain why finding the right approach to improving retention among those students may be less clear-cut. It's unlikely that the programs you have in place to help retain younger, full-time students—many of whom have no other significant demands on their time—will yield the same level of success with your typical online students.

IBM predictive analytics software can help you uncover insights about your online students that that may influence the strategies you choose for retaining them.

The sooner you understand the situation, the faster you can act

Figuring out which students are most likely to fail or withdraw from an online course can be a resource-intensive process that may provide insight only after the fact—which is typically too late to help you retain those students. And if you're working with a constrained budget and limited information, you could be forced to make important decisions based primarily on intuition, despite the fact that you have all the data you to take a better-informed course of action.

IBM predictive analytics software can dramatically reduce the amount of time and resources it takes to analyze existing data. For example, IBM SPSS Modeler software employs an easy-to-use interface to help bring predictive intelligence to student retention programs. The software provides a range of advanced algorithms and techniques, including text analytics, entity analytics and decision management and optimization analytics, to help colleges decide on the best approach to lowering attrition and raising graduation rates.

And because incentives, grants and other funding programs are often performance based, being able to demonstrate results can help you attract and retain support. Leveraging IBM predictive analytics solutions allows educators, administrators and communities to gain greater control over academic outcomes, provide personalized, data-driven learning programs for each student and address community needs for a skilled, educated workforce.

For more information

To request a call or to ask a question, go to ibm.com/business-analytics/contactus. An IBM representative will respond to your inquiry within two business days.

To learn more about how IBM SPSS Modeler and other IBM predictive analytics solutions can help your college achieve its academic goals, please contact your IBM representative or IBM Business Partner, or visit the following website:

ibm.com/software/analytics/statistics/higher-education/index.html

[1, 4] *What We Know About Online Course Outcomes*, Columbia University Community College Research Center, April 2013.

[2, 3] *Prioritize, Focus, Evolve: Five Critical Issues Facing Higher Education Leaders in 2014*, Eduventures, April 2014.