

The Washington Post

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Education

Colleges are using big data to identify when students are likely to flame out

By **Danielle Douglas-Gabriel** June 14

Virginia Commonwealth University, like lots of U.S. colleges, has worked to keep its freshmen around for sophomore year. Research has shown that students are most at risk of dropping out early in their college careers, and freshman retention rates also factor into college rankings.

Although VCU has had success in getting students to return to its Richmond campus for a second year, the university has struggled to get them all the way to graduation. Now the school is turning to big data to help it identify students who are most at risk of falling through the cracks.

Those students, referred to by some as the “murky middle,” tend to be sophomores or juniors with grade-point averages between 2.0 and 3.0, students whose academic performance has not raised any alarms and yet who ultimately are not on track to graduate. Not graduating affects a school’s standing and also can cause lasting damage for the students who don’t make it.

An estimated 400,000 students drop out of college every year across the country. Many are left with student loans and poor prospects of earning enough to repay the debt they’ve accumulated. College dropouts run a high risk of defaulting on student loans, which could damage their credit and make it difficult to buy a car or a house, or even get a job.

The Obama administration is grappling with ways to hold colleges accountable when students fail to earn their degrees, and it is developing a college-rating system to measure outcomes.

Schools have been feeling the pressure of that government scrutiny, especially as more states are tying funding to performance. And with every student who leaves, colleges are losing tuition revenue that has become critical in the face of dwindling enrollment and flagging state investment.

“People are becoming really anxious about not meeting their enrollment numbers, so they’re turning to [big data] not just as the moral imperative — it’s the right thing to do — but also as a financial imperative,” said Ed Venit,

senior director at Education Advisory Board (EAB), a consulting firm that uses predictive analytics to improve retention and graduation rates. “Students represent enrollment . . . so it is best to keep them all the way to graduation.”

Seth Sykes, associate vice provost of strategic enrollment management at VCU, contacted District-based EAB after hearing about its research on students in the “murky middle.”

Researchers at the firm pored over the university’s files and found that students who were withdrawing from or failing classes were most likely to leave. With that insight, the company created a platform that let VCU advisers flag students who are in that danger zone and intervene. Sometimes that means getting students set up with a tutor or simply making sure they are taking the right classes to complete their degree.

Within one semester, the school recorded a 16 percent increase in the number of students completing courses and an 8 percent increase in students enrolling for the following term.

“It’s a little bit too early for us to see what impact this will have on graduation rates, but it feels like we’re on the right track,” Sykes said.

VCU established “success markers” for every major, identifying classes students should be completing at various points on their path to graduation. A chemistry major, for instance, should earn at least a C in general chemistry by the end of the first year, Sykes said. If that student fails or enters sophomore or junior year without finishing that course, he or she would be flagged for counseling.

Advisers can use the school’s early-alert system to search for groups of students who have accumulated a lot of credits but haven’t graduated or those starting to fall below a 2.0 grade point average.

Until recently, many college advisers did not have the technology to quickly identify students in need of an extra nudge, Venit said. Advisers at many schools see students only when they need to register, when they seek out help or when they are on the verge of flunking out.

That was the case at Middle Tennessee State University before the school retooled its academic advisement based on EAB data. The university spent \$3 million to hire 47 additional advisers and develop “campaigns” to increase re-enrollment.

Administrators discovered that 20 percent of students were leaving in their second year, a trend they figured could be reversed with more directed advising, said Richard D. Sluder, vice provost for student success.

Now advisers can pull together weekly reports of the percentage of students who have reenrolled for the next semester, giving them a shot at reaching students who are on the fence before they drop out. As of this month, enrollment rates are up three percentage points from last year.

“It doesn’t sound like very much, but when you’re working with 23,000 students, it turns out to be more than 600 students pre-registered this year,” Sluder said. “If we do nothing different, 3,000 freshman will come here August 24, and a year later, 900 will be gone. Is that a sustainable business model? Of course not.”

To gain insight into when and why people drop out, EAB has collected 10 years of student transcripts from more than 150 four-year public and private U.S. colleges.

Researchers found that of the students who return for a second year with grade-point averages between 2.0 and 3.0, two out of five will drop out. Venit said a student’s GPA is a good indicator of their chances of graduating, though there is no conclusive evidence that bad grades lead students to quit school.

“The murky-middle students who don’t graduate tend to have GPAs that stay flat and then fall off over time. That suggests they are trucking along, doing their best, maybe they’re more susceptible to something going wrong or maybe they’re treading water,” Venit said. “You talk to advisers and there are a lot of reasons, but the most common is these students are losing motivation.”

At VCU, Sykes noticed that a lot of students landing in academic limbo were majoring in science, engineering and math. It turned out that many of those students were waiting too long to declare a major, which can be a problem in science majors that require a specific sequence of classes, Sykes said.

“The platform helps us identify students who are either spinning their wheels or are late in starting their classes,” he said. “Advisers can then have the conversation ‘Is this an appropriate major for you in terms of your ability to complete it?’ Or talk about how long it might take and the financial implications.”

VCU charges in-state undergraduates an average of \$16,764 a year, after grants and scholarships are deducted. That net price is higher than the \$12,830 national average for public schools, according to data from the College Board, an education nonprofit.

At those prices, taking longer to graduate can get expensive. And dropping out, in some cases, could be just as costly if students borrow to pay for school.

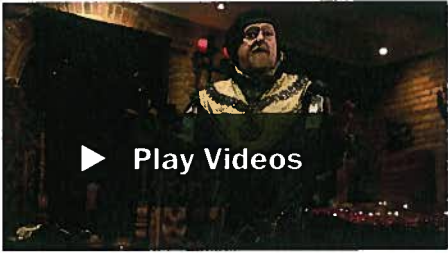
According to the New America Foundation, of all the students who started school in 2003-2004 and were in default on their loans six years later, more than 60 percent left college without a degree. Researchers at Education Sector found that borrowers who drop out face higher unemployment and lower median incomes.

“Even if you don’t have the capacity to advise every student multiple times a semester, which most schools don’t, you can still get a lot done with modest resources that you have,” Venit said.

Danielle Douglas-Gabriel covers the economics of education, writing about the financial lives of students from when they take out student debt through their experiences in the job market. Before that, she wrote about the banking industry.

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