The (Increasingly Important) Role of Tech In Closing the Degree Attainment Gap

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Students Aren't Making It Through College, Putting Their Futures and the Economy at Risk.

Higher education has a problem; plenty of students are enrolled in college, but a significant number aren't graduating. According to the National Center for Education Statistics (NCES), just 32 percent of students who enroll at four-year institutions with open admissions are receiving a bachelor's degree within six years.

This degree attainment gap is a problem for individual students and for the colleges they leave, of course, but it may also prove damaging to the economy as a whole. A 2015 report by Georgetown University's Center on Education and the Workforce projected that by 2020, the U.S. will be short 5 million postsecondary degrees. There will be plenty of available jobs—164 million, to be exact—but 65 percent of those jobs will require a college education. Higher ed is having a hard time producing enough grads to fill those new jobs.

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It may seem like the answer to this problem is simple— colleges should simply recruit more college freshmen, but that's not the case. Most "traditional" students go to college — according to NCES, 70 percent of all high school grads enroll in college after they get their diploma. That number is higher for the wealthy; 83 percent of those grads enroll. But the number is high for poor students as well; 70 percent of low-income grads enroll in college. College recruiters have almost hit market saturation with high school graduates. It makes sense — for years, students have been told that after high school they must go to college. The problem isn't that they're not going. They are. They're just not finishing college.

There are many reasons for this. College is expensive, for one thing. The maximum payout for a Federal Pell Grant in 2017 is $5,920, which doesn't begin to cover a year's full tuition, even for state residents at public schools. There are also cultural differences between families who have been attending college for generations and families with a first-generation college student—families new to college may be proud to have a college student in the family, but they may also expect students to live at home, work, and take care of family members. There are academic issues—students who were pushed along by the system in high school are unprepared for the rigors of college-level work. Students who lack soft skills like time management may get distracted by being on their own. And lastly, there are some courses that simply have high-dropout rates.

Using Tech to Reform the Dreaded Giant 101 Course

You probably know which courses those are. They are dreaded by students and instructors alike — required large-enrollment gateway courses, the kind of 101s traditionally taught in auditoriums, which require clickers and several TAs to handle the grading. Those courses, which feature very little connection with professors, are poison for first-year students who might be shaky in academics and soft skills. Many students who begin the process of failing out of college start failing in one of these courses.

These sorts of courses might be seen by some old-school hardliners as threshers, separating the wheat from the chaff—if a student can get through a biology 101 course, they've proven they're ready for college—but that sort of thinking isn't going to raise a college's graduate rate or close the country's degree attainment gap. After all, if an institution can't merely enroll more new students, they've got to keep the students they already have.

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Fortunately, there are plenty of institutions interested in nurturing students who have a hard time in such courses in their first semester and raising their completion rates. And they're using technology to do it.

Ten years ago, for example, the math classes at Georgia State University (GSU) were causing problems. Large numbers of students were dropping out, failing, and withdrawing (DFW). According to the school, the DFW rate for College Algebra was 43 percent, although some sections had a DFW rate of 60 percent. These numbers would be a problem for any institution, but they especially troubled GSU, a school actively trying to increase its graduation rate, which had been 32 percent in 2003.

To support students in these courses, GSU completely changed the format of its introductory math courses, using a blended model. Students now attend a one-hour lecture every week, and spend a required three hours in a computer lab where they use courseware to complete exercises, use an interactive textbook, and take exams. This approach has paid off. In 2013, GSU announced the DFW rate for College Algebra had dropped to 21 percent. The school's overall graduation rate had risen to 53.1 percent.

There have been several such success stories. In 2013 the University of North Carolina at Chapel Hill published a study about a similar 101 overhaul, this one of an introductory biology course. Traditionally, the course had been a lecture course with an average enrollment of 400 and a high DFW rate. It was redesigned to incorporate more active learning in class and online—the online activities were required before class and sometimes afterward to review material from a lecture. The redesigned course raised students' average test scores by 3 percentage points, according to the study.

Using Data to Stop Drop-Outs Before They Happen

The Bill and Melinda Gates Foundation has been a major supporter of using technology to reinvent college. Their Postsecondary Success initiative seeks to change the way education is delivered to students, with an emphasis on low-income students.

Bill Gates has talked about using technology to recreate the entire college experience. Its grantees run the gamut from schools to educational foundations to companies that design adaptive courseware. One of the Gates Foundation's major areas of focus is technology-assisted advising, or using data to help both students and educators track student progress throughout their academic careers. These tools are usually mobile apps or web-based tools, and they normally monitor students' behavior in class, and sometimes even out of class. It's a way for advisors responsible for large numbers of students to step in and coach those who are struggling as quickly as possible.

For example, a tool developed under the Gates Foundation's Integrated Planning and Advising for Student Success (iPASS) program might show a student's academic progress during a semester to an advisor, and send an alert to the advisor if the student shows early signs of being at risk of failing. When the advisor sees these red flags, they can contact the student and help them to correct their course by finding out what's wrong, and offering advice or resources to help.

An iPASS tool may also provide information to the students themselves, alerting a student when they're at risk of failing and connecting them to resources that will boost their grades, like tutoring centers, residential life, counseling, or other programs meant to help them. Such a tool may also help a student plan their degree, showing them the most efficient way to reach their education goals without spending money or wasting time on classes and credits that won't help them graduate.

These tools look different depending on the institution developing them; the Gates Foundation is currently funding iPASS projects at 26 colleges and universities, and every project is unique. Technologies such as this isn't unique to Gates grantees—Purdue University has been creating tech tools to help students succeed academically for a while now. Its Forecast app, for example, released in 2016, uses student data from across the campus to show students which good habits have helped students in similar classes do well.

Using Technology to Personalize Education for All Students

Gone are the days when the best an institution could do was provide each incoming freshman with an orientation and a bound copy of the student handbook. Those two tools were practical in the '90s, when

colleges had no choice but to give every student the same information, and hope that students in need of help would seek out their advisors.

Now technology is giving colleges a way to combat dropout rates by allowing even the largest institutions to give every student the personal attention they need when they need it. Learning management platforms are starting to offer assessment management functionality—traditionally contained within an entirely separate system—for improving the accuracy and transparency of student performance data. When students are struggling, instructors and advisors are more equipped to identify the red flags and the context surrounding them to provide timely, more personalized interventions.

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This sort of individualized attention is something that's been possible for advisors at smaller, private colleges, where introductory courses don't have huge enrollments and advisers have a manageable number of students to monitor. At smaller, more selective schools, an adviser may personally know their advisees, and be able to pull that student aside when they notice signs of disengagement, for example.

At a larger school, this kind of personalized intervention has been impossible to scale. Advisers and instructors have way too many students to keep track of. And that's been a problem—more students go to large schools with open admissions policies. More specifically, more low-income students who may need interventions are going to large state universities.

Low-income students typically need academic interventions the most, but unfortunately, they may also be the last students to ask for help. Students from marginalized backgrounds, for example, may not feel comfortable approaching white professors. For example, black students at mostly white campuses report having faced stereotyping from fellow students, professors, and support staff, and are asking their institutions to hire more people of color.

A student who has been celebrated as the first in their family to go to school might have trouble admitting that they're not doing as well in school as their family expects. Students with poor study skills may simply not be aware that they need to ask for help.

Technology allows educators to see these students, and help them. And hopefully, to keep them in school until graduation.

Watch this short video walkthrough to see an LMS adopted by more than 20 million educators, administrators, parents, and students.

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About the Author

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