Online, Cheap -- and Elite

Analysis of Georgia Tech's MOOC-inspired online master's in computer science suggests that institutions can successfully deliver high-quality, low-cost degrees to students at scale. But will other colleges follow?

By **Lindsay McKenzie**

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Five years ago the Georgia Institute of Technology began a bold experiment -- to take a high-profile graduate program, put it online and offer it to students at a fraction of the cost of the in-person degree.

Working with the massive open online course provider Udacity, and armed with a $2 million corporate investment from AT&T, Georgia Tech launched its online master of science in computer science in spring 2014. The tuition was $6,630 -- about a sixth of the cost of an on-campus degree.

It was a huge gamble. Could an online degree really match the quality of a degree taught on campus? Would the institution cannibalize its in-person degree applicants? Would the program make any money?

An analysis of Georgia Tech's pioneering online master's in computer science -- written by two researchers at Harvard and one from Georgia Tech and published in *Education Next*, a journal focused on school reform -- suggests that the gamble paid off.

Though the institution didn't hit its ambitious target of enrolling 10,000 students within three years, enrollment has grown from 380 students in spring 2014 to 6,365 this spring -- making it the largest master's degree program in computer science in the U.S., and likely the world.

Joshua Goodman, associate professor of public policy at Harvard University, co-wrote the report, which says Georgia Tech widened access to education by appealing to a group of people who would not otherwise have pursued master's degrees.

"People thought they were crazy," said Goodman. "They thought that Georgia Tech was going to cannibalize its own revenue stream. But the profile of people applying online is so different, there's virtually no overlap."

Analyzing the first six cohorts of the online program, from spring 2014 to fall 2016, the report found that the typical applicant to the online program was a 34-year-old midcareer American, while the typical applicant to the in-person degree was a 24-year-old recent graduate from India.

Of the 18,000 students who applied to the in-person and online degrees, less than 0.2 percent applied to both, the report said.

Students admitted to the online program typically had slightly lower academic credentials than those admitted to the in-person program, but they performed

slightly better in their identical and blind-marked final assessments -- a finding the study hailed as "the first rigorous evidence that we know of showing that an online degree program can increase educational attainment."

Using surveys and National Student Clearinghouse data, the report found that about half of the students who were rejected from the in-person program ended up in similar programs at prestigious institutions such as Carnegie Mellon University or the University of Southern California.

However, students rejected from the online program were much less likely to enroll elsewhere. Those who did (under 20 percent) typically chose online programs at lower-ranked institutions such as DeVry University or Arizona State University, the report said. It concluded that there is currently an unmet demand for high-quality, low-cost degrees like Georgia Tech's.

Goodman said that in future work, he would like to explore how the labor market values the online degree versus the in-person degree, and whether students who studied online experienced career advancement as a result of their qualification.

Zvi Galil, dean of computing at Georgia Tech, described the program as a "huge, unqualified success" that has already had a "significant impact on the landscape of graduate education."

"Georgia Tech not only has shown that it's possible to offer elite graduate education online, but that doing so opens up entirely new markets of previously underserved students," said Galil. Georgia Tech announced a second low-cost online master's program in analytics in January 2017, this time offered through the MOOC provider edX, with donations from AT&T and Accenture. AT&T originally sponsored the development of Georgia Tech's computer science degree so that its employees could take the degree as part of their corporate training. (Note: this paragraph has been updated to clarify that the master's in analytics did have corporate sponsorship.)

Outside Perspectives

Ryan Craig, managing director of investment company University Ventures, agreed that Georgia Tech's online program appears to be serving "a completely different population" than its in-person program -- working adults who can't commit to full-time graduate study.

But while Craig is a big supporter of the Georgia Tech program, he worries it was a one-off. "Udacity was in its early stages and eager to partner with postsecondary institutions (they don't anymore) and AT&T was seeking to fund the development of such a program," he said via email. "Neither of these conditions remains true today. So despite its success, don't expect more of the same."

Other institutions have followed Georgia Tech's lead, but so far none has matched Georgia Tech's "ultra-low" price point of around $7,000, said Galil. The University of Illinois at Urbana-Champaign announced an online M.B.A. in 2015 and has since launched two more online master's degrees in collaboration with the MOOC platform Coursera, one in computer science and one in accountancy. Each costs around $20,000 to $30,000 to complete.

Also in 2015, edX and MIT launched a MicroMasters program that enables students to study half online, half in person. Earlier this month, Coursera announced six new master's degrees from institutions such as the University of Michigan and the University of London. None of these options appear to be cheaper than Georgia Tech's large-scale online degrees.

One of the barriers to offering Georgia Tech's low prices is the high initial investment institutions must make to develop an online course, said Paxton Riter, CEO at iDesign, a company that helps institutions build and design online courses. Riter said that Georgia Tech's low pricing reflects long-term thinking on the part of the institution and an altruistic desire to pass savings on to students that is highly admirable. While this may put some pressure on institutions to lower prices in the future, Riter said that many institutions may be hesitant to follow suit.

Jill Buban, senior director of research and innovation for the Online Learning Consortium, said that delivery of more low-cost, high-quality degrees is something many in the online learning community would like to see.

"We've been thinking for a long time about how to deliver high-quality, low-cost degrees. And [Georgia Tech] has shown it is possible," she said. But she agreed with Riter that not every institution may be able to make the initial investment. "At some point it will become cheaper to develop online degrees," said Buban, "but I don't think we're going to reach that tipping point any time soon."

While Galil acknowledges that investment from AT&T helped spur Georgia Tech to build the computer science program quickly, he argued that the subsequent establishment of similar programs elsewhere "shows that it is indeed possible without significant partner investment."

John Hart, director of online and professional programs in the computer science department at Urbana-Champaign, said the barriers to offering low-cost, high-quality degrees are not only financial, however. "There are concerns about the diversity of students," said Hart. "Are we just offering a cheaper degree to students that would have paid full price?" He added that faculty members can also be resistant to moving online. "Even in computer science, they're still reluctant to make the leap," said Hart.

Adam Fein, assistant provost for educational innovation at Urbana-Champaign, said that many in higher education "are terrified of cannibalism in this space." But Fein and Hart agreed that they expected more institutions to move in the direction of MOOC-inspired high-quality, low-cost degrees, like Georgia Tech's.

"We're just not there yet," said Hart