Customizing the Degree: How Data Analytics Programs are Crafting Programs with Jobs in Mind

By Jeff Selingo, March 6, 2021

Even before COVID-19 upended the job market, adult workers acknowledged that the skills needed to keep up in any career were churning at a faster rate. Nearly 9 in 10 workers told the Pew Research Center that training and education throughout their lifetime would be important, and potentially essential, to their success in the modern workplace.

Now, with the pandemic reshaping entire industries, the workforce that emerges in the aftermath will demand further flexibility around developing critical skills. What is likely to separate the top talent from everyone else is an intellectual dexterity that recognizes learning never ends.

That's particularly true in this digital economy, where every job is in essence a data job and the ability to crunch big data becomes a more critical skill. Job postings looking for skills "analyzing data" grew 48 percent between 2017 and 2019. Even as hiring started to slow in the early days of the pandemic in 2020, there were more than 200,000 open entry-level postings.

Jobs in data science and analytics—which broadly speaking evaluate data, develop models to build visualizations, and then help interpret the findings to make decisions—are among the twenty fastest-growing careers over the next decade, according to the U.S. Bureau of Labor Statistics. The problem in meeting that demand, however, is that traditional job ads often fall short when recruiting college students who might possess broad competencies to do a job but are missing specialized skills for certain roles. This is where deeper partnerships between industry and universities can help.

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To help better align the college-to-career pathway and ensure students are competitive in the job market, universities have started incorporating industry credentials into their academic programs. SAS, the analytics software company, for instance, has created academic digital badges that recognize a unique combinations of skills gained by graduates. More than 90 percent of students enrolled in the Master of Science in Analytics degree at North Carolina State University earn at least one industry certification before graduation, said Michael Rappa, who founded the university's Institute for Advanced Analytics in 2007. The program enrolls about 125 students a year.

"Students can take any of several SAS certifications and they are the most popular ones each year," Rappa said. "We can take someone with no prior job experience and get them into jobs. Our typical student leaves here with five to six job opportunities and an average salary just shy of $100,000."

The N.C. State program is full-time and lasts ten months, so it tends to attract students right from their undergraduate degree. There are more than 250 master's programs in analytics or data science in the U.S., and some, like the degree at Texas A&M University, are part-time and are more likely to enroll working adults, half of whom already have another master's degree. "75% of our students are partially or fully funded by their employers," says Myra Gonzalez, director of the Texas A&M program. "They see the benefit of growing their own analytics capacity with people who know their organization."

No matter the structure of degree, building relationships with industry is crucial to the success of the programs and ultimately the graduates, university leaders and faculty members say. When industry officials inform the curriculum, courses remain relevant for time-pressed students, as do the tools and technology used by faculty in instruction. N.C. State configured its program from scratch, Rappa says, rather than pick from a menu of existing courses and electives in departments to ensure it was pertinent to the needs of the current job market and to make the program more flexible when demands shift.

Students also see a payoff in immediate and multiple job offers or raises and promotions. A survey by Texas A&M of its graduates found that 87% of students earned back the $50,000 cost of the program in raises within five years.

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Moreover, the Texas A&M and N.C. State degrees, like several top programs, include a hands-on capstone project in lieu of a master's thesis. N.C. State solicits project ideas from industry each year and receives about "50-60 proposals and we pick 24," Rappa says. "We get real problems to solve." The projects are completed confidentially by the students and without a cost to the industry partner. "It's really a win-win for

both sides and an exceptional example of academic-industry partnership," Rappa says.

Because students at Texas A&M are typically employed as they're pursuing their degree, they often bring real-world problems to solve from their workplaces. The average annual value of these capstone projects is some $7 million in additional revenue or cost savings, Gonzalez says. One student helped a county district attorney's office save $2.8 million by reducing the number of cases that went to trial.

As organizations invest in their own digital transformation, it is also clear that the workforce needs to be a key part of that strategy. In a survey conducted last year with nearly 400 global professionals, 50% of managers said employees needed more upskilling, reskilling and cross-skilling, and 41% said they themselves needed those same opportunities. "Employees end up spending a lot of time doing manual processes and reports to make up for the gaps in their technology investments," said Wlad Perdomo, director of commercial services at SAS Software Education & Training.

After the pandemic subsides, and the need for reskilling and upskilling becomes more important with increased automation, university officials who oversee data analytics degrees say their programs illustrate the importance of a relevant curriculum and connections to employers. "We're going to need have a continuous pipeline of skills development across a person's career," Gonzalez says, "so they could remain competitive in this job market."
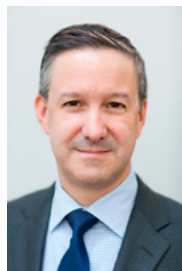
Jeff Selingo has written about higher education for more than two decades and is a New York Times bestselling author of three books. His latest book, **Who Gets In & Why: A Year Inside College Admissions**, was published in September 2020 and was named an Editors' Choice by the New York Times Book Review. A regular contributor to The Atlantic, Selingo is a special advisor for innovation and professor of practice at Arizona State University. He also co-hosts the podcast, FutureU. He lives in Washington, DC with his family.