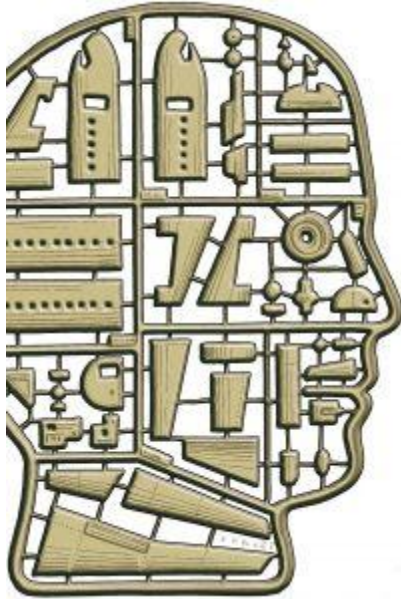


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## An Innovative Tech Trio Puts Students in Solid Jobs



*Christophe Vorlet for The Chronicle*

*By Kevin Carey*

When Joe Kitterman dropped out of Indiana University in the 1970s (not enough studying, too much fun), the United States still had plenty of opportunities for people without college degrees. He went to work at General Motors, which at the time built nearly half of all the motor vehicles sold in America. For the next three decades, Kitterman worked his way up through the industry, eventually managing entire plants.

During that time, the economy changed profoundly. Companies like GM endured long, painful contractions while well-paying, low-skilled jobs all but disappeared. By the 2000s, the workers in Kitterman's plants were living on the knife edge of economic stability. They needed new skills in order to provide for their families, and Kitterman was frustrated by his inability to help them learn.

So he founded a company, 180 Skills, to help solve the problem. Today the company, located in Indianapolis, is providing important lessons for the higher-education sector that he long ago left behind—an industry that may be on the cusp of its own wrenching transformation.

The workers in Kitterman's factories were faced with the lean, harsh reality of 21st-century industry: Base salaries were no longer enough to support a middle-class life. Workers couldn't get a raise simply by showing up on time and accumulating seniority. Shrinking private-sector labor unions didn't have the leverage to get more money from companies that were struggling to stay solvent in the face of global competition. Salaries were tied to skills. The only way to earn more was to learn more.

But learning more wasn't easy. The machines in the factories were complex and expensive and becoming more so by the year. Teaching people to use them was difficult and time-consuming. On-the-job training, Kitterman says, was "a joke." Rookies were assigned to learn from seasoned workers, but with no real structure for the education. "You create the perception that Employee A must have some knowledge because he hung out with Employee B." But there is no way to hide lack of learning in manufacturing. Ill-trained employees would mishandle or break the expensive machines. In an industry with razor-thin margins, that wouldn't do.

More-formal in-factory training was expensive and ineffective. So Kitterman turned to the local community colleges for help. But that didn't work very well, either. Many people were uncomfortable letting their co-workers know they didn't understand the material. They'd sit quietly in the back of 40-person classrooms, waiting for the sessions to end.

Kitterman had employees who wanted to learn and badly needed the extra money that new skills would bring. He felt guilty that he couldn't help them. "I could teach you to press the same seven buttons over and over," he says. "But that's a terrible life."

Then he began to realize that rapid advances in information technology were creating a third option: Students who weren't able to learn on the job or in the classroom could succeed online.

Kitterman founded 180 Skills to offer this new kind of education. A prime example of how it works can be found in Washington State, where his company is part of a novel partnership with Boeing, the aerospace manufacturer, and Edmonds Community College, in the northern suburbs of Seattle.

The three organizations have created a 12-week program that begins with students enrolled in online classes designed by 180 Skills. In the first eight weeks, students work full time through self-paced

courses, learning core concepts in manufacturing processes, terms of art, and the kinds of machines used in Boeing plants. Virtual simulations developed by 180 Skills teach students exactly how to use sophisticated manufacturing equipment.

Students sit for a series of proctored exams, and if they pass with a score of at least 90 percent, they earn two technical certificates. Then they move on to a final four weeks of live instruction conducted by Edmonds. The whole course costs \$4,800, and students emerge with 27.5 college credits. In the first year of the program, which started in 2010, the vast majority of enrollees graduated and moved on to job interviews at Boeing.

Everyone comes out of the program ahead. The students get a low-cost, accelerated program that awards both college credit and skills in a high-demand field. The community college can make much more efficient use of its scarce, expensive equipment, because by the time students arrive, they've already been trained and certified on virtual machines. Boeing gets a steady supply of skilled workers whom it doesn't have to pay to educate. The company says it has already hired more than 75 percent of the program's 424 graduates, meaning that more than 300 students have moved into solid middle-class jobs.

The entire arrangement makes a great deal of sense, which is all the more striking when one considers how different this experience is from the way students typically experience and pay for higher education.

Instead of awarding credits based on seat time in classes, students get credit when they've mastered specific skills. Instead of signing up for a potpourri of classes picked semirandomly from a course catalog, students proceed through a rationally ordered curriculum. The learning program isn't developed idiosyncratically, professor by professor, but by an outside organization with no other job to do.

Unlike in most colleges, where creating the impression that Student A must have some knowledge because he hung out with Professor B is a pretty good working definition of quality control, there is good evidence that graduates of the 180 Skills-Edmonds-Boeing partnership have actually learned something. A badly educated worker quickly becomes obvious when interacting with the machines and processes that make something as fantastically delicate and complicated as a Boeing 787. Unlike in conglomerate universities, where undergraduate tuition is used to subsidize excess administrative overhead, research, and overpaid football coaches, students in this program don't spend time or money to support anything other than their education.

Novel arrangements like this are more likely to bloom in technical and job-focused programs in public two-year colleges, because those students and institutions sit at the bottom of the postsecondary status hierarchy. It's easy for people in the lofty heights of academe to say that while faster, cheaper, partially outsourced online higher education may be fine for the working class, such principles could never be applied to the kind of education provided at prestigious research universities.

But then how would they explain the Carnegie Mellon Open Learning Initiative, where cognitive scientists have developed online courses with "intelligent tutoring systems, virtual laboratories, simulations, and frequent opportunities for assessment and feedback" in traditional subjects like statistics, biology, chemistry, philosophy, and French? Those courses aren't just cheap—they're free.

There is, in fact, vast potential to use information technology to sharply reduce the time and money cost of higher education and improve student learning in the bargain. Indeed, it was new competitors with different organizational models that toppled mighty companies like GM back in the 1970s. Having witnessed one wholesale disruption of a long-dominant industry, Joe Kitterman may be helping to mount a similar challenge in another.

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