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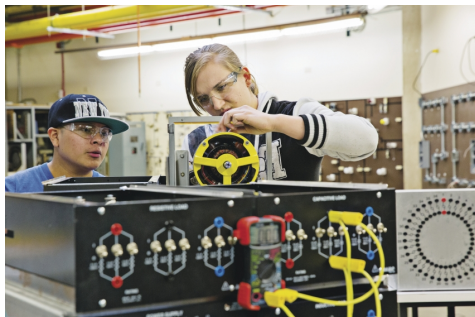
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The Idea That Launched a Thousand Strategic Plans

By Dan Berrett | JANUARY 22, 2017 ✓ PREMIUM

Kim Raff for The Chronicle

At Utah Valley U., a local employer offers scholarships and internships to encourage students to enroll in a two-year program in electrical automation and robotics technology.

A single idea has come to shape colleges' plans for the future and assumptions about their role and purpose. It's called the skills gap.

Simply put, the skills gap is when industries have jobs to fill but can't find workers with the skills needed to fill them. For colleges, the implication is that this gap is their fault, that they aren't teaching the right things, and that they aren't being responsive to businesses' needs.

The term is invoked so often that its victims have become familiar types: the out-of-work welder trying to skill up, the English major working as a barista, the graduate of a music program paying thousands of dollars to attend a boot camp to learn how to code. The skills gap, which has been tallied at as many as five million jobs, is also thought to bedevil employers who would step up their hiring if only they could find people with the right skills.

Though the idea may hold intuitive appeal, its very existence has been questioned, and it has been plagued by fuzzy definitions. It's not always clear which skills, specifically, are lacking. Sometimes they're technical ones, like managing a robotics operation on a factory floor or using Excel in a cubicle. Sometimes it's so-called soft skills, like critical thinking or communicating well. Other times, the skills gap refers to dispositions like work ethic, persistence, or the ability to collaborate as part of a team.

This vagueness allows colleges to cite the skills gap as a reason to propose just about any remedy, as a quick tour of their strategic plans indicates. If global learning was once ubiquitous in colleges' mission statements, solving the skills gap is now.

The much-discussed 'skills gap' has shaped colleges' view of their purpose. But is such training even their job?

The most-common interpretation of the skills gap is that institutions of higher education — often, community colleges — must attend to the needs of local businesses. It's a reason for colleges to start, say, a biotechnology program that will provide workers to a local pharmaceutical manufacturer, or to build classrooms decked out with new equipment to keep up with industry standards.

Or it can be taken to mean something quite different, like a general shortage of degrees. The strategic plan for the Pennsylvania State System of Higher Education, for example, observed that 43 percent of working adults in the state hold an associate degree or higher, while 57 percent of jobs in the state require such credentials. "The result," according to the plan, "is a 14-percent skills gap that must be closed in order to promote and sustain a strong economy."

Supporters of liberal education cite the skills gap as a reason to place more emphasis on teaching general skills like critical thinking, writing, speaking, and quantitative literacy.

Elsewhere, at places like Marquette University, the skills gap is cited as a reason to adopt alternative approaches to education, like creating flipped versions of existing courses. Such courses can help professors incorporate real-world problems into their teaching, says Michael R. Lovell, Marquette's president. Another tool is massive open online courses, which he says can help graduates certify their technical knowledge, which will help them keep their skills up to date after they graduate.

"Their jobs are going to be changing," says Mr. Lovell. "We're trying to prepare students for a future that's uncertain."

In other words, the skills gap is ever-present.

Worries about the employability of recent college graduates have been around for decades, but the idea of a skills gap acquired special currency in the years following the Great Recession, as the job market was slowly mending. In a 2010 speech, Narayana R. Kocherlakota, then the president of the Federal Reserve Bank of Minneapolis, observed that the rate of job openings had risen by about 20 percent over the previous year, but unemployment was high and even modestly rising, at about 9.5 percent at the time.

"Firms have jobs, but can't find appropriate workers," he said. "The workers want to work, but can't find appropriate jobs." The reason, he said, was a skills mismatch. And fiscal policy could do only so much.

"The Fed does not have a means to transform construction workers into manufacturing workers," he said.

But colleges can. From there, the idea took off, even though skeptics questioned its logic.

If skills gaps truly existed, some economists said, then areas of the country with plenty of jobs and not enough workers ought to be offering rapidly rising wages — which wasn't happening. Another economist argued that hiring difficulties existed not because workers

had the wrong skills, but because businesses didn't pay well enough. Paul Krugman, the Nobel laureate who is now an economics professor at the City University of New York, wrote in *The New York Times* that the skills-gap argument was a pretext for not taking policy action, like increasing government spending to stimulate aggregate demand. Mr. Krugman later wrote that the skills gap was a "zombie idea" — a notion that should have been killed by a lack of evidence, but that continues to lumber on.



Kim Raff for The Chronicle

Students work together in Utah Valley U.'s mechatronics program, which the university began several years ago in response to requests from local employers, including a semiconductor manufacturer.

Part of the problem is that legitimate shortages often do occur, in limited contexts where certain skills in specific regions are difficult to fill. But the term often gets applied far more broadly.

Employers' expectations can complicate the picture. Many employers are ratcheting up the levels of education and experience they require. Sometimes that's because jobs are growing more sophisticated and complex, but sometimes it's not. The job-market-analytics company Burning Glass found that employers were requiring bachelor's degrees for jobs that don't need them: About two-thirds of the postings for executive secretaries and executive assistants called for a bachelor's degree. Just 19 percent of those who already held those jobs had that level of education.

One reason that the skills gap maintains its hold, says Peter Cappelli, a professor of management at the University of Pennsylvania's Wharton School, is that it's sensational and plays into a longstanding narrative that American education is failing. But the idea has been subjected to relatively little rigorous academic analysis, he says, and it has been guided mostly by employers' self-interest.

If many colleges embrace the idea of the skills gap, says Mr. Cappelli, that's because it makes them appear like they're addressing a pressing concern of an important local constituency. "Using that phrase," he says, "sounds like you're paying attention to what businesses need."

For colleges, responding to the needs of business is often seen as a straightforward matter. All they have to do is look at the most-common unfilled job openings and find out which skills employers want candidates to have. Revise the curriculum accordingly, plug in students with the right skills, and then the gap will be gone.

Sometimes things really do work out this way.

In Rochester, N.Y., Todd M. Oldham, vice president for economic development and innovative work-force services at Monroe Community College, kept hearing how companies were looking for technicians with expertise in precision machining.

He looked at the data. Jobs requiring those skills were plentiful, and colleges weren't filling them. The region had about 100 more slots open each year than the number of graduates the area's institutions were producing.

Monroe already had precision-machining programs — a two-year associate-degree program and a condensed, one-year certificate option. It just wasn't producing enough graduates. So Mr. Oldham worked with his colleagues to pare down Monroe's one-year certificate into an accelerated 22-week version.

To bolster retention, students enter in a cohort with dedicated faculty members to provide continuity and student-faculty connection, as well as job counseling and placement. The program also strips out general-education courses.

The Ideal Candidate

Researchers in Wisconsin asked chief executives and human-resources officers what words came to mind when they thought of the skills that candidates need to succeed in entry-level jobs in manufacturing and biotechnology. Here's what they said, in decreasing order of frequency:

WORK ETHIC

TECHNICAL ABILITY

TECHNICAL KNOWLEDGE

LIFELONG LEARNING

PROBLEM SOLVING

COMMUNICATION

ADAPTABLE

SELF-MOTIVATED

INTERPERSONAL

TEAMWORK

EXPERIENCE

Source: Beyond the Skills Gap: Preparing College Students for Life and Work, by Matthew T. Hora, with Ross J. Benbow and Amanda K. Oleson

The results have been positive, says Mr. Oldham, and the approach may be replicated in other programs. The completion rate for the one-year program was 47 percent. For the accelerated version, it was 75 percent, of whom 74 percent, including recent graduates, found jobs.

"It's not the traditional college experience," Mr. Oldham says. "In the end, we're trying to create a worker."

But things don't always work out that well.

In 2012, state and local government officials in Superior, Wis., touted the plans of Kestrel, a small-aircraft manufacturer, to open a new plant and offer high-tech blue-collar jobs.

Kestrel had strong assets: a founder who was well regarded in the industry and millions of dollars in grants, loans, and tax credits. It just needed workers.

That's where Indianhead Technical College came in. It devised a two-year associate degree in composite technology, with an industry veteran as the instructor. The program would start with 20 slots for students, and the eventual graduates would help fill about 600 jobs at the plant.

The company and the college worked closely together. The classroom was designed to mirror Kestrel's shop floor. Kestrel would provide internships for students while they were in college.

But the plant was beset by delays and disputes over funding. Government officials and the company traded accusations of broken promises. The plant was never built.

Over the past three academic years, 22 students have enrolled in Indianhead's program. Five finished and found jobs, the college says, most of them with other aeronautics firms. The rest dropped out or found jobs before finishing.

In the spring, two more students are slated to graduate. Then the program will close.

Even when a program is well aligned with what many companies say they need, things still might not work out as planned.

Utah Valley University had heard from its advisory committee of local businesses, including IM Flash, a producer of semiconductors, that they needed more workers trained in mechatronics, which is a hybrid of mechanical and electronics studies.

As an institution that had grown from a career-and-technical college to a community college to a comprehensive university, Utah Valley was accustomed to such requests. And it tries to strike a balance between providing a broad liberal education and job training, says Matthew S. Holland, its president. "We're not just an appendage of industry trying to fill every quota they have," he said.

The skills that employers find most lacking tend to be soft skills. But they also complain about candidates' lack of promptness and their inability to pass a drug test.

With money from the U.S. Department of Labor and with programmatic input from local companies, it developed two- and four-year programs in mechatronics engineering technology. It created new courses, hired a handful of full-time faculty members — and quadrupled the number of employees it produces for local businesses, including IM Flash.

On the surface, the partnership seemed like a clear win. But labor dynamics can be fluid and unpredictable, and

students make their own choices about what they want to study. The company has had difficulty recruiting enough graduates from an existing program, a two-year degree in electrical automation and robotics technology, to meet its work-force needs. Students seem to prefer to pursue four-year degrees in fields like mechatronics, even though the company has a constant need for robotics technicians who can earn \$70,000 to start.

To fix this gap, IM Flash has started offering scholarships and a paid internship at the company almost as soon as the students start the two-year program. The company is willing to teach the necessary technical skills to its workers, and it still sees Utah Valley and other area colleges as valuable partners. Utah Valley's faculty members have experience in the industry, says Todd C. Russell, manager of academic relations and the intern program at IM Flash. They teach students how to solve problems, he says, and a degree signals a graduate's ability to commit and follow through.

Even if the material students learn in class isn't entirely applicable to the workplace, that's fine with Mr. Russell, because colleges do something more important. "Universities," he says, "teach people how to learn."

Mr. Russell's vision of the value of a college education sounds much like what an advocate for liberal education might say. It turns out that attitudes about the skills gap, and colleges' roles in fixing it, are similarly nuanced.

That's what Matthew T. Hora, an assistant professor of liberal arts and applied studies at the University of Wisconsin at Madison, and his colleagues found after they probed assumptions about the skills gap, among both educators and employers.

For their recent book, *Beyond the Skills Gap: Preparing College Students for Life and Work* (Harvard Education Press), Mr. Hora and his colleagues interviewed educators in Wisconsin's universities and technical colleges, as well as chief executives, human-resources directors, and shift supervisors in biotechnology and manufacturing companies. The professors and instructors described a shared vision of educating their students for the long term even as they felt pressures to train them for a job.

Tom Heraly, an electronics instructor at Milwaukee Area Technical College, knows that his students need to learn how to operate hardware and software, and to understand the importance of being on time and dressing appropriately. But he also tries to focus on developing their analytical skills and adaptability. "They have to grow with the company and with the technology," he said in an interview.

When his students are wiring circuits, for example, he asks them to explain not just what is supposed to happen, but to predict what else might occur, and to imagine the ways they could do it differently. The most important thing he can impart to them, he says, is "an attitude of discovery."

When Mr. Hora asked employers to rank the skills they sought, their answers were all over the place. Many said they looked for technical skills, but almost just as often they valued aptitudes like critical thinking, teamwork, communication, work ethic, and the ability to solve complex problems. One characteristic was so routinely sought out that it acquired its own shorthand, YOTF, for "Years Off the Farm."

The term referred to traits like work ethic, perseverance, and problem solving that farm work fosters. "You're getting up at six

**“Universities help
perform a role in**

o'clock in the morning, you're working every night, you never get a day off," the head of a manufacturing group says in the book. "If something breaks down on the back 40, you've got to figure out how to fix it."

Mr. Hora concluded that when people talk about the skills gap, they mean a mix of things, only some of which colleges have much control over. "Our study is not an attempt to absolve higher education," he says. Colleges, he says, can improve

teaching methods and instructional design to encourage active learning so that students develop what he calls 21st-century habits of mind.

But other groups are implicated, too. "It's broadening the terms of the debate and discussion," Mr. Hora says, "to include employers' responsibility, the role of culture, of caregivers, and higher education, to have a more realistic and informed discussion."

Employers may be starting to see the skills gap with similar nuance.

The skills that employers find most lacking tend to be soft skills, says Jason A. Tyszkowski, executive director of the Center for Education and Workforce at the U.S. Chamber of Commerce Foundation. But employers also complain about candidates' lack of promptness, he says, and their inability to pass a drug test.

Employers, colleges, job seekers, and families have a responsibility to close those gaps. And there are indications that employers are taking on more of those responsibilities, too. Last year, 48 percent of American companies surveyed by the Manpower Group said they planned to offer professional development to their own employees, quadruple the share that said the same thing the previous year.

But the problems with recruiting and training employees go much deeper, says Mr. Tyszkowski. "We have a system that operates backwards," he says. Educators develop curriculum without much input from employers. And while colleges often say their graduates, particularly in the liberal disciplines, leave their institutions with strong soft skills, employers have no way of really judging for themselves if this is true.

"Degrees are so opaque," Mr. Tyszkowski says. "We don't know what they represent."

Experiential-learning opportunities, he says, can offer employers a clearer glimpse of what graduates can do. Industry-sponsored innovation challenges allow companies to see candidates' soft skills in action. Such arrangements benefit all parties, says Mr. Tyszkowski. "This isn't about being a good civic player," he says. "This is about functioning in the modern economy."

repositioning. It's the production of human capital that makes them useful, providing well-trained and adept workers of all education levels who do better in responding to economic shocks."

At their core, concerns about the skills gap are really about how the many players in a region can spark broadly shared and sustainable economic growth.

The regions that have demonstrated this sort of growth tend to have something in common — prosperous advanced industries, says Mark Muro, a senior fellow and policy director for the Brookings Institution's Metropolitan Policy Program.

These industries, he says, tend to be high-tech innovators in fields like aerospace, automobiles, medical devices, and pharmaceuticals, as well as energy, telecommunications, and information technology. They conduct research and development, have long supply chains, and offer diverse and high-paying jobs for people of varying levels of education.

"They have huge spillover effects in the economy," says Mr. Muro.

Colleges often play an important role in the development of these regions and industries, he says. Sometimes, colleges feed employees to local companies, many of which were founded by the graduates of those institutions.

One of the leading examples of these dynamics, he says, is in Provo, Utah.

Brigham Young University and Utah Valley supply the region with much of its work force, and they are credited with being major drivers of the area's economic success. Like Utah Valley, Brigham Young tries to maintain a dual focus on immediate work-force needs and on the horizon beyond.

"We want to make sure students have a job when they graduate, but the job isn't the end of the road," says Robert Gardner, assistant dean of external relations and technology for BYU's business school. "The university doesn't retool so quickly, and maybe that's a good thing."

There is a danger, after all, in linking too closely to a region's employers, says Mr. Muro, of Brookings. Pittsburgh has been able to reinvent itself from a steel town, for example, partly because its universities weren't simply trying to feed workers and managers to the local plants to meet their immediate needs.

"Universities help perform a role in repositioning," he says. "It's the production of human capital that makes them useful, providing well-trained and adept workers of all education levels who do better in responding to economic shocks."

Some gaps, it seems, are worth keeping.

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