Connecting College and Careers

By Paul Fain

INSIDE HIGHER ED

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Career-connected education benefits learners, employers, and higher ed

There's a lot of talk about the skills gap, and with good reason. Wiley Education Services recently surveyed employers for our *Reimagining the Workforce* report, and 55% said their organization has a skills gap. Simply put, employers can't find the talent they need. And it's affecting the entire labor market, as the U.S. Bureau of Labor Statistics recently reported a record-high number of open jobs.

How can higher ed prepare learners for these jobs? At Wiley, we firmly believe that providing a career-connected education is key. It's a way for universities to play a bigger role in helping learners become job-ready. In other words, college graduates will have even more of the skills that employers truly need.

Providing a career-connected education comes down to outcomes. Helping learners achieve their goals should be the top priority, and that often is to secure a job, get a promotion, or change careers. But there is a disconnect between what college students learn and the skills employers need.

Fortunately, there are things universities can start doing today to overcome this challenge. One option is to focus on outcomes when developing a curriculum. This is done by conducting market research to identify skill needs and designing educational experiences around them. That's something we do every day — by helping our partners connect curricula to the skills employers are seeking. That way, the things students learn in class apply directly to their careers.

It's also important to work more closely with employers. By partnering with employers, universities can identify skill gaps at the source and tailor their programs accordingly. One way Wiley is fostering career-connected education and fueling talent pipelines is through a product called mthree. Through mthree, we learn talent needs from employers to get a clear picture of the job market overall. From there, mthree finds, trains, and places job-ready technology talent in roles with leading corporations worldwide.

People are striving to grow their skills base so they can unlock their potential and improve their lives. As the College-to-Career Pipeline report shows, higher ed can help them do it, and providing meaningful, outcomes-driven educational programs will be crucial. Let's join together on solutions that help everyone win — educational institutions, employers, and most importantly, learners.

Onward,

Todd Zipper

Todd Zipper
President
Wiley Education Services

Connecting College and Careers

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These are heady days for many who work on strengthening connections between postsecondary education and work. But also stressful ones, given uncertainty in the job market and increasing clarity about how much the deck is stacked against students from underserved backgrounds.

This report seeks to shed light on some of the most promising experiments to give graduates a boost as they seek well-paying jobs, particularly for students who are women or people of color. It's a snapshot of what was happening in the summer of 2021, rather than an attempt to be comprehensive about this enormous, complex set of issues.

The reporting featured here is on four-year institutions. While community colleges also are working to improve the labor market outcomes of their graduates, students who attend two-year colleges tend to face somewhat different challenges than their peers who are enrolled at four-year colleges and universities. For example, much of the action at community colleges involves shifts in career connections for students who are hoping to work in entry-level jobs in health care, advanced manufacturing, and the skilled trades, with developments that generally don't apply to bachelor's degree programs.

In addition, the report is centered on efforts to improve the digital skills preparation of students who will work in jobs in information technology, both for tech companies and for employers across a wide range of industries that need more workers in roles featuring some knowledge and fluency with data science, digital marketing or cyber security. While the career preparation push applies well beyond digital skills, much of the change appears to be occurring within this broad umbrella of skills development.

The two general areas of focus included in the following pages are efforts to increase work-based learning opportunities, sometimes of the credit-bearing variety, as well as promising new types of non-degree credentials that colleges are developing -- typically in partnership with employers -- to be paired with bachelor's degrees.

To set the stage, I spoke with Andy Chan, the vice president of innovation and career development at Wake Forest University, a role he has held for more than 11 years. His high profile in the space gives Chan both breadth and depth on what matters most in career

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development in higher education.

And rather than giving myself the last word, the final thoughts were contributed by Joe Testani, associate vice provost for career education initiatives at the University of Rochester. Testani, an intriguing voice on the future of work and change management in this industry, previously held a similar role at Virginia Commonwealth University, and the University of Richmond before that.

As the report's author, I drew from my 17 years of experience in covering higher education, most recently in a long stint as a reporter and editor at *Inside Higher Ed*.

The document features reporting from several contributors to Work Shift, a new weekly publication I helped create. They include Kathryn Masterson, Elin Johnson, and Elyse Ashburn, all veteran higher education journalists.

We hope the following articles help you in your work on these crucial issues during this unprecedented time, for both higher education and employers.

--Paul Fain

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Career Boosts for Undergraduates: How Colleges are Adding New Credentials and Work-Based Learning Experiences to Curriculums

The pandemic exacerbated the challenges many college students face, particularly financial and time pressures that are most severe for students of color and lower-income students. The related 3.5 percent decline in overall U.S. college enrollment in the spring of 2021 was the steepest drop in a decade. The drop among undergraduates was 5.9 percent.

The catastrophic enrollment numbers caught the attention of advocates for college access. Yet the decline followed big dips the previous fall and a decade-long slide for postsecondary education since its U.S. enrollment peak in the wake of the Great Recession. It's probably not going to get easier for higher education, either, amid demographic shifts that experts say will result in declining demand for postsecondary education in coming years.

An increasing chorus, from both sides of the nation's stark political divide, now argue that higher education is a driver of societal inequity. They point to research showing that the bachelor's degree contributes to racial wealth gaps. And a growing number of advocates now are calling for employers to drop degree requirements for new hires.

The mounting crisis of faith among students and their families in the value of college appears to be a significant contributor to enrollment woes, despite the fact that the four-year degree remains the best ticket to the middle class. But to get a return on the investment in an increasingly expensive college degree, students need to graduate and find a job that pays enough to cover their loan debt.

As a result, in addition to struggling with the pandemic,

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colleges and universities are being buffeted by what many in the industry think is the next step of the student success movement of the last decade or so: adding a focus on how graduates fare in the job market to the longstanding priorities of expanding college access and completion.

"If you've been thinking about shorter-term credentials, just-in-time learning" or creating academic programs that are skills-based and "very aligned to where the jobs are," Paul LeBlanc, president of Southern New Hampshire University, the nation's largest institution of higher education, said early in the pandemic, "this is the day you start that work."

Efforts to improve connections between college and work, however, also have been challenged by the uncertainties of a rapidly changing knowledge economy during an unprecedented time of uncertainty for Americans, millions of whom are reevaluating both their jobs and the pathways to a new career.

Growing numbers of people "realize that some jobs are not coming back and, increasingly, that some jobs are not worth holding even if they are back," says Rovy Branon, vice provost for the University of Washington's Continuum College.

The societal anxiety extends to prospective college students and their decisions about whether to enroll. The value proposition looks riskier than ever, as many prospective students are working to help support their families amid tighter budgets and challenges ranging from inadequate day care to health concerns.

A recent high school graduate in West Virginia who is working full-time had this to say in response to a recent survey:

"Confused, Obligated, Stressed. I'm confused as to what I want to spend the rest of my life doing and don't want to go into debt straight out of high school for something I probably won't end up doing. I feel obligated because the only real way to make livable money is to get a higher education after high school unless you go into trades. I'm stressed because I have no money or family to help me pay for the high cost of college and this last year I haven't made good enough grades."

> Students, families and employers have already spoken, and they are demanding that we do a better job at preparing students for work, plain and simple.
>
> Seth Bodnar, University of Montana

At a Crossroads?

Career preparation has long been part of a quality higher education, as anyone who works in career services will tell you. Yet skepticism persists in the industry about whether job market outcomes and social mobility for college graduates should be used to measure the performance of colleges and universities. And many college leaders and faculty members, particularly at selective four-year institutions, question whether labor market success should even be a priority.

Seth Bodnar, president of the University of Montana, responded strongly when asked recently whether the push for career preparation was overblown:

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"Students, families and employers have already spoken, and they are demanding that we do a better job at preparing students for work, plain and simple. As cliché as it may sound, postsecondary education is at a crossroads. We can ignore the trends and demands and hope that expectations from both students and employers go away. Or, we can embrace facts and lean into these expectations. This does not mean that we abandon general education or the liberal arts, simply that we must be willing to innovate the curriculum and the overall student experience in such a manner that creates a clear, aligned integration understood by students, families, and employers alike."

"Despite increasing competition from private recruitment and training companies, now Google, industry leaders still believe that colleges and universities can be the source of such pre-professional skilling. However, that window is slowly closing and colleges and universities ultimately control their own destiny as it concerns such innovation, and ultimately for some, their survival."

The flagship University of Montana recently partnered with Kaplan, the education technology company, to try to boost its students' job readiness and marketability by offering them short-term, industry-recognized credentials. The so-called Credegrees available through the partnership stretch across more than 30 technology fields, including cybersecurity, data science, data literacy and digital marketing.

Whether or not the Credegree experiment takes off, Montana is hardly the only university to try to add value to degrees through new forms of alternative credentials. And while the debate over college degrees versus nondegree credentials is often posed as an either/or question, experts tout the promise of combining degrees with certificates, industry certifications or other credentials that have value in the labor market.

"The combo is the better deal here," says Holly Zanville, a research professor at George Washington University and co-director of the university's Program on Skills, Credentials & Workforce Policy.

This appears to be particularly true for digital skills. Employers want new hires to have some foundation skills -- in data literacy, digital marketing, data visualization, or in using basic tools like Microsoft's Excel -- can help a recent graduate land a job.

"While I believe four-year degrees still carry immense weight in the labor market, students who choose to complement their experience by acquiring industry-aligned tech credentials will be that much more competitive to employers," says Christine Cruzvergara, chief education strategy officer at Handshake, a career connection tool with a wide reach in higher education. "These credentials serve as a critical signal that the student has the competency and skill to hit the ground running on specific tasks and may require less training, thus saving employers time and expediting their on-boarding process."

The demands for change in higher education are being influenced by the wide swaths of employers across the economy that are struggling to fill open jobs amid the recovery. And at the same time, the tech sector has a serious and increasingly untenable diversity problem.

For example, the Brookings Institution found that Black workers account for fully 25 percent of the labor force in the Washington, D.C., metro area, but hold 19 percent of jobs in computer and math occupations. And those ratios often are far worse. Latinos comprise one in four of Silicon Valley's workers, but hold only 3.7 percent of the region's tech jobs -- the sort of gigs that tend to be lucrative enough to provide a living wage in one of the nation's most expensive metro areas.

Women also lag far behind men in tech fields, holding 49 percent of all jobs in the U.S. economy but just 26 percent of tech jobs, according to CompTIA.

The urgency, even desperation, among employers to

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find skilled workers while improving their diversity seems to be driving real change in the breadth and depth of career preparation partnerships between employers and four-year colleges, particularly in IT. The same is true for health care and advanced manufacturing in the community college sector.

"As employers recover and evolve their businesses and identify new skill sets for employees, they are understanding how to connect with higher education more directly," says Branon.

For example, Trinity Washington University recently joined a coalition of 20 four-year institutions and 17 major employers in the Greater Washington, D.C., region that have partnered to create a new IT skills credential. The digital badges designed through the Capital Collaborative of Leaders in Academic and Business (CoLAB) are intended to signal to employers that the graduates who earn them can succeed on the job. The project also seeks to open up opportunities for students from underserved backgrounds.

More than two-thirds of Trinity's undergraduates are eligible to receive federal Pell Grants. And 86 percent of graduates from the small private women's college are either Black (56 percent) or Latina (30 percent). Patricia McGuire, the university's president, says Trinity signed onto the collaboration to help more of its graduates break into fields that tend to be dominated by men who attended highly selective universities.

"Capital CoLAB's mission is in direct alignment with Trinity's work in preparing students across the lifespan for the intellectual, ethical and spiritual dimensions of contemporary work, civic and family life," McGuire says.

Work-Based Learning

Employers still have positive views of college degrees. For example, the Association of American Colleges & Universities found in a survey this year that 87 percent of employers believe getting a college degree or credential is worth students' investment of time and money.

> While I believe four-year degrees still carry immense weight in the labor market, students who choose to complement their experience by acquiring industry-aligned tech credentials will be that much more competitive to employers.
>
> **Christine Cruzvergara, Handshake**

However, just 62 percent of employer respondents said they believe college grads have the knowledge and skills to succeed in entry-level positions.

As a result, employers often prefer new hires to have some work experience. For many observers, this dilemma raises questions about credentialism and whether companies should be investing more in the skills development of entry-level workers. But it's clear that a lack of experience is keeping the door shut to many good jobs for recent college graduates, particularly women and people of color.

Internships are a popular way for college students to get their foot in the door. But these experiences also skew toward students who need the least help. For example,

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58 percent of interns nationwide last year were men, according to the National Association of Colleges and Employers. And 62 percent of interns were white.

To help chip away at this inequity, a growing number of universities are working to expand internship and other work-based learning opportunities for their students. And some are experimenting with a relatively new form of internship that is short-term and virtual.

The University of Illinois at Chicago, to use an example from this report's second case study, teamed up with a nonprofit group to offer its students a three-week crash course in how to apply computer science to a job. Participating employers pay to host a team of five interns for the short stints. The so-called sprinternships have been a success, with more than 20 percent of participants subsequently getting a job offer or a paid summer internship.

Jeffrey Moss is founder and CEO of Parker Dewey, which partners with colleges and universities to offer microinternships to students, including Purdue University, the Illinois Institute of Technology, and many others.

"We now have managers who are comfortable with remote work," says Moss, "so they will give students remote projects to really test what they know how to do."

Bringing somebody in for a 10-week internship is still relatively high stakes. But Moss says the shorter commitment of an initial project opens up virtual internship opportunities. This is true both for smaller companies and for lower-income students, who are much more likely to attend a non-prestigious college and, as a result, also tend to be screened out of traditional internships.

Faculty members play a central role in some of the more promising versions of experiential learning that are gaining traction amid the pandemic, particularly those that integrate work experiences into a credit-bearing course or curriculum.

Because making connections with employers is time consuming and difficult for faculty members, these projects often feature help from brokers and tech firms, such as Riipen, a Canadian company that features an online experiential learning platform and a marketplace for employers. This report's fourth case study looks at Arizona State University's plan to ramp up its promising pilot project for faculty members to use Riipen as a tool for a custom platform the university created.

ASU offers participating instructors a small stipend for their work on this project. This approach may also work for smaller institutions, such as the University of Redlands, a private liberal arts university located in California.

Kelly Dries, executive director for the Office of Career and Professional Development at Redlands, drew some inspiration from a faculty-focused career exploration program at the University of Utah in her work to create a new stipend for faculty members. The Career Faculty Fellows program relies on student nominations to tap five faculty members who can use the stipends for their own professional development around student careers.

"We need to make career visible for students," says Dries.

Now in its third cohort of faculty, the program's participants meet regularly with their peers and administrators across the university. They have worked on projects such as creating consistent internships for credit or incorporating career exploration into curriculums. Other colleges and universities have taken notice of the program at Redlands, with some working to create similar ones.

"Instead of our office carping about the importance of career," says Dries, "we have faculty carping about the importance of career." ■

Photo of Andy Chan and students
WAKE FOREST UNIVERSITY

A Conversation With Wake Forest's Andy Chan

Andy Chan's ideas about the importance of what happens to college students after graduation sounded revolutionary 12 years ago, when he first arrived at Wake Forest University.

From their first days on campus, students should be exposed to career paths and begin thinking about how to translate their education into jobs, said Chan, who is now vice president of innovation and career development at Wake Forest.

Chan later drew notice with a 2013 TEDx talk, dubbed "career services must die," where he described rising anger among recent college graduates about their preparation for the job market.

The problems Chan identified, as well as many of their solutions, have gone mainstream in recent years. I checked in with him to get a sense of what's changed for career development in higher education, and what's next. The following is a condensed and lightly edited version of our conversation.

-- Paul Fain

Q: Why do you think your 2013 TEDx talk touched a nerve? What has changed in the eight years since you gave that talk?

Andy Chan: The TEDX talk got a lot of people really thinking about what our students and alumni are really feeling and experiencing -- and maybe they aren't actually getting everything that they had hoped. Some schools really did try to make some changes, whether it be to get a lot of funding to help rebuild their career offices, or to hire different leaders and staffing for their career offices. But for the majority, not that much really happened. There hasn't been that much dramatic change across the industry.

There are definitely points of light that you can see. Either at the very grand level, like Arizona State University, Western Governors University, or Johns Hopkins University. Really big, significant moves forward. And there are many where they've gotten great funding, whether it be the College of William & Mary or Wellesley College. Or Wake Forest University -- we

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raised a lot of money to help support a lot of change. But with 5,000 schools total, we're talking about a couple hundred. Lots of the others are still in a place where they are either similarly resourced or less resourced than before, because of the pressures on universities.

Q: What's driving the recent interest in career development?

A: This whole area is being more discussed for a couple reasons. The data show that part of going to college is actually to determine where I'm going to head in my life and career, especially my first job and how I get started. And then for some reason, when they go to school, that conversation ends up being extracurricular or non-existent. And all of a sudden they're left in a situation where they're wondering, what do I do now? One of the biggest and most interesting challenges is how do you make this core to the student experience. And the more closely aligned it is the academic experience, if not totally integrating the academic experience, the better it is.

Handshake is now the dominant virtual recruiting platform that connects students with employers and with career services. And so there's all this data that's being generated that we've never seen before. And there's all these network effects that are happening between students and employers. And there's power in this, in terms of connections that can happen, that we've never had before.

There's a second big piece, which is that diversity in all forms is being more honored by employers and universities, with more intensity and commitment. Employers are saying, 'I'm not going to just look at my core schools. Now I can actually use Handshake and go across the whole landscape of all the schools and find students who might be from different schools and even different academic or regional backgrounds. So I'd love to try to recruit that student in a personalized way that before we couldn't do.'

There hasn't been as much change as we would've liked. But we're at an inflection point where it feels like things are about to change a lot. There is change happening and it is evolving, but we can't see it all the time. I feel like we're in Chapter 2 of a 20 chapter book and that we still haven't hit that point where you start to go, this is really accelerating. You actually are still on the part where this is still bumping along and I'm still trying to figure out what's happening and who the players are -- figuring out the landscape. And sadly, it's taken 10 years to go through those first two chapters.

> The data show that part of going to college is actually to determine where I'm going to head in my life and career, especially my first job and how I get started. And then for some reason, when they go to school, that conversation ends up being extracurricular or non-existent.
>
> Andy Chan, Wake Forest University

Q: Are more institutions focusing on the faculty role in connecting careers and academics?

A: It is a huge challenge to try to figure out how to make this more integrated into the academic experience. And

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faculty will be the ultimate deciders as to whether that's okay at their institution or not. At a university the kinds of things that the leaders tend to be concerned about, there are fires related to the culture on campus, the student experience, the faculty experience, the staff experience. You're trying to make sure all that works during Covid. So being able to focus on other things beyond that, it can be challenging. We also know that a lot of universities were under a lot of financial pressures even before Covid.

One way that you can come at it is a refinement of the overall curriculum. That's really hard. There are many schools who have that conversation and it doesn't get voted through, or it partially moves forward. So a lot of times, a huge curriculum redesign is difficult. So then it breaks down into maybe different departments that are willing to experiment. And we sometimes don't recognize that universities are made up of a lot of different units. And I know we talk about them as silos, but the reality is that's just the way they've always been constructed. We try to find who are the units where there are faculty and faculty leaders who want to experiment with this, whether it's because they see this as being the right thing to do, or whether it's, 'Hey, if we do this, we'll get more students who want to come to our major.' Either way, that's the way that the experimentation is happening.

This whole idea of helping students navigate from college to the workforce really drives a bunch of things. One is student success. The students see themselves as more successful. The second is that alumni employers are more loyal to your university because the students are actually feeling successful and they become successful alumni and they want to recruit at the school. There's this virtuous cycle. And then you start to see positive revenue streams on your enrollment and fundraising because, happy alumni: you get more fundraising. You help them get better careers: more fundraising. If you actually show that you have great outcomes with your students, you get students who want to come to your school. But if you don't talk about these things, students will be finding the school that does.

Q: To bring back the book analogy, what's going to happen in the next few chapters?

A: Corporations are going to get into this game. So the workforce-to-education game is going to become one where there are going to be new options. Students can say, 'wait, I don't actually have to get my four-year degree. I could go to work and get it at the same time. Or I could do a bunch of certificates and get it. I could go to community college or trade school where I could become an electrician or a plumber and build myself a million-dollar business.'

There will be some bumps along the way. But it's actually moving in the right direction. Change is going to come. And it actually is going to be good, but it's going to be different. And we're going to have to be courageous to handle the fact that's going to be uncomfortable.

We're going to have to find ways to educate students, especially students from underrepresented backgrounds, to know how to make good decisions about all these choices. So they don't get taken advantage of and have institutions that are making a good promise but not really fulfilling it. We want to make sure we're really holding people accountable.

Virtual is here to stay. Data enables us to identify where we're successful and where we're not. Technology makes personalization and scale possible. Diversity always matters and it's all kinds of diversity. Work-related experiences and career-readiness curriculums are being better integrated into the overall student experience, but we're really at the experimental stage. ■

CASE STUDY:

Degrees and SAS Skills

SDI PRODUCTIONS/GETTY IMAGES

More than 40 years ago researchers at North Carolina State University developed what was then called the Statistical Analysis System, a data analysis software tool that was originally used to improve crop yields with agricultural data. These days the software suite offered by the North Carolina-based SAS Institute is crucial to many jobs that involve data and statistical analysis, including faculty roles at universities.

Learning how to use SAS requires developing fluency with a foundational tool, rather than the sort of narrow and quickly fading skill sets often associated with vendor-specific tech training. Boot camp instruction on a software tool that will be irrelevant in two years, for example. SAS skills, however, apply to jobs across insurance, banking, pharmaceuticals, government, among other industries.

Demand for SAS skills is booming—last year more than 180,000 U.S. job postings cited the software tools. SAS skills requirements in job postings have risen by 30 percent over three years, according to Emsi Burning Glass, the labor market data firm.

To help higher education train students how to use SAS, and to make sure employers recognize that training, the SAS Institute has partnered with roughly 200 colleges and universities in the U.S., and 396 institutions globally. A key part of that work is the institute's free academic hub, which offers SAS courses and certifications to educators and students, including academic specialization badges students can put on their LinkedIn or Handshake profiles, as well as their conventional resumes.

The project's focus is on faculty members, ranging from instructors in biostatistics to business analytics. The approach is to "train the trainers" so that SAS skills are embedded in college curriculums.

Faculty members tend to have a good idea of skills their students will need in the job market, says Lynn Letukas, senior director of global academic programs and certifications for SAS Education.

"However, what they may not know, and where we can help, is what distinguishing skills can give their students a competitive advantage over other early-career prospects," she says. "This is especially important at less selective and open-access institutions, where students may already be at a disadvantage for getting interviews and/or jobs at top companies."

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In addition, staying current with tech skills can be a full-time job. The partnership with SAS helps faculty members bulk up quickly as they receive instruction from the institute's trainers on up-to-date tools related to statistics, analytics, AI and machine learning. SAS also uses data from Emsi Burning Glass to provide custom analyses to its college partners that suggest what skills are most relevant to top employers and where gaps may exist between what is taught and what is sought in the job market.

The institute also taps teams of industry experts and partnerships with a wide range of companies to help colleges better incorporate early-career skills sought by employers into their academic programs.

Success on Day One

Rhode Island College, for example, is working with the institute to create an analytics certificate for students that is designed to be relevant to local tech employers. With the new certificate and SAS-informed courses in high-demand areas such as data analytics, RIC is hoping to help attract both traditional high school graduates and working professionals who need to upskill, says Lisa Z. Bain, a professor at RIC's School of Management.

"SAS skills are desired by the IT industry, so it makes our students more marketable," Bain says.

SAS also is collaborating with Handshake, a company that offers an online career community to college students and employers. Handshake has a huge presence in higher education, with more than 9 million active student users at 1,200 college and university partners. The company says 550,000 employers have hired students by using its platform.

Businesses that use SAS tools can post their internships and full-time job openings on Handshake, and then use the tool to help identify graduates who display digital badges to prove that they have the relevant skills. SAS did just that when making some of its own recent hires, Letukas says.

"Nearly all the top employers, and those aspiring to be top employers, value a college degree, which is great," says Letukas. "But the question for many universities and faculty becomes: 'what skills or experiences do our students gain in this program that will help them be successful on Day One as an early career professional?' "

For open-access colleges, SAS credentials signal to an employer that the skills and competencies taught in those programs are as strong as those from highly selective universities. As a result, digital badges alter the talent pipeline, Letukas says, by elevating job candidates from less well-known colleges and helping to differentiate their applications.

The focus for SAS credentials is different from previous models in tech, such as Cisco Certifications, which were designed to show that a learner had mastered the needed skills to work with those tools as long as they exist. SAS certifications are continuously adapted to reflect evolving technologies. For example, the institute recently shifted its focus to cloud-based certifications in data analytics that integrate with open-source languages and tools.

Likewise, SAS has moved from basing its credentials on the knowledge of students to an approach where students must pass a performance-based examination where they actually use the software in a live lab environment.

"From a hiring perspective, anyone can say they use SAS. But being able to demonstrate knowledge and proficiency in the environment—the 'show me' is enormously valuable," according to Letukas. "For faculty who use our solutions, they are eager to effectively showcase the work their current and previous students have undertaken because it can show the value of what students have learned." ■

CASE STUDY:

Microinternships and Equity

METAMORWORKS/GETTY IMAGES

It takes money to make money, as the saying goes. And with tech jobs, students need experience to get experience.

Break Through Tech is a New York City-based nonprofit that works on increasing the number of women who graduate college with degrees in tech fields. Most of its participating learners are first-generation college students from middle-class and lower-income backgrounds. But when its first classes of students applied for summer internships, just 5 percent were able to land one. And many didn't get a single interview.

One of the main reasons students were passed up for internships? Few had participated in weekend hackathons or coding camps, the sort of activities sought by hiring companies. That wasn't by choice, either, as Break Through Tech's participants often need to work to support themselves and their families.

It's a classic Catch-22 dilemma, says Debbie Marcus, a senior director with the group. "They don't have enough experience to get the experience."

Getting that initial foot in the door is key for students. And it's particularly challenging for women and people of color, who are underrepresented in tech and several other high-demand fields. When they are able to break into the field, women are more likely to work in marketing, management and other business roles that tend not to pay as well as tech gigs. In Chicago, for example, the median annual wage for tech workers is $79,430, which is 78 percent higher than the median pay across all jobs in the city.

Besides wrestling with a growing PR problem for failing to reflect societal diversity, experts say companies without enough women and people of color in tech jobs also see their core business functions suffer due to their relative lack of perspective, creativity and customer appeal.

To attack these problems by helping students get some early work-based experience, Break Through Tech created its own short-term internship program. The group five years ago tapped funding from Verizon to create these microinternships, which it calls sprinternships. The program is designed to straddle the intersection of higher education and industry, with Break Through Tech acting as a broker between students and companies.

The three-week sprintership is a crash course in applying computer science to a workplace. Participating

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companies are recruited and matched with interns based on the company's needs and the interns' skills and interests. Students are placed into these roles in groups of five, a move designed to give them peer support as well as experience working on team-based projects. They also are assigned coaches from their university and get targeted support with networking for jobs and writing resumes.

It's a small lift for companies, says Amita Shetty, director of Break Through Tech Chicago, the group's second program, which is based at the University of Illinois at Chicago. The student, however, "is getting a sliver of the workplace in just three weeks," Shetty says.

Public-Private Partnerships in Kansas

Parker Dewey is one of several firms in the growing micro-internship space. The Chicago-based company offers short-term professional assignments (10-40 hours of work) to college students and graduates. The projects pay $12-$25 per hour, with interns getting 90 percent of payments. Companies can use what students produce, such as market research or financial analyses. And they can hire interns for permanent positions.

More than 400 colleges and universities now partner with Parker Dewey. Earlier this year, the Kansas Board of Regents and the state's Department of Commerce announced a project to create micro-internships for students across the state's 32 community colleges and public four-year institutions. By tapping philanthropic support, the state offers participating employers a 50-percent matching grant of up to $250 per project completed by a college student.

Brain drain is a problem in Kansas. The state is projecting a 2.3 percent decline in its working population by 2028. The need to retain local talent and to improve diversity through hiring are the primary goals of similar multi-partner collaborations, says Jeffrey Moss, Parker Dewey's founder and CEO.

Moss says the micro-internships help show that solutions exist within current systems for improving connections between college and careers.

> We're showing that we can solve the problems without blowing up college. The students are job-ready. We just have a matching problem.
>
> Jeffrey Moss, Parker Dewey

"We're showing that we can solve the problems without blowing up college," he says. "The students are job-ready. We just have a matching problem."

Companies that participate in Break Through Tech Chicago pony up $10,000 to $15,000 to host a team of five interns. The program is designed to ensure that both employers and students get the most out of their three weeks.

The group puts students through an onboarding process. And UIC coaches check in with the teams once a week. Break Through Tech also shares a framework with employers for what sorts of experiences to provide interns. This includes the sort of day-to-day activities that are common for office workers, such as attending

staff meetings, talking with executives about career paths, and getting help with job interviews. These are crucial experiences for interns—particularly those without family and friends who can share intel about how to navigate office life.

The program's model has been successful. In New York, the first city where Break Through Tech operated sprinternships, the number of students who got summer internships jumped to 50 percent from 5 percent. And more than 20 percent of the first class of students who held sprinternships in Chicago were offered paid summer internships or full-time jobs.

Daniela Rodriguez did a three-week sprinternship at U.S. Soccer after finishing her first year at UIC. The students worked on integrating the organization's data from multiple platforms into one place. They also got confidence boosters from working with a women's empowerment program that is run by U.S. Soccer and aimed at younger girls.

Rodriguez says the experience helped her counter feelings of impostor syndrome when she took her first computer science courses at UIC, which were mostly filled with men.

"My biggest inspiration is, I want other girls to diversify the tech fields like we are doing and have the confidence to continue on," she says. To know "it's okay—there's now more females in it." ■

CASE STUDY:

Tech Credentials in the Beltway

Greater Washington, D.C., is a hot tech hub. The region is projected to add more than 130,000 digital technology jobs during the next five years. And these jobs typically pay good wages, with a current median annual salary of $104,000.

The Beltway stacks up relatively well compared to other metro areas when it comes to the equitable distribution of those jobs. Yet Black, Latino and women workers are substantially less likely to get entry-level tech roles that lead to well-paying careers.

And hiring, period, is a challenge. An estimated 60,000 tech jobs in the D.C. region will remain unfilled annually during the next four years.

The Capital Collaborative of Leaders in Academia and Business (CoLAB) seeks to create pathways to these jobs while also evening the playing field. The project brings together 20 local universities and 17 major companies to work on embedding job-relevant digital tech skills into academic programs. That effort includes the creation of new industry-aligned digital tech credentials that are paired with bachelor's degrees -- the sort of combo that experts say can help students land a good job.

The badges, which are issued when students master required digital skills across several courses, offer advantages when students seek internships or full-time work with participating employers.

"The demand in this region is so significant for this talent that there is plenty of work to go around, for all these students," says Jeanne Contardo, vice president and managing director of the Capital CoLAB.

The relatively new inclusive economic growth initiative has ambitious goals, including to have engaged 45,000 students in digital tech pathways by 2025, with at least half of those learners coming from underserved backgrounds. CoLAB recently created a scholarship to help up to 2,000 students from underrepresented backgrounds pursue a digital tech education.

"The notion of a scaled solution is really core to our efforts," says Contardo.

The CoLAB is looking to "tune" employer demand for the region's digital tech workforce. To make this a reality, the project has enlisted some of the biggest local employers, including Amazon, Northrop Grumman, T. Rowe Price, and MedStar Health. They work together to agree on the knowledge, skills and abilities (KSAs)

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needed in the region's digital tech roles.

The consortium's employers try to ensure that each required skill is clear and sorted by its level of complexity and specificity, using Bloom's taxonomy. They share this information with university partners, who then map the skills into their curriculums. Students who learn all those skills are awarded a digital tech credential, which is provided in the form of a verified digital badge.

More than 1,000 students are pursuing the credential this year. And about 100 have earned the new badge.

"The end result is that any student who has completed the digital tech credential in data analytics (one of our tracks), regardless of the institution where they completed it, has learned the same KSAs as a student at any other university offering the digital tech credential," says Contardo.

The curricular work is labor intensive, with faculty doing mapping and alignment across multiple schools within an institution. The process typically takes at least six months, unless the university already covers all the required content with existing course material. Some do. But to get it right, the collaboration requires consistent support from a wide range of administrators, beginning at the top, as well as from faculty members.

Even so, the pace of implementation has sped up during the pandemic. Contardo says this is a "real testament to the urgency we all feel about increasing the numbers and diversity of people participating in digital tech fields."

Prioritizing Equity

The CoLAB's university partners already produce many of the region's new tech workers -- roughly 40 percent of the Northrop Grumman Corporation's 5,000 annual hires in recent years, for example. But those numbers should go up if the project is successful.

CoLAB's employers have worked with students to make sure they highlight the industry-aligned credential when they apply for internships. And participating students are encouraged to update their profiles on Handshake or LinkedIn to reflect their digital skills.

> Getting the badge will definitely boost my chances for finding jobs in the D.C. area. And it'll be good for the other thing, too, having different jobs over the years.
>
> **Charles Osei, Recent Graduate, Virginia Commonwealth University**

"From the beginning, the Capital CoLAB has been clear-eyed about its mandate: work with cross-sector partners to build the nation's preeminent tech talent ecosystem in the Capital Region and do so in a way that prioritizes inclusivity and equity," says Wes Bush, chair emeritus of the CoLAB and former chairman, CEO, and president of the Northrop Grumman Corp.

Virginia Commonwealth University is a large public institution located about 100 miles from D.C. but still within Greater Washington's economic footprint. The university joined the CoLAB and issues badges to students who take three online computer science courses from VCU's Department of Computer Science.

All university students as of this year are required to take the first course in the series, on computers and

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programming, as part of their general education curriculum. The other two courses cover data science and cybersecurity. And students who take an additional course in software engineering and web development can earn a baccalaureate certificate in the fundamentals of computing, which is added to their transcript.

Charles Osei, who graduated from VCU this year, was one of the first university students to earn the Capital CoLAB Digital Generalist badge. Osei, an immigrant from Ghana who transferred to VCU after attending Northern Virginia Community College, majored in interdisciplinary studies with a focus on information systems and computer science.

A self-described "hybrid tech person," Osei was intrigued by the possibility of being able to diversify his skills with the badge, he said last year.

"I'm all about being versatile. Knowing about software engineering, data science and cybersecurity will give me more options," he said. "And I like having an actual badge to put on LinkedIn. That way the world can see what I am capable of and have accomplished."

Osei's goal is to be a computer systems analyst. But he hopes to work in several different jobs across IT, not just in one role for the rest of his life. These days Osei works as an IT support specialist for the Bloomberg Industry group. He's located in Woodbridge, Va., which is near D.C. and where Osei went to high school.

"Getting the badge will definitely boost my chances for finding jobs in the D.C. area," Osei said. "And it'll be good for the other thing, too, having different jobs over the years. My main requirement is that I get to solve problems and help people." ■

CASE STUDY:

Work-Integrated Learning

SDI PRODUCTIONS/GETTY IMAGES

College and university leaders can be forgiven for wishing they had the sort of established experiential learning programs that have long been distinctive selling points for Northeastern University and the University of Cincinnati.

Both universities place thousands of students each year in cooperative learning arrangements with employers from around the world. Students get work experience and networking for those paid experiences, which are integrated into their academic studies.

Experiential learning helps students make decisions about their majors, says Kemi Jona, assistant vice chancellor for digital innovation and enterprise learning at Northeastern, where the co-op program has been in place for a century. The real-world experience makes them more competitive in the job market, he says. And it's important for institutions to distribute these opportunities with an eye toward equity, says Jona, ideally making sure every student can participate in work-based learning.

"Families and students see higher education as a pathway to a good job," Jona says.

While the programs offered by Northeastern and Cincinnati may be the gold standard, many colleges are bulking up their work-integrated learning options for students, in part to meet the demands of students who increasingly want this experience as undergraduates. Related offerings include the sort of micro-internships covered in this report's second case study.

A different version of these experiences, however, features online work-based learning that is integrated into the classroom. Platforms such as Riipen and Practera are among those that help make connections between higher education and companies that are seeking student interns for curricular projects.

Faculty members play a lead role in these short-term work experiences, which typically are part of credit-bearing courses in bachelor's degree programs.

For example, Arizona State University has been experimenting with work-integrated learning through a partnership with Riipen, a Canadian-based firm that offers an online experiential learning platform and marketplace for employers. More than 50 ASU courses now feature this take on a virtual internship. Under a pilot program last year, 3,300 students at the university participated in about 400,000 hours of work projects that

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featured an academic component. That means students on average spent about 120 hours on each project.

Scaling Across Disciplines

And as is often the case with ASU, the scale of that effort is about to get seriously large -- the university's goal for this academic year is for students to have a million hours of experiential learning through this project.

"We believe every student should have the opportunity to participate in experiential learning," says Sukhwant Jhaj, Arizona State's vice provost for academic innovation and student achievement.

Faculty capacity is a major barrier for universities that want to bring work-based learning opportunities to large numbers of students while also tying those projects to coursework. Connecting with employers and embedding external work projects into a course is a big job, Jhaj says, one that most faculty members can't swing given demands on their time.

That's where Riipen came in. Companies can post flexible, short-term work assignments on the platform's marketplace, which currently features more than 6,500 projects. All of these projects are meant to be included in a curriculum, as either a credit-bearing assignment or an extracurricular activity.

ASU uses Riipen as a tool on a matchmaking platform the university created to connect faculty with employers. Instructors then work with their industry partners to develop, manage and embed hands-on learning experiences into course curriculums.

"It makes it a lot easier for faculty to participate," says Jhaj.

Examples of the types of student projects featured on ASU's platform include ones in marketing communications, machine learning software, data analysis, graphic design, and social media campaigns, among others. Students typically work on the projects in small teams.

One project on Riipen, for example, is from a 3D-printed custom eyewear brand based in Korea. The company is seeking help in creating content for its social media campaigns. It's looking for student interns with strong writing and video production skills, and offering free eyewear to interns as a perk.

Half of Riipen's university partners are U.S.-based. The company began working with Arizona State three years ago. Dave Savory, the co-founder and director of experiential learning at Riipen, says the collaboration with ASU is a "test case" for other institutions that are looking to go big with the platform. Riipen's approach is designed to reduce friction for students, instructors and employers, and to create scale for universities that want to offer projects to large numbers of students.

Traditional internships and co-ops aren't realistic for some students, Savory says, because they tend to require longer time commitments than Riipen's projects, which students can complete on a part-time basis while enrolled in a course. Professors and companies call the shots, and most projects last a few weeks up to a full semester.

Riipen's industry partners mostly have been focused on business and IT. But the company is expanding its projects in public health, the arts, and humanities. Savory says ASU is a leader among university partners that are offering work-based learning to students outside of STEM majors. Riipen can help instructors see how their discipline translates by giving them the chance to peruse the marketplace, which typically offers relevant examples.

Students at ASU have responded enthusiastically to being able to explore potential careers and to make business connections through the Riipen projects, says Jhaj. And faculty members like that students can apply what they learn in class to their work experiences.

"A top benefit communicated by our faculty is the ability to connect students with opportunities around the world and the invaluable experience of learning skills from different companies in different locations," Jhaj says. ■

PARTING THOUGHTS:

Making Career Education a University Priority of the Highest Order

By Joseph Testani

A few priorities remain constant in higher education: budgets and endowments, enrollment and campus infrastructure. Everything else is a juggling act, as institutions try to meet the competing priorities of their numerous -- and varied -- stakeholders. Then, every few years, a new major priority pops up or resurfaces, usually brought on by a crisis in the United States or abroad. It remains a top focus for a while, until another now-morepressing issue arises and forces it back into the background.

Career education is one of those issues. Having worked at public and private institutions of varying size offering varying degree types, I've seen that career education is often thought of in a siloed, functional way. But we owe it to our students and all stakeholders to not lose sight of this priority when the current crisis recedes. Higher education must do better -- there have been examples of deep commitment, but there need to be more.

We must keep the focus and energy on this topic in a consistent, sustained, meaningful and strategic way, taking an integrated approach vs. a simplified and functional area-reactive solution.

Real Prioritization: Key priorities for colleges and universities are topics of board meetings each quarter. They have senior leader buy-in and dashboards to track progress. They are interdisciplinary and cross-functional. Many units have to articulate how they are impacted by the outcomes of that area or they must provide evidence of contributions. Career education often makes its way to high level discussions, but not in the same way. The focus is often reactive -- related to rankings, complaints, or external forces -- rather than proactive.

Career education needs to be a university priority of the highest order. But let me be very specific -- all four-year institutions should have a three-year, university-level strategic plan on the integration of career education into the curricular and co-curricular experience of students and alumni. Workforce needs and the future of work require nimble and rapid adjustments to strategies and approaches. It has to keep pace with oftentimes rapidly changing industry sectors that innovate and iterate at rates much faster than higher education.

Prioritization influences funding, accountability, real outcomes and change. If universities care about retention, degree completion, social justice, economic and social mobility, the future of our industries, communities and marketplaces, and students in general, there are few, if any, other functional areas other than career education that have the ability to impact all of these concepts.

Accountability: Establishing clear metrics for success, along with accountability measures at various levels, would add weight to the prioritization of career education. External organizations (e.g., state, federal agencies, accrediting bodies, rankings) have tried to tackle accountability but they often fall short, because they are too narrowly defined or are focused on values that are not aligned with higher education. The accountability metrics an institution should put in place can vary depending upon their mission and student population. But all institutions should create some standard measures:

- **Equity and access.** Establishing and tracking access to resources to optimize the educational and experiential resources at the institution. Resources can include: scholarships,

experiential learning funding, internships and research, community-engaged learning, opportunities to build social capital (networking), job opportunities, mentorship or curriculum offerings.

- **Career mobility data.** Tracking data on experiential learning and co-curricular participation, first destination outcomes, and longitudinal alumni career mobility.
- **Competency development outcomes.** Providing structure to track student skill development, especially those relevant to the future of work and rapidly evolving workforce needs. This is rarely done. But, as we've seen during the last 18 months, it's extremely important.

Strategic Integration. Integration with key functions is essential to the future success of career education. The academic curriculum, co-curricular education, corporate and industry relations, advancement and alumni relations, and the research enterprise (for research institutions) are critical. If this is not a prioritization of the highest order, how can it be systemically integrated? If it is not part of the shared governance model of higher education, how can it be integrated?

The line between academics and work outside of academia needs to continue to blur. Bringing real world challenges onto campus -- in partnership with faculty, employers, students and alumni -- will give students experience addressing the most pressing problems facing our communities and societies, and ultimately will aid them in their careers. We have an opportunity to rethink the value proposition we offer students and to explore creative solutions to deliver resources, experiences and relevant skills. Technology, no doubt, will be a critical piece of this strategy. Integration into the institution's and student's tech stack is key as it helps to integrate and elevate career initiatives versus having them as secondary decisions often made by units that are three, four, or five degrees of separation from our technology leaders and decision makers. We continue to make progress at the University of Rochester to tackle these challenges head on with many of the stakeholders in our ecosystem.

Together, across higher education, we must stay the course beyond this current crisis. If we do, we can elevate the importance of career education -- making it not just one of many things we do, but what we're about as colleges and universities. ■

Joseph Testani is associate vice provost for career education initiatives at the University of Rochester. He previously served as director of career services at Virginia Commonwealth University.

About the Author

Paul Fain is a journalist focused on the nexus between education and work. He writes The Job, a newsletter that explores those issues, and helped create a related weekly publication, Work Shift.

From 2011 to 2020, Fain was a reporter and editor at Inside Higher Ed. He oversaw the news outlet's coverage of low-income students, college completion, community colleges, federal policy and emerging models of higher education.

Fain also previously was a reporter at The Chronicle of Higher Education, where for more than six years he covered leadership and finance. He has written chapters for books on innovation in higher education, published by the Harvard University Press and the Stanford University Press.

Fain is a graduate of the University of Delaware. A native of Dayton, Ohio, he currently lives in Takoma Park, Md.

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