Building Tomorrow's Work Force

What employers want you to know
Introduction

Parents, students, and policy makers consistently tie the value of higher education to results in the employment market. In this report, you’ll hear from business owners and hiring managers in a wide range of sectors about the skills they need and how they view recent college graduates who apply for their jobs. In other words, how do employers value higher education?

Section 1

Higher Education: Employers’ Perspectives

Colleges must find ways to incorporate skills-training into curricula, and foster essential extracurricular skills, too, like resilience and an ability to deal with complex situations. To demonstrate the value of a degree, they must understand how those skills meet employers’ needs.

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The pages of *The Chronicle* are often populated by the people who talk about the principles of student success, who decide what kinds of academic programs students need, and who outline the ways they will restructure their institutions to respond to the demands of students, parents, or policy makers.

The voices you don’t hear as often in *The Chronicle* are those of employers — the managers and business owners who are hiring those students. But in many ways employers reflect the priorities of parents, students, and policy makers, all of which consistently tie the value of higher education to results in the employment market.

For this report, we did something different: We reached out to bankers, manufacturing associations, managers of health-care services, school superintendents, recruiters for energy and tech companies, and many other employers to ask them about how they view colleges, college skills, and the degree-holding job applicants they are getting. How do they regard the value of a four-year degree? Are liberal-arts majors valuable? What skills do employers need onboard as they navigate an uncertain future?

Many of these questions have been asked before, but they take on a new urgency in the wake of the pandemic, when the hunt for talent and focus on skills are intense.

Employers have long seen colleges as providing the training — or at least the certification — that would signal the competencies, behaviors and mind-sets, or tenacity and grit that separate promising job applicants from the rest. Colleges have long profited from the perception that to get a good job, you need the experiences and skills that one gathers while earning a college degree. That dynamic has driven enrollments for decades.

In many ways, colleges exist apart from the world of work by design. Colleges aim for an education that is timeless, one that will usefully see a graduate through the many careers he or she is likely to pursue in a lifetime. At the same time, to remain relevant — and to keep enrolling students — colleges need to consider the needs of the industries that drive their demand. This report attempts to sort through that conundrum.

**About the Author**

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Higher Education: Employers’ Perspectives

The college degree is commonly seen as the path to a good job. Enhancing one’s career prospects stands as one of the biggest reasons students attend college, and one of the main outcomes tuition-paying parents expect.

And for many employers, the college degree has long stood as a basic requirement for job candidates, even as those employers grouse about the kinds of skills that college graduates bring to the job. A 2019 study of employers by the Society for Human Resource Management noted the paradox: While the college degree promised the entry point to a career — and promised career-ready workers for industry — employers complained that graduates couldn’t think critically or communicate and had hard skills that were too basic or theoretical to be useful on Day 1. Colleges, employers in the study said, had been too distant from the work world.

Colleges must communicate better with employers — first, to understand their needs.

Much college instruction moves too slowly to keep up with industry demands.

But shorter-term “boot camps” are unlikely to teach important social and professional skills often developed in college.

Colleges must find ways to incorporate skills training into curricula.

Colleges should also foster essential extracurricular skills like resilience and the ability to deal with complex situations — and make sure employers know that they do.

One solution? Colleges should work with employers to develop more internships and apprenticeships.
Employers have issued these complaints for years — even in the decades, since the 1990s, when they pulled back on offering training programs for workers.

“Employers are always saying we’re not getting what we want from education,” says Allison Gerber, the director of employment, education, and training at the Annie E. Casey Foundation. “Why is that? Is it because these entities are so culturally different? My hunch is that employers don’t pay as much attention until they’re really experiencing a pain point — but by the time they’re experiencing a pain point, we’re talking about a multiyear solution that it isn’t always easy to retool on the education side.”

You could call the present moment a pain point across the board. The pandemic has upended the world of work in many ways, driving some industries to the brink while energizing others. And the hunt for talent has become even more desperate. The United States has some 11 million job openings and too few people to fill them.

For this report, The Chronicle spoke to dozens of employers and agencies that work with employers to understand the challenges they see in a very competitive hiring market, the trends they see emerging within their own sectors, and how they think colleges are — or aren’t — helping to meet their needs. Employers’ attitudes are crucial because they drive enrollments at many institutions — particularly at a time with broad (and perhaps unfounded) skepticism about the value of a college degree. To communicate that value more effectively, colleges need to understand their audience.

TECH SKILLS WANTED

Employers across industries noted that finding workers with backgrounds in data analytics, machine learning, cybersecurity, and other IT skills proved to be the most challenging aspect of developing the work force. Smaller companies and others in the hidden job market have significant challenges in this area because they don’t have the resources or names to attract talent. In the hospital systems in Virginia, for example, tech skills are needed to manage electronic health records, handle billing, run the medical equipment, and protect the hospital from cybersecurity attacks.

“It’s a big problem because a lot of these workers, who are typically younger, want to go work for the start-ups to do the flashy stuff, and it’s hard to recruit them,” says Sean Connaughton, president and chief executive officer of the Virginia Hospital & Healthcare Association.

That scarcity has led a number of companies to start their own boot camps and training programs, at the same time colleges are seeing declines in enrollment. Those trends coincide with public skepticism about the meaning or value of a degree.

“It’s led to this increasing discussion around skills over degrees, and I think that’s really a false dichotomy and really shortsighted. There needs to be a combined focus on those skills and degrees.”
degree, and the pressure to find talent.

Nonprofits are also entering the space, like LaunchCode, a St. Louis-based organization started by Jim McKelvey, co-founder of the payments company Square. LaunchCode offers free training in entry-level coding and programming skills directly relevant to local employer needs, and its students have ranged across the socioeconomic spectrum: adults who want a better-paying job, incarcerated people looking to restart their lives when they get out, or — the majority of students — recent college graduates who wound up underemployed.

Jeff Mazur, LaunchCode’s executive director, says he often talks about one archetype of person who enrolls: “It is a person who is 26 years old and 45K in student debt, and their English degree hasn’t yielded them career-path work, and they’re working two jobs, at Panera or at Starbucks. They’re working 24 hours a week, and they can’t give that up because they’ve got to pay rent and put food on the table. You can’t borrow more money to learn a new skill because you’re still paying off debt, and you can’t throw yourself into a full-time learning program because you’ve got to work those 24 hours.”

An intern at the Center for Coastal Studies uses a net to sample levels of zooplankton, a source of food for right whales, during an expedition on a research vessel off the coast of Massachusetts. Many employers think internships offer valuable work experience.
A person like that needs “a fairly unique solution” to meet all those financial and time-management needs — and that’s what the nonprofit is trying to provide, he says. Another typical student would be one for whom college just didn’t work out or who never thrived in traditional schooling, which is often focused on abstract concepts rather than practical, hands-on work and learning.

For reasons like that, in business-magazine columns and interviews, Mazur has advocated for a change in how employers view degrees and qualifications among applicants, and for job seekers to consider other pathways to working with technology.

“Even if you hire someone from a four-year degree program, you’re still going to have to … get them ready to actually contribute.”

Even as a nonprofit with an eye on advancing social mobility, LaunchCode performs a kind of outsourced training function for the various companies it works with. College programs in technology move too slowly to keep up with the needs of employers, Mazur says — a complaint commonly heard among the employers contacted by The Chronicle for this report.

In the tech field, especially, that dynamic has been driving a conversation about the value of a college degree.

“There’s been a growing recognition that even if you hire someone from a four-year-degree program, you’re still going to have to do a lot to familiarize them with your tech stack to get them ready to actually contribute,” Mazur says. “That may take 30 days, or it may take six months. So in the end, if you already understand that you’re going to have to do it, does it make sense to limit yourself to the pool of four-year-degree program graduates? You’re just artificially reducing the size of the applicant pool.”

But, clearly, technical skills alone may not be enough. Mazur acknowledges that, for the 45 percent of LaunchCode’s students who don’t have a four-year degree, a boot camp that lasts weeks or months can’t replicate the experiences and growth opportunities embedded in a traditional college experience. College undergraduates have opportunities to develop all kinds of social and professional skills over those years in close contact with peers at the same stage of life. But LaunchCode tries to offer some of the same skills of collaboration and communication during the training.

SAS, an analytics-software company and the world’s largest privately held tech firm, founded a training program 10 years ago and has been offering instruction and support for its data tools for faculty members in business schools, agriculture programs, and social-sciences departments — any discipline that uses data or wants to teach students to work with it in a career, completely free to the institutions. The program also works closely with workforce-development agencies and trade groups such as the Business Roundtable.

Lynn Letukas, senior director for Global Academic Programs and Certifications at SAS Education, says the program is “mission oriented but also a strategic play for SAS,” in that it seeds tech skills among future users of the software. About 40 people work on the team, many of them former college administrators or faculty members, including Letukas, who is a sociologist.

“They’re hiring for skills. And it’s why we’re seeing this significant ramp up of
Buildings are computers now,” says Frank Mruk, executive director of the Center for Smart Building Technology at Roxbury Community College, in Boston. Complicated building-automation systems run the lighting, heat, airflow, solar panels, security systems, elevators, and more. Coordinating all those systems holds a key to reducing the energy use in a building — and the greenhouse-gas emissions associated with that building.

For landlords and property managers in Boston, this is no small detail: The City of Boston has set a goal to become climate neutral by 2050, and penalties for not staying on track with that goal will start kicking in within a few years. Buildings generate about 40 percent of the greenhouse gases in the world, but about 70 percent of the emissions in a city like Boston or New York. Most landlords have already picked

The Center for Smart Building Technology at Roxbury Community College teaches students to work with building-automation systems, which help control energy use in buildings. The program gives students a head start on learning the technology.
Tech companies like Google, US, IBM, and others launch things like Grow with Google — you know, six weeks and learn how to do this very specific thing.” Letukas has reviewed the content of these programs over the past several months and noted that none of them included lessons related to critical thinking, communication, collaboration, or any of the noncognitive skills sometimes associated with liberal-arts degrees. She is curious to see what the results of these programs will look like over time.

“It’s led to this increasing discussion around skills over degrees, and I think that’s really a false dichotomy and really shortsighted,” she says. “There needs to be a combined focus on those skills and degrees.”

**Are Four-Year Degrees A Barrier?**

In the rush to hire workers, though, employers may not have the time for that focus. A number of employers — and not just in technology, but even in some unexpected sectors — have said they are reconsidering longstanding requirements for a four-year degree. (Fields that require degrees and licensure, like engineering or
What Americans Want From Higher Ed: To Get a Good Job

67% Americans: “very important” reason for getting education beyond high school

88% Freshmen: top reason cited for going to college

38% Parents of fifth-12th graders: “very important” reason for getting education beyond high school

Sources: Gallup/Lumina poll, UCLA Cooperative Institutional Research Program, Gallup/IHE poll

Students Have Long Viewed the Purpose of College as Career Preparation

Percent of first-year students reporting reason as “very important” in deciding to go to college

- Get a better job
- General education/appreciation of ideas

Source: “Demonstrating Value in Times of Crisis,” Lightcast
nursing, are, of course, exceptions to the trend.) The State of Maryland announced in March 2022 that it would no longer require applicants to have a college degree to apply for many state jobs. Amid the shortages of teachers, Arizona has started allowing people to become teachers without a bachelor’s degree, as long as they are enrolled in college and working with a licensed teacher mentor. Florida said it would grant teaching certificates to any military veteran with at least 60 college credits, a 2.5 grade-point average, and the mastery of a particular area of knowledge, as demonstrated on a state exam.

In all these cases, the public reaction was divided. Some said the policy changes opened up opportunities, particularly for populations that face hurdles in finishing college; others saw them as dumbing down the professions and undermining higher education. “Education has been seen as a pillar of the American Dream. Maybe it isn’t anymore,” one faculty member at Claremont McKenna College told The Washington Post.

In many organizations, decisions about how much education to require are not simple. Just consider some cases in the commercial real-estate world: Martina Luskin, director of talent for the Scion Group, a Chicago company that operates on- and off-campus student-housing communities in 34 states. Higher education has always been part of Scion’s brand and identity, but the job market has changed attitudes within the company, where a degree is now preferred but not necessary to work there.

Luskin had gently pushed for a policy change soon after starting at the company in 2016; she saw it as an opportunity to bring in more diverse talent and to reduce labor shortages. Scion’s leaders resisted at first. Luskin says it’s sometimes difficult for people in management positions, who often come from privilege, to understand why someone wouldn’t just get an undergraduate degree.

In the years that followed, Scion started to accept the idea that college degrees should not be a barrier for applicants, an attitude that tracks with national trends. “The Emerging Degree Reset,” a 2022 report from the Burning Glass Institute, found that between 2017 and 2019, employers changed degree requirements for 46 percent of middle-skill jobs and 31 percent of high-skill occupations.

“People are much more open to that concept now that we’ve hired people without a college education and they’ve seen

95% of chief academic officers rate their institution as very/some-what effective at preparing students for the world of work.

13% of Americans strongly agree that college graduates in this country are well-prepared for success in the workplace.

11% of business leaders strongly agree that graduating students have the skills and competencies their businesses need.

Sources: Gallup/Lumina poll, UCLA Cooperative Institutional Research Program, Gallup/IHE poll
it be successful,” Luskin says. Even if the job market becomes easier for companies, Scion will remain open to workers without degrees. “I do think it’s permanent.”

“Someone’s credentials on paper don’t tell even a fifth of what’s really going on with that person, without talking to them and actually seeing them put their skills to the test,” Luskin says. Scion sometimes assesses candidates by having them work on the job for a day or complete a real task for the company.

But the four-year degree still holds powerful signaling virtues for many employers. Matthew S. Brown, the chief operating officer of the North American branch of WT Partnership, an international firm that offers consulting and project management in real estate and construction, says the four-year degree is still the standard. “Sometimes it doesn’t even matter what discipline your degree is in,” he says. A bachelor’s degree signals persistence, an important trait, and Brown believes that people who have four-year degrees pick up on new concepts and skills faster.

Frankly, he says, it’s also about optics. “We work in the higher-ed space, and having a basic bachelor’s credential is a starting point,” he says. “I can’t have you go sit in front of a client at an institution and have them find out you never even graduated from college. That’s a nonstarter for us.”

But he’s not sure that the most important traits — initiative, communication, teamwork — are taught during an undergraduate degree. “We talk on and off all the time about soft skills, and frankly, they’re more important.”

**SOFT SKILLS AND LIBERAL ARTS**

It’s those skills — but also behaviors and attitudes — that companies are looking for: curiosity, a penchant for problem solving, social and cultural awareness, the ability to handle conflict, the willingness to question assumptions yet still assert leadership and decisiveness at the right moments. And more.

Yet those traits are elusive. The Society for Human Resource Management, in its 2019 study of employers, found that most were having problems finding college graduates with those “uniquely human” skills of critical thinking, communication, and listening. Slightly more than half the employers believed that the education system wasn’t doing enough to address the skills gap, especially in areas where human-resources directors thought job candidates were lacking: professionalism, business acumen, critical thinking, and lifelong learning.

Qualities like those can take years to cultivate in a person, but many people — and many higher-ed organizations — assume that such traits are seeded by a college education, particularly in a liberal-arts discipline. Luskin herself was a music and dance major at Arizona State University who had a “rough go” in Los Angeles for several years working odd jobs and trying to break into entertainment. She moved to the corporate world for more stability. But she retains a belief that liberal-arts majors more often bring those essential, noncognitive skills and habits to the job — even in fields that seem wholly disconnected from the major.

Complex social situations, challenges that require resilience, grappling with new ideas — although they might not be highlighted in the curriculum, these are lessons like any other in college, which some stu-
In business schools, “the M.B.A. was always the flagship program, the expensive one that kind of kept the lights on,” says Matthew A. Lanham. But at Purdue University, the lead program goes by a much more unwieldy acronym: MSBAIM, or the master of science in business analytics and information management.

Lanham, MSBAIM’s academic director, says it’s high stakes for all involved: The students, most of whom come from India, pay $50,000 for the 11-month program in the hopes that they will land a job with a starting salary of about $120,000 — the average for graduates these days, but it keeps going up.

“You can’t come to this program on a
The courses have to be up to date, the technology has to be current, and the experiences have to be real.

All of this has turned Lanham into a kind of matchmaker. He gets to know the students — maybe some worked in finance or sales or marketing before and came to the master’s program to advance their skills. Maybe some want to work in banking or at a notable architecture firm. Then he puts together project teams based on their topic or industry interests and matches them with a company that is wrestling with a problem in data analytics.

Data analytics can be opaque to the layman — not to mention wonky. But Lanham’s program has devised a way to make it accessible: He works with the students to create smoothly directed short videos that explain a team’s project in plain language, sometimes using animation to enliven concepts. The best project, as chosen by the video’s viewers, wins Purdue’s “Future Edelman Impact Award,” which generates more buzz for students. This year’s winner covered “assortment optimization,” or the process of using data analytics to help retail owners pick which products to stock for maximum profit.

Over the past six years, Lanham has reached out to 200 companies and gotten students experiences and projects with 60. When he started, Purdue didn’t have a lot of experiential-learning programs or relationships with those businesses. Lanham worked in private industry before joining Purdue and fell back on old skills: “I put my salesman hat on.”
relevant to work life or a potential career,
and like many students, she floundered
some after graduation.

“I had a degree in communications, and
nobody would even look at me because
they didn’t know what to do with that,” she
says. “We weren’t having the same kind of
conversations with our students back then
as we are now about thinking about what
are the skills, the talents that you bring to
an organization that you can translate into
a job.” Today, organizations such as the
National Association of Career Educators
and the American Association of Colleges
and Universities have developed lists of
competencies and skills that come out of
the college experience, and particularly
studies in the liberal arts, so that advisers
and career counselors can help students
think more expansively about the college
learning experience, beyond the items in
an assignment or on a test.

Duffy herself works with ASU’s College
of Liberal Arts and Science, talking with
students and employers, helping them
translate majors into skills. She has hired a
number of dance majors to work in her re-
cruiting firm. “Those individuals are really
hard working,” she says. “Very disciplined,
extremely driven. I can take those skill sets
and see how to fit them in an organiza-
tion.” She was speaking with administra-
tors recently about what careers beyond
the ministry might fit students in religious
studies.

“If I’m looking to hire somebody in a field
that needs to be very trustworthy, [with]
high integrity, and be able to maintain
confidence, why wouldn’t I look at some-
body in a religious-studies program?” she
told them.

But religious-studies majors aren’t neces-
sarily morally upright, and dance majors
aren’t necessarily industrious. In those
cases, the majors are signals of a disposi-
tion — much the way that Luskin believes
that liberal-arts majors are more likely to
be introspective or open to learning new
things.

And many employers contacted by The
Chronicle were ambivalent about the im-
pact of liberal-arts disciplines, believing
that the college experience leads to growth
no matter what department a student grad-
uates from. Luskin’s team looks for habits
and behaviors in candidates beyond the
major to get a sense of the person. Duffy
pays attention to activities or part-time
work.

Ben Ellis, the founder and designated
broker at E & G Real Estate Services, which
manages $100 million in properties, was a
communications major and religious-
studies minor at Arizona State. Like many
employers, he believes the liberal arts
merely defined and highlighted some of
the skills he already had, either intrin-
sically or through his training as a child
actor in San Francisco. Neither did his de-
gree necessarily give him any hard skills,
he says.
“Communication isn’t going to tell you what a cap rate is or how to write a contract. For me, it was less about what I knew and it was more about who I knew.” Planning events for his fraternity, Alpha Epsilon Pi, gave him training in marketing, navigating conflict, and communication; a fraternity brother helped him land his first job in real estate in 2005. “Those relationships that I built really helped to launch my business career more than anything,” he says. “If I wasn’t a part of that fraternity, there’s no way I would be where I am today.”

Some employers doubt that liberal-arts disciplines have any impact on the desired noncognitive skills: “Soft skills are actually better taught in a business environment than they are in a classroom,” says Noel Ginsburg, the former CEO of a plastics company.

THE MARRIAGE OF LEARNING AND WORK

In 2016, while leading his plastics company in Denver, Ginsburg founded CareerWise, an organization devoted to setting up apprenticeship programs across the country, working specifically to provide other pathways for students in high school. If governments, schools, and higher-ed institutions don’t provide opportunity for all people, not just people who pursue traditional college degrees, the country is imperiled, he says.

“Policies need to reflect the new realities of our economy, the speed change is taking place, which only industry is on the front line of. That’s natural. We can’t expect schools to know what’s going to come next. Only business can really do that.”

Many employers talked about the importance of melding work experience with the academic experience. Co-op programs, substantial internships, and apprenticeships got frequent mention as the kinds of programs employers would like to see more often.

Sara Howren, a vice president for global talent recruitment at Airswift, which hires workers for the energy industry, says colleges need “more interaction with the companies, the people that do the jobs, giving them just more of a flavor of a day in the life.”

“If we are not conveying that to the people who are the work force and the future of the industries that we support, we’re at a disadvantage,” she says.

Gerber, from the Annie E. Casey Foundation, says that employers and higher-education institutions don’t interact as often as they should in part because most employers are small to medium-sized and don’t have the staff to maintain a relationship with local colleges. “The same goes for the education side,” she adds. Colleges need people who have deep industry knowledge to sustain relationships.

“Add to that the fact that our economy has just been changing really rapidly. Even if you think about the last couple years, we’re starting to see the beginning of something that is going to continue to snowball. Education just doesn’t move at that pace.”

The marriage of work and learning might be one way to keep up, and appren-
Many engineers pick a specialty after they get out of college. At Oakland University, just down the street from the world headquarters for Stellantis (the car company formed when Fiat Chrysler merged with the French company PSA), students get an opportunity to specialize in a particularly needed niche in the auto industry well before they graduate.

Six years ago, Stellantis approached the public university, located in Michigan, looking to build a pipeline into powertrain engineering for the company. Engineers usually took at least a couple of years to acclimate to the work of powertrain systems — the components that propel a car, including the engine, transmission, driveshaft, and axles. The field is growing and changing with the auto industry’s new focus on energy efficiency and electrification of vehicles.
Apprenticeships represent the deepest version. Apprentices typically work for a company while they are also taking classes, often from a college or another educational organization. The company helps to pay a student’s tuition, and the student, in turn, handles real work duties. While companies have been wary of apprenticeships in the past, worried that students would leave for a competitor as soon as the training was finished, in fact, employees often stay loyal to the organizations that sponsored their education.

Apprenticeships started gaining ground under President Barack Obama, who lauded them in his 2014 State of the Union address and devoted hundreds of millions of dollars to expanding apprenticeship programs. Support for apprenticeships continued under the Trump and Biden administrations.

“The only bipartisan thing left in this country is apprenticeship, it feels like sometimes,” says Deborah Kobes, who directs the Center for Apprenticeship & Work-Based Learning at Jobs for the Future.

She notes that there are all sorts of new opportunities in the car industry, given the move to greener technologies and automated driving features. Oakland’s powertrain program inspired a new, similar collaboration with the Ford Motor Company in sheet-metal stamping at the university.

And the Stellantis program itself is growing and changing. The study of electrification of automobile engines will become a bigger part of the curriculum in fall of 2022, and the program will grow to 20 students.

Community colleges, in particular, have been vital partners in apprenticeship programs, but more four-year colleges are getting involved.

Stellantis worked with the dean and faculty members in Oakland’s engineering department to create courses relevant to powertrains, along with real-world experiences through the car company. The two-year program enrolls 10 to 12 students in their junior year. Students hear speakers from Stellantis, visit the powertrain team at the company headquarters, work on research projects, and get an opportunity to intern for the company. Most are offered positions at Stellantis after graduation — although they could work for Honda or General Motors, or not work on powertrains at all, as Stellantis has no claim on the students.

“We use it as an example when our dean and our faculty are approached by companies asking, ‘What can we do with you? How can we collaborate?’” says Kathy Livelsberger, the director of employer relations for Oakland University’s engineering school.

She notes that there are all sorts of new opportunities in the car industry, given the move to greener technologies and automated driving features. Oakland’s powertrain program inspired a new, similar collaboration with the Ford Motor Company in sheet-metal stamping at the university.

And the Stellantis program itself is growing and changing. The study of electrification of automobile engines will become a bigger part of the curriculum in fall of 2022, and the program will grow to 20 students.
off as companies retrenched to survive, but their support for apprenticeships held steady.

Now apprenticeships are growing — in part because the “earning while learning” model promises to help diversify the work force. CareerWise works with students starting in high school, primarily because that’s where the organization can find the most diverse talent pool, before various barriers — college costs, mounting debt, or starting a family — emerge to knock a student off the path to a promising career, says the organization’s director of national partnerships, Ryan Gensler.

In 2021, Amtrak restarted an apprenticeship program that had been dormant for almost 30 years. It’s intended to move employees from the coach-cleaning team — who are mainly women of color — into higher-paying jobs as train mechanics. “Part of this was really a tool to get people into those roles who otherwise wouldn’t have the opportunity and were underrepresented,” says Andrea Gansen, vice president for labor relations at Amtrak. “When somebody becomes a

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### Hiring Plans by Size of Organization

#### Organizations with fewer than 99 employees

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#### Organizations with 100 to 499 employees

<table>
<thead>
<tr>
<th>Degree</th>
<th>Number of employers</th>
<th>New hires in 2020-21 (average)</th>
<th>New hires anticipated in 2021-22 (average)</th>
<th>Percent change from 2020-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate</td>
<td>95</td>
<td>5.2</td>
<td>7.6</td>
<td>46%</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>188</td>
<td>12.2</td>
<td>13.2</td>
<td>8%</td>
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<tr>
<td>M.B.A.</td>
<td>61</td>
<td>2.7</td>
<td>2.7</td>
<td>No change</td>
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<tr>
<td>Master’s</td>
<td>68</td>
<td>7.5</td>
<td>7.3</td>
<td>– 2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>194 unique</strong></td>
<td><strong>18</strong></td>
<td><strong>19.9</strong></td>
<td><strong>11%</strong></td>
</tr>
</tbody>
</table>

Note: Master’s includes all non-M.B.A. programs.

Sources: Michigan State University’s “Recruiting Trends Survey and Report,” fall 2021
Apprentices on the Rise

Active Apprentices by Gender

- Male: 472,052
- Female: 73,677
- Participant did not self-identify: 2,193

Active Apprentices by Race

- Multiple races: 129,729
- White: 251,299
- Black or African American: 41,788
- Asian: 8,268
- Native Hawaiian or other Pacific Islander: 5,677
- American Indian or Alaska Native: 6,523
- Participant did not self-identify: 104,638

Note: Data are for fiscal-year 2021.
Sources: U.S. Department of Labor’s "Registered Apprenticeship National Results Fiscal Year 2021"
journeyman, doing the work that they’re going to do day in and day out, it makes for a better journeyman than pulling a journeyman from construction and trying to make them into a railroad electrician.”

Apprenticeships are not just for the trades, like plumbing or carpentry, but are increasingly seen in white-collar work as well. Insurance companies such as Aon and The Hartford have used apprenticeships to lure workers into an industry that might seem dull to the average college student. Amazon has hired apprentices in coding, and apprenticeships have become common in cybersecurity jobs — an arrangement that allows students to learn theory in college while battling the hackers’ latest tricks on the job. J.P. Morgan Chase has supported apprentices in banking, and Jamie Dimon, the bank’s billionaire chief executive, has formed a relationship with CareerWise’s Ginsburg over his interest in the model. Apprenticeships for schoolteachers have started in the Cherry Creek school system in Colorado — participants can start earning toward a pension while still teenagers in high school.

The apprenticeship model is meant to “amplify but not replace the value of a degree,” says Kobes. “If different employers value work experience and a degree differently, you can bring both of those things to the table.”

Community colleges, in particular, have been vital partners in apprenticeship programs, given their historical involvement in trades, but more four-year colleges are getting involved, particularly as apprenticeships become focused more on white-collar work, with shorter programs — 18 months instead of the four to six years typical of traditional apprenticeships. A key challenge: Both employers and institutions need intermediaries like CareerWise to navigate the complex regulations and standards associated with apprenticeships registered through the Department of Labor.

“Employers don’t see themselves as trainers, and they need partners and support, especially small and medium-sized ones,” Kobes says. Colleges sometimes understand that role, but often don’t.

Will apprenticeships or similar work-based learning become more common, given the hunger for talent? In the traditional path from college to work, says Gensler, “there’s a need to think differently about the kind of linear, time-consuming, and costly approach that has been there forever in this country and just doesn’t work.”
What It Takes to Make an Internship Successful

Matthew T. Hora, who directs the Center for Research on College-Workforce Transitions at the U. of Wisconsin at Madison, says high-quality internships require effective mentorship or supervision.

Many colleges boast to prospective students about internship opportunities they provide, but not every internship is created equal. Matthew T. Hora, an associate professor of adult and higher education who directs the University of Wisconsin at Madison’s Center for Research on College-Workforce Transitions, has written extensively about the factors that lead to students’ ability to gain employment. His latest research focuses on internships, and he says great ones share some key traits.

What do you count as an effective, high-quality internship?

A lot of it boils down to “it depends.” It depends on the student and their goals, on the nature of the academic program they’re in. A high-quality internship for a welding student will be different from one for a student in art history or nursing. Calibrating the internship to the goals of the student and the nature of the discipline is an important starting point.

But there are some things the literature suggests run through all high-quality experiences. One is effective mentorship or supervision. Without that, it’s really hard to have an experience that really advances the students intellectually, professionally, academically. That’s where in our data we find internships sometimes falling short.

Hand in hand with that is having somebody on the academic side, whether it’s a faculty adviser or internship coordinator, working with that supervisor to make sure that the tasks are suitable for the student. The tasks should be challenging but not overwhelming.

The supervisor then has to scaffold the tasks so that they’re increasingly difficult and challenging over time. Honestly, supervision and setting up challenging tasks are two of the most critical and yet overlooked components of an internship.

It seems like many people think an internship is easy to set up.

Companies have to be very deliberate about how they design their internships. It’s not dissimilar to planning a capstone experience, or an in-class activity, or a final research paper for a course. It just takes advanced planning and thinking. What makes it complicated for an internship is it has to also map on to the needs of the employer. One of the most common pitfalls of
an internship is running out of meaningful tasks. And that’s when the coffee pouring and photocopying comes into play.

**How common is it for students to participate in internships these days?**

Our last estimate, before Covid-19, found around 30 percent of enrolled undergraduates had an internship. The National Association of Colleges and Employers and the National Survey of Student Engagement had higher estimates, at 40 to 50 percent pre-Covid. But everybody’s capturing a decline since Covid, which is understandable given the mass cancellation of in-person jobs in general and then internships in particular, and then just the challenges students had with fitting an internship into an already stressful situation.

And a good number of those internships students are taking are unpaid. So that’s when you get into questions about access, equity, and fairness.

**To what extent are students from low-income or nonwhite backgrounds landing internships compared with their white, wealthier peers?**

What we’re finding in our data is not a whole lot of differences by race with interns, but we’re finding differences by geography, in students attending colleges in rural versus urban areas. The internship labor markets are primarily urban, and they’re even concentrated in specific cities, depending on the major. And so students attending a rural campus are at a distinct disadvantage.

In the 70 percent of students who aren’t taking internships, most wanted to do an internship but couldn’t. The top three reasons are pretty consistent: My course load was too heavy; I had to work a paid job; and there weren’t enough positions. Having to work a paid job suggests that low-income students are not doing internships at the same rate.

That’s where the conversation about work-integrated learning is really important. Just figuring out ways to bring some of these authentic, real-world workplace-based tasks into the lesson plans of a course or into a final project or a capstone project helps the students who, for financial reasons, can’t take an internship. That’s one of the directions I think the field needs to be headed.

**What's the potential of online internships?**

The potential is pretty immense. There has been a lot of research, especially in the EU, about virtual or distance internships, in part because a lot of multinational companies have project teams that are based in different countries. But there are challenges with supply and demand. During Covid, some of the virtual-internship vendors were getting way more applications for positions than there were openings.

And then there are the questions of quality. In our most recent survey of college internships, we found that the satisfaction rate was lower for online interns than in-person, and some of the complaints centered on the lack of networking opportunities, which was a complaint during the pandemic across the board. So I think there’s a vast promise of online internships, but there’s challenges.

I would imagine that mentorship is a huge piece of internships and that’s just harder to accomplish online.

There’s been examples of ways to do it well, and there’s been more professional development for supervisors or faculty advisers to do it better, because very few of us have been trained how to be supervisors. I never was, and I supervise a lot of people. To have a high-quality internship, in-person or virtual, we’re just going to have to train supervisors in the colleges and in the employer sector about how to run these better.

While there’s a big push to increase the number of high-impact practices and increase the number of work-based learning experiences, I still see gaps. In rare cases, I see institutions hiring coordinators to run this for a college or department. But too often I see resources being outsourced to an online vendor where it’s one person running the show for thousands of students. And that doesn’t work.
A number of people seem to think that there’s a fundamental, long-term situation where we’re scrambling for talent — not necessarily just bodies, but people with the right combination of skills.

That’s right. There is a mismatch between what people are getting credentials in and what employers are looking for. It’s hard for people and for institutions to adjust to that. Community colleges are better set up to respond to changes in labor-market demands, especially with those shorter degrees or credentials. But where you need a substantial amount of training, it’s harder for the labor supply to adjust to that because it takes a number of years for people to realize a skill is in demand.

A lot of employers have been saying that they don’t require applicants to have a four-year degree anymore, and they are prioritizing skills and experience instead. Do you think that’s just a response to the current pressures? Or is more of a fundamental shift happening, where employers think the college degree isn’t necessarily getting them the skills they need, and may be leaving significant populations out of the applicant pool?

Having a labor-supply shortage means that employers need to do something to attract workers, whether that’s increased...
wages or removing certain credentials that they were requiring before. But in the longer term, I think we have seen this trend away from four-year degrees. And it’s hard to know what’s going to happen in the future. With the rising cost of college, we’ve seen a lot of people make that decision that it’s not worth the debt.

It’s not like we have mandates or standards for the skills you get when you earn a four-year degree. A college degree might be a proxy for what we sometimes call noncognitive skills — for example, that this person has the grit and wherewithal to persist for four additional years to get a degree. Maybe that’s becoming less of a good proxy over time. So it makes a lot of sense that employers are prioritizing specific skills, especially in this time where there’s such a labor shortage.

If this trend continues, how do you think it will affect people without a degree in the long term? Will they face trouble down the road?

That is my big concern. If we see people responding to this by getting specific credentials or shorter certificates, I worry that those people are going to get too specialized. If those skills change over time, that person’s kind of stuck. One value of a college degree is that it allows you to pivot a little bit more easily.

A number of these employers, particularly in technical fields, have said that the fields are dominated by white men. How do you bring in more people from different backgrounds?

There is still a big, open question of: How do you do this on a large scale? But we know certain things. On the gender question, we know that men tend to be overconfident in their skills, while women tend to take negative feedback more personally than men do. Getting a lower grade in engineering, for example, discourages a lot more women than it discourages men. A former student from Michigan, Stephanie Owen, who’s at Colby College now, has done some work telling students at midterms how well they’re doing in the distribution of their classes — like telling a student you scored at the 50th percentile or at the 75th percentile. Just doing that, she has shown, actually does a lot to equalize outcomes between genders.

Also, representation really matters — for instance, having a mentor or a professor that’s your same gender or the same background as you, that really matters for persistence in those fields. Students want to look to their mentors and the people in the field and see themselves there. The extent to which we can promote women and people of color as mentors and professors, that can help produce a more diverse pipeline.
The energy sector is in the midst of a historic transformation. Retail has become multifaceted and needs wide-ranging skills. Health care has withstood tremendous pressure from the Covid-19 pandemic that also spurred new life-science enterprises. This is an exciting time to be preparing students for their post-college careers, but also a challenging one: Now, more than ever, colleges need to work with employers to understand their needs.

*The Chronicle* talked to experts in seven growing sectors of the work force to ask what they’re looking for in employees, what they’re seeing among job applicants, and whether colleges can do better to prepare their graduates for those jobs.
The pandemic laid bare the strain on the nation’s schools. Many teachers were already weary of the drill-and-kill testing regimens imposed by states and the federal government, the modest pay, and the anxieties associated with school shootings and political jockeying over public education. Then Covid-19 forced teachers to shift suddenly to online teaching, where many struggled to maintain their teaching standards and connection to students. When parents and policy makers started demanding a return to school amid continued high infection and hospitalization rates, teachers took to Twitter and TikTok to say that they felt like glorified babysit-
Gallup reported in summer of 2022 that 52 percent of teachers complained of feeling burned out at work “always” or “very often” — more than any other U.S. profession. Earlier in 2022, the National Education Association found that 55 percent of teachers had resolved to leave the profession early — double the rate surveyed two years earlier.

Clearly, education is at a crucial moment — and fixing it will require a national conversation about what schools should emphasize and how we should value teachers. But school leaders also have ideas about how colleges ought to prepare teachers for that future.

Henry L. Grishman, the superintendent of the Jericho School District, on Long Island, N.Y., says new graduates of education programs have a higher level of skill and preparation today than graduates have had in years, even bringing academic specialties, like backgrounds in math or science. Jericho, a wealthy, well-paying school district, had not had trouble drawing new teachers. But too many of them have been taught to occupy the front of the room and lecture.

“We discourage stand-and-deliver. We want students actively involved in the learning process,” Grishman says. Jericho has all first-year teachers come in for three days for “a kind of a re-education program,” he says, to learn about the school district’s instructional expectations and culture. Training continues every two weeks for two hours during the school year.

Experience with embedding technology into instructional programs is also emphasized at Jericho. “When we flipped to school at home, our teachers were very capable of moving to live instruction using technology.” Technology is used throughout learning now: to communicate with students, to assign and collect schoolwork, to track progress. Within a school or district, those technologies won’t necessarily interact with each other, and teachers often have to fiddle with the technology to make it more effective or more engaging for teaching.

But the most frequently cited skills that teachers need have nothing to do with computers: They have to be flexible and creative, and to listen and communicate well. They often need a good deal of empathy and the patience of a saint.

“There are some definite skills a new teacher needs to have, like classroom management,” says John R. Stoddard, the superintendent at Berkshire Local Schools, a rural school district in northeast Ohio.

“But at the end of the day, you really need to connect. I need to have a deep connection with you to understand what your needs are, where you want to go, how you want to get there.”

### TAKEAWAYS

- Teacher training must be updated for the new economy.
- Teachers should be able to lead active learning and incorporate technology into the classroom.
- Teacher-education programs can help push for classrooms that emphasize creativity and critical thinking, among other 21st-century skills.

Stoddard says schools and teachers often think of students as their products. “We need to look at the student as our customer and our instruction or lessons as the product,” he says. “How are we making our product more engaging, appealing, exciting to our customer?”

His district was consolidated from a handful of township schools with dwindling populations. The district just built a $51-million school in partnership with Kent State University. Stoddard envisions
reimagining the educational experience for students from this Rust Belt community.

Modern schooling has always been tied to the economy. In the late 1800s, the aim was to supply workers for factories — hence the regular school bells, which mimic shifts on a factory floor, and the mass delivery of facts and information. Now elementary and secondary education must shift to educate workers for a new kind of economy.

“I hear stats all the time that say 85 percent of the jobs that our current kindergartners are going to have haven’t even been invented yet,” says Stoddard. “The best we can hope to do is prepare those kids to be able to think.” He went to the community to ask parents what the school ought to emphasize, what skills and mind-sets the teachers should impart. The community came up with “five C’s”: creativity, critical thinking, collaboration, communication, and civic responsibility. Stoddard wants teachers who will pick up on a student’s passion and use that to drive learning and perhaps even a career direction.

“A lot of business leaders say they want gamers — and when I saw ‘gamers,’ I thought, a kid that can write code or a computer program,” he says. “No, they want kids that play games because they’re going to keep at this game until they get to the next level, using all their passion, energy, and creativity to solve whatever problem is in their way. It’s more of an entrepreneurial mind-set.”

Shifting to that new mind-set is admittedly difficult when there are still state and federal standards to meet, when accountability and testing still absorb time and energy in the average classroom. But teacher-education programs need to lead the charge to some extent, Stoddard says.

“Schools in America today are doing a better job than they ever have in the history of education at preparing kids for 1950,” he says. “And higher-education institutions are doing a better job than they ever have in the history of preparing teachers to prepare kids for 1950.”

“We need to look at the student as our customer and our instruction or lessons as the product. How are we making our product more engaging, appealing, exciting to our customer?”

Top 5 Specialized Skills in Postings for Education Jobs
- Lesson planning
- Classroom management
- Curriculum development
- Special education
- Mathematics education

Source: Lightcast

Top 5 Common Skills in Postings for Education Jobs
- Teaching
- Communications
- Basic math
- Planning
- Interpersonal communications

Source: Lightcast
Energy stands as one of the most important sectors in transition in the world today. The war in Ukraine has upended flows of oil and gas from Russia to Europe and elsewhere, driving up costs at the pump around the globe. The crisis began around the same time that people in Europe and the United States were sweating through another record-hot summer, indicating that the nightmare scenarios of climate change were not so far in the future.

With the passage of the historic Inflation Reduction Act in August 2022 promising hundreds of billions of dollars for projects to decarbonize the economy, it’s clear that green energy is the future. But how we get
there and how fast depend on a range of factors — including the work force. One hopeful sign: An enthusiasm for green jobs among energy workers. “We are seeing a really unusual number of candidates declining jobs they’ve historically accepted in the oil and gas sector, because they’re really set on transitioning to clean energy,” says Sara Howren, a vice president for global talent recruitment at Airswift, a business that specializes in hiring for energy companies. “They are really tired of the oil and gas industry being so cyclical. Multiple candidates have told us, ‘I’m done with that.’”

However, the employment structures in oil and gas are different from the emerging renewable-energy sector. Jobs in the fossil-fuel and nuclear industries are typically more technical and require more training, and they have historically been more unionized — all leading to good wages and benefits in many positions, says Sandy Fazeli, a senior managing director focusing on policy and work-force development at the National Association of State Energy Officials.

“In the energy sector, there have been somewhat facile assumptions that a natural-gas engineer is just going to switch over to a solar-development firm easily; when the wages are not the same, the unionization rates are not the same. There’s something about the psychology of switching jobs that a lot of people tend to overlook when they’re talking about clean energy.”

State energy offices could work more closely with work-force agencies to rejigger the work-force development programs to support more clean-energy jobs, says Fazeli. Both schools and colleges should offer more curriculum and exposure to issues of climate and energy. Energy jobs should be on the radar of school guidance counselors, and schools should be “thinking strategically about students that may want to go more in a technical-career path” rather than a traditional four-year degree. Colleges themselves could combine more student learning with the day-to-day needs of running buildings and conserving energy on campus: The basics of power generation, or commissioning of green buildings, or setting up renewables.

“The climate crisis is just so all-encompassing that colleges and universities really need to prepare students how to engage on that issue,” Fazeli says.

A 2021 NASEO report on employment trends said that the median hourly wage for energy workers was $25.60, higher than the average, nearly $20 median. Energy utility employees made the most, at $41 an hour. The report recommended prioritizing funding for work-force development in energy jobs and more apprenticeship programs in the field. The U.S. Department of Energy should “provide more granular detail on the skill competencies of energy occupations” and help states “explore pathways to increase certification and licensure reciprocity for skilled energy labor,” it said.

Like other industries, the energy sector is grappling with many of the same talent

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**TAKEAWAYS**

*The emerging renewable-energy sector has different employment structures than the traditional energy industry.*

*Colleges should offer more curricula tailored to clean energy by, for example, combining student learning with campus energy management.*

*Applicants with experience in logistics, shipping and warehousing, IT, and other technical skills are in perpetual short supply.*
shortages and shifting perceptions about work-life balance. Howren notes that applicants with experience in logistics, shipping and warehousing, IT, and other technical skills are in perpetual short supply. Many companies are reluctantly adjusting their expectations about working from the office. “The number-one question is, ‘What is my work schedule? Is there flexibility?’” says Howren.

Howren says that the energy industry would benefit from more collaboration with colleges, particularly in helping recent graduates become entry-level employees. Many companies “are not happy with the qualifications,” in certifications or experience, that many of those recent graduates bring to the table. More colleges should work with energy firms to inform the programs that feed directly into those industries, she says.

“The climate crisis is just so all-encompassing that colleges and universities really need to prepare students how to engage on that issue.”

In the hiring equation, skills get priority. Her clients “oftentimes want to look at the person, their behavioral skills, their personality, their work experience over that specific college degree,” she says.
When John Lynch was starting in banking, he says, you basically landed in a spot in the bank and made the best of it. These days, Truist bank is taking interns directly out of college, and giving them a taste of various jobs in the organization, to help them find a fit. “The financial-services industry has figured out how to hire people,” says Lynch, a vice president at Truist. “Basically, you go to internships, and then you get your job from the internship. If we intern 30 people, we may offer six jobs.”

Then again, Lynch and his colleagues are looking for a rare combination: a blend of technical and analytical skills. Bank-
ing has a long history of digitization and automation — decades ago, ATMs drove conversations about automation displacing workers. But technology now has become even more crucial. Banks are competing with new “fin tech” players like Square and Stripe, and even companies like Meta, Amazon, and Apple are marking territories in financial services, cryptocurrencies, and electronic payments.

Up to a quarter of banking customers have relationships with these “neobanks,” according to analysis from EY, and the proportion is higher among younger people. EY says that banks will use more automation in the future, which will force companies to hone the services they offer through people — services will have to be highly personalized to the customer, and blended seamlessly with the technological tools.

“It’s a more analytical job than it ever was before,” says Lynch. “Banks are still trying to figure out how to harness all their data. We’ve got a lot of data, but what can we use it for and how can we maximize it to be profitable?”

The technical skills among recent graduates, he says, far exceed the skills that he has seen in the past. “I was nowhere near as smart as some of these kids coming out,” Lynch says. “The academic experience has gotten so much better, so much more focused on being applicable in the market.” What’s often missing is an intuitive sense of how the business works, and where the opportunities are. He looks for people who are able to take the data and some direction, and then work independently until they draw solid conclusions that leadership can act on. “One out of four has that ability.”

Of course, familiarity with the basics of finance is an absolute must. Truist looks for candidates who know how to read financial statements and understand how deals are structured.

“If you’re going to roll up your sleeves and be a contributing team member, you’ve got to have a strong base of accounting,” Lynch says. “Accounting is the boot camp of business.” Many applicants come to the job with heavy qualifications in business or finance; some accelerate their experience after college by grinding out long hours for big accounting firms after graduation.

Mentorship is an important element of acclimating college students and recent graduates to the banking world. At a time when many senior employees are pushing to work from home, Lynch and others at Truist are pushing back. Lynch says the young, new employees represent the bank’s “bench” of talent, and many of these students and graduates have spent part of their college experience online.

**TAKEAWAYS**

*As the finance industry increasingly competes with “neobanks,”* or digital banking that uses apps and online platforms, technical skills are in high demand.

*Other high-demand skills that are hard to find?* The ability to work independently, analyze opportunities, and understand how deals are structured.

*Part-time work experience can be more valuable than high grades or an alma mater’s elite reputation.*

“Now they’ve got money in their pocket, they want to come to the office to learn and be in that environment — you know, getting in before the boss gets in, and leaving after the boss leaves. Well, now nobody’s in, and that’s frustrating some of the younger talent.” This generation is already
impatient, eager to learn and move up the corporate ladder.

“We’re telling our people, Listen, we need you in the office because we can’t keep the analysts that we’re hiring right out of school,” he says. “If they’re coming in and there’s no one senior around to mentor them or to answer questions, we’re going to lose them.”

Lately, Lynch has been interested in casting a wider net to capture applicants from different backgrounds and institutions, to get different perspectives and experiences. Many firms tend to focus on a handful of (often elite) colleges to provide talent. Lynch considers experience outside the classroom more strongly, particularly students who had to work part time through college, even if that hurt their grades. “You can see that they are not one-dimensional,” he says. “Those people, on average, are hungry.”

““We’ve got a lot of data, but what can we use it for and how can we maximize it to be profitable?”

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**Top 5 Specialized Skills in Postings for Financial and Investment Manager Jobs**

- Accounting
- Finance
- Financial statements
- Financial analysis
- Auditing

**Source: Lightcast**

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**Top 5 Common Skills in Postings for Financial and Investment Manager Jobs**

- Management
- Communications
- Leadership
- Operations
- Forecasting
HEALTH CARE

A health-care professional uses a medical computer while a recovering patient talks with a doctor. The staffing crisis in health care and the life sciences means companies are pushing for programs that can get people into jobs as soon as possible.

Flexibility Needed From Colleges

The health-care professions faced shortages even before Covid-19 filled hospital beds across the country and upended the practice of medicine in myriad ways. Hospital staff — doctors, nurses, and other medical workers — were already in a graying profession, even while the baby-boom generation was increasing-ly calling on hospitals and clinics to handle the ailments that come with age.

Nursing represents a cornerstone of the health-care system. About a third of the nursing population is over age 50 and will retire in the next 10 to 15 years. Several years ago, analysts of the health professions said that in the 2020s, job opportunities would be more plentiful in nursing
than any other field, and that such severe shortages in the work force hadn’t been seen in the profession since the 1960s.

Then came the pandemic. Covid-19 put enormous strain on hospital personnel, leading to burnout and fear among frontline workers. Watching the news at home, many young people saw nurses and other medical professionals struggle to help people in overcrowded hospitals, while political leaders and pundits cast doubt on the need for masks and social distancing — a dynamic that didn’t help recruitment. To add to it all, nursing professions are also majority female, and when schools closed many women had to stop working or reduce their hours.

All of that has led to “incredibly severe” employment gaps “that seem to be growing every day in every area,” says Sean T. Connaughton, president and chief executive officer of the Virginia Hospital & Healthcare Association, the trade group in the state.

But in many regions, particularly those areas with strong research institutions and infrastructure, the pandemic also unleashed a slew of commercial activity and investment in health-care innovations, biotechnology, and life sciences, which draw employees from a similar pool of talent. In the Massachusetts area during Covid-19, nearly 100 companies pivoted their research to diagnostic tools, therapies, and vaccines, drawing a record $13 billion in investment in 2021, says Kendalle Burlin O’Connell, president and chief operating officer of MassBio, a nonprofit that promotes and supports the life-sciences industry in that state. Over the next three to five years, companies will put up 20 million square feet of lab and office space (the amount built over the previous decade) and will need 40,000 workers to fill those spaces.

It’s an “absolute crisis,” O’Connell says.

Both life sciences and health care are scrambling for workers who already work in the field (“talent stealing,” O’Connell says, which drives up salaries) or need to be reactivated. But that’s a limited pool relative to the needs. So the fields are looking for people early in their college careers, and pushing for programs that can get people into working positions as soon as possible. Apprenticeships and short certificate programs come to the top of the list of priorities for industry advocates like Connaughton and O’Connell.

For licensed health-care positions, like nursing, the rigidity and limited capacity of the pipeline presents challenges. More hospitals are starting to recruit in high schools, giving students a solid sense of the contours of the job, and trying to get a sense of graduates who want to stay in the area. Because medical professionals like nurses follow a prescribed track that takes time and preparation, Connaughton says, the sector needs to reach candidates early.

With so many moving parts, candidates...
can’t just come out with a general degree and decide where they want to go. “You’ve got to come into this pipeline, and that pipeline only has a certain bandwidth. And so our recruitment is mostly geared toward those who come through that pipeline.”

The Virginia hospitals have had trouble keeping nursing graduates working in patient care. Many nurses starting there quickly transitioned to other jobs, in health-care administration or at clinics offering IV treatment or bloodwork. With the pandemic, the population of traveling nurses exploded, as hospitals across the country had to hire nurses to cover gaps; some traveling nurses earned as much as $10,000 a week. High student debt “is becoming a driver in how they determine what jobs they take,” Connaughton says. “We saw a lot of younger graduates getting paid a lot of money to pay off their debt in a very short amount of time.”

A chokepoint in the drive to put more nurses and other medical professionals in the field: Demand for workers is so high that some colleges have trouble attracting people with current skills who can teach up-and-coming nurses. Colleges and accreditors have exacerbated the problem, Connaughton says, by establishing requirements and bureaucratic barriers for professionals who want to pass along knowledge in the classroom.

“I can have a nurse with 30 years of experience, top in an organization, but is ‘unqualified’ to teach nursing to nursing students — except when that nurse is working with students in a hospital in an internship,” he says. “We’ve got to get higher ed to be more flexible about who can teach students, particularly in an area that needs more practitioners.”

The shortage of workers in these fields is an “absolute crisis.”

Even the courses included in programs should be re-evaluated, because they can be an unnecessary barrier for new talent. O’Connell cites a conversation she had with administrators from local community colleges, which required students to take calculus as part of a two-year biotechnology program. “Why? What is calculus achieving that’s a relevant skill for that entry-level job in industry?” she says. “No one could answer that question, but they did say definitively that it’s a barrier to many students graduating from these programs.”
In trying to draw workers to manufacturing, Tom Palisin’s biggest challenge is changing perceptions about what manufacturing is and where it’s going. On the whole, it’s not dominated by dirty and dangerous dead-end positions. Manufacturing jobs haven’t all been sent to China or other overseas countries. And manufacturing isn’t just for people who weren’t smart enough for college.

Today’s manufacturing involves skilled occupations across a range of activities, offering well-paying careers and meaningful work. In Pennsylvania, where Palisin is executive director of the Manufacturers’ Association, a regional trade group, manufacturing pays about 20 percent more than...
the service industry and an average of 10 percent more than service jobs nationally. Many companies offer career pathways into marketing, human resources, technical specialties, and leadership.

“There’s tons of different careers within the industry,” says Palisin. “It’s really neat when you discover that a company in Lancaster is making cooling components for satellites or that another company here in York is making flooring for the space station or making parts for Space X.”

And U.S. manufacturing is not going away. Both employment and output in manufacturing have risen since the Great Recession. Manufacturing drives about a third of the U.S. economy and two-thirds of the research and development activity in the country. “We can’t have R&D if we move all of that manufacturing offshore,” Palisin says. Manufacturing represents about 10 percent of the jobs in the country, but every single manufacturing job supports two additional jobs.

Manufacturing already uses a good deal of automation, robotics, and machine learning, but trends toward those technologies are accelerating. Palisin says the labor shortage is creating a positive feedback loop: As companies have trouble finding people who can fill positions, they turn more to machines to help with the labor shortages. The labor force in manufacturing is also aging, which adds to fears of having too few employees.

“A lot of highly skilled, experienced people accelerated their retirement during the pandemic,” says Palisin. A large gap remains between that knowledgeable older generation and people who have started working in the sector in the past five to 10 years. The labor focus right now is on training and development of new talent who will stay in the industry.

Apprenticeships have traditionally been a vehicle for training new workers in manufacturing, and certainly the interest in apprenticeships has grown nationally over the past 10 years. Of course, manufacturing also relies on classroom training that leads to degrees and certificates — and colleges provide graduates who move into office positions at companies. But much of manufacturing is composed of middle-skilled jobs — welders, machinists, tool-and-die makers, equipment programmers — who can acquire their skills through two-year programs or on-the-job training and certification.

**TAKEAWAYS**

Manufacturing is robust and growing in the United States.

Its work force is aging, and many younger job candidates don’t have necessary skills.

Opportunities exist to prepare four-year graduates for a wide range of skilled occupations, as well as to add shorter-term programs for middle-skill jobs.

Colleges need to ease the path for new students by aligning programs with their demonstrated skills and earned credits.

On the whole, the Manufacturers’ Association, in partnership with employers, provides much of the training for its members, simply because colleges have been slow to adapt the technologies or curriculum that manufacturers need, or they haven’t been able to offer courses that work with an employer’s schedule. Because of enrollment pressures, Palisin and his member companies have noticed more institutions taking an interest in workforce development in manufacturing, but they have not delved into those blue-collar, middle-skills needs. He believes there is an
opening for colleges in longer-term reskilling programs.

“We’re not going to do a long-term — six-, nine-, 12-month — certificate program. That’s not our wheelhouse. But a college or university could take someone that maybe has a little bit of experience and over a longer-term training period reskill that person.”

Technical training is not all that manufacturing needs.

“We have seen exponential growth in our supervisor and leadership training because all of these people lacked all those skills: leadership, emotional intelligence, how to manage people, how to manage time, all those things,” says Palisin. Enrollment in the leadership programs has tripled in the past two years.

“I think people are being tasked with these roles because there’s nobody else around. Maybe they’re great at reading blueprints, programming the computer, doing math, but they’re throwing these people into roles where they need to take on all these other soft skills that they haven’t used.” Many of the students have just work experience and a high-school degree, but some have gotten four-year degrees; even if those students picked up some of these noncognitive skills in college, those skills can atrophy, Palisin says.

Mainly, he notes, both the industry and higher education need to find common language to talk about skills and career pathways in manufacturing. Manufacturing carries some blame here, he says, because the industry is very diverse in its products and approaches, and there aren’t as many agreed-upon skills and certifications as there are in a more licensed or regulated industry, like nursing.

But colleges have also made reskilling difficult for potential workers in manufacturing. It’s often hard for potential students to transfer their industry certif-

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**Top 5 Specialized Skills in Postings for Machinist and Machine Setter Jobs**

- Machining
- Lathes
- Mills
- Computer numerical control (CNC)
- Tooling

**Top 5 Common Skills in Postings for Machinist and Machine Setter Jobs**

- Operations
- Basic math
- Communications
- Troubleshooting (problem solving)
- Detail oriented

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“We have seen exponential growth in our supervisor and leadership training because all of these people lacked all those skills: leadership, emotional intelligence, how to manage people, how to manage time.”
icates, experience, and skills — or even credits from community colleges — to four-year programs. That takes the momentum out of their climb up the professional ladder.

Recently, Palisin has had success negotiating with regional colleges to allow students to earn credit for the association’s apprenticeship program, putting them more than halfway to an associate degree — a development that “probably wouldn’t have happened a few years ago,” but became necessary with the industry’s employment needs and the colleges’ enrollment woes.

“All these roadblocks about four-year degrees accepting prior learning, prior credit, online courses — all those things have to be torn down and reassembled,” Palisin says. “Colleges and universities have to make it easier for people to make it through their life-career pathway.”

### Total Hires Across All Degree Levels for 2021-22 by Industry Sector

<table>
<thead>
<tr>
<th>Industry segment</th>
<th>New hires in 2020-21 (average)</th>
<th>New hires anticipated in 2021-22 (average)</th>
<th>Percent change from 2020-21</th>
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<tr>
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<tr>
<td>Retail services</td>
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Sources: Michigan State University’s “Recruiting Trends Survey and Report,” fall 2021
The buzzword to remember when thinking about the future of retail is “omnichannel.” It’s about providing a consistent, personalized, and smooth experience, no matter how a shopper chooses to use a store.

Particularly since the pandemic, the world of retail isn’t broken down into just brick-and-mortar versus online experiences, says Adam Lukoskie, vice president at the National Retail Federation Foundation, which supports education programs for careers in retail companies. The world of retail is now shifting to a wide range of shopping modes and experiences: People might shop online but go to a physical location to try on or try out items — may-
be even in a pop-up retail location. While retailers scrambled to redesign their online presence and parking-lot configurations to enable curbside pickup during the Covid-19 pandemic, now Best Buy and other retailers are reconfiguring their stores to accommodate more in-store pickup of merchandise bought online.

Analysts of the sector at Deloitte predict that the pressures of the pandemic will lead to a “great retail reset,” in which companies will invest heavily in restructuring supply chains, worker duties, and the role of the physical store. In the consulting company’s survey of retail executives, most saw opportunities for the sector to grow, but 70 percent believed that labor shortages would hamper that growth.

Don’t assume that the future of shopping is merely about websites and virtual storefronts. Even with shoppers’ habits altered by the pandemic, less than 20 percent of sales are made online, Lukoskie says. “There is this general thinking that more shopping is done online than there actually is.” In fact, going to the mall and shopping in person are rising trends among young people. “It’s experiential. It’s reverting back to the idea of going to the mall with your friends.”

All of this makes the world of retail a highly complex business sector, with skill needs in fields as broad as architecture and design, user experience, marketing, supply chain, data analytics, and even sustainability, with a growing focus on the carbon emissions and environmental impact of products. To maximize profits (and keep items from gathering dust in warehouses), retailers have to predict what you want, when you want it, and how you want to get it.

Applicants with expertise in supply chain and tech fields have been the most difficult to find, with retailers “fighting for a small pool of talent,” Lukoskie says. He has heard of a growing number of retailers that are interested in working with local colleges and universities to encourage the growth of home-grown employees.

But Lukoskie has sat in meetings with retail executives and college officials where the retailers noted that the colleges are instructing in outdated technology and software platforms. The retailers are having to retrain them. That represents a communication gap between businesses and institutions, he says: The colleges are slow to update their programs, and employers are not engaged enough to convey their processes and skill needs. Lukoskie believes that colleges should do more to bring current expertise and recent case studies into the classrooms. “Things are changing so quickly that textbooks can’t keep up.”

### TAKEAWAYS

- **Retail is primed to grow** if labor shortages don’t impede it.
- **It’s an evolving, complex sector,** presenting opportunities for graduates with a wide range of majors and skills.
- **Colleges and employers must communicate better** to ensure that colleges’ texts and software are up to date.
- **Having part-time work experience** will give your graduates an edge.

This gap and the hunger for talent is leading retailers to consider pathways other than a four-year degree. Community colleges are getting more attention from retailers, and Walmart, Lowe’s, and other companies have formed high-profile partnerships with providers like Guild Education. But many of the big retailers want to cultivate those talents within their company. “Home Depot does about 90 percent
of its tech in house,” Lukoskie says, noting that the company has started a boot camp for tech. “It’s all about the skills they are looking to hire and build.”

Retail often serves as a starting point for the careers of many people, with teenagers stocking shelves at Target or folding sweaters at the Gap. But teenagers are working less than they used to — only about 35 percent of teenagers work today, compared to 60 percent more than 40 years ago — in part because they are concentrating more on school and extracurriculars to burnish college applications. Lukoskie says this trend is leading to downstream problems for retailers.

“One talent acquisition leader told me, ‘We’re hiring someone with a four-year degree in a buying position at $80,000, and that person’s never worked before,’” Lukoskie says. He has heard other retailers complain about the same problem, and he says those employees need more acclimation to work life: how to fill out tax paperwork, ask for time off, respond to a manager, and so on. “It actually significantly impacts a career trajectory. If someone comes in with a similar background and has worked — even if it’s part time, at any type of job — they actually have much better professional skills.”

“Things are changing so quickly that textbooks can’t keep up.”

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**Top 5 Specialized Skills in Postings for Logistician and Supply-Chain Manager Jobs**
- Supply chain
- Warehousing
- Supply-chain management
- Purchasing
- Inventory management

**Top 5 Common Skills in Postings for Logistician and Supply-Chain Manager Jobs**
- Communications
- Management
- Operations
- Planning
- Leadership

Source: Lightcast
The job needs in technology are almost unfathomable. In cybersecurity, a field that has grown 350 percent over the last 10 years, there will be 3.5 million open positions by 2025. Right now, in the United States alone, there are 700,000 job openings, according to organizations that monitor the cybersecurity industry.

And that’s just one facet of the tech world, which seems to be changing and adding new platforms constantly. “One of the macro trends that’s taking place is that the life cycle of a skill has shortened significantly,” says Sachin Gupta, the chief executive officer of HackerEarth, a company that helps corporations assess technology skills and recruit talent in the tech space.
“If you go back two decades, you would see dominant technologies like Java rule the ecosystem for many years.” But now there is mobile app development, blockchain, game development, artificial intelligence, software for the Internet of Things, and so on. The development of new technology, like the tools used to manage Big Data, leads to evolutions in roles as people discover how to use that technology.

“Every organization is producing terabytes of data,” Gupta says, and for years no one knew what to do with it. Now, everyone wants to use that data to drive business insights and intelligence. “Hence, data science is a skill that every business today wants to enhance in-house, and it has bloomed into a core function.”

Higher education is at a disadvantage in this environment of rapidly changing technology and high demand for workers. “Because these new technologies are niche, it takes time to get educators,” he says. “It has taken almost half a decade for high-quality universities to create good content and good courses in data science and AI.”

Adi Dar, the chief executive officer of Cyberbit, a company that works with colleges to create training programs in cybersecurity, says that many of the teaching techniques in that field are outdated: too old, too theoretical, not enough hands-on experience. Students should be put into simulations that allow them to grapple with attacks in a realistic setting while working alongside others.

“One of the unique things about cybersecurity is that it’s a team sport,” says Dar, who worked in cybersecurity in the Israeli military before founding his company. Typically, a security operations center will have a range of expertise in different areas — forensics, network security, security information, and event management — all working together to prevent the next attack or handle one underway. A small company might have 20 to 30 people on a cybersecurity team; a big corporation, like a multinational bank, might have hundreds.

“If they don’t know how to work together as a team trying to solve a problem, there’s no way they are going to win,” Dar says. Colleges need to mimic that environment in the training. “Soft skills, leadership skills — these are things that you cannot really learn in any other way but working as a group.” Hackers these days take months to set up and execute an attack, but cybersecurity experts need to have the attitude of a first responder, he says.

Gupta agrees that many candidates in the current tech labor market lack soft skills, particularly when companies are desperate to hire people who simply know how to code. Colleges would give tech workers a leg up if they emphasized communication, teamwork, and other such skills.

“You need empathy, because no matter where you’re sitting, you’re probably building
a product that’s going to be used by a diverse set of people all across the world,” he says. Tech workers also need to be able to understand and communicate the core problems that they are solving for a company.

“It’s not for the sake of data science you’re solving a problem in, say, agriculture,” he says. “Being able to articulate what the problem is, or ask questions about what that problem really means, and then applying technology for a real-world scenario is extremely important. If you’re not able to do that, you’re bound at the root, and you’ll always be just the guy who will be producing tech but not really solving problems.”

“You need empathy, because no matter where you’re sitting, you’re probably building a product that’s going to be used by a diverse set of people all across the world.”

Top 5 Specialized Skills in Postings for Cybersecurity Jobs

- Cybersecurity
- Computer science
- Auditing
- Vulnerability
- Firewall

Source: Lightcast

Top 5 Common Skills in Postings for Cybersecurity Jobs

- Management
- Communications
- Operations
- Leadership
- Information technology

Source: Lightcast
It’s a popular archetype in the media: the high-school graduate who taught herself to code and is now making nearly six figures, flouting the narrative that a middle-class existence is impossible without a college degree. These success stories are not just clickbait. They are warning bells for colleges clinging to the old way of doing things.

The stories resonate in part because they are grounded in truth. Rising costs have effectively converted four-year degrees into luxury goods, burdening too many students with too much debt as they start their careers. In an unstable economic environment, it is understandable why some people, especially the least advantaged among us, are choosing to look away from college. Sometimes practical and affordable short-term training that can land a safe, well-paying job trumps the more abstract value proposition of a more-expensive liberal-arts degree.

But we don’t need to think of colleges and training as engaged in a zero-sum game. In practice, postsecondary education and training have two powerful and somewhat contradictory economic aspects.

First, on average, higher levels of post-
secondary attainment still mean more money. The marquee fact is that the median economic value of a bachelor's degree has doubled relative to the value of a high-school diploma since 1980. This divide is likely to deepen in the decade to come.

Keep in mind, however, that when we talk about the value of a bachelor's degree, we tend to be talking in very general terms. The return on investment varies considerably at the individual level. With the exception of the most elite colleges, where big consulting and financial firms turn for their first-year recruits, salaries of recent graduates are determined more by major than by institution.

That dynamic can lead to poor job placement and earning results for students, which subsequently leaves less-prestigious institutions struggling to attract them. The
college closures and consolidations we’ve already seen are one direct consequence of this, a trend we can expect to see accelerate as the industry faces a looming demographic cliff in the college-age population.

Meanwhile, non-degreed training is a growth industry. There are many reasons why, but principal among them are the declining growth in the American workforce, the collapse of immigration, the temporary surge in demand for skilled high-school graduates that comes with infrastructure spending, and the consequent bipartisan support for short-term training.

In light of these realities, it is essential that colleges more clearly articulate their economic value to all parties in question, but particularly to students and families. The marketing pitch is both obvious and truthful: The four-year degree is still the best economic bet.

That pitch can be difficult for colleges, which have traditionally sought to avoid direct conversations about economic value. It might seem too crass to think about higher education as a commodity instead of a place where learning happens for learning’s sake. But colleges must grasp that they can talk simultaneously about lofty purposes and converting knowledge into dollars. Students desire both, and to deny that is self-defeating.

Without a closer focus on outcomes, higher education risks being marginalized, its proponents written off as out-of-touch elitists. To some degree, the critics have a point. Colleges are facing a Judgment Day they have long avoided by riding the waves of increased economic value since the 1980s. In this favorable environment, colleges got complacent. They copied the elites rather than innovated. They became bloated and unmanageable, resembling department stores of yesteryear.

Like those department stores, individual colleges have long sought to be all things to all people. But market pressures force change. Department stores were for the most part supplanted by both technology and stores specializing in distinct categories of consumer goods and services. Many colleges might find themselves following a similar trajectory and unbundling their academic programs.

Students today are looking less for standardized classroom learning. They want a much richer mix: customization, quality, convenience, novelty, and speed to market. Unbundling the college degree and selling programs separately is the beginning of higher education joining the rest of the competitive economy.

Private colleges are most likely stuck with the high-priced pursuit of institution-
al brand and the department-store model. But public colleges are part of more extensive institutional networks that give them the leverage to identify areas of duplication across the system, consolidate programs, and generally provide a more tailored set of academic offerings at individual campuses.

Public colleges that do not adapt quickly to the reality on the ground run the risk of having change imposed on them from above, from the federal government’s demand for transparency and accountability on graduation rates and economic outcomes or state-appointed boards or legislatures in search of efficiency. This leaves them vulnerable to the state or political actors taking a heavier hand in deciding what colleges can teach and what programs they can offer, infringing on the independence of the faculty and administration.

To circumvent this possibility, colleges must be proactive. They should be telling students why their college, and the unique American higher-education model — a combination of general liberal arts and career-specific skills — will serve them well. All students should be told in writing, upon entry, what the employment, earnings, and debt outcomes have been for other students who attended the same institution and had the same major. With all of the pressures facing higher education, communicating probable outcomes to students before they get in too deep is not just the right thing to do — it’s also sound business practice.

Anthony P. Carnevale is research professor and director of the Georgetown University Center on Education and the Workforce. He is a co-author of The Merit Myth: How Our Colleges Favor the Rich and Divide America (The New Press, 2020).
Employers frequently complain that too many recent graduates — especially those in the humanities and social sciences — are not prepared for the job market. To try to solve the problem, most colleges have made the same move: They’ve beefed up their career-development offices. That has included bringing all experiential learning under the umbrella of the office, reallocating financing to help the office build out campus programming, and hiring a director at the vice-provost or assistant-vice-provost level.

The logic is that services offered by career-development offices should align with career preparation. But that strategy is clearly not working. One reason? Students don’t use the services. According to a 2018 Strada-Gallup survey of recent college graduates, only 22 percent reported using career-service resources “often or very often.” Those results followed a 2017 survey in which only 52 percent of graduates reported having physically visited their career-services office during college. Admittedly these surveys are dated as a result of the pandemic, but it doesn’t seem much has changed in 2022.

Instead of placing their focus on expanding career services, colleges need a different approach. They should bring career services, advising, and experiential learning together — not simply under the same roof but into the same space and with an integrated pedagogical philosophy. Students should not make academic decisions in a career-development vacuum, whether they expect to get jobs or pursue graduate study after they graduate.

An integrated model has critical advantages. It allows staff members to discover new relationships among the learning opportunities on campus and in the real world, and to continually sharpen their understanding of the need for students to integrate the basic components of their undergraduate experience with their vocational purpose. For students, it clarifies their vocational purpose and helps them discover learning opportunities they would not have otherwise considered.

To make the mixed model work effectively, here’s what colleges should teach the blended staff to do:

Rethink how people find employment. Introduce staff members to the hidden job market — jobs that are not on their radar — and explain how students can gain access to those opportunities. Teach staff members how to help students clarify and sharpen
their vocational purpose, and then translate that purpose into language that will appeal to employers who typically find workers through networking and employee referrals.

Encourage students to discard traditional informational interviews in favor of investigative inquiries. With investigative inquiries, students engage in conversations with those in the hidden job market with similar vocational interests, learning such things as the challenges they face, the skills they use to deal with those challenges, and what they would have done differently with their undergraduate educations. This method helps students build out social networks and social capital. That is especially important for historically underserved students. Students,
in turn, can teach staff members what skills and experiences people in their fields look for that are not found in job descriptions.

**Look at methodologies in different disciplines to understand how those methodologies inform one another.** Staff members can help students understand that a college education is not about pasting together majors and minors but about how course clusters in different departments can complement one another. Students can discover from this and their informal interviews that their interests may not be found in the titles of academic majors but in the learning opportunities across campus. For example, a student we worked with through the Center for Engaged Learning at Columbia College, in South Carolina, learned that integrating three courses from social media in communication, two courses in public relations, and three courses from marketing into her Spanish major opened the doors for her to work in social media bilingually.

**Help students design their undergraduate educations to best fit their academic dispositions and strengths.** Students begin to understand that how they integrate their learning opportunities is what prepares them for the hidden job market — that sociology, for example, can become a marketable data-science program or that foreign languages can become an attractive pre-med program or international-business program.

**Rethink the value of the humanities and social sciences.** Staff members should learn that those programs are not about “soft skills.” They rest on vocational skills that readily lend themselves to any area of the economy. For example, most of the pre-med students I worked with at both Columbia College and Governors State University were in the humanities and social sciences. Students learned that narrative theory from literary studies helped them take better patient histories. Students in sociology discovered that their quantitative and qualitative research skills easily lent themselves to developing better marketing strategies and qualitative assessment. From conversations with staff members, students can begin to realize that the agility that comes with study in the humanities and social sciences rests on how they are able to integrate different course clusters.

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**Students should not make academic decisions in a career-development vacuum, whether they expect to get jobs or pursue graduate study after they graduate.**

A model that brings together career services, advising, and experiential learning will have lasting benefits. As students integrate learning opportunities with their vocational purpose, they can explain the rhyme and reason behind their studies. They will become agile learners and have the skills to prepare themselves for their next steps after graduation.

*Ned Laff is a former director of the Center for the Junior Year at Governors State University.*
Myths and Realities of the Market for College Grads

BY BOB ATKINS

Despite recent rumblings from some economists that a recession is on the horizon, college graduates are entering the work force at a good time. While job postings are 5 percent behind last year, they are 131 percent higher than the first quarter of 2020, just before Covid hit. Specifically this June, there were 4,894,860 job postings in the U.S., 33 percent requiring a bachelor’s degree and another 20 percent requiring a master’s degree.

What academic programs lead to the best jobs? What occupations are in demand? What skills should colleges teach students to prepare them for success? Those are surprisingly tricky questions to answer. That is mainly because labor data is easy to misanalyze, leading to profound misunderstandings of jobs available to graduates, job growth, and labor-market saturation.

First, let’s look at what kinds of jobs are available to graduates. To understand the relationship between academic programs and jobs, you need a tool that can match the classifications of instructional programs from the National Center for Education Statistics to the standard occupational classifications from the U.S. Bureau of Labor Statistics. Most people rely on the National Center for Education Statistics crosswalk to do this, but as NCES’s website says, it “is not based on empirical data.”

That can result in misleading information, especially for liberal-arts graduates. According to the NCES, a history major is prepared to work in just five occupations: tour guides and escorts, managers, historians, history professors, and secondary-school teachers.

The reality is far different.

My colleagues and I analyzed 1,061 academic programs using the American Community Survey data. ACS is part of the U.S. Census and includes 2.5-million responses. It asks respondents what job they hold, how much they earn, and their undergraduate major for bachelor’s degree holders.

For 893 programs, more than 80 percent of graduates went into fields for which the NCES said they were not directly prepared. For another 123 programs, over 60 percent went into fields for which they were not prepared.

Empirical data from ACS shows that history majors in fact go into 502 fields, including all graduates with a bachelor’s degree up to age 60; and they earn $106,000 per year. The data is very encouraging for the leaders of liberal-arts colleges and pro-
grams. Liberal-arts graduates do get jobs, and they pay well.

Next, let’s look at job forecasts. Institutions often draw on labor-market forecasts to inform investments in programs and facilities. According to an informal poll, 24 percent of academics primarily use the Bureau of Labor Statistics’ 10-year forecasts. To evaluate the accuracy of the forecasts, we did back tests starting with actual BLS employment in 2012 and ending in 2019, just before Covid. We then compared the BLS forecast for the period with the actual results. We found, disappointingly, that 82 percent of BLS job-growth projections were off by 50 percent or more.

Can the BLS forecast at least tell us if the job opportunities will grow or shrink? Let’s compare BLS to pure luck. If we tossed two coins, one representing actual employment growth and one representing predicted growth, they would “agree” 50 percent of the time (both heads or both tails). BLS does a little better. It correctly
predicts growth or declines 62 percent of the time. Among occupations with positive BLS forecasts, 27 percent shrank. Among occupations that were forecasted to shrink, 10 percent grew. Overall, the prediction of growth or decline was wrong 37 percent of the time. If you are making long-term investments using BLS forecasts, beware: The U.S. economy is too complex and volatile to predict accurately.

Finally, let’s look at job-market saturation and the availability of qualified graduates. When analyzing this information for your part of the country, use caution. What is the problem? All postsecondary education institutions that receive financial aid must report completions, by academic program, to the federal Integrated Postsecondary Education Data System. Labor supply estimates depend on Ipeds data for the number of graduates in a market. However, Ipeds puts hundreds of thousands of online degree holders in the wrong geographic markets.

As required by Ipeds, the University of Phoenix reports almost all its online degree holders in Phoenix (their headquarters location). As a result, Ipeds records show more than 30,000 University of Phoenix online graduates in Phoenix. In truth, 95 percent of its students are not in Phoenix. Since Grand Canyon University, Arizona State University, and others also report tens of thousands of online students in Phoenix, typical job-market data would suggest that the Phoenix job market is highly saturated.

On the other hand, the job markets in Southern California and South Florida would seem much less competitive than they are since tens of thousands of online graduates are overlooked. Any index that compares supply and demand across markets would be hopelessly skewed. To get this right, you must use another federal data source (that shows the state in which online students are enrolled) and then reallocate students by major to their home markets.

So, what is hot in job postings? According to my firm’s data, in the 12 months ending in June, six health-care occupations were among the 10 fastest-growing programs. Speech pathologists took the top spot with 92-percent growth — they even beat registered nursing’s 21-percent increase. Given all the post-Covid hiring, it is unsurprising that human-resources managers ranked second in posting growth for the year. Nine of the 10 fastest-growing fields require a college education; phlebotomists were the exception.

What talents are being sought? Tech skills are seven of the 10 most requested. Nursing and patient care take the top two spots.

Good jobs data is out there to inform your decisions on academic programs to start, stop, or grow. There is also a surprising amount of seriously flawed data that does not come with a warning label. If you use labor data, explore the source or ask the vendor how they fix the typical problems. If they do not have a good answer, use the data with great caution and try to cross-check it with data from another source.

Bob Atkins is chief executive and founder of Gray Associates, which provides program-evaluation software and services for colleges.
In many ways, the world of higher education tries to separate itself from the world of work. The disposition of academics sometimes doesn’t blend with the views of the corporate world. Academics often see themselves as providing students with tools for life, not just for a job.

But employment — and the need to learn new skills to evolve — stands as a main driver for higher-education enrollments over the past several decades. And after all, work is life for so many people today. Why not figure out ways to find the commonalities between education for work and education for life?

From the conversations in this report, some common themes come clearly to the surface:

- Colleges and employers need to work together more closely: Employers consistently complain that college courses and programs do not keep up with the latest technologies or methods that employers use. Employers want colleges to offer students more exposure to the techniques that they use in their specific businesses and to allow employers’ voices a more prominent place in the classroom — as guest lecturers, mentors, or even instructors.

- Small- to medium-sized employers compose the bulk of the employment market — about 80 percent of the jobs are found in that hidden job market. Yet smaller employers do not have the resources or the clout to get space on campus or talk to institutions about their needs. Colleges need people who can connect with employers, speak their language and understand their needs, and convey those needs to the academic community. Students need to be introduced to employers that may not be household names.

- Employers value the holistic college experience: What students learn in courses is just a piece of what employers want to see from college graduates. Noncognitive skills and behaviors are difficult to teach outside of experiences in school and life, and they are often very important for employers to find in applicants. That should drive colleges to promote experiences that expose students to unscripted environments and real-world problems.

The wage premium on a college degree has risen dramatically over the past 40 years — and colleges have traded on that over the years. To keep that status, they need to show employers why it matters that their institutions’ names are on résumés.
FURTHER READING


“The Emerging Degree Reset: How the Shift to Skills-Based Hiring Holds the Keys to Growing the U.S. Workforce at a Time of Talent Shortage” (The Burning Glass Institute, 2022)


“2022 Retail Industry Outlook: The Pandemic Creates Opportunities for the Great Retail Reset” (Deloitte)


“Wages, Benefits, and Change” (National Association of State Energy Officials, 2021)

“What Happened to the Promise of a 4-Year College Degree?” (Society for Human Resource Management, 2019)
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