



Better Connecting Students to Jobs

A Guide for Policymakers to Encourage and Support Integrating Competencies in Postsecondary Education and Training

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More people than ever have access to education beyond high school. Fully 60 percent of Americans have engaged in postsecondary education and training (Scott and Nightingale 2019). The number and types of postsecondary credentials other than a degree have also grown, making the credential landscape more complex than ever. One estimate puts the total number of credentials in the US at nearly 750,000 (Credential Engine 2019). These trends present opportunities, but they also pose significant challenges, particularly for helping students translate their skills and better connect to jobs in the labor market.

In decades past, when fewer people went to college, employers routinely used credentials such as college degrees as a proxy for the skills and knowledge they needed in their new hires. This signaling worked fairly well, in part because businesses invested significantly in training both new hires and incumbent workers to develop the competencies required for specific jobs. At the time, workers changed jobs less often, so employers worried less about sunk costs from investing in training.

Today's hiring practices are more dynamic and multifaceted but are not necessarily well designed for helping employers identify workers with the skills needed to do a job. Businesses have also brought their hiring activities online (Cappelli 2012). This increases the number of candidates who might apply but simultaneously makes it more challenging to identify people who might be the best fit for jobs, particularly among a relatively larger pool of candidates with some postsecondary education or training.

Even with technological advances in hiring, employers increasingly admit concern that traditional ways of identifying talent (e.g., using degrees as a signal) are not yielding the best results. In a recent study released by the US Chamber of Commerce, more than three-quarters of hiring managers say they need to reassess the way they hire, and nearly half (45 percent) say that retooling hiring practices is an organizational priority (US Chamber of Commerce Foundation 2020).

At the same time, with the increasing cost of postsecondary education, many students are having more difficulty seeing a return on their investment in education.¹ This is perhaps most acutely true for students who do not complete their studies. Without a credential, they have few ways to validate the skills and competencies they learned from the coursework they did complete (often with substantial cost and personal sacrifice). However, even students who complete credentials may struggle to not be pigeonholed by the narrow title of their credential.

“A competency is the capability to apply a set of related knowledge, skills, and abilities to successfully perform functions or tasks in a defined work setting. Competencies often serve as the basis for skill standards that specify the level of knowledge, skills, and abilities needed for success, as well as potential measurement criteria for assessing competency attainment.”
—Competency Model Clearinghouse²

The solution may be to shift toward using competencies rather than credentials as “currency” in the labor market. In theory, using competencies to communicate skills and knowledge could facilitate hiring for employers and job seekers and help create a more flexible, more modular, higher-value, and potentially lower-cost system of shorter-term, stackable credentials. This could help counter the rapid escalation of college tuition and student debt and the low return on investment for some credentials. In the same way, students who do not complete credentials could still get value out of the coursework they do complete, and students who attain credentials could arrange and communicate the competencies they obtain in different ways to access a much wider range of career options.

Pioneering Efforts to Build a Competency-Based System

Moving toward a competency- rather than credential-based system is by no means quick and easy. The kinds of changes that both employers and postsecondary education and training providers need to make can feel daunting and like too large of a culture shift. However, many pioneering efforts helping to lay the groundwork are under way.

On the **employer** side of the equation, the US Chamber Foundation is leading several initiatives to help employers better articulate the skills and competencies they need, encourage employers to scale these kinds of approaches, and work more closely with education and training partners. These include the Jobs Data Exchange,³ which is aimed at providing the data standards needed to develop competency-based job descriptions; the Talent Pipeline Management initiative, which is designed to build mechanisms for employers to more clearly communicate the competencies they need to local educational institutions;⁴ and the T3 innovation network, which is developing the technology and data

standards that would power a more efficient exchange of data between employers and job seekers through learner records.⁵ Moreover, the Society for Human Resources Management's Talent Assessment Center offers human resources professionals a library of assessments they might use to assess competencies as part of their hiring and development processes.⁶

At the same time, a range of competency-based approaches are emerging on the **postsecondary** side. Some approaches do not involve any changes to curriculum; they are much more about improving signaling and helping students more clearly translate the learning objectives of coursework or credentials into skills and competencies that employers understand. These approaches include

- pilots to design and implement comprehensive or interoperable learner records, which could complement traditional transcripts by providing a vehicle for more detailed information about the skills and competencies acquired through coursework and credentials;⁷ and
- Credential Engine, which seeks to catalogue all the credentials available in the United States and eventually provide a map of the competencies each credential includes to help employers understand which credentials they might use in job descriptions to identify the right talent.

Other competency-based approaches aim to update the content and delivery of postsecondary programs to bridge skills gaps and make sure students are walking away with in-demand competencies. Institutions may identify and map competencies for particular jobs, engage instructional designers to ensure courses provide opportunities to build and demonstrate competencies, design prior-learning assessments or other direct assessments that measure competencies, or figure out how to track these competencies across the course of a given program. Among these approaches are

- sector-based collaborations between industries and community colleges that both map competencies to curricula and construct talent pipelines with local employers;
- prior-learning assessments, which are designed to assess the competencies adult learners have gained from past experience to award credit and shorten time to completion; and
- more formal competency-based education (CBE) programs, which often include close collaboration with industries; online components; some degree of self-pacing; strong advising; and formal, ongoing assessment of competencies.

Despite all of these options, integrating competencies into postsecondary education in any of these ways is still relatively rare and is often limited to credentials associated with a few trades and occupations.

What We Did

To create the kind of environment that encourages innovation and experimentation, systems changes are needed on many different levels. To identify which kinds of changes might be most useful, our research team interviewed more than 20 experts that are testing ways to build competencies into

existing postsecondary education and training systems, including people running their own academic or training programs, state policymakers, and leaders of national organizations.

BOX 1

The Urban Institute's Partnership with JPMorgan Chase

The Urban Institute is collaborating with JPMorgan Chase over five years to inform and assess JPMorgan Chase's philanthropic investments in key initiatives. One of these is New Skills at Work, a \$350 million multiyear workforce development initiative that aims to help people build new in-demand skills, prepare for the future of work, and succeed in an ever-changing world of work. The goals of the collaboration include using data and evidence to inform JPMorgan Chase's philanthropic investments, assessing whether its programs are achieving desired outcomes, and informing the larger fields of policy, philanthropy, and practice. This brief and accompanying factsheets describe the various approaches that education and training professionals are implementing to improve the signaling of credentials and the content and delivery of curriculum, and highlights strategies that federal, state, and local policymakers can use to support local education and training providers and programs in developing competency-based approaches that work for them.

We asked them about the challenges of designing and implementing approaches that seek to improve competency signaling as well as those that align curriculum and instructional design to ensure they deliver in-demand competencies. In this context, we asked the experts to offer their insights into how policy and leadership at federal, state, and local or regional levels could empower their work.

Key takeaways emerge for different kinds of policymakers:

- The federal government can
 - » signal the importance of labor market outcomes for all postsecondary institutions in legislation, program guidance, and continued investment in the development and maintenance data on debt and earnings for programs at individual institutions;
 - » adopt data standards for how competencies should be communicated in credentials and learner records;
 - » endorse institutions using the Competency-Based Education Network's quality framework to complement traditional accreditation and state program approval processes; and
 - » help build evidence through pilots and demonstrations.
- States can
 - » review data on debt and earnings for their state's programs annually, consider the data's implications for their funding formulas and priorities, and make those data easily available to the public;

- » craft legislation that encourages institutions to be more transparent about the competencies their programs impart and the labor-market outcomes they achieve, and incentivize skills-based hiring approaches among employers;
 - » convene faculty and staff at local institutions in regular discussions to identify shared challenges and eliminate policy barriers to implementing competency-based approaches, and provide resources to support statewide communities of practice;
 - » negotiate access to proprietary job-listing data that can provide valuable insights into in-demand occupations and competencies to lower the cost for local institutions, and perform labor market analyses for local communities; and
 - » identify data solutions that can help local educational institutions track and communicate competencies, and negotiate statewide contracts or rates that could lower costs for individual schools.
- Local colleges, universities, and training providers can
 - » track student labor-market outcomes and analyze local job markets;
 - » evaluate competency-based approaches and be more transparent about what they are learning and share lessons with external stakeholders, including students, parents, and policymakers;
 - » participate in communities of practice and share challenges and lessons learned with staff internally and at other institutions;
 - » use existing resources to identify competencies, map them to curricula and credentials, and signal them in the marketplace; and
 - » support collaboration between the academic departments and registrars to think about how to develop data systems that help both track and communicate competencies.

The following sections provide more detail on how policymakers can provide the encouragement, guidance, support, and flexibility for colleges, universities, and training providers to explore the integration of competencies into their practice and develop and test competency-based approaches that work best for them.

Strategies to Encourage More Attention to Competencies

Our traditional postsecondary systems are not designed to encourage attention to competencies. Rather, in many ways, they create difficulties for programs and institutions that are moving toward these types of approaches.

Policymakers and stakeholders at different levels can signal the importance of competencies in postsecondary education, eliminate red tape, and encourage educational institutions to invest the time and resources needed for systems change.

Signaling the Importance of Employment Outcomes for All Postsecondary Education and Training

Training programs funded by the US Department of Labor often explicitly track and report labor market outcomes such as placement rates and earnings. However, programs in our traditional postsecondary systems have historically not been measured similarly. In practice, interviewees pointed out that many faculty and staff are often not thinking about the occupations and industries that will likely employ their graduates when designing curricula, and they may not be attuned to how their learning objectives translate into the competency language employers understand.

Some of the people interviewed highlighted important conversations happening in recent years about labor-market outcomes following postsecondary education, mostly in the context of student debt. The Department of Education's new College Scorecard is an important tool to advance that conversation. It is the first nationwide, transparent, accessible data source that provides information not only on completion rates for academic programs but also on median debt and earnings one year after graduation. More systemic use of these kinds of data by parents and students would increase the demand for programs with better labor-market outcomes and could encourage much more widespread conversations about aligning curricula with competencies, better linkages and coordination with employers, and better communication of the competencies already embedded in curricula.

Actions to signal the importance of labor-market outcomes for all of our postsecondary education providers can occur at several different levels:

- **US Department of Education:** Continue to invest in and expand the coverage and quality of the labor-market outcomes gathered and displayed in the College Scorecard. This might also include working with the US Department of Labor to expand its coverage to include education and training programs funded by the department, such as apprenticeships, which have extensive competency models; adding a flag for competency-based learning programs so that users can more directly compare labor-market data for these approaches relative to traditional programs; and reporting not just first-year earnings but also earnings later on in people's careers to better assess long-term return on investment.
- **States:** Most states provide at least some funding for their colleges and universities, which gives them some ability to influence practices at local institutions. States could signal the importance of labor-market outcomes by annually reviewing College Scorecard data for their state's programs and considering the appropriate implications for their legislative funding formulas and priorities. Further, states could make these data easily available (such as through application programming interfaces and downloadable data files) to support schools, nonprofits, and businesses seeking to respond to student and parent demand for information.⁸
- **Educational institutions:** Even absent federal or state action, institutions can act on their own, tracking labor-market outcomes for their students and making strategic decisions about their program offerings and investments using these data.

BOX 2

Colleges Are Holding Themselves Accountable for Student Labor-Market Outcomes

Texas State Technical College voluntarily ties its state funding to graduates' labor-market outcomes. Graduate placements and earnings directly inform state funding levels, which constitute 60 percent of the college's overall operating budget. Accountability for labor-market outcomes has spurred a commitment among staff and faculty to understand local labor markets, align curricula with competencies, and be able to communicate competencies clearly to employers. Programs with subpar labor-market performance are subject to closer review and possible realignment, suspension, or closure.

Emphasizing the Importance of Competencies

Policymakers and key stakeholders can also take steps to encourage educational institutions and training providers to focus on competencies. These might include designing and implementing full CBE programs or thinking strategically about how to translate what their students know into terms employers value and recognize.

The people we interviewed had several suggestions for policymakers:

- **US Department of Education:** Currently, there are no definitions of what competency-based learning might mean in different contexts and applications. Federal guidance on the breadth of models that educational institutions might use would help eliminate confusion and provide options for institutions to build approaches.
- **States:** Legislation that encourages credential transparency as well as broad-based adoption of skills-based hiring approaches can be an effective way to highlight the importance of competencies for both educational institutions and employers. State policymakers can also make a difference by providing targeted financial support to institutions to develop and test a full range of scalable competency-based practices.

BOX 3

Some States Are Already Taking Steps to Encourage Attention to Competencies

- Connecticut Governor Ned Lamont's Executive Order 4 in 2019 called for credential transparency and encouraging employers to move toward skill-based hiring practices, and H919 in the Vermont legislature (2017–18) lays the framework for ongoing review of credentials to ensure they align with industry demand and fill relevant skills gaps.
 - The University of Louisville's Bachelors of Science in Healthcare Leadership CBE program received funding from the Kentucky Council of Postsecondary Education. The goal and result of the grant were to create more streamlined and scalable systems for the CBE program. The grant was provided with the hope that other institutions in the state could learn from the University of Louisville and implement the efficiencies in their own CBE programs.
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Aligning Approaches across the Education Continuum and Smoothing Transitions

The language of competencies and competency-based approaches is often completely unfamiliar to students and faculty at postsecondary educational institutions, and it may cause confusion or uncertainty. Some interviewees perceived there is less resistance in states that already have a strong proficiency movement in K–12 education, wherein students advance by achieving learning outcomes rather than by complying with seat-time requirements.

Some of the experts suggested that policymakers could encourage competency-based approaches by introducing this type of system early on in students' educational experiences in primary and secondary school, embedding it throughout postsecondary education, and leveraging competencies to smooth transitions after high school and between postsecondary institutions.

- **US Department of Education** The federal government could align the language it uses across levels of education. In K–12, the language focuses on “proficiency” and “mastery”; in higher education, on “learning objectives”; and in workforce development and training and hiring, on “competencies.” Individuals are often talking about very similar things but do not understand opportunities for alignment and coordination because of the different terms. Several of our interviewees highlighted these miscommunication issues.
- **States:** State policymakers can take a variety of actions (box 4):
 - » Consider moving toward proficiency-based education in K–12.
 - » Invest in K–12 school district and employer partnerships.
 - » Encourage the use of competencies for articulation between postsecondary institutions
 - » Issue guidance on how college admissions officials should evaluate high school proficiency-based transcripts in the holistic application review process

BOX 4

State Leadership Is Beginning to Think about Integrating Competencies across Educational Systems

- The New England region is home to five states that have started implementing competency- or proficiency-based education on a large scale, and one state is currently exploring the education model. To help address concerns by parents and members of the community that high school graduates who have proficiency-based transcripts might be at a disadvantage when applying to highly selective institutions, the New England Board of Higher Education and the New England Secondary School Consortium partnered to convene admissions officials from several of the region's highly selective colleges and universities. Admission officials unanimously agreed that students with proficiency-based transcripts will not be disadvantaged in any way in their holistic review process, especially if high school transcripts and school profiles describe their proficiency-based learning standards and show how each student has performed based upon those standards. Admissions officials were especially enthusiastic about how the transcripts depict students' habits of work and cross-curricular skills and reported that the additional information will better inform how students will contribute to campus life.

- The state of Indiana currently has two statutory higher-education transfer programs that involve general education competencies. Although these programs are tailored to be used for transfer students, they provide an example of how effective the development of a common language can be for communicating competencies between different institutions and to improve scalability of CBE. One program is a 30-credit hour competency core based on competencies that can be transferred to any public higher-education institution in the state (institutions and state higher-education commissions collaborated to agree to six competency areas to constitute the core). The other program is the Transfer Single Articulation Pathways program, which is a collection of 19 articulation pathways, culminating in associate's degrees or bachelor's degrees, based on competencies as instructed by the Indiana state legislature.

Broadly Adopting CBE Quality Standards

Because of the nature of formal CBE programs and how new they are, institutions seeking to adopt CBE models have faced challenges because of the lack of methods to adequately assess their quality. In response, the Competency-Based Education Network (CBEN) worked with a panel of experts to design a rubric that would help accreditors and state officials alike more systematically assess quality. The framework includes eight different domains:

- demonstrated institutional commitment to and capacity for innovation around competencies
- clear measurable, meaningful and integrated competencies
- coherent program and curriculum design
- credential-level assessment strategy with robust implementation
- intentionally designed and engaged learner experiences
- collaborative engagement with external partners
- transparency of student learning
- evidence-driven continuous improvement

Experts suggested that assessing these domains would be helpful and relevant for not just formally defined CBE programs but for all academic and training programs regardless of the specific model they use. This is particularly relevant if federal, state, or local institutions are focused on achieving positive labor market outcomes for students.

Several different types of stakeholders can take action:

- **Federal policymakers:** Legislators can endorse CBEN's quality framework.
- **Accreditors:** Accreditors can not only use the CBEN framework to evaluate formal CBE programs but also incorporate its elements into their assessments of all academic programs.

- **States:** Departments of higher education and workforce can also take the same steps as accreditors in their own approval processes, using the CBEN framework to evaluate CBE program quality and applying it to evaluations of other academic and training programs.

Building Evidence about Competency-Based Approaches

Staff and faculty in our educational institutions want the best for students and want to achieve results in the most cost-effective way possible. Many of the people interviewed said that the clearest way to encourage colleges, universities, and training providers across the country to adopt more competency-based approaches is to demonstrate and broadly disseminate research that evaluates their comparative advantages in achieving student outcomes such as student retention, completion, job placement, and earnings.

Yet most institutions implementing competency-based programs or experimenting with learner records that include competencies do not have the capacity or resources for formal evaluation, or they have been reticent to share this information openly. This challenge can hamstring leaders' efforts to develop a strong case to institutional stakeholders both internal and external.

Policymakers at all levels can help build evidence in many ways:

- **Federal policymakers:** Funding new demonstration projects to test a full range of competency-based approaches (e.g., both through design of the curriculum and assessments and through signaling using learner records) would start building the evidence base needed to understand how effective these approaches are in achieving better labor-market outcomes for students.

Ideally, studies would include experiments that allow head-to-head comparisons of outcomes and return on investment for competency-based approaches versus traditional educational models within similar contexts. The evidence generated could help practitioners better understand which elements of competency-based approaches are most effective; which students benefit the most, which programs of study are best suited for these approaches, how institutions should think about their own return on investment, and what the best practices are for establishing systems to sustain these kinds of efforts.

Short of large-scale demonstration projects, the Department of Labor can incentivize competency-based approaches in their existing grantmaking and require evaluations that will measure their results.

- **States:** Absent federal leadership, states that are passing legislation to expand competency- or proficiency- focused approaches should also be sure to set aside evaluation dollars to ensure that lessons learned from these efforts can be used to inform the evolution of these efforts.
- **Educational institutions:** Whenever available, competency-based programs should make efforts to be more transparent about what they are learning about their implementation and impact. These may start just as sharing data and information internally, but they would ideally include sharing data with external stakeholders, including students, parents, and policymakers.

BOX 5

Burgeoning Research Points to Some Promise for Competency-Based Approaches

- The Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant initiative provided funding to community colleges and other postsecondary institutions across the nation to increase their capacity to deliver education and training programs for unemployed workers and other adult learners to prepare for in-demand jobs. Administered by the Department of Labor in partnership with the Department of Education, TAACCCT provided \$1.9 billion in funding from 2011 to 2018 through 256 grants to colleges.^a A small number of these grants went to institutions establishing CBE programs. A synthesis of local evaluations revealed that these programs showed significant promise relative to other kinds of academic models. In its future grantmaking, the Department of Labor might establish funding priorities for competency-based learning approaches and require evaluations that could continue to build the evidence base.
- The Council for Adult and Experiential Learning has several studies showing that prior-learning assessments achieve positive outcomes for students in terms of degree completion and persistence. There are opportunities to build on this research to better understand how the application of these assessments may improve the return on investment for students or how lessons learned from the design of prior-learning assessments could inform the design of other assessments of competencies, within the context of coursework.

^a This report refers to all TAACCCT-eligible institutions and grantees as “colleges.”

Strategies to Support Local Programs and Institutions

In most of our interviews, we found that faculty and staff often feel like they have to start from scratch in designing and implementing competency-based approaches. But many other institutions and professionals are doing similar things, and many structures could be put in place to better support their efforts. This section outlines both the types of support needed as well as platforms that might be leveraged to provide them.

Communities of Practice

One simple way to support postsecondary professionals is to find ways for them to come together to share what they are learning about integrating competencies in their own practice. In our interviews, we found that this could be structured in a few different manners.

- **National networks:** CBEN already provides resources, information, and an annual conference for educators implementing and exploring different models of competency-based education. Further, there would be great value in having more mainstream national member organizations (e.g., the American Association of Collegiate Registrars and Admissions Officers, American Association of Community Colleges, Association of American Colleges and Universities, or American Association of University Professors) elevate competency-related topics in their own

annual meetings as well as in their trainings or webinars to ensure that content reaches beyond niche audiences.

- **State networks:** Often staff and faculty do not have the resources to attend national conferences, and they may find that the lessons learned from another state do not translate to their local postsecondary context. For this reason, state conferences and communities of practice may be both more accessible and more relevant to many people designing and implementing competency-informed approaches (box 6). State governments can also play an important role by convening regular discussions to identify shared challenges and eliminate policy barriers to implementing competency-based approaches.
- **Local institutions:** These organizations can share information about best practices both internally and with faculty and staff at other institutions through communities of practice.

BOX 6

State Communities of Practice Already Provide Support on Competency-Based Approaches

- Fast Track to Success is an annual conference in Texas funded through a Perkins state leadership grant and hosted by Austin Community College. The conference serves as a forum for sharing lessons learned, strategies, outlooks, data, pedagogy, and design elements of competency-based education and other innovative models. It provides a low-cost opportunity for workforce professionals and academics to build collaborative networks and sidestep the need for consultants in the design and implementation of new approaches.
- The Board of Higher Education in the state of Illinois regularly convenes stakeholders to discuss issues about planning and implementing competency-based education. This provides a venue for practitioners to learn from each other and help the state identify how policies and procedures can be adapted to better support these efforts.

Local Labor-Market Analysis

Ideally, educational institutions and training providers would be attuned to their local labor markets and understand which occupations hold the most opportunity, both in terms of their earning potential and the number of jobs they promise to supply. Having this kind of information enables institutions to hone in on high-value sectors in their region, mine available data on the skills and competencies these occupations require, and identify potential employer partners. It is also useful for colleges and universities to get a better understanding of how occupations map to the credentials they offer and of what competencies their students need to be successful in those jobs.

Many cutting-edge institutions are routinely doing this. Some of the stakeholders interviewed very deliberately built analytic capacity into their educational institutions in order to perform these kinds of analyses using data from job listing sites and the Department of Labor (box 7).

Such analyses, however, can be both time and resource intensive. Institutions have to pay for access to propriety data such as Burning Glass, and they may not have the funding to hire a data analyst who can perform the kind of sophisticated market analysis needed. However, these are precisely the kinds of tasks that lend themselves to economies of scale.

Different actors can pursue several strategies that could have a substantial impact:

- **States:**
 - » Departments of education can negotiate access to proprietary job listing data to lower the cost for individual institutions that might want to use those data.
 - » Departments of labor and education can perform analysis and produce reports for local regions. This work might complement the work that many state departments of labor already do. But the next step is to add analyses of occupational data and job listings to determine which competencies are most in demand and to communicate this information not only to workforce investment boards and approved training providers but also to postsecondary educational institutions.
- **Local educational institutions:** These organizations can build analytic capacity for these types of analyses.

BOX 7

Several Colleges Perform Their Own Analyses of Competencies in Demand in Local Economies

- Brandman University employs a evidence-based, backward design research process that uses data from the Bureau of Labor Statistics, Occupational Information Network (O*NET), and Burning Glass Technologies to conduct environmental scans and identify top in-demand skills. Lead faculty at Brandman then work with an advisory board of employers and industry professionals in relevant fields to ensure that the competencies align with market needs.
- At Walden University, Burning Glass data are used to examine the top occupations students enter and parse out the key skills required based on job listings. These skills are used to develop an initial list of competencies. This is then workshopped through a collaborative process with faculty and employers to determine which competency is most and least important and whose job it is to teach each competency.
- Texas State Technical College uses SkillsEngine's [Calibrate](#) to build competency profiles (specifically for programs identified by department chairs as needing improvement), which are sent to industry partners before scheduled institution/partner meetings. At the meetings, partners validate and identify the level of proficiency needed for the competencies. Additionally, other colleges, universities, and various agencies in and outside of Texas use the Calibrate platform to align curriculum with the skills students will need to succeed at work.

Tools to Support Competency-Mapping Process

To ensure that educational programs include the competencies that are most needed for their corresponding occupations, many colleges across the country actively engage in sectoral as well as bilateral relationships with employers in planning processes to map competencies to curriculum and educational design. Most interviewees mentioned how highly they valued these time-intensive processes, the program designs that came out of them, and the relationships they built with employers.

Simultaneously, all the interviewees who had embarked on this competency-mapping process also shared that they essentially started from scratch: most had no guidebook on how to implement this process even though many other institutions had led similar efforts across the country.

Communities of practice could provide great environments for educational professionals to share lessons learned. Further, having more refined resources freely available to education institutions and training providers planning to engage in this process could significantly shorten the learning curve for people new to the process.

The National Institute for Learning Outcomes Assessment has created such a toolkit (box 8). Various actors, including the communities of practice described above, state departments of higher education, workforce development boards and others, can help make sure these tools are on the radar of institutions that could put them into practice.

BOX 8

Resources Provide Practical Guidance on How to Engage in Competency Mapping

The National Institute for Learning Outcomes Assessment toolkit, developed along with faculty and experts in the field, presents information on

- the purpose of mapping,
- what can be mapped,
- how to use these maps, and
- examples of the approaches from institutions and organizations.

Note: More information on the toolkit can be found at “Curriculum Mapping,” National Institute for Learning Outcomes Assessment, accessed March 12, 2020, <https://www.learningoutcomesassessment.org/ourwork/curriculum-mapping/>. Local institutions can also leverage tools on the Competency-Model Clearinghouse, which provides definitions, resources and applications. For more information, see <https://www.careeronestop.org/competencymodel/home.aspx>.

Competency Frameworks and Assessment Tools

The competency-mapping processes described earlier are very time intensive even when institutions have good information available about how to engage them. To some extent, educational providers

could expedite these processes if they were better able to leverage existing competency frameworks as a starting point rather than trying to reinvent the wheel with each new program. Across the country, there are many similar programs for similar occupations, for which many professionals have spent a significant amount of time developing and compiling extensive competency frameworks (box 9).

Several different kinds of resources might be disseminated through the communities of practice as well as through state departments of higher education and workforce development agencies. State governments or umbrella organizations may also have a role negotiating low- or no-cost access to proprietary competency frameworks.

Another key step for educational institutions is figuring out how to assess the competencies that students have learned. This can be done before enrolling through prior learning assessments or through assessments used as part of programs themselves. In general, the experts interviewed had fewer ideas about how to better support the design of direct assessments. Currently, there is little consensus on which competencies should be assessed and how to do so. In light of these difficulties, the best option may be to create space for these conversations within communities of practice.

BOX 9

Many Stakeholders Are Designing and Disseminating Competency Frameworks for the Field

- **SkillsEngine** at Texas State Technical College provides an online platform for colleges to share resources, including competency frameworks and curriculum matched to job profiles.
- The National Network of Business and Industry Associations developed a framework of foundational skills and competencies^a needed to succeed in the workplace and also developed a framework, in partnership with the Creating IT Futures Foundation, of information technology employability skills and competencies.^b
- The beta Connecting Credentials Framework^c from the Lumina Foundation connects credentials to what recipients of those credentials should know and be able to do using a common language. The common language allows for comparability across credentials.
- The Urban Institute is developing National Occupational Frameworks^d to identify job functions and competencies that are needed to meet the needs of employers who sponsor apprentices. Once the competencies are reviewed and validated by employers, the framework will be open source.

Notes:

^a “Competency is the New Currency,” Connecting Credentials, accessed March 12, 2020, <http://connectingcredentials.org/wp-content/uploads/2018/03/Competency.pdf>.

^b “Common IT Employability Skills Model,” National Network, accessed March 12, 2020, http://nationalnetwork.org/wp-content/uploads/2017/10/NN_Final_CTES_11.02.16.pdf.

^c Lumina Foundation, *Connecting Credentials: A Beta Credentials Framework* (Indianapolis: Lumina Foundation, 2015).

^d “National Occupational Frameworks,” American Institute for Innovative Apprenticeship, accessed March 12, 2020, <https://innovativeapprenticeship.org/national-occupational-frameworks-2/>.

Data Systems and Standards for Competencies

Educational institutions and training providers face many practical challenges when it comes to incorporating competencies into the way they capture and communicate data. Most institutions have several databases that serve completely different functions and do not communicate well with each other. Further, most do not include fields for tracking or documenting competencies.

For example, there are many technical challenges to assembling the data needed for extended transcripts or comprehensive learner records that include competencies. In a practical sense, the data systems that registrars typically use to house and communicate data on credentials and coursework do not include information on competencies. In some cases, the competency data might be housed in a separate system designed to manage course catalog information, but the two systems are often incompatible.

Similarly, institutions implementing formal CBE models have found that traditional student information systems used for tracking and entering grades do not work well for tracking the demonstration of competencies. Thus, these programs often choose to use their own separate systems for managing this information, and these often do not interface well with institutions' other systems.

There are many ways that stakeholders can assist local institutions with these challenges:

- **Standards bodies:**⁹ Develop the data standards for interoperable learning records, including standards for capturing data on competencies.
- **Federal government:** Encourage adoption of data standards by educational institutions and training providers and provide funding for both integrated systems and the training and technical assistance needed to implement them.
- **States:** Consider identifying data solutions and negotiating statewide contracts or rates that could lower the cost for individual institutions, and take steps similar to those recommended for the federal government, especially given current inaction.
- **Communities of practice:** Advocate for the resources and assistance they need to put data systems in place that will support their work on the ground.
- **Local educational institutions:** Foster close collaboration between registrars and program faculty and staff to figure out how their systems can align or integrate to support both tracking and communicating competencies.

BOX 10

New Standards for Comprehensive Learner Records Have Been Recently Released

IMS global, an international standards body, has issued a standard for the comprehensive learner record, which is a new generation of secure verifiable digital records for learners. These records support all nature of learning experiences and achievements, including courses, competencies, skills, cocurricular achievements, prior learning, internships, and experiential learning. The standard was developed in close collaboration with 35 members of CBEN.

Note: For more information in the schema and data standard, see "Comprehensive Learner Record," IMS Global Learning Consortium, accessed March 11, 2020, <http://www.imsglobal.org/activity/comprehensive-learner-record>.

Looking Forward

Both the student loan crisis and employers' difficulties identifying talent in today's market present significant challenges, but we have also seen that those challenges foster innovation and openness among both businesses and our education system. So many actors are already pioneering new ways to both improve signaling and better design education and training programs to deliver in-demand competencies.

As outlined in this brief, federal and state policymakers have important roles to play in creating an environment in which colleges, universities, and training providers have the encouragement, flexibility, support, and resources to explore competency-based learning. In coming years, it will be important to make sure that rigorous evaluation is embedded in these efforts so that we can start building the evidence to understand the outcomes they yield for both students and employers.

Notes

- ¹ For trends in student debt over time, see "Student Debt Continues to Rise," Peter G. Peterson Foundation, July 18, 2018, <https://www.pgpf.org/blog/2018/07/the-facts-about-student-debt>.
- ² For more information about competencies, see "Developing a Competency Model – The Basic Elements and Steps," Competency Model Clearinghouse, accessed March 11, 2020, https://www.careeronestop.org/CompetencyModel/GetStarted/userguide_competency.aspx.
- ³ For more information on the Job Data Exchange, see "Job Data Exchange," US Chamber of Commerce Foundation, accessed March 11, 2020, <https://www.uschamberfoundation.org/workforce-development/JDX>.
- ⁴ For more information on Talent Pipeline Management, see "US Chamber of Commerce Foundation Talent Pipeline Management Initiative," US Chamber of Commerce Foundation, accessed March 11, 2020, <https://www.uschamberfoundation.org/talent-pipeline-management>.
- ⁵ For more information on the T3 Innovation Network, see "The T3 Innovation Network," US Chamber of Commerce Foundation, accessed March 11, 2020, <https://www.uschamberfoundation.org/t3-innovation>.
- ⁶ For more detailed information on the assessments available through SHRM, see "Why Talent Measurement?" Society for Human Resource Management, accessed March 11, 2020, <https://tac.shrm.org/why-talent-measurement/>.
- ⁷ Many of the institutions in early pilots of comprehensive learner records did not set out to identify and communicate the competencies within their educational programs but rather to provide a vehicle for validating the skills and competencies that students gain through extracurricular activities.
- ⁸ Studies have found that just providing these data through traditional delivery methods at schools is not sufficient. It is important to conduct market studies and pilot tests to design viable ways to disseminate information about the value of postsecondary credentials. For more information see Blagg et al. (2017).
- ⁹ Standards bodies are organizations that work with experts to come to a consensus on technical specifications for business and industry. Data standards in this context would essentially set up standard ways for metadata in student learner records and the competencies to be captured and communicated. This would facilitate interoperability among all adopters of the standard, including educational institutions, employers, and others.

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