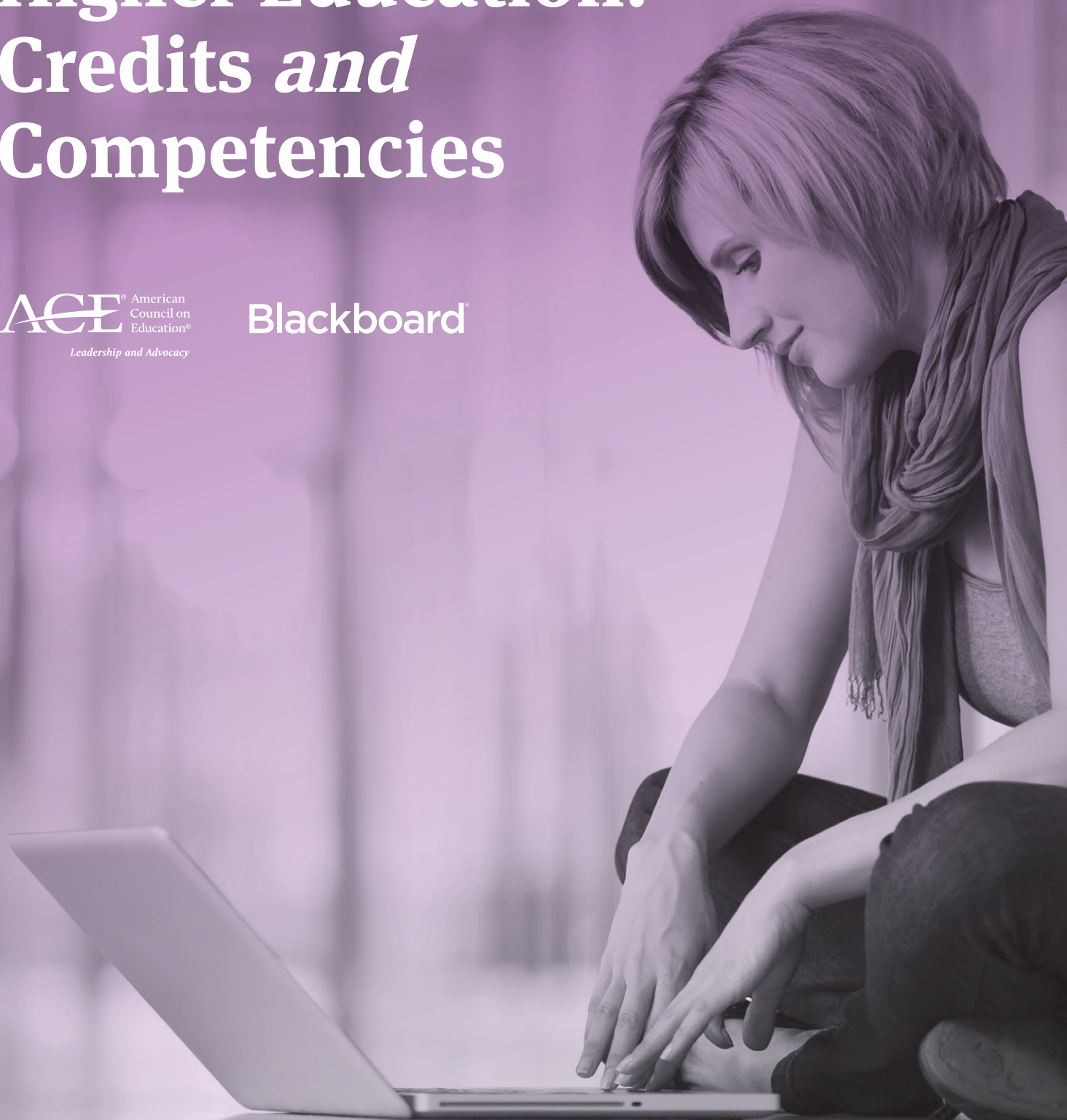


# The Currency of Higher Education: Credits *and* Competencies

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## The Currency of Higher Education: Credits *and* Competencies

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Innovations in educational models focused on learning outcomes have captured a great deal of attention, but there are many barriers to adoption and scalability. In 2013 we began to discuss a joint effort between the American Council on Education and Blackboard to research the development of badges and other micro-credentials representing learning outcomes as emerging trends in both higher education and training environments. As we spoke to interested stakeholders and proceeded with our investigation of outcomes-based innovations, we came to focus on competency-based education (CBE) as a significant source of credentialing that diverges from traditional post-secondary pathways. One practical impediment in our discussions was that not everyone was using the same terminology to refer to the same aspects of post-secondary education. This led to our development of a lexicon, *Clarifying Competency-based Education Terms: A Lexicon*,<sup>1</sup> to contribute to the field a shared vocabulary for discussion.

Following the distribution of this lexicon, we held four roundtables that included multiple stakeholders and subject matter experts in the area of CBE. Our goal was to discern the main areas of interest and concern, and potential gaps, that higher education CBE stakeholders faced. This paper is the result of those four roundtable discussions. We hope you will find it useful and that it will continue to provoke further CBE-oriented conversations in higher education circles.

A key premise of this paper is that while credit-hour processes are likely to remain deeply embedded in post-secondary systems for some time, there is ample opportunity for innovation with competencies as a parallel and complementary currency. Credit hours provide a basis for our current models of exchange in higher education, including credits required for degree attainment, financial aid, transfers between institutions, and other critical functions. Competencies can provide representations of learning outcomes that are more flexible and transparent and can be applied in multiple contexts within and outside educational institutions.

This paper focuses on the complexity of implementing CBE practices in the credit-hour environment, reflecting challenges surfaced in our roundtable discussions. But it also helps us visualize new opportunities– in the Appendix we provide scenarios that illustrate how competencies provide broad value in educational processes, not only as a means of documenting student achievement, but also to create meaningful connections between jobseekers and employment, for faculty and staff development, and for economic development.

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We would like to acknowledge our roundtable participants, who contributed many of the ideas in this paper but are not responsible for our synthesis and conclusions: **David Bergeron** (Center for American Progress), **Jay Box** (Kentucky Community and Technical College System), **Wayne Brown** (Excelsior College), **Bernard Bull** (Concordia University Wisconsin), **Deb Bushway** (Capella University), **Marie Cini** (University of Maryland, University College), **Stacey Clawson** (Gates Foundation), **Chip Coons** (Western Governors University), **William Curtis** (Brandman University), **Van Davis** (Texas Higher Education Coordinating Board), **Andrea Deau** (University of Wisconsin Extension), **Anne Derryberry** (Sage Road), **Veronica Diaz** (Educause), **Laurie Dodge** (Brandman University), **John Ebersole** (Excelsior College), **Wade Fields** (Capella University), **Laura Galloway** (Brandman University), **Evelyn Ganzglass** (Center for Law and Social Policy), **Martyne Hallgren** (Bellevue University), **Mary Hawkins** (Bellevue University), **Fred Hurst** (Northern Arizona University), **Kate Kazin** (Southern New Hampshire University), **Becky Klein-Collins** (Council for Adult and Experiential Learning), **Charla Long** (Lipscomb University), **Dan Madzellan** (American Council on Education), **Mary Alice McCarthy** (New America Foundation), **Kara Monroe** (Ivy Tech Community College), **Erin Noseworthy** (City University of Seattle), **David Pinkus** (Western Governors University), **Michael Reilly** (American Association of Collegiate Registrars and Admissions Officers), **Sallie Reissman** (Wilmington University), **Cathy Sandeen** (University of Wisconsin Colleges and Extension), **David Schejbal** (University of Wisconsin Extension), **Linda Schott** (University of Maine, Preque Isle), **James Selbe** (Kentucky Community and Technical College System), **Marc Singer** (Thomas Edison State College), **Louis Soares** (American Council on Education), **George Timmons** (Excelsior College), **Joseph Vibert** (Association of Specialized and Professional Accreditors), **Karen Vignare** (University of Maryland, University College), **Belle Wheelan** (Southern Association of Colleges and Schools Commission on Colleges), and **Brian Worden** (Capella University).



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**Credits and competencies both reflect important structures of value for diverse stakeholders.**

## **Introduction**

For over a century, the credit hour has been a unit of measure in U.S. post-secondary education, a recognized “currency” for educational achievement and completion of credentials. Processes built around credit hours are based on industrial-age, highly-structured, time-based educational models, presenting challenges in adapting these processes in an information-age economy that relies on greater flexibility and the ability to apply learning in rapidly changing circumstances. Recent innovations in competency-based education address 21st-century needs by focusing on mastery of competencies regardless of “seat time,” providing opportunities to reconsider how educational systems can be structured around learning outcomes. This shift in focus can generate new “currency” based on the value of competencies among stakeholders in our educational ecosystems. This paper investigates the social, practical, and policy implications of competency-based education and how credits *and* competencies both reflect important structures of value for diverse stakeholders: government agencies, educational leaders and administrators, faculty, assessors, students, and employers.

The “Carnegie unit” was originally defined in the late 19th century as a way of standardizing students’ high school work to facilitate college admissions.<sup>2</sup> It was broadly adopted in U.S. post-secondary education as an eligibility requirement for the Carnegie Foundation for the Advancement of Teaching faculty pension system.<sup>3</sup> Soon the “Carnegie unit” was adapted to define time-based “credit hour” units for determining faculty teaching load as part of the standardization of educational processes and degrees in an industrial era. The credit hour was never intended to measure student learning, but over the years it accrued value as a proxy for student outcomes and as a well-understood, common unit of course and credential time-based processes.

As early as 1906, the Carnegie Foundation explicitly stated the distinction between time spent in a learning process and the learning results attained.<sup>4</sup> Ernest Boyer, then president of the Foundation, re-iterated this point in 1993 and went on to state, “for far too long education in this country has been based on seat time, not on learning... the time has come to bury once and for all the old Carnegie Unit”.<sup>5</sup> Nonetheless, so many educational processes rely on the fixed, standardized unit of the Carnegie credit hour that a massive retooling would be necessary to use different methods of measurement.

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The entrenched nature of the credit hour does not mean that educational systems focused on learning outcomes are not possible and desirable. In fact, critics of the credit hour argue that alternative models for recognizing student learning are essential to address the shortcomings of the opaque and unreliable representations provided by grades and academic transcripts. Several other illustrations of these same issues include:

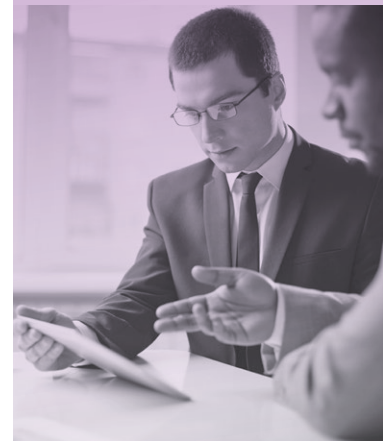
- › Different university-level Biology 101 courses taught differently can have different learning outcomes, but the same credit value.
- › The same course across higher education institutions can have both different syllabi and different credit values.
- › 21st century employers complain about the lack of workforce skills that 120 credits of higher education can represent.

External influences are exerting pressure on higher education to develop alternatives to traditional seat-time models and help students achieve lifelong learning and career goals.<sup>6</sup>

- › Approximately 85% of U.S. higher education students today are not attending full time, living on campus, or being supported by their parents. The majority are over 25, need to work to afford education, attend multiple institutions, and are actively working toward job and career goals.<sup>7</sup>
- › Jobs increasingly require post-secondary education and workers need to find ways to access upward mobility that's affordable and timely.<sup>8</sup>
- › There is a perceived mismatch between what employers need and what traditional education is providing.<sup>9</sup>
- › Even in this time of stubborn unemployment and under-employment, 40% of U.S. employers report difficulty in filling jobs due to a lack of applicants with appropriate skills, with the talent shortage most acute in skilled trades. More than half of employers state that this gap has a significant impact on their businesses.<sup>10</sup>

Competency-based education programs can be designed to address these issues. Given the broad implications of federal, state, and institutional policies and practices based on the credit hour, CBE faces fewer barriers when outcomes-based approaches are compatible with credit-hour systems and processes. Federal guidelines for direct assessment and experimental sites can provide a context for more extensive future changes in our educational systems, but in the short term, the reach of these initiatives will extend to few students. Innovating “within an existing frame,” as Amy Laitinen points out in *Cracking the Credit Hour*,<sup>11</sup> is also an effective approach, and one that can rapidly provide benefits for large numbers of students.

**Competency-based education faces fewer barriers when outcomes-based approaches are compatible with credit-hour systems and processes.**





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## Do we need a new currency for measuring post-secondary outcomes and achievement?

Considering these key issues, this paper raises questions concerning the broader implications of CBE, philosophical challenges surrounding the credit hour and competencies, pragmatic and scalability issues in CBE programs, and student and employer understanding of competencies, as reflected in our roundtable discussions. These questions and implications are framed by illustrations of the currency value of credits and competencies in educational ecosystems.

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### Credits as currency

Do we need a new currency for measuring post-secondary outcomes and achievement? Credits are well-understood currency, used throughout administration, management, and funding processes among post-secondary education stakeholders. The longevity and ubiquity of credits implies tacit understanding of their value, but a deeper understanding of this value requires analysis of how it is derived and validated.

Just a few representative examples illustrate how credits provide practical value and address some critical needs of key stakeholders in post-secondary ecosystems.

#### Government stakeholders

- › Federal and state government agencies use credits to define how financial aid is awarded.

#### Educational institution leader stakeholders

- › Educational institution leaders use credits to understand key performance indicators at their institutions, such as enrollments, progress toward degrees, and degree attainment.

#### Institutional administrator stakeholders

- › Institutional administrators use credits to manage enterprise education business processes and to track key components, such as full- and part-time student status, faculty teaching load, and the definition of degree requirements.

#### Subject matter expert stakeholders

- › Subject matter experts use credits to define the units in curriculum structures that become degree requirements.

#### Teaching faculty stakeholders

- › Teaching faculty use credits to measure their teaching load, what counts as overload, and full-time/part-time status, which applies to retirement and other benefits.

#### Assessment stakeholders

- › Assessment stakeholders both inside and outside the educational institution use credits as units that encapsulate learning achievements to be evaluated and measured, both for individual students and across programs and degrees.

#### Student stakeholders

- › Students use credits to understand degree requirements and progress toward degrees.

#### Employer stakeholders

- › Employers see credits as components of degrees and as units of measurement for tuition reimbursement programs.



The value of education, of course, goes far beyond these practical needs. The validation of credits and evaluation of how well they meet the needs of 21st-century educational ecosystems is complex and multi-faceted. Validation requires collectively answering questions such as:

- › Do the credits accurately represent the learning achievements they're designed to represent?
- › To whom are the credits meaningful, and how is that meaning applied in ways that provide value for stakeholders?
- › Does the provider have the authority to issue the credits?
- › Has the learning represented by the credits been accurately assessed?
- › Are the credits valuable in contexts other than the institution issuing the credits?
- › Are the learning achievements represented by the credits applicable in multiple contexts, and what is their "exchange value" in various contexts?

Addressing these questions goes beyond the practical utility of credits in order to evaluate the breadth and depth of their validation. This evaluation is complicated by the fact that the values in our educational ecosystems are changing in response to 21st-century needs. The shift from industrial models of education to information-age innovations is exposing fissures in systems that assume the value of credits.

**The shift from industrial models of education to information-age innovations is exposing fissures in systems that assume the value of credits.**

Representative examples illustrate how credits fail to address some critical needs of key stakeholders in post-secondary ecosystems.

### Government stakeholders

- › Credit-hour systems and their corresponding financial aid requirements work against students who cannot complete a degree in one stretch of time and at a single educational institution, thereby hindering degree attainment, employment, and economic growth.

### Educational institution leader stakeholders

- › Credits do not represent educational quality, the validity of learning achievements in multiple contexts, or the ability of graduates to succeed in lifelong learning and careers.

### Institutional administrator stakeholders

- › Credit systems are rigid and difficult to adapt to changes in curriculum and flexible models for degree requirements.

### Subject matter expert stakeholders

- › Credits do not adequately represent the complexity of learning achievements in a body of knowledge and how those achievements are applicable in multiple contexts.

### Teaching faculty stakeholders

- › Credits do not accurately represent the complexity of a teaching load or the investments faculty make in helping students achieve learning outcomes.

### Assessment stakeholders

- › Credits do not represent educational quality, and they are rather arbitrary units to encapsulate learning achievements to be evaluated and measured, both for individual students and across programs and degrees.

### Student stakeholders

- › Credits do not transparently represent students' learning achievements, and they often are not portable or applicable across multiple contexts.

### Employer stakeholders

- › Credits do not adequately represent learning achievements or what a potential employee can do.

Can competencies provide a new currency that augments the value of credits in educational ecosystems? How do competencies address the needs of 21st-century educational ecosystems?

**Can competencies provide a new currency that augments the value of credits in educational ecosystems?**





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## The implications of competency-based education

Competency-based learning (CBL) models and competency-based education (CBE)<sup>12</sup> programs are evolving rapidly as stakeholders throughout our educational ecosystems confront the complex implications of focusing on learning outcomes.

The United States Department of Education has been taking a long, hard look at creating alternative pathways for college completion for post-traditional learners. This federal examination has led to recommendations regarding CBE programs and their value for students facing barriers to completing a college degree in the traditional manner. Federal guidance now includes structured opportunities for direct assessment and experimental sites for deeper exploration of the value of CBE.<sup>13</sup> Regional accreditors have examined both their philosophies and their guidelines regarding competency-based degree programs and credentials in order to foster innovation while ensuring quality.<sup>14</sup>

Individual colleges, universities, and even university systems have initiated programs incorporating competencies as the central focus.<sup>15</sup> These examples of CBE are provoking strong discussions among academics about how competencies map to their current programs and goals. Participants in the CBE movement are beginning to realize the many broad implications of these innovations, including:

**Societal implications:** Competency-based models open up possibilities for long-needed renewal of higher education and institutional opportunities to participate in: (a) transitioning from an industrial to an information society; (b) restructuring the economics of higher education, and (c) democratizing access for underserved populations.

**Practice implications:** Competency-based models may solve the issue of outcomes and achievement accountability with which institutions now struggle, as assessment and accountability are inherent in the structure of a competency framework.

**Policy implications:** If competency-based systems are ultimately supported by federal and state policies to the extent of credit hour-based systems, the systems can inform each other and work against the forces of stagnation and obsolescence. If federal and state policy makers formally recognize the value of competency-based systems, this would encourage the potential for growth of CBE programs and hasten evolution of the currency value of competencies.

**Competency-based models open up possibilities for long-needed renewal of higher education.**

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## **Philosophical challenges regarding credits and competencies as currency**

One of the issues that often comes up in the debates over credit hour-based learning and competency-based learning concerns validation of learning achievements. Assuming both models employ assessments of student learning and achievement, the controversy is really about what is being assessed in each instance. To put it most boldly, what is important to validate in a student's learning experience – the amount of time put into a chunk of instruction and the student's ability to reiterate what was contained in that instruction, or mastery of a competency that is demonstrated by the student's ability to apply it in a given situation?

**What is important to validate in a student's learning experience?**

Of course, this binary represents two ends of a spectrum of thought about the goals of instruction, learning, and certification of learning. Few would be in agreement with the former in its strictest form, as almost all higher education professionals would agree that a rote repetition of what was learned is not a sufficient demonstration of student achievement. So the philosophical debate is actually more subtle. It is about degrees of competency demonstration, and degrees of competency leading to actual mastery. And it is about how different assessors choose the types and degrees of competency to which credits are assigned. Thus, how credits correlate (or not) to competencies is really the nexus of the philosophical debate.

**What do CBE and credit hour currencies represent?**

Digging a little deeper, the discussion becomes more subtle yet, as there are degree and licensure programs that have always had to measure and assess competency and mastery in standardized ways – such as in medicine, nursing, law, accounting, education, and a number of other disciplines. Is it the case that credits in these disciplines hold a greater value than in other disciplines, because the need for basic comparability across degree programs has always been greater for these disciplines?

Considering the transferability or portability of knowledge, credits, and competencies, one practical implication is the use of credits from one institution to another. Credits are rather easily transcribed and transferred, although students often do not get the full value of these credits at a different institution. How are competencies as units of knowledge and/or ability transferred? Are there new methodologies or technologies that can assist with this? If none exist as of yet, what are the specifications needed for such innovations? The basic university transcript does not seem like a solution, especially in the case of transfer of competencies between institutions that use different sets of competencies or different assessment methodologies for competencies.

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Naturally, this leads to the notion of possibly sharing or standardizing competencies as open assets. Wouldn't competencies transfer more easily if they could be standardized across university programs? Does this imply that every university program should follow the model of licensure programs which require a comprehensive licensure examination or assessment, for example? Are standardized competencies a requirement to establish their value?<sup>16</sup> And would standardization of competencies contribute to higher education ecosystems of trust and validation?

Other key philosophical challenges pertain to faculty performance and responsibilities. Under a competency-based system, how are faculty performance and load defined? How are faculty trained and their performance measured? Should the measurements be based on the competency achievements and mastery of their students? Given the recent trends in disaggregation of faculty roles in CBE programs, what new models for faculty responsibilities are evolving, and how well do these models meet the needs of stakeholders in our educational ecosystems? Are these models more scalable than those used under standard credit-hour teaching systems? Are they less so?

Broader implications include:

**Policy implications:** Because a competency-based system can make learning more visible, the portability or transferability issue, particularly around basic skills assumed to be delivered through general education programs, could be greatly simplified. With minor differences between institutions in criteria for evaluating critical thinking, written communication, information literacy, quantitative reasoning, oral communication, scientific reasoning, etc., a competency-based medium for transfer could be much more straightforward than in current practices.

**Practice implications:** Competency-based systems and the disaggregation of the roles of faculty offer renewal for faculty through a shift from being responsible for everything that occurs in a course to focusing on specific skills and passions: designing and curating powerful environments for students' construction of knowledge; mentoring; evaluating student performance; and evaluating program performance.

**Competency-based systems can make learning more visible.**

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**Synthesizing business goals across CBE and traditional credit-hour programs helps all stakeholders understand the value of CBE innovations.**

### **Pragmatic and scalability issues**

A recurring theme in most discussions of the practicality of introducing CBE programs at higher education institutions revolves around the inter-operability and integration of systems already in place with the requirements for CBE. This implies that the technology already in place may need upgrades and changes; but it also implies that the processes and procedures already in place at post-secondary institutions may need upgrades, revisions, workflow changes, and innovative thinking.

Most technologies utilized by higher education were built with credits as the units of student achievement and progression, including how term lengths are built into the systems and how they output data and provide reporting. Various adaptations are necessary to integrate these systems with competency-based requirements, such as varying term lengths, allowing for self-paced learning, permitting assessment on demand, and tracking different types of learning achievements. Bridging strategies are in place for CBE programs in the context of a larger, credit-based institution, but one of the major pragmatic challenges faced by such programs is the system integration and the technology adaptation needed for scalability of CBE programs. Temporary manual solutions are common; but there is a need for longer term, more growth-oriented technological solutions for CBE in post-secondary contexts.

Some institutions initiate CBE programs outside the main institutional complex, in part to avoid having to address the technology integration issues. But in order for such programs to scale, become integrated with the rest of the institution, and meet the broader needs of stakeholders, the technological, staffing, and process requirements of CBE need to become part of the infrastructure of the institution. In particular, isolated CBE programs do not meet the needs of students who transfer between programs or expect continuity from one educational experience to another. Capitalizing on areas of overlap and synthesizing business goals across CBE and traditional credit-hour programs helps all stakeholders understand the value of CBE innovations.

Other pragmatic issues include: (a) current models of faculty compensation are contingent on the credit hour as a basis for pay and promotion, most especially in the arena of contingent faculty pay structures, and (b) most financial aid is disbursed based on the credit hour. This refers back to the steps the Department of Education is taking to encourage the re-examination of current teaching, assessment, and tuition models, as well as financial aid and how it gets distributed.

Broader pragmatic issues include:

**Societal implications:** The technology and processes needed to implement CBE span the entire student lifecycle, creating a need for industry-wide policy and practice strategies that reflect industrial-to-information age shifts.

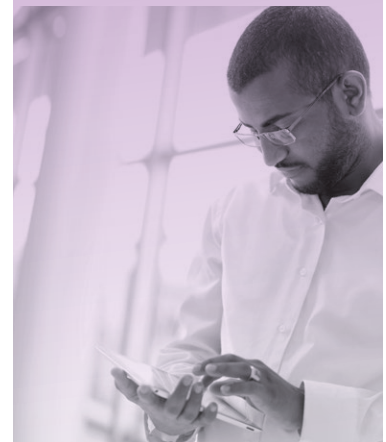
**Policy implications:** Once CBE practices attain critical mass and establish productive business models, state and federal policy may begin to recognize and support the practice through policy shifts that reward transparency and performance.

### **Student and employer understanding of the value of competencies**

Typical discussions with students about achieving a post-secondary degree tend to revolve around how many credits are needed to complete their studies. This is natural, especially in a higher education world in which credits have been the standard currency for over a century. Explaining to students that a competency-based degree can actually be advantageous to them can pose challenges in understanding and confidence that they are pursuing the “right” path. Students may want to know how they can evaluate the quality of a CBE program, most especially if they are post-traditional students who are making their own decisions about where and what to study. Presenting the advantages of a CBE program, including self-paced study, the ability to advance based on competencies they have previously mastered, access to mentors or tutors as part of the program, and other special features, could help to communicate the value of CBE. Students who are already working in the career or professional space in which they are studying could be the best candidates for CBE programs.

As CBE programs tend to be tightly tied to workforce opportunities and professional credentials, employers are key stakeholders both in the formulation of the competencies needed to achieve a competency-based degree and in the degree’s marketability. Many competency-based program designers interview employers about the skill sets necessary for career success, and many include employers in the development of their competencies, instructional materials, and assessments. Some CBE programs include an on-the-job component in which employers play a critical role in the success of students achieving their learning goals. Employer participation in the creation and implementation of pathways to success for students is an important component in CBE program efficacy.

**Employer participation in the creation and implementation of pathways to success for students is an important component in CBE program efficacy.**



**Badges, micro-credentials, and competencies can accrue exchange value among students and employers.**

Nevertheless, the question remains as to whether employer acceptance of competencies will easily translate in a scalable way into student demand for competencies. This is one of the crucial unknowns as the CBE trend gains momentum. One feature of competency-based innovation has been the evolution of badges and other micro-credentials as useful bearers of competencies achieved and milestones attained – most especially as related to employment skills and workforce needs. As industries and employers begin to accept the value of such accomplishments, badges and micro-credentials can become part of the framework for competencies and their exchange value among students and employers.

Other implications include:

**Societal implications:** The growth of CBE could lead to more dialogue between education and business, opening opportunities for business and industry to influence higher education beyond the current commercial partnerships in the higher education space.

**Practice implications:** CBE provides educators with clear teaching targets and provides students with clear learning targets. Education thus becomes demystified for all stakeholders, including employers.





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## Competencies as currency

How can competencies provide a new, complementary currency for professional credentials, just as credit hours already have recognized currency value? In order for competencies to have currency value, they need to provide real benefits in complex ecosystems of stakeholders and processes.

Just a few representative examples illustrate how competencies provide practical value and address some critical needs of key stakeholders in post-secondary ecosystems.

### Government stakeholders

- › Federal and state government agencies benefit when competencies are well-aligned with workforce development, providing direct economic/employment benefits.

### Educational institution leader stakeholders

- › Educational institution leaders benefit when competency-based programs improve student satisfaction, retention, and degree attainment.

### Institutional administrator stakeholders

- › Institutional administrators benefit when competencies are mapped to clear, logical degree requirements and provide scaffolding for the relationships among stackable credentials.

### Subject matter expert stakeholders

- › Subject matter experts benefit from competencies that clearly articulate the learning outcomes within and across disciplines.

### Teaching faculty stakeholders

- › Teaching faculty benefit from transparent understanding of targeted student learning outcomes.

### Assessment stakeholders

- › Assessment stakeholders benefit from well-defined competencies that reflect learning achievements to be evaluated and measured, both for individual students and across programs and degrees.

### Student stakeholders

- › Students benefit from transparent understanding of the competencies required for credentials.

### Employer stakeholders

- › Employers benefit from transparent understanding of the competency mastery of graduates.

The validation of competencies and evaluation of how well they meet the needs of 21st-century educational ecosystems can be honed by collectively answering questions such as:

- › Do the competencies accurately represent the learning achievements they're designed to represent?
- › To whom are the competencies meaningful, and how is that meaning applied in ways that provide value for stakeholders?
- › Has the learning represented by the competencies been accurately assessed?
- › Are the learning achievements represented by the competencies applicable in multiple contexts, and what is their "exchange value" in various contexts?

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These are some of the same questions as can be applied to the value of credits, and the responses will not be the same for credits and competencies, as these representations of learning achievements serve different purposes. Competencies are more variable and more prone to change over time than the fixed-unit representation of credit hours, which is both a strength and a weakness. So it's not surprising that competencies also present challenges for key stakeholders in post-secondary ecosystems, as these examples illustrate.

#### **Government stakeholders**

- › Competencies are not equal units of measurement, and students pursue different paths to competency mastery, complicating processes for determining financial aid and other types of student support.

#### **Educational institution leader stakeholders**

- › Competencies change over time, requiring ongoing investment in redefinition of degree requirements and alignment to workforce needs.

#### **Institutional administrator stakeholders**

- › Because competencies are not equal units of measurement and students pursue different paths to competency mastery, institutional reporting, financial, and time/term-based processes are more complex.

#### **Subject matter expert stakeholders**

- › Changes in competencies over time require ongoing revision of learning resources, curriculum, and competency scaffolding.

#### **Teaching faculty stakeholders**

- › Students' progress toward competency mastery and their need for support is variable, unlike the predictable pacing and load of terms with final grades delivered at an end-date.

#### **Assessment stakeholders**

- › As competencies change over time, assessments and related resources also require ongoing revision, complicating assessment research and longitudinal analysis.

#### **Student stakeholders**

- › Lifelong learning requires ongoing mastery of new/additional competencies, unlike the fixed credits represented in a terminal degree.

#### **Employer stakeholders**

- › Alignment of competencies to job requirements needs periodic revision and investment in ongoing collaboration with education providers for workforce development.

The requirements for a terminal, credit hour-based degree can be relatively static for decades, providing stability and certainty for stakeholders in our educational ecosystems. But the cost of this stability can be stagnation and a lack of dynamic interactions between academic institutions and other stakeholders. A balance between the benefits of credits and competencies can provide a basis for ongoing revision, rejuvenation, and investments in innovation, making post-secondary credentials living, breathing reflections of the needs of a 21st-century world.

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## Appendix: Competency-based education scenarios

Scenarios illustrate how competencies can add value to educational processes, not only as a means of documenting student achievement, but also to create meaningful connections between jobseekers and employment, for faculty and staff development, and for economic development.<sup>17</sup> These fictitious scenarios provide examples of how currency value for competencies can be established among stakeholders.

### University context

The University of the Plains system is comprised of the flagship campus and four satellite institutions. Plains enjoys international standing for its research in sustainable agriculture and veterinary sciences and a strong regional reputation for medicine, business, education, and engineering.

Plains was hit hard during the recession. Enrollments are down, retention rates are low, and state funding has been decreasing for years. Their state legislature is phasing in performance-based funding, and university stakeholders are concerned that they are not prepared for these changes that could impact finances even more. They see CBE programs as a potential advantage in attracting and keeping students, but there are many questions about how these programs would be designed and provide value.

### Government stakeholders

The Governor and the state legislature, in a rare show of bipartisanship, committed to establishing Plains as a magnet for sustainable agriculture business models and entrepreneurship. Their goals in funding new initiatives at Plains include bolstering economic development in the state, retooling the many unemployed former manufacturing workers, and keeping more of the state's talent educated and employed in the state. In answer to the call, the Chancellor of the University of the Plains

system hired a Chief Innovation Officer to launch a Center for Entrepreneurism and to work with regional economic development agencies to ensure that Plains is adequately preparing students to meet employment and economic goals.

### Economic development context

The Chief Innovation Officer and her team reached out to the state Chamber of Commerce as well as regional economic development agencies. They convened several summits including employers and collected existing research to document current employment patterns and future trajectories, skills gaps, and demographic information on education levels and workforce characteristics in different regions. They also studied national research and identified successful innovative educational models in other states.

Their structured discussions with regional employers provided very useful and specific information on what the employers needed in their employees and what competencies graduating students lacked. A recurring theme was the need for essential non-specialized skills such as collaboration, negotiation, analysis, synthesis, and ethics. Employers emphasized that they need employees who can learn and adapt as the job requirements change, so that they can grow their own career professionals and not just hire for specific positions. Some of the regional employers offered to engage in formal collaboration with Plains to help structure competency-based programs, and almost all of them agreed to provide internship opportunities for Plains students.

Based on the team's analysis, the Chief Innovation Officer identified six potential stackable credentials that could be combined in various ways to address the Governor's economic development goals.

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### **University leader stakeholders**

The Chancellor recognized immediately that the legislature was not providing enough funding to launch six entirely new credential programs. But he also knew that his institutions already had many valuable components for new or redesigned programs. Presidents, Provosts, Deans, and faculty leaders from the Plains institutions formed a task force to work with the Chief Innovation Officer on defining the path forward.

The task force analyzed current programs, the strengths of faculty in disciplines related to the potential new programs, and industry relations they already had in place to help define programs addressing the Governor's goals. They decided to create a new certificate program and undertake redesign of two existing A.S. and B.S. degrees, all of which would be stackable and based on a shared competency framework. In these programs, students would achieve specific competencies, which add up to a certificate, which builds toward an A.S., which builds toward a B.S.

### **Subject matter expert stakeholders**

A focused team of subject matter experts, including faculty and industry specialists, undertook the holistic design of the stackable credentials. While all of the three credentials would use the same set of competencies as a framework, the design allowed for the regional institutions to adapt the credentials with different areas of emphasis and supplemental competencies and occupational skills to meet the goals of the individual institution and the needs of local employers.

The team sought the advice of industry associations, standards bodies, and specialized accreditors to incorporate existing competency definitions and flesh out the competency framework. They took into account not only job-related competencies required within the targeted industries, but also broadly applicable intellectual skills such as those defined in the Degree Qualifications Profile.<sup>18</sup>

The work of building the competency framework included much vigorous debate among the faculty as they developed a shared understanding of how these competencies represented the learning outcomes in their disciplines and how they could align their intellectual work with the goals of the institution and the demands of workforce development. The team included as many faculty as possible in specific areas of competency definition. They led monthly online town hall meetings to provide transparency and address questions and concerns from their colleagues, including those who were not directly impacted by the new and redesigned programs. They knew that if they were successful, other departments and programs would undertake similar efforts, so it was important that their work not be branded as "alternative."

### **Teaching faculty stakeholders**

Once the competency framework was a solid draft, the work expanded to include all faculty who would be teaching in the programs as well as instructional designers and assessment experts. They formed teams and participated in professional development activities around "backward design," using learning outcomes as a starting point for the curriculum design. Course by course and topic by topic, they analyzed their existing courses, learning resources, and assessments to determine what could be restructured to support students working toward mastery of the competencies. They identified many gaps that needed to be filled, but they were also gratified to organize all the great resources they had developed over the years and apply them in meaningful ways in the competency scaffolding.

This work forced the faculty to think holistically about how the topics they had been teaching in relative isolation were part of a larger whole. They realized that they had not been providing clear learning pathways for students from course to course and throughout their progress toward credentials. The stackable credentials began to make a lot of sense as they rethought learning modules and

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considered the value of the scaffolding—students achieve specific competencies, which add up to a certificate, which builds toward an A.S., which builds toward a B.S. And at each milestone, even with individual competencies, students can use their learning achievements in their current careers and/or in their career progress.

With the focus on learning outcomes, faculty grappled with how they could best organize resources to provide flexible pathways that would help each and every learner succeed. This process helped the faculty very concretely tackle their fears about the new state mandates around performance-based funding—with the help of their colleagues, instructional designers, and assessment experts, they designed learning scaffolding that would largely eliminate failing grades.

Many faculty had been concerned that the focus on competencies and economic development would squelch liberal arts and the humanities. But they heard first hand from employers that they needed employees who could think broadly, write well, analyze critically, and articulate complex ideas—bedrock competencies in the liberal arts. The faculty worked closely with assessment experts to help design rubrics to evaluate competencies demonstrated in many different types of learning artifacts, including those from humanities disciplines.

The faculty also paid special attention to interdisciplinary overlaps, which became part of the competency-based curriculum and fostered fruitful discussions with colleagues in other departments and at other Plains institutions. Many of these interdisciplinary collaborations developed into areas of emphasis that supplemented the competency-based framework at the regional institutions. The new curriculum gave faculty opportunities to teach across disciplines at their own institutions and across others, as online courses in the shared competency framework became interoperable.

### **Assessment stakeholders**

In adopting CBE, Plains also adopted authentic assessment. To meet their goals of aligning students' learning outcomes to employers' needs, assessments in their programs require students to demonstrate competency mastery in projects or assignments approximating real-world scenarios. Traditional objective testing is still used for pre-tests and self-assessments in the competency-based courses to help students understand their own learning progress, but multiple-choice, fixed-response summative assessments have been replaced by authentic assessments requiring demonstration of mastery.

In fact, many students demonstrate their competencies in workplace settings. Plains has developed extensive internship options as part of their competency-based programs, and students can complete on-the-job projects or work artifacts to be assessed for competency mastery. Assessment experts have developed well-designed rubrics that consistently evaluate the criteria for mastery regardless of the learning artifact being assessed. The rubrics also provide transparency, so that students know how their work will be evaluated, and a framework for detailed feedback to students, so that they can attempt mastery as many times as needed while learning from their attempts.

Competencies are tied to assessment, not to specific learning activities. To a certain extent, how the competencies are acquired, or what curriculum the student is exposed to, or even whether there was a curriculum, matters less than demonstrated competency mastery. As a consequence, assessment can be decoupled from educational programs for the purposes of evaluating competencies. That makes competency-based programs highly compatible with credit for prior learning, as a way of documenting competencies acquired through lifelong learning and professional development.

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Plains students have many different ways of being assessed for competencies they have achieved prior to being enrolled in the competency-based credential programs. As part of workforce development goals, Plains has approved industry-recognized assessments and certifications for some topics and specializations in their competency-based programs. Students can also demonstrate mastery by submitting portfolios of work for evaluation. Competencies mastered at other Plains institutions are seamlessly applied to students' degree progress, as well as through articulation agreements with many other institutions. And Plains accepts hundreds of different ACE CREDIT recommendations<sup>19</sup> aligned to their programs.

### **University administrator stakeholders**

University administrators and registrars knew from the beginning that the competency-based programs would impact their business practices. At the outset and at key milestones, they sought the guidance of the appropriate accrediting agencies to ensure that all programs would meet accreditation guidelines and federal financial aid requirements.

The competency framework provides crosswalks to courses and credit hours so that all stakeholders can clearly see how competencies map to these traditional units of organizing and measuring educational achievements. This also meets requirements for financial aid, employer reimbursement, and student transfer to other institutions or programs. Outside interest is growing as employers and admissions officers at institutions other than Plains see the competencies mapped to the credit hours. Students say that their employer reimbursement processes are easier because of the competencies. And the Plains registrars have begun a study to see if transfer students are getting more benefit from their transfer credits because of the competencies.

Grades have become less relevant, because all students receive B's on their transcripts for competency mastery. Their records show them as in progress for competency credit hours where they are enrolled but have not yet achieved mastery. The competency record that accompanies the university transcript has become much more important than grades for all stakeholders. The registrar has amplified this value by making the competencies available for inclusion in online profiles, so that students have verifiable records of individual competencies that they can use in the workplace and in other contexts.

Now Plains administrators use different data for analyzing program outcomes. Rather than evaluating enrollments and pass/fail rates, they now evaluate time to competency mastery for students with different demographic profiles. This has led to continuous program improvement, based on data-driven decision-making to achieve tailored and more efficient student success. Performance-based funding has become a non-issue in the competency-based programs, since almost all of the students either "pass" or transfer to other programs.

The required state reporting for the competency-based programs shows success across many measures, from student retention and time to graduation to employment and affordability. The state legislature has used this data to justify further investments in more programs at more institutions, including K-12 programs that provide dual enrollment for high school students. The state legislature has also adjusted their performance based funding regulations to provide bonus funding for student success in competency-based programs when students attain credentials with less financial aid. They have adjusted the wording of the regulations to better accommodate competency-based programs and stackable credentials.



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## **Student stakeholders**

At the heart of the ecosystem are the students, especially lifelong learners who need not just credentials, but also employment and career advancement. Ultimately, they need to persuade an employer that they have the skills and attributes that the employer is seeking. Well-defined competencies help them tell their story.

The University of the Plains system had originally been designed to meet the needs of a diverse student population, with different types of programs at the different regional institutions. But increasingly the system had been struggling to meet the needs of their student constituents, particularly those in more rural areas juggling families, jobs, and financial difficulties while trying to get ahead through further education. Online courses in some programs had helped, but the systematic revamp of programs to make them fully online and competency-based was the breakthrough that opened up flexible opportunities for far more students. Furthermore, the addition of new options for applying prior learning to degree progress gave many students the leg-up that made credential attainment a real possibility.

At first the students in the competency-based programs expressed concern and confusion about the new models, but they quickly came to appreciate the time flexibility, the tailored faculty mentoring, the options for different learning pathways, and the market value of their competencies. Now as students earn competencies, they include them in their online profiles along with learning artifacts as evidence of mastery. Curation of their lifelong learning identities gives them not only improved opportunities for connections with employers, but also, importantly, improved understanding of their own achievements and learning progress.

As soon as students started graduating from the competency-based programs, they became Plains' best advertisements. Their employment rates were immediately higher than most of the traditional programs, and their satisfaction rates were through the roof. The initial programs needed to be expanded to accommodate demand, and university leaders found it easy to advocate for competency-based redesign of other programs.

## **Employer stakeholders**

The well-defined competencies at Plains are informing and supporting a healthy employment ecosystem. Because the competencies are tied to assessments that are themselves tied to industry standards and best practices, the likelihood of finding the right match between a job seeker and an employer is greatly improved.

Job seekers present their competency records to employers along with their transcripts, resumes, and online profiles as part of their employment applications. Employers have much more targeted and relevant information about each applicant and can make more informed hiring and promotion decisions.

Increasingly, employers are issuing job descriptions that describe the work entailed in a particular job and the requisite skills alongside the competencies that the employer wants in an employee. Before, it was difficult for employers to determine that what a job seeker stated in an employment application or resume was true. With metadata associated with competencies and verification technology tied back to Plains, employers have the means to authenticate and substantiate the job seeker's assertions of qualification.

Full circle, the state government's initiative has evolved into a thriving ecosystem where competencies have well understood value among diverse stakeholders.

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## Endnotes

- 1 Everhart, Deborah, Cathy Sandeen, Deborah Seymour, and Karen Yoshino. 2014. *Clarifying Competency-based Education Terms: A Lexicon*. (The American Council on Education and Blackboard). <http://bbbb.blackboard.com/Competency-based-education-definitions>
- 2 Shed, Jessica M. 2003. "The History of the Student Credit Hour." *How the Student Credit Hour Shapes Higher Education: The Tie That Binds*. Ed. Jane V. Wellman and Thomas Ehrlich. (San Francisco: Jossey-Bass).
- 3 Laitinen, Amy. 2012. *Cracking the Credit Hour*. (New America Foundation and Education Sector). [http://newamerica.net/publications/policy/cracking\\_the\\_credit\\_hour](http://newamerica.net/publications/policy/cracking_the_credit_hour)
- 4 Harris, John. 2002. *Brief History of American Academic Credit Systems: A Recipe for Incoherence in Student Learning*. <http://files.eric.ed.gov/fulltext/ED470030.pdf>
- 5 Boyer, Ernest. 1993. "In Search of Community." <http://www.21learn.org/archive/in-search-of-community>
- 6 Portions of these examples are adapted from Deborah Everhart's Blackboard blog series on competency-based learning, 2014. <http://blog.blackboard.com/competency-based-learning-and-learner-centric-shifts-in-education/>
- 7 Soares, Louis. 2013. *Post-traditional Learners and the Transformation of Postsecondary Education: A Manifesto for College Leaders*. (The American Council on Education). <http://www.acenet.edu/news-room/Pages/Post-traditional-Learners-and-the-Transformation-of-Postsecondary-Education.aspx>
- 8 Carnevale, Anthony P., Nicole Smith, and Jeff Strohl. 2013. *Recovery: Job Growth and Education Requirements through 2020*. (Georgetown University). <http://cew.georgetown.edu/recovery2020>
- 9 *What America Needs to Know about Higher Education Redesign*. 2014. (Lumina Foundation and Gallup). <http://www.luminafoundation.org/resources/what-america-needs-to-know-about-higher-education-redesign>
- 10 *The Talent Shortage Continues*. 2014. (Manpower Group). [http://www.manpowergroup.com/wps/wcm/connect/0b882c15-38bf-41f3-8882-44c33d0e2952/2014\\_Talent\\_Shortage\\_WP\\_US2.pdf?MOD=AJPERES&ContentCache=NONE](http://www.manpowergroup.com/wps/wcm/connect/0b882c15-38bf-41f3-8882-44c33d0e2952/2014_Talent_Shortage_WP_US2.pdf?MOD=AJPERES&ContentCache=NONE)
- 11 Laitinen.

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**12** For the distinction between competency-based learning and competency-based education, as well as definitions of other terms, see Clarifying Competency-based Education Terms: A Lexicon.

<http://bbbb.blackboard.com/Competency-based-education-definitions>

**13** Steps taken by the Federal government include Direct Assessment (<http://ifap.ed.gov/dpccletters/GEN1310.html>), Experimental Sites (<https://experimentalsites.ed.gov/exp/index.html>), and funding incentives through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grants (<http://www.doleta.gov/taaccct/>).

**14** For example, regional accreditors are providing guidance for review of competency-based programs: Southern Association of Colleges and Schools Commission on Colleges (<http://www.sacscoc.org/pdf/081705/DirectAssessmentCompetencyBased.pdf>), Higher Learning Commission (<http://ncahlc.org/Monitoring/direct-assessment-competency-based-programs.html>), and Middle States Commission on Higher Education (<http://www.msche.org/?Nav1=POLICIES&Nav2=INDEX>).

**15** For examples of institutions and the organizations supporting collaboration in CBE, see CBE Jumpstart (<http://www.cael.org/what-we-do/competency-based-education>), administered by the Council for Adult and Experiential Learning (CAEL), the EDUCAUSE Next Generation Learning Challenges Breakthrough Models Incubator (<http://www.educause.edu/events/breakthrough-models-incubator>), and the Competency-Based Education Network (<http://www.cbenetwork.org/>).

**16** Soares, Louis. 2012. *A Disruptive Look at Competency-Based Education*. (Center for American Progress). <https://www.americanprogress.org/issues/higher-education/report/2012/06/07/11680/a-disruptive-look-at-competency-based-education/>

**17** Some material for these scenarios is adapted from “Badges: New Currency for Professional Credentials,” co-authored by Anne Derryberry and Deborah Everhart, 2014. <http://www.educause.edu/events/educause-learning-initiative-annual-meeting/2014/new-directions-learning-badges-and-peer-assessment>

**18** *The Degree Qualifications Profile*. 2014. (Lumina Foundation). <http://www.luminafoundation.org.php53-14.dfw1-1.websitetestlink.com/resources/dqp>

**19** American Council on Education College Credit Recommendation Service. <http://www.acenet.edu/news-room/Pages/College-Credit-Recommendation-Service-CREDIT.aspx>



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