

COMPETENCY-BASED EDUCATION: A COPERNICAN REVOLUTION

Nick White

Capella University, ntcwhite1000@gmail.com

KEY WORDS: competency based education

1. INTRODUCTION

At a gathering last year of the Competency-Based Education Network (C-BEN), Charla Long described competency-based education as “a Copernican revolution in the field of education.” That’s not the first time the phrase has been used to describe change in the field of education (Robert J. Seidel used it in the title of his 1969 book, *Computers in Education: The Copernican Revolution in Education Systems*), but it still may be the best metaphor to describe the complete paradigm shift that is the competency-based education movement—a shift from a focus on the institution to a focus on the student.

The Copernican Revolution was a shift in consciousness away from the assumption that Earth was the center of the universe with all the celestial bodies circling around it. The new and (for some) disturbing idea was that the Sun was at the center, and the Earth was just one of the bodies orbiting it, all within a vast universe with no apparent center. Competency-based education (CBE) upends the structure of the education system in a similarly revolutionary and disturbing way. Historically, the assumption has been that the student was in orbit around the university. In the emerging paradigm, the student is at the center. With this change, the CBE pioneers are in the process of breaking all the old assumptions and they are building the foundation of a future in which systems are optimized around releasing and maximizing the human potential of the student.

2. WHAT IS CBE?

Before going any further a few definitions are in order. CBE is a set of principles rather than a set of tactics and so there is an appropriate heterogeneity in both the terminology used and the implementations in place across the K-20 space. Some of the larger cleavages in practice are between the K-12 environment and the higher education environment. This article will focus on the higher education perspective. The leader in the higher education world is the Competency Based Education Network (C-BEN) and so this article will lean on C-BEN’s work to provide definitions and best practices from the field. C-BEN is funded by both the Lumina Foundation and the Bill and Melinda Gates Foundation and the explicit goal is to gather and support the current generation of CBE pioneers and to disseminate their insights. C-BEN defines CBE in this way:

- *Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities and experiences that align with clearly defined programmatic outcomes. Students receive proactive guidance and support from faculty and staff. Learners earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace.*

The principles implicit in this definition include strong curricular design, consistent assessment expectations, and variable pace. These three elements are essential and will be interwoven throughout this article. In practical terms, CBE is often associated with online learning and while there is no necessity that CBE be delivered online, the two approaches do often occur together. While online learning clearly promotes access,

another less-discussed result of the move to online learning is that it also promotes transparency. Because everything in online learning is documented and potentially transparent, in contrast to the traditional classroom, which is lightly documented and opaque, online learning promotes scrutiny, investment, and improvement. As an example, regional and programmatic accreditation bodies touch only lightly on course design. The growth of online learning created a need for peer review of course design, a need that the Quality Matters program emerged to fill. This is one of the ways in which online learning created the foundation for competency based education.

3. WHY THIS CHANGE? WHY NOW?

The tensions in higher education have been building for decades, with a release of those tensions seeming imminent. The criticisms of higher education have been copiously covered elsewhere; however, there are two overarching issues that capture most of the specific complaints. The first issue is that the curriculum of higher education is largely opaque and is not tied closely enough to workplace needs. Many students who complete degrees are therefore not adequately prepared for the workplace. Two indicators of this issue include Arum and Roksa's 2011 study, "Academically Adrift," which showed 45% of students demonstrated no significant gains across a variety of core academic skills, and the emerging trend of companies such as Google and Ernst & Young starting to hide credentials from hiring managers so that they do not bias hiring decisions (Havergal, 2015). While there is controversy around these examples, the discussion is a signal of the larger discontent. The second major issue is that the costs of degrees have reached unsustainable levels. The College Board (2015) reports that since 1975 the average tuition of a public four-year institution has risen almost 400%. There is little controversy that this is a problem but there is little movement toward arresting the growth in the costs of degrees.

What can be done? Any analysis of these issues shows that despite the misplaced focus on climbing walls and administrator salaries, the tuition increases are caused by deep, structural trends, such as the reduction of state investment nearly everywhere, and the rising cost of health insurance, that are difficult to reverse. Fortunately, if the lessons and patterns of history are applied to the present, there is every reason to believe that we are in the midst of momentous changes—the very changes needed in order to rethink the entire endeavor of education for the 21st century.

4. A REVOLUTION IN THE MAKING

A thousand years ago, books were incredibly scarce. Ownership of books was a sign of wealth. Libraries were centers of learning, around which scholars gathered to have access to books. Eventually these groups of scholars created the foundation of the university, and students gathered around them to receive guidance in mastering the content of those books. Over time, the structure formalized and came to include the validation and credentialing of that mastery. In the 21st century, books are not scarce. There has been, and is currently, a revolution in information and communication technology (ICT). The pace of change challenges existing institutions. These changes can be seen and experienced not just every day, but almost every minute, as people spend more and more of their time interacting with the devices that serve as windows into this ICT revolution.

But this is not the first great revolution in information and communication technology; in fact this is the fourth revolution. The first was the prehistoric development of language. The second was the development of writing, which initiated written history. The third was the era of mass communication caused by the

introduction of the printing press to Europe by Johannes Gutenberg, around 1440. The fourth is the ongoing revolution within which we are all living.

The closest analogy to the current situation is the third shift to mass communication that started in the 15th century. With any change there are obvious surface elements but also deeper structural shifts. In the 15th century, the most obvious change was the mass production and distribution of books, a democratization of learning that changed the world. Today the most obvious change is the Internet, which in a very similar way has been profoundly transformational. Anyone in the world with an Internet-connected device has access to an awesomely large library.

But what is most visible can also mislead. The most important effect of the printing press was not the simple distribution of books; it was the massive societal changes that resulted from the relatively unrestricted flow of information afforded by the printing press. To highlight just two of the effects of Gutenberg's introduction, the Protestant Reformation and the scientific revolution are generally understood to be direct outcomes of the provision of mass communication. But a structural revolution of social institutions takes time. The first book to be printed by Gutenberg was the Bible, but it was not until 1517, 77 years later, that Martin Luther famously nailed the Ninety-Five Theses to the church door. And it was not until 1543, 103 years later, that Nicolaus Copernicus published *De revolutionibus orbium coelestium* (*On the Revolutions of the Heavenly Spheres*), which prompted the Copernican Revolution and is also often cited as marking the beginning of the scientific revolution. The point of drawing these parallels is that the implications of an information and communication technology revolution do not become apparent and manifest in a few years, or even a few decades, they continue for hundreds of years. For example, the Catholic Church survived the Protestant Revolution, but it did not shift to the use of vernacular language until Vatican II in 1965, 525 years later.

In the present, it would seem that the most important effect of the Internet is not the ubiquity of access to information, but rather will be the profound structural changes to the system of education that it will cause. And we the effects of the current ICT revolution will likely take place within a similar timeframe, with some changes happening now, some over the next few decades, and some in the distant future. It is to be hoped that the cumulative effect of these changes, this nearly free dissemination of knowledge, will be one of the great waves of democratization in the history of humanity. But how can those changes be recognized? What will they be called? Online education was only the first step, but now those emerging changes, and the challenges to realize them, are most visible through the movement known as competency-based education.

How so? Why such broad claims for CBE? CBE is nothing less than a movement to throw off antiquated systems and customs and in their place build rational systems and approaches that democratize education to better serve students, employers, and society. CBE is a movement that recognizes that what are scarce now are the motivation, time, and money of students; it is a system of education appropriate for the knowledge worker and knowledge society of the 21st century.

5. THREE AREAS FOR FOCUS

This change will take time; there are large challenges to face to make this happen, and it will require the efforts of many brave and dedicated pioneers to get there. Fortunately, those pioneers are already deeply immersed in solving the problems. While the inception of CBE can be debated, the last major wave according to Ford (2014) was in the 1970s and resulted in innovative institutions and programs such as Alverno College and De Paul's School of New Learning. Leaders from this last wave are in many cases leaders of the current

wave, which is still in its early days, experimenting, seeking latitude from regulators and accreditors, and working through a variety of thorny problems. The challenges they are solving can be collapsed into three categories: Curriculum and assessment, instructional design, and structural barriers.

The first category is the revolution in curriculum and assessment design, the “what” of higher education. How do educators and administrators know what to teach, what to assess, and how to assess with appropriate validity and reliability? Interestingly, this is where there is the strongest overlap with workforce demands, and employers are beginning to be more assertive in advocating for their talent needs. This can take the form of experimenting with hiring practices that ignore degrees. It can be through university/employer partnerships such as the Arizona State University/Starbucks partnership, the Strayer/Chrysler partnership, and the many partnerships that College for America has. Or it can take the form of the community college/employer partnerships that are common but are especially visible currently through the TAACCT grants (TAACCT, 2014). These partnerships carry the promise of allowing students to obtain degrees with little or no debt, but they also carry the promise of talent development that is much more tightly aligned to the needs of those employers.

The second category is the revolution in instructional design, the “how” of education, that brings learning-science based practices into the center of the classroom as part of an ongoing, evidence-based reform. Dr. Deb Bushway, former senior policy advisor to the Department of Education, has said education is shifting from an individual sport to a team sport. In this model, a group of faculty members and staff bring a variety of perspectives, types of expertise, and research-based insights to help learners to succeed. Instruction moves from a focus on the teacher to a focus on the student, from a one-size-fits-all approach to a personalized approach in which time, location, pace, and path are flexible, and one of the roles of the education provider is to manage that complexity and make it simple. This change is already evident in the increasing sophistication of learning tools such as adaptive and interactive courseware. The Gates Foundation has been prominent in promoting this trend through its investments in digital courseware that uses learning science research to embed ongoing practice, feedback, and pathways that streamline the learning experience for each student. These tools do not exist, and cannot be successful, in isolation. They require shifts in the practices and expectations of faculty members, students, and advisors who are both adapting to working with software and making the software adapt to them, in an ongoing negotiation and evolution. These efforts are still in the experimental phase but are promising.

The third category is structural obstacles, and these are everywhere. As it stands, higher education is a convoluted and complex system, with many actors and a plethora of embedded assumptions that work against the necessary changes. The industry’s financial models are byzantine and built around the much-maligned credit hour, the currency of higher education. Regulators and accreditors, despite recent moves toward experimentation, largely enforce these financial models. Business processes and technology within institutions and outside higher education further reinforce these systems and make them exceedingly hard to change. Incentives for faculty members and staff tend to support our outdated systems. And finally employers buttress and justify the whole system by continuing to emphasize degrees as adequate and important filters for hiring. As consumers of the talent developed in universities, employers could be a transformative force in demanding a more rational and affordable system.

6. CURRICULUM AND ASSESSMENT DESIGN

Historically, curriculum and assessment has been a faculty-centered process. Individual faculty members develop syllabi and course descriptions, which they then share with curriculum committees for review and

improvement. This method has the virtue of being tightly integrated with the beliefs and experiences of individual faculty members who teach the courses (except when the courses are delegated to teaching assistants). The primary shortcomings of this approach are the weak connection between the curriculum and assessments and the needs of external stakeholders (including employers), and the opacity of the system for external stakeholders.

The outcomes assessment movement and the rise of specialized and programmatic accreditation over the last 30 years have provided a counterweight to this weakness and are arguably the foundation of the CBE movement. This is an inspiring example of reform from within, as all levels and types of accrediting bodies have increasingly demanded coherent learning outcomes for programs, alignment to external curricular standards, evidence of student learning, and documentation of a continuous improvement process that makes use of this infrastructure. A recent survey by the Association of American Colleges and Universities states that 87% of institutions now have learning outcomes across their curriculum and another 11% plan to (AACU, 2016). This is really the core of the vision, and current CBE practitioners are building upon this work.

So what does the future approach to curriculum and assessment look like? The recent work by the Competency-Based Education Network (C-BEN) is the best place to start. “Shared Design Elements and Emerging Practices of Competency-Based Education Programs,” describes then shared design elements that have been gathered from the representatives of the participating institutions and validated through research. The two that most clearly describe the curricular inputs of CBE are:

- Coherent, competency-driven program and curriculum design:
 - Alignment to national norms or other credible standards (i.e., the Lumina Foundation’s Degree Qualifications Profile).
 - Curriculum includes multiple and varied opportunities to develop and demonstrate select competencies.
 - Curriculum is clearly articulated and predictable, with multiple learning pathways for learners to accomplish a range of learning opportunities.
 - Curriculum sequence reflects different stages of learning and growth.
 - Curriculum design is flexible enough to accommodate personalization and modification.
 - Program requirements and anticipated learner outcomes correspond to selected competencies.
- Clear, cross-cutting and specialized competencies:
 - Competencies adopted from national norms or other credible standards.
 - Competencies include critical theory, knowledge, skills, behaviors and attitudes for the education level and related fields of study or work.
 - Competencies connect to and build on each other to support the demonstration and transfer of learning in multiple and novel contexts.

Both of these design elements call for a stronger connection to shared external standards, the inclusion of both broad skills like critical thinking and communication and domain-specific knowledge and skills, and the provision of developmental paths that lead to transfer to new contexts.

The two design elements that focus on the assessment design and credential outputs of CBE are:

- Measurable and meaningful assessments:
 - Assessments measure learning and transfer of learning into multiple and novel contexts.
 - Assessments are frequent, informal and formal, formative and summative.
 - Assessments are rigorous with clear and valid measures.
 - Assessments provide real-time feedback for reflection and refinement.
- Proficient and prepared graduates:
 - Progress to graduation is determined by the learner's development and demonstration of selected competencies.
 - Credential reflects an appropriate level of mastery of selected competencies.
 - Credential signals the learner's readiness for the next stage of education, work, or life.
 - Transcripts are credible and reliable reports that accurately reflect the learner's level of mastery of selected competencies.

These design elements clearly call for a higher standard for summative assessment but also for formative assessment, assessment *for* learning. They also call for a higher standard for how what a credential represents is determined.

These four shared design elements collectively demand much more rigorous and detailed criteria to guide and evaluate the curriculum and assessment structure of CBE offerings relative to traditional programs. And, because the goal of CBE is to leave behind input measures like credit hours to focus on assessment of competency, the standards for curriculum and assessment should be much higher. Leading institutions in CBE such as Western Governors University, Southern New Hampshire University's College for America, and Capella University have developed innovative curriculum design practices that are more closely aligned to employer needs, accreditation standards, third-party certifications and licensure exams, and workforce data. These institutions have also developed the necessary systems to track all of these data and relationships.

With the ICT revolution, it has become much easier to share these assets and for institutions to build upon the work of others and shared norms. This can be seen in the Lumina-funded Degree Qualifications Profile (DQP, 2014) and the related Tuning efforts and in the AACU's VALUE rubrics (AACU, no date). New ways to measure the preparedness of graduates are emerging. Southern New Hampshire University's College for America used the Proficiency Profile from the Educational Testing Service to evaluate their alumni on core skill areas and found their students did as well or better on reading, natural sciences, and critical thinking and nearly as well on mathematics than students at other institutions (Fain, 2015). At the same time there have been fears of "teaching to the test," but in fact an AAC&U survey (2016) showed an overall reduction of the use of standardized national tests from 50% to 38% from 2008 to 2015 in favor of the use of tools such as the VALUE rubrics and capstone projects to measure outcomes. Western Governors University employed the Gallup-Purdue Index to evaluate their graduates' employment and life outcomes and found strong positive results across a variety of measures (WGU, 2015). There is a healthy debate here about what to measure but what is important is that we are making progress in the practice of measuring outcomes within higher education.

It is also becoming easier to digitally verify credentials and the curriculum and assessment data they should represent. Parchment is the leading digital transcript vendor, and an array of micro-credential vendors such as Acclaim and Credly are able to provide credentials that are not only digital but that are immediately verifiable by the issuer. They also transmit previously unavailable information about the assessment performance, method, date, and even the artifact assessed. The Connecting Credentials Initiative is an audacious effort to “create greater coherence, and transparency in the U.S. credentialing marketplace.” Agreement on the definitions of credentials, and the widespread usage of digital credentials, will ultimately allow for radical improvement in transparency and sharing between and among education providers.

7. INSTRUCTIONAL DESIGN

A stronger curricular and assessment foundation is crucial to the future of CBE but is insufficient alone. Some people erroneously believe that CBE means there is no instruction. This is a myth; CBE enables a complete rethinking of instruction. Information and communication technologies afford us the opportunity to provide mass personalization, the provision of personalized pathways and tutoring for all at much lower costs. This is not a new idea. Bloom’s 2 sigma problem (Bloom, 1984) demonstrated that mastery learning would move student’s one standard deviation, and personalized tutoring would move them two standard deviations. Unfortunately, society cannot afford tutoring for all, but now through the use of big data and software and the expertise of faculty members and learning designers, there are means of discovering and implementing what works best for each student.

What might this look like? Our current approaches are primarily one-size-fits-all approaches that fail too many students. At the heart of CBE is the assumption that with a stronger and more externally-validated curriculum and assessment model, and when educators are released from prescribed input measures like credit hour seat time, institutions will be able to innovate on how to prepare students in a way never before possible. Returning to the ten shared design elements, one demonstrates a strong theme of personalization:

- Learner centered:
 - Personalized and experiential learning and supports.
 - Challenging and engaging learning opportunities (i.e., work- and project-based learning).
 - Socially and culturally responsive learning environments.
 - Learner agency and choice.
 - Flexibility in when, where, and how learning happens.
 - Use of technology enables and enhances the learning experience.
 - Clear and credential-appropriate expectations, requirements, and learning outcomes.

This is essentially a manifesto for how to rethink the learning experiences provided to students in order to make them more personalized and effective. Technology is an enabler, but this is human-centered design, meaningful learning experiences that promote transfer, in which students have agency and flexibility, and expectations are explicit. This is the next challenge and horizon after a strong curriculum and assessment structure are in place.

An example of an institution working on this problem is Arizona State University (ASU). Dale Johnson is the manager of ASU’s adaptive general education. For several years, he has been running pilots with seven

vendors, both traditional publishers and startups (Cogbooks, Smart Sparrow, McGraw-Hill, Pearson, Cengage, Knewton, and Khan Academy). He and the faculty members are figuring out what works and sharing their insights regularly at conference presentations and workshops. Another example is Carnegie Mellon's Open Learning Initiative, which offers online courses free to other universities and uses them as a learning science lab to continually improve the effectiveness of the design of the courses.

8. STRUCTURAL OBSTACLES

Below are five of the ten shared design elements. The other five are supporting and practical considerations for any CBE program:

- New and adjusted financial models.
- Flexible staffing roles and structures.
- Enabling and aligned business processes and systems.
- Engaged faculty and external partners.
- Embedded process for continuous improvement.

These design elements are arguably some of the hardest to solve. How can the financial model be made more efficient, especially the financial aid system, which is so bound by inflexible regulation and IT systems? How do institutions shift to a more appropriate and aligned staffing model while managing the change and not alienating key constituencies? How can new business processes be built, and existing technology or add new technology retrofitted? Given the immaturity of this delivery model, how can future planning accommodate continuous improvement and change? These are the most salient problems and deserve deep attention from anyone considering or involved in CBE. Fortunately, however, progress is being made. IMS Global worked with C-BEN on the Technical Interoperability Project in 2015 to identify the gaps in the edtech market that impede CBE, to build prototypes of solutions, and to build momentum toward solving these problems. To allow institutions to innovate, they have to be released from regulations that prescribe their financial models, staffing models, and business processes. The Department of Education's Experimental Sites are allowing for a variety of CBE experiments. These are promising and exciting developments, but they will need to continue to be nurtured if they are to realize their potential.

9. CONCLUSION

The full potential of CBE is not yet clearly visible. It is clear that potent forces are driving the changes underway in education, but only the outlines of what it will bring are currently visible. The "Shared Design Elements and Emerging Practices of Competency-Based Education Programs" have been used for describing current practice in this article because it is easily the most robust and authoritative source. What it does not do, and this is by design, is seek to predict the future developments of CBE. Predicting the future is, of course, a risky endeavor. Nevertheless, in the hope that proposing a possible future will both be a useful way to bring together the elements of current practice and will have some small influence on what that future is, here is such a proposal.

1. **Curriculum:** Curricular goals will be shared and transparent. This will include and bring order to the broad array of existing curricula embedded in specialized accreditation standards, certifications, and emerging national standards such as the Degree Qualifications Profile and AAC&U's LEAP Outcomes. It

will also include employer workforce needs expressed in organizational competency models and job descriptions and will be enabled by technology standards such as those suggested in the early work of the Credential Transparency Initiative.

2. **Assessment:** Assessments will be clearly aligned to those shared curricula, explicit in their methods, and open for ongoing validity and reliability review. These assessments will span the gamut of existing methods, such as site-based experiential learning, applied projects, research papers, tests, and simulations, and shared best practices for how to select the most appropriate methods will emerge.

3. **Hiring:** Employers will update their hiring and talent development practices based upon a 21st-century approach to talent acquisition and development. Human resource department practices will evolve to evaluate incoming job candidates using analytics based upon a richer data set of achievements (both curricular and co-curricular), and smarter mapping to organizational needs. Talent development of employees will be competency-based and will provide a development path and appropriately sized learning opportunities at each step that will enable lifelong learning.

4. **Personalization:** Learning will be personalized and lifelong. The fundamental assumptions of finishing formal education in one's twenties, of students moving together at the same pace, and of quantifying learning based on fixed amounts of classroom time will be swept away. The power of learning science, which has been largely ineffectual within traditional constraints, will be unleashed to maximize human potential. Mass personalization, which has swept through so many areas of consumer culture, will shift the focus from teacher to student, from standardization to personalization. Educational systems will continually improve based upon evidence-based practices, as with data systems between institutions, levels of education, and employers.

This is a future that is within reach. The needs of society and the trajectory of technology suggest a convergence, an inevitability. This is a future in which education is radically more rational, effective, and equitable; a future in which economic productivity is enhanced as the development of talent is streamlined; a future in which education is more affordable and a student's family of origin is not the primary determinant of their future. Yet it is still a future that is uncertain, that is fragile. The intransigence of institutional cultures, of regulators, and of technology vendors can slow or stop this change. It is the pioneers that see this future that will carry the movement forward. It is the courage and tireless persistence of those pioneers on which it depends.

REFERENCES

Arum, R. and Roksa, J. (2011), *Academically Adrift: Limited Learning on College Campuses*, Chicago, IL: The Chicago University Press.

Association of American Colleges and Universities, <https://www.aacu.org/value>.

Bloom, B.S. (1984), The 2 Sigma Problem: The search for methods of group instruction as effective as one-to-one tutoring, *Educational Researcher*, 13(6), pp. 4–16.

Carnegie Mellon University. Open Learning Initiative. <http://oli.cmu.edu/>

College Board (2015), Tuition and Fees and Room and Board over Time, 1975-76 to 2015-16, Selected Years, https://trends.collegeboard.org/college-pricing/figures-tables/tuition-and-fees-and-room-and-board-over-time-1976-77_2016-17-selected-years.

Credential Transparency Initiative, <http://connectingcredentials.org/initiatives/%EF%81%AEgeorge-washington-universityamerican-national-standards-institute-ansi-registry-development/The-Degree>

Qualifications Profile. <https://www.luminafoundation.org/files/resources/dqp.pdf>.

Fain, P. (Nov. 25, 2015), Measuring Competency, <http://goo.gl/dn3BF0>.

Ford, K. (October 2014), Competency Based Education: History, Opportunities, and Challenges. <https://www.umuc.edu/innovatelearning/upload/cbe-lit-review-ford.pdf>.

Federal Student Aid (2015), Experimental Sites Initiative. <https://experimentalsites.ed.gov/exp/approved.html>.

Gates Foundation Announces Finalists for \$20 Million in Digital Courseware Investments [http://www.gatesfoundation.org/Media-Center/Press-Releases/2014/09/Gates-Foundation-Announces-Finalists-for-\\$20-Million-in-Digital-Courseware-Investments](http://www.gatesfoundation.org/Media-Center/Press-Releases/2014/09/Gates-Foundation-Announces-Finalists-for-$20-Million-in-Digital-Courseware-Investments).

Hart Research Associates (2016), Trends in Learning Outcome Assessment, Washington D.C.: Association of American Colleges and Universities http://www.aacu.org/sites/default/files/files/LEAP/2015_Survey_Report3.pdf.

Havergal, C. (2015), Ernst and Young drops degree classification threshold for graduate recruitment.

Leuba, M. Competency-Based Education: Technology Challenges and Opportunities, Technical Interoperability Project <http://er.educause.edu/articles/2015/10/competency-based-education-technology-challenges-and-opportunities>.

Public Agenda with support from The Bill and Melinda Gates Foundation and Lumina Foundation (2015), Shared Design Elements and Emerging Practices of Competency-Based Education Programs. http://www.cbenetwork.org/sites/457/uploaded/files/Shared_Design_Elements_Notebook.pdf.

TAACCCT (Sept. 30, 2014). <https://doleta.gov/taaccct/>.

WGU (2015), http://www.wgu.edu/about_WGU/gallup_purdue_index_3-4-15.

Resources

- Compilation of Articles on Extending the Credential.
- CBE Info.
- Competency-Based Education Network.
- C-BEN Resource Library.
- Degree Qualifications Profile. Competency-Based Education.

Manifesto about the CBE Stream

All revolutions require a highly motivated vanguard to lead the necessary but difficult structural changes. In the forthcoming articles in the Competency-Based Education (CBE) stream, I will invite the pioneers who are leading these changes and ask them to describe the goal and problem, the current landscape, the efforts underway, and what they see as the likely future challenges and developments. The Competency-Based Education stream of this journal is intended to serve current practitioners of CBE by sharing stories from the field and tips from other practitioners. It is intended to serve individuals that are considering developing a CBE program or are currently planning CBE offerings, so that they can find resources and stories to expedite their work. Each article will be associated with these themes:

- How to get started? Leading an institution through the CBE change:
 - Developing CBE offerings.

- Understanding the regulatory landscape and managing relationships and applications.
- Strategies for solving technology obstacles.
- Making the student experience easy to understand and streamlined.
- How to evolve and scale CBE:
 - Helping prospective students and employers understand CBE.
 - Selecting and managing vendors.
 - The roles of faculty members and staff.
 - Financial models and costs.
 - Developing CBE leaders.
 - Creating a future roadmap and maintaining momentum.

Through the insights of the pioneers, I hope to bring additional light to the good work that is underway and to make this stream a catalyst to positive change in the field.