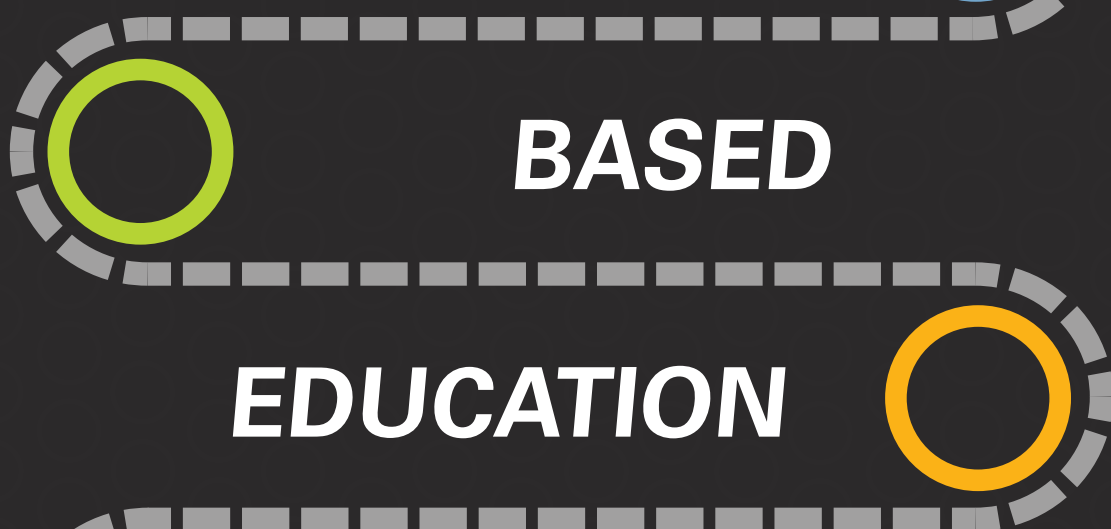


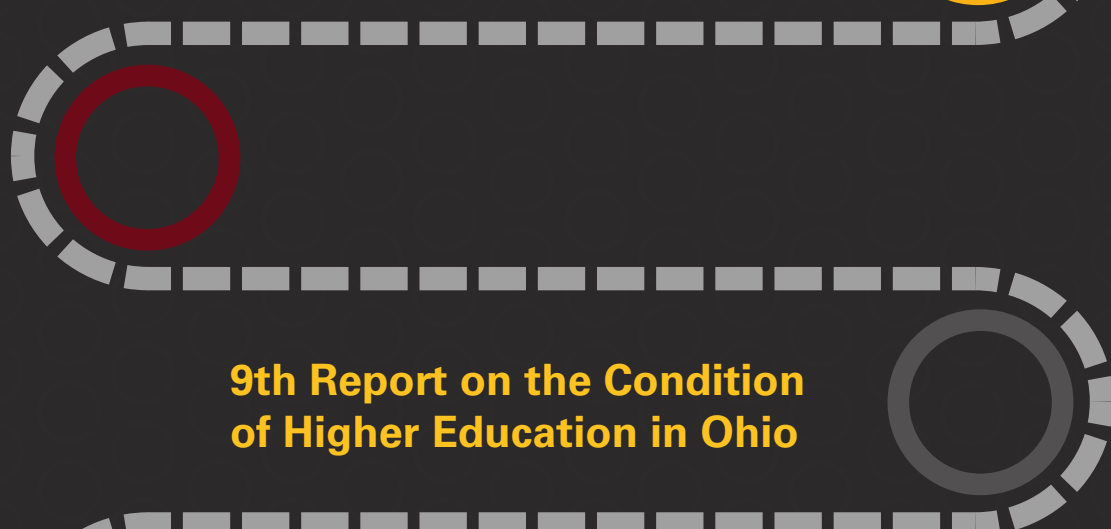


COMPETENCY-



BASED

EDUCATION



**9th Report on the Condition
of Higher Education in Ohio**



Department of
Higher Education



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***EXECUTIVE
SUMMARY***

Traditional education has benefited millions of students—preparing them for college, jobs and careers—and it continues to do so. However, in recent years, there has been a growing trend of higher education institutions considering an alternative, competency-based education (CBE), to serve the needs of nontraditional or underserved adult students. CBE is self-paced and personalized. It provides flexible schedules and pathways to meet individual needs. The time necessary to complete a CBE program can be reduced as it takes prior learning, prior knowledge and a mastery of competencies into consideration, rather than seat time or the number of hours spent in class. This report on the Condition of Higher Education in Ohio addresses four questions surrounding competency-based education.

The questions are:

- What is competency-based education and why is it important?
- Are Ohio’s colleges and universities engaging in or planning to engage in CBE?
- What are best practices for implementing competency-based education programs?
- What are the next steps for Ohio?

Section 1: What is competency-based education and why is it important?

CBE focuses on what students know and can do. Student progress is not measured by the amount of time spent in a classroom. Instead, student progress is measured by actual demonstration of competencies — competencies that have been developed in partnership with business and industry. Since CBE programs are often offered online, they fit the lives of today’s students, more than 75% of whom are either over age 25 or are going to school part-time while attempting to balance work, family and college.

CBE programs hold promise for enhancing student learning, reducing time to degree, improving affordability and allowing students the flexibility that they need to combine learning with job and family responsibilities. However, according to Garrett and Laurie,¹ institutional planning for CBE programming is “a new undertaking or still on the horizon” among most colleges and universities in the United States.

Section 2: Are Ohio's colleges and universities engaging in or planning to engage in CBE?

There is plenty of interest in CBE among the colleges and universities in Ohio, with the majority discussing, exploring and/or planning CBE...at least on a small scale involving one or two programs. Twenty-one out of 37 public institutions are in the process of planning or implementing CBE programs. Of the colleges and universities that reported they were not currently

¹ Garrett, R., & Lurie, H. (2016). *Deconstructing CBE: An Assessment of Institutional Activity, Goals and Challenges in Higher Education*. p. 26. Retrieved from <https://www.luminafoundation.org/files/resources/deconstructing-cbe.pdf>

planning or implementing a CBE program, the vast majority indicated that they may consider developing a CBE program within the next five years. The movement to develop competency-based education programs in Ohio has been hampered by a lack of understanding of what CBE is, what is allowed by accreditors and federal financial aid rules, and how CBE can best be integrated into existing campus structures.

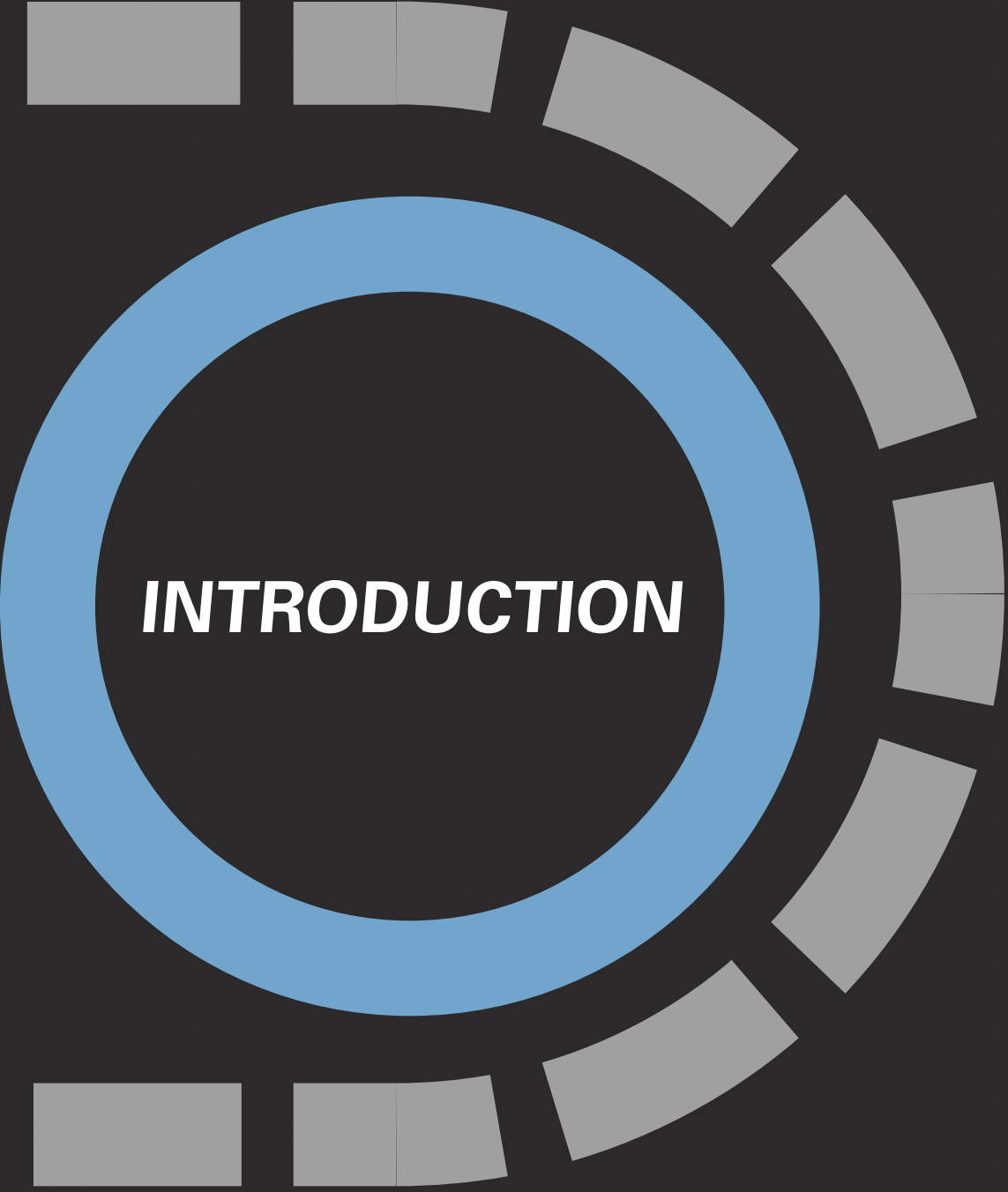
Section 3: What are best practices for implementing competency-based education programs?

Many colleges and universities don't feel as though they have enough information about CBE and its potential costs and benefits in order to take the next steps. Proponents of CBE and various organizations, through working with schools already implementing CBE programs, understand those concerns. In an effort to assist schools now considering and planning CBE programs, these organizations – such as C-BEN and EAB – have developed valuable resources and tools. This report identifies several of these resources to share with Ohio colleges and universities.

Section 4: What are the next steps for Ohio?

The Ohio Board of Regents recommends that the Ohio Department of Higher Education:

1. Create an Ohio Network of institutions interested in developing and scaling CBE programs, loosely modeled on the national Competency-Based Education Network. The Ohio Network could serve as a forum for quarterly activities designed to bring Ohio faculty, staff and administrators together to learn about and share information related to CBE programming. First year topics might include:
 - » An EAB symposium on starting CBE programs based on the CBE Playbook.
 - » Selecting technologies to support CBE programming.
 - » Gaining ODHE, HLC and USDOE approval for CBE programs.
 - » Partnering with business and industry on joint development of program competencies, projects and assessments.
2. Review current state law and regulations to determine if there are barriers to CBE in general and direct assessment in particular. If so, recommend needed changes (e.g., credit hour requirements, financial aid requirements).
3. Work with C-BEN, HEI, Ohio institutions and other appropriate parties to identify standard data (e.g., student demographics, cost, retention, completion, employment) to be collected on certificates and degrees delivered as CBE programs to help inform future policy recommendations.
4. Encourage students to enroll in competency-based programs by recognizing and publicizing CBE programs with a record of success for Ohio's students (e.g., Western Governors University, Sinclair Community College's Accelerate programs).

A circular graphic on a dark grey background. It features a solid blue ring in the center. Surrounding this is a grey ring composed of several segments of varying lengths, creating a dashed or segmented effect. The word "INTRODUCTION" is written in white, bold, italicized capital letters across the center of the blue ring.

INTRODUCTION

The ability to attract and retain jobs is crucial to Ohio’s economic future, but that ability hinges on raising the educational attainment level of our citizens. Ohio has a significant gap between the number of working-age adults who currently hold a postsecondary credential—certificate, associate degree, bachelor’s degree or more—and the number needed for current, evolving and future jobs. Today, only 43%² of Ohio’s working age adults (defined as individuals between 25 and 64 years of age) have such credentials; it is projected that, by 2020, that number will need to increase to 64%³. The imperative to increase educational attainment levels has led stakeholders associated with the Ohio Department of Higher Education, the Ohio Department of Education and the Governor’s Office of Workforce Transformation to come together to establish a statewide goal for educational attainment: 65% of Ohioans between age 25 and 64 will have a degree, certificate or other postsecondary credential of value in the workplace by 2025.

If Ohio is to meet this bold goal, it cannot be “business as usual” in our colleges and universities. In announcing Ohio’s Attainment Goal 2025⁴, the stakeholder group identified a number of strategic priorities that would be critical to meeting the goal. Among those priorities are: 1) aligning credentials to in-demand jobs; 2) educating more adults; and 3) rethinking the business of education if it means better outcomes for students.

Recently, competency-based education (CBE) has gained traction as an educational model that is particularly well-aligned with those three priorities. CBE focuses on what students know and can do. Student progress is not measured by the amount of time spent in a classroom. Instead, student progress is measured by actual demonstration of competencies — competencies that have been developed in partnership with business and industry. And, because CBE programs are often offered online, they fit the lives of today’s students, more than 75% of whom are either over age 25 or are going to school part-time while attempting to balance work, family and college.

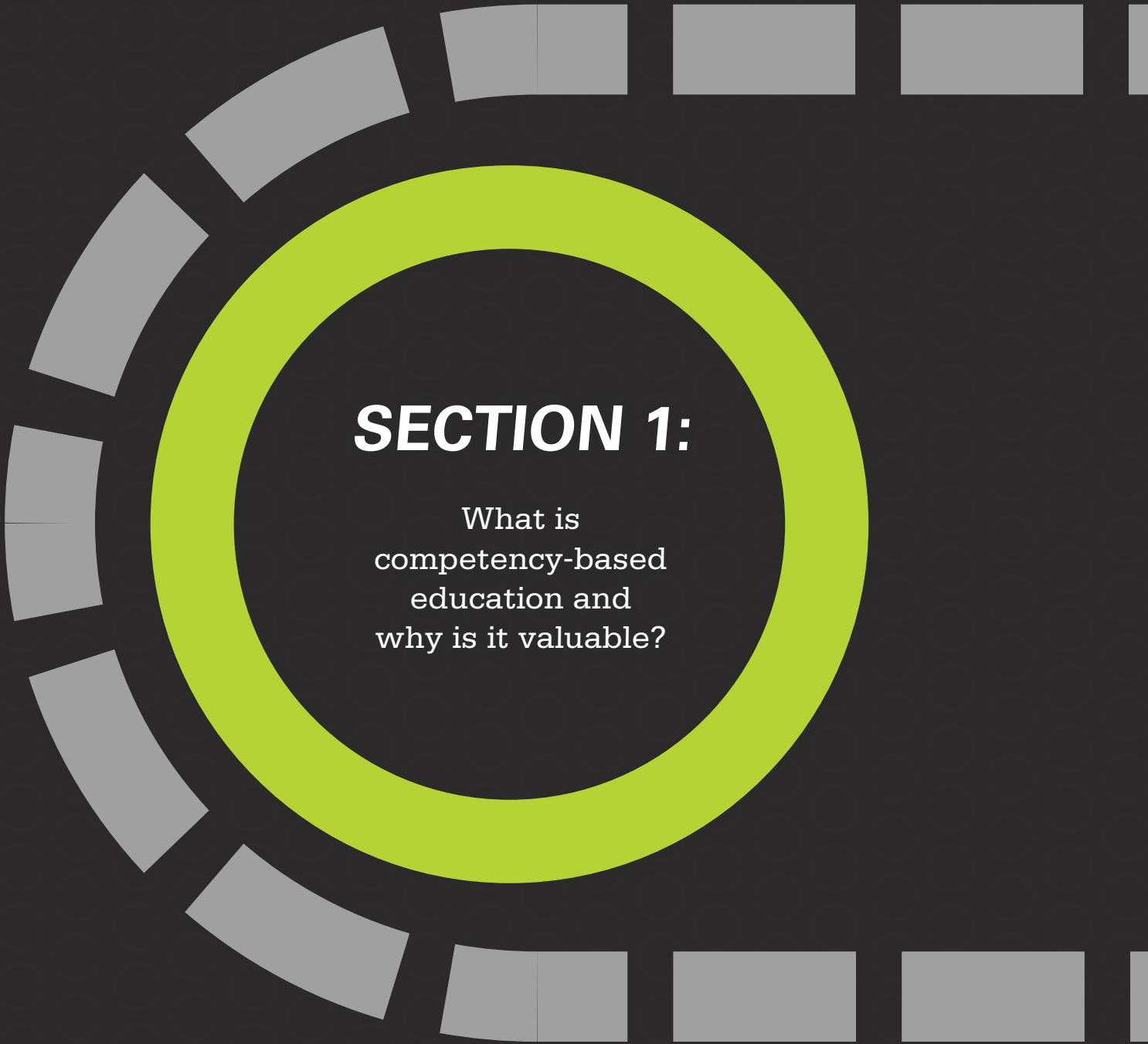
“...Based on current trends, there are potentially serious gaps in the supply of workers with the skills that will be needed to drive 21st-century economies, and a growing surplus of workers with more limited skills. Avoiding these imbalances (in both advanced and developing economies) and their consequences will require an unprecedented commitment to education and training” (p. iii).

(Source: Dobbs, R., Madgavkar, A., Barton, D., Labaye, E., Manyika, J., Roxburgh, C., Lund, S. & Madhav, S. (2012). *The World at Work: Jobs, Pay and Skills for 3.5 Billion People*. McKinsey Global Institute. Retrieved from <http://www.mckinsey.com/global-themes/employment-and-growth/the-world-at-work>

- 2 Lumina Foundation. (2015). *A Stronger Nation Through Higher Education*. Retrieved from <http://strongernation.luminafoundation.org/report/#ohio>
- 3 Carnevale, A.P., Smith, N., & Strohl, J. (2013). *Recovery: Job Growth and Education Requirements through 2020*. Georgetown University Center on Education and the Workforce. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_Web.pdf
- 4 Ohio Department of Higher Education. (2016). *The Case for Ohio Attainment Goal 2025*. Retrieved from https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/attainment/attainment-framing-paper_FINALb_050416.pdf

This report on the Condition of Higher Education will focus on the topic of competency-based education. Specifically it will address four questions:

- What is competency-based education and why is it valuable?
- Are Ohio's colleges and universities engaging in or planning to engage in competency-based education?
- What are best practices for implementing competency-based education programs?
- What are the next steps for Ohio?

A decorative graphic consisting of two concentric circles. The inner circle is a solid bright green ring. The outer circle is composed of several light gray segments of varying lengths, arranged in a ring around the inner circle. The entire graphic is set against a dark gray background.

SECTION 1:

What is
competency-based
education and
why is it valuable?

Traditional education programs are organized around set time periods, such as semesters or quarters. Each quarter or semester, students enroll in one or more courses, with the length of the courses spanning the length of the quarter or semester. Faculty members determine the amount of material to be learned during the course and pace the course to cover the material in the designated time span. When the quarter or semester has ended, students receive a grade based on how well they have mastered the material, and a certain number of credits is awarded, based on the number of hours (or “seat time”) spent in the class.

According to Laitinen (2012)⁵, the credit hour was never intended to be a proxy for learning. Rather, these standardized, time-based units were designed to allow faculty members to qualify for a pension system administered by the Carnegie Foundation for the Advancement of Teaching. But because the credit hour allowed for the standardization of a number of other critical administrative functions (such as determining the academic calendar, faculty workload and pay, tuition rates, and state and federal aid), it became the standard in colleges and universities across the country. Today, college degrees are represented by the accumulation of credits—typically at least 60 semester credit hours for an associate degree and 120 semester credit hours for a bachelor’s degree.

Despite the ubiquitous nature of the credit hour, reliance on a time-based standard has a number of drawbacks. First, the “one-size-fits-all” pacing of college courses means that some students cannot move as quickly through the material as they might otherwise be able to do, while other students struggle to keep up. Second, the amount of learning that occurs in the same course can vary greatly among students, as evidenced by the fact that some receive A’s, while others pass the course with C’s or even D’s. Many of the students who receive those lower grades are ill-prepared for the next course in the sequence (and may eventually drop out), or are not adequately prepared for their careers.

Competency-based education (CBE), on the other hand, is not based on time. Instead, learning is fixed and time is variable. In CBE programs, the building blocks are competencies, rather than credit hours, and a student’s progress through the program is based on the number of competencies that he or she has mastered. This means that students must demonstrate mastery, rather than being average or barely passing, before moving on. Because CBE programs allow students to learn and progress at their own pace, students with college-level learning based on life and work experience can save considerable time. Moreover, many of the successful CBE models leverage technology to allow cost-effective “personalization at scale,” providing each student a differentiated pathway through content based on what they know or don’t know, where they need the most support, and how much time they need to master the program competencies along the way.

CBE can be implemented using several different models along a broad continuum, from those that embed elements of CBE into traditional university programs to those that are highly disruptive and force a re-examination of all university functions. Many colleges and universities across Ohio already incorporate aspects of CBE in their programs. For instance, health-related programs such as dentistry, physical therapy or nursing require students to

⁵ Laitinen, A. (2012, September). *Cracking the Credit Hour*. New America Foundation. Retrieved from <https://www.luminafoundation.org/files/resources/cracking-the-credit-hour.pdf>

master competencies during their clinical practicum experiences, and students may be required to repeat these experiences if competencies are not mastered. But these experiences are delivered within the framework of the semester system, with students beginning and ending their experiences at the same time, regardless of how quickly or slowly they can demonstrate mastery of competencies. Moreover, other aspects of these programs, such as the academic courses, are delivered using the traditional didactic classroom experience.

Another way that colleges and universities have embedded aspects of CBE into their programs is through the use of Prior Learning Assessment (PLA). PLA is used to award credit for college-level learning that has occurred outside the traditional college classroom (through mechanisms such as job-related training, military training or other non-credit training experiences). In PLA, students can be assessed using a variety of methods, such as portfolio-based assessments, standardized exams (e.g., College Level Examination Program, CLEP; DANTES Subject Standardized Tests, DSST; Advanced Placement, AP; International Baccalaureate, IB), faculty-created departmental “challenge” exams, or evaluation of standardized training (e.g., apprenticeships, military training). Credit is then awarded based on the college-level learning that the student has demonstrated. Although PLA is an established and welcome practice to accelerate program completion for adults with valuable work and life experience, it measures prior learning and is not an approach designed to accelerate new learning.

While acknowledging that aspects of CBE, such as those described above, are occurring regularly on campuses across the state, this report will focus on the more disruptive end of the CBE continuum — the delivery of entire programs (certificates and degrees) using a technology-supported pedagogical approach that allows students to gain new knowledge and skills by demonstrating mastery of defined competencies at a personalized pace. Factors to be considered in the design and delivery of CBE programs, along with examples of such programs in Ohio and across the nation, are described below.

Program Development

CBE programs are built on a foundation of clearly articulated competencies necessary for success in the discipline. Competencies are statements of the knowledge, skills and abilities that students must master in order to progress through the program; “they draw a full picture of what the proficient and prepared graduate looks like.”⁶ The competencies for a program are typically identified by disciplinary faculty, working in concert with business and industry, to clearly define what a successful graduate knows and can do. If a traditional program in the discipline exists at the college or university, faculty can deconstruct the existing courses into a series of competencies, which can then be regrouped in new ways, integrating cross-cutting skills such as oral and written communication, quantitative reasoning and critical thinking. If a program does not yet exist, disciplinary faculty, again working in concert with experts in business and industry, can build a program using the team’s expertise along with validated frameworks such

6 Public Agenda. (2015). *Shared Design Elements and Emerging Practices of Competency-Based Education*. p.3. Retrieved from http://www.cbenetwork.org/sites/457/uploaded/files/Shared_Design_Elements_Notebook.pdf

as those from specialized accreditors, the Degree Qualifications Profile⁷ and the LEAP Essential Learning Outcomes.⁸

After the competencies have been articulated, faculty members design and select learning resources (e.g. readings, webinars, podcasts, labs, simulations, homework problems and quizzes) that students will use to develop the competencies. Students are typically provided with a wide range of materials, allowing them to choose among resources that best support their level and personal learning style.

Next, faculty members design the assessments that students will complete to demonstrate that they have, in fact, mastered the competencies. The assessments can take several forms, such as objective assessments (e.g., multiple-choice or true-false questions) or performance-based assessments (e.g., analysis of data sets, group projects, papers, real-time observation of student performance). An important step in the assessment process is setting the benchmark for mastery (i.e. cut scores). The cut scores are used to determine whether the student has achieved the competency and can move on in the program. Once again, business and industry can be engaged to ensure that the assessments used to determine competency and the scores associated with mastery have validity in the workplace.

Because assessments are directly linked to a specific competency or set of competencies, students can quickly demonstrate

At Western Governors University (WGU), program councils, which are made up of disciplinary faculty and representatives from business and industry, define program competencies. “By working with industry leaders to define competencies, WGU ensures that students acquire the skills they need to be prepared for their careers.” The program councils meet on a regular basis to review competencies and program outcomes to ensure that the programs remain relevant and up-to-date.

Source: Western Governors University. *Competency-Based Education—Higher Education for the 21st Century Student*. Retrieved from <http://www.wgu.edu/wgufiles/competency-based-education>

“For each course at WGU, students use course materials and other study materials to ensure that they acquire the knowledge and skills needed to demonstrate competence. In addition to textbooks (most provided as e-textbooks at no additional charge), students have access to practice tests, webinars, interactive exercises, simulations and videos ... Rather than creating learning resources, WGU acquires them from the best external sources, ensuring that they are up-to-date and relevant.”

Source: Western Governors University. *Competency-Based Education—Higher Education for the 21st Century Student*. Retrieved from <http://www.wgu.edu/wgufiles/competency-based-education>

7 Adelman, C., Ewell, P., Gaston, P., & Geary Schnieder, G. (2014). *Degree Qualifications Profile*. Lumina Foundation. Retrieved from <https://www.luminafoundation.org/files/resources/dqp.pdf>

8 Association of American Colleges and Universities. (2007). *College Learning for the New Global Century: A Report from the National Leadership Council for Liberal Education & America's Promise*. Retrieved from https://www.aacu.org/sites/default/files/files/LEAP/GlobalCentury_final.pdf

mastery of competencies that they already have. For instance, a student might choose to proceed directly to the assessment for a competency based on conversations with a mentor or because of achieving a particular score on a pre-test. If the student achieves the benchmark score on the assessment, the competency is achieved, and the student is free to move on in the program.

An added advantage to this type of program is that it can help to alleviate employer concerns that students are not graduating with the knowledge and skills needed for success in the work place. Because CBE requires mastery of the competencies, students graduating from CBE programs should be better prepared to enter a job and career and to meet the expectations of their employers.

Credit-Based Approach vs. Direct Assessment Approach

CBE programs can be organized using two fundamentally different approaches: 1) a credit-based approach or 2) a direct assessment approach. In the credit-based approach, competencies are translated into credit hours, often by bundling them into packages that resemble traditional courses. Thus, students accumulate “courses” and credit hours, but it is based on competency attainment rather than time spent in class. Course titles and content look similar to a traditional curriculum and the student’s transcript may look very much the same as a traditional transcript.

The second approach, the direct assessment approach, by-passes credit hours altogether and tracks student progress

Southern New Hampshire University’s College for America (CFA) “employs a team of expert curriculum and assessment developers who work with academically qualified Subject Matter Experts and faculty to design authentic projects that allow students to demonstrate competencies in the approved curriculum. Projects simulate realistic workplace scenarios that engage students.”

Source: College For America Blog. (2016, June 3). *Online Competency-Based Education: The Case of College for America*. Retrieved from <http://collegeforamerica.org/online-competency-based-education-the-case-of-college-for-america>

To address the skills gap that exists between education and aspects of the manufacturing workforce, the National Association of Manufacturers’ skills certification system developed a series of stackable credentials demonstrating the attainment of competencies needed across different areas of manufacturing—from machine operation to engineering to management. In 2011, the National Association of Manufacturers announced a partnership with the University of Phoenix in which the association’s competency-based curriculum would be incorporated into the University of Phoenix’s online degrees.

Source: Soares, L. (2012). *A ‘Disruptive’ Look at Competency-Based Education: How the Innovative Use of Technology Will Transform the College Experience*. Center for American Progress. Retrieved from https://cdn.americanprogress.org/wp-content/uploads/issues/2012/06/pdf/comp_based_education.pdf

solely on the basis of demonstrated learning. As noted in a 2015 statement from the Council of Regional Accrediting Commissions (C-RAC), “the direct assessment approach thus disregards conventional courses and bases both the evaluation of student achievement and the award of a degree or credential solely on the demonstration of competencies.”⁹ The U.S. Department of Education (USDOE) does require an institution seeking permission to use direct assessment to award Federal Student Financial Aid to explain how the institution determined an equivalent number of credit hours for the program, and also requires the institution to demonstrate that its accrediting agency has reviewed and approved the direct assessment program.¹⁰

Faculty Roles in CBE Programs

In traditional settings, faculty members play multiple roles — they develop the curriculum, deliver lectures, design assessments, grade assessments and determine course grades. They may also serve as student mentors and program advisors. In CBE programs, the role of the faculty member can be — but does not necessarily need to be — disaggregated. Subject matter experts may work with liaisons from business and industry to develop competencies, select learning resources and design assessments. Other faculty members, often referred to as coaches or mentors, can be assigned to work one-on-one with students, helping them plan their studies and offering

Robert Mendenhall, former president of WGU, described this process ... “We don’t award three credit hours when people spend a certain amount of time learning something; we award three competency units when they master learning, independent of time. If a student can pass 40 competency units in that term, which would be equivalent to 40 credit hours, that’s how much they earn.” (p. 17)

Source: Laitinen, A. (2012). *Cracking the Credit Hour*. New America Foundation. Retrieved from <https://www.luminafoundation.org/files/resources/cracking-the-credit-hour.pdf>

Capella University has developed direct assessment FlexPath options for undergraduate and graduate programs in business, information technology and psychology, which have been approved by the Higher Learning Commission and the USDOE to use direct assessment of learning, rather than time, to measure student progress. FlexPath offers competency transcripts that list competencies demonstrated, rather than courses completed or credits earned.

Source: Capella University Blog. (2015, May 20). *The Relationship between Competency-Based Education and Direct Assessment*. Retrieved from <http://www.capella.edu/blogs/cublog/relationship-between-competency-based-education-and-direct-assessment>

⁹ Council of Regional Accrediting Commissions. (2015). *Regional Accreditors Announce Common Framework for Defining and Approving Competency-Based Education Programs* [Press release]. Retrieved from <http://www.nwccu.org/Standards%20and%20Policies/PolicyDocs/C-RAC%20CBE%20Statement%20Press%20Release%206.2.pdf>

¹⁰ United States Department of Education. (2013). Dear Colleague Letter regarding Applying for Title IV Eligibility for Direct Assessment (Competency-Based) Programs. Retrieved from <https://ifap.ed.gov/dpcletters/GEN1310.html>

regular check-ins to address roadblocks and to encourage continued progress. Still other faculty members may serve as content experts to assist students as they strive to develop mastery of particular competencies. In some CBE programs, the faculty members who evaluate the assessments are distinct from those who developed the curriculum or assisted the students in their programs. This allows independent and objective validation of student attainment of competencies.

The Student Experience in CBE Programs

By definition, CBE programs are student centered; the programs are designed to meet the students wherever they are and move them to competence. Rather than a “one-size-fits-all” model where each stu-

dent hears the same lecture, reads from the same textbook and takes the same midterm and final exam at exactly the same time, CBE programs provide a personalized experience for the student.

The personalization in CBE programs can take many forms, with one of the most obvious being time. CBE programs allow students to take as much (or as little) time as needed to master content. Consequently, students who have experience in a particular subject area can master competencies quickly, while other students, who have no experience or have developmental needs in an area, can take the time needed to master the competency. Technology is often used to assist in the process; sophisticated learning management systems use adaptive learning platforms to accelerate progress for students who are ready, or provide additional learning resources for students who are having difficulty mastering a concept.

Because CBE programs are not time based, they can be ideal for adult learners who are juggling careers and families. Many CBE programs are fully online, allowing students to access course content 24/7. Moreover, students can put in as much or as little time as they have — if they have a big project due at work or a family illness, they can take a break from their studies for a few days (or longer) without jeopardizing their performance.

Public Agenda¹¹ points out another aspect of student-centered CBE programs — student-centered programs empower learners. Students are able to clearly see the competencies that they

“CBE programs place people in roles and positions that maximize talents, spread out workloads and optimize overall contributions. Staffing structures and roles look different across different programs. For some CBE programs, this means a totally new organizational structure, with a new set of professional positions (often including content experts and learning coaches). For other programs, this means minor rearrangements to tasks within more traditional educational structures.” (p.13)

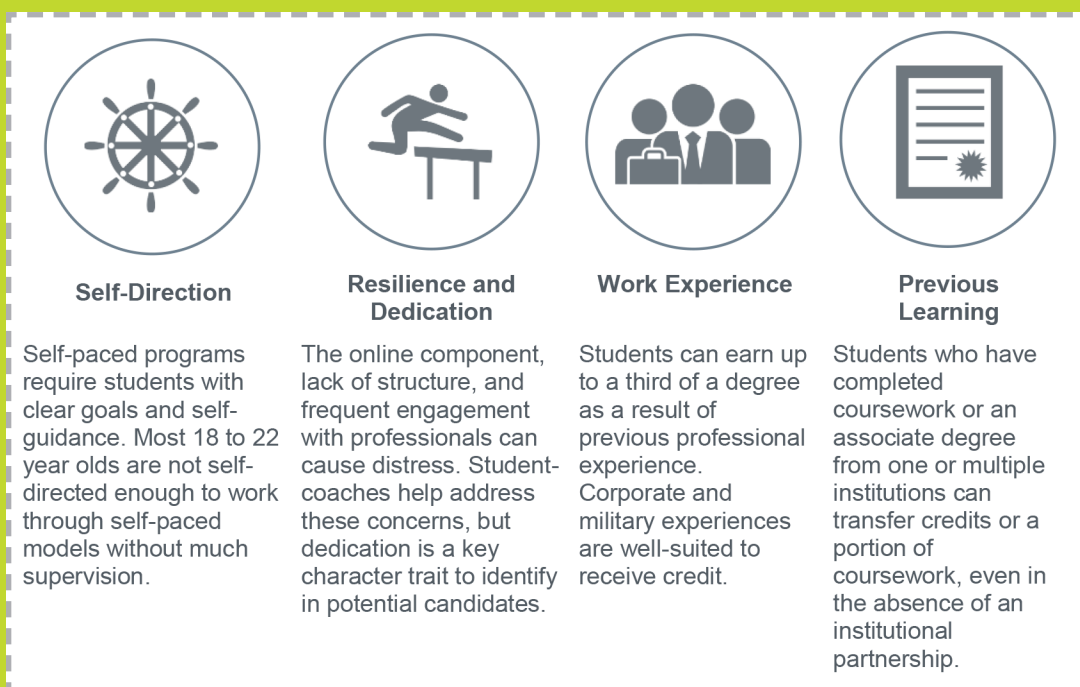
Source: Public Agenda. (2015). *Shared Design Elements and Emerging Practices of Competency-Based Education Programs*. Retrieved from http://www.cbenetwork.org/sites/457/uploaded/files/Shared_Design_Elements_Notebook.pdf

11 Public Agenda (2015). *Shared Design Elements and Emerging Practices of Competency-Based Education Programs*. Retrieved from http://www.cbenetwork.org/sites/457/uploaded/files/Shared_Design_Elements_Notebook.pdf

are to achieve throughout the program and they “have choices for when, how and where learning happens.” Students work with faculty mentors or coaches to put together a degree plan and to plan for competency attainment. As such, students are “active contributors, not passive recipients” to the learning process.

Good candidates for CBE programs are those self-directed students who can set and meet self-imposed deadlines as well as short- and long-term goals. Other key indicators of success for students are dedication, motivation and experience, the latter of which includes work experience and prior learning experience. It behooves programs to screen potential students for time management skills, “grit” and the self-motivation that is needed in a CBE program.

Traits of Successful Direct Assessment Students



Source: Education Advisory Board. (2014). *Financial Models for Competency-Based Education*. (Permission to use infographic granted to ODHE)

Sophisticated learning management systems and online resources allow personalization at scale, enhancing the student experience. Systems that allow interactive, adaptive learning can provide learning resources and customized training experiences that meet students where they are and facilitate their move to the next step in their learning. Systems that incorporate analytics (and display student pace and progress in the form of scorecards or dashboards) help faculty members and coaches monitor student needs and progress in real time, so they can step in as needed to address the learner's needs. These systems also can be used to track performance across students, so that curriculum designers can identify needed changes to learning resources and assessments.

"Institutions engaging in competency-based education need to have ways to effectively manage registrars' billing systems, financial aid distribution systems and more ... there is a need both to understand the unique process and system requirements needed to support competency-based programs and to work with private software vendors to create solutions to the array of back-office systems challenges plaguing these new models" (p. 8).

Source: Competency-Based Education Network. (2015). *First Year Discoveries and Findings*. Retrieved from <http://www.cbenetwork.org/sites/457/uploaded/files/CBENFirstYearReport.pdf>

Technology is also critical to college business processes and systems. The Student Information Systems used on college and university campuses are directly tied to credit hours and the standard academic calendar. The Competency-Based Education Network¹² noted, "If competency-based programs are to become widely available, the business processes and the IT applications and software systems that support these processes must be redesigned."

CBE Tuition Models

Tuition models for CBE programs can be divided into two categories: 1) a traditional tuition model or 2) a subscription-based tuition model. When CBE programs operate using a credit-based approach (as described on page 16), tuition can follow either model. The student could be charged according to the college's standard cost-per-credit-hour tuition structure or, alternatively, could be charged using a subscription model. Under a subscription model, a student pays a flat rate for a period of time (often three, six or 12 months) and then is allowed to complete as many competencies (or credits) as possible during that set time period. When CBE programs operate using the direct assessment approach (as described on page 17), a subscription model must be used, because the learning is not tied directly to credit hours. Because many CBE programs are online, the cost of e-textbooks and other digital resources is often included in the cost of tuition.

¹² Competency-Based Education Network. (2015). *First Year Discoveries and Findings*. Retrieved from <http://www.cbenetwork.org/sites/457/uploaded/files/CBENFirstYearReport.pdf>

A student who can move through his or her program quickly (because of previous work or life experience, or because he or she has ample time to dedicate to studies) has the opportunity to save money using a subscription model. Alternatively, students who are not self-directed, who have developmental needs or who have limited amounts of time to dedicate to studies may be better served by a traditional tuition model.

Financing CBE Programs

A serious consideration in the development of CBE programs is cost. CBE has been touted as a way to “bend the higher education cost curve.”¹³ Cost efficiencies can be achieved through lower faculty-to-student ratios (without reducing quality) using disaggregated faculty models and advanced technology to support more students with the same number of faculty members.

As CBE programs across the country mature, more information on the cost of launching and maintaining CBE programs has become available. A recent report from Desrochers and Staisloff¹⁴ of the RPK Group provided information on CBE program costs at four institutions offering multiple CBE programs — University of Wisconsin Flex, Kentucky Community and Technical College System Learn on Demand, Brandman University My Path, and Walden University Tempo Learning. The report outlined common CBE business model characteristics, CBE cost drivers, required start-up investments, ongoing costs and CBE costs compared with traditional models.

As would be expected, the institutions studied in the report indicated high start-up costs for the programs — the initial investment in CBE averaged approximately \$4.2 million among study participants, with 75% of that investment attributable to the infrastructure and 25% attributable to curriculum development. These initial investments were supplemented in later years, so investments across the four institutions during the first three years of program operations ranged from \$6.3 million to \$11 million.

Tuition in the University of Wisconsin’s CBE program (the UW Flexible Option) is grouped into subscription options with an “all you can learn” option for \$2,250, allowing a student to learn as many competencies as possible in a three-month period or a “single competency” option for \$900 during a three-month period. (UW flexible option)

The average cost of attending a University of Wisconsin campus is \$25,654 per year (University of Wisconsin). This makes the UW Flexible Option an affordable option.

Sources: UW flexible option. *Frequently Asked Questions*. Retrieved September 15, 2016 from <http://flex.wisconsin.edu/faqs/#tuition>; University of Wisconsin-Madison Office of Student Financial Aid Website. *Undergraduate Cost of Attendance*. Retrieved November 18, 2016 from <https://finaid.wisc.edu/undergraduate-cost.htm>

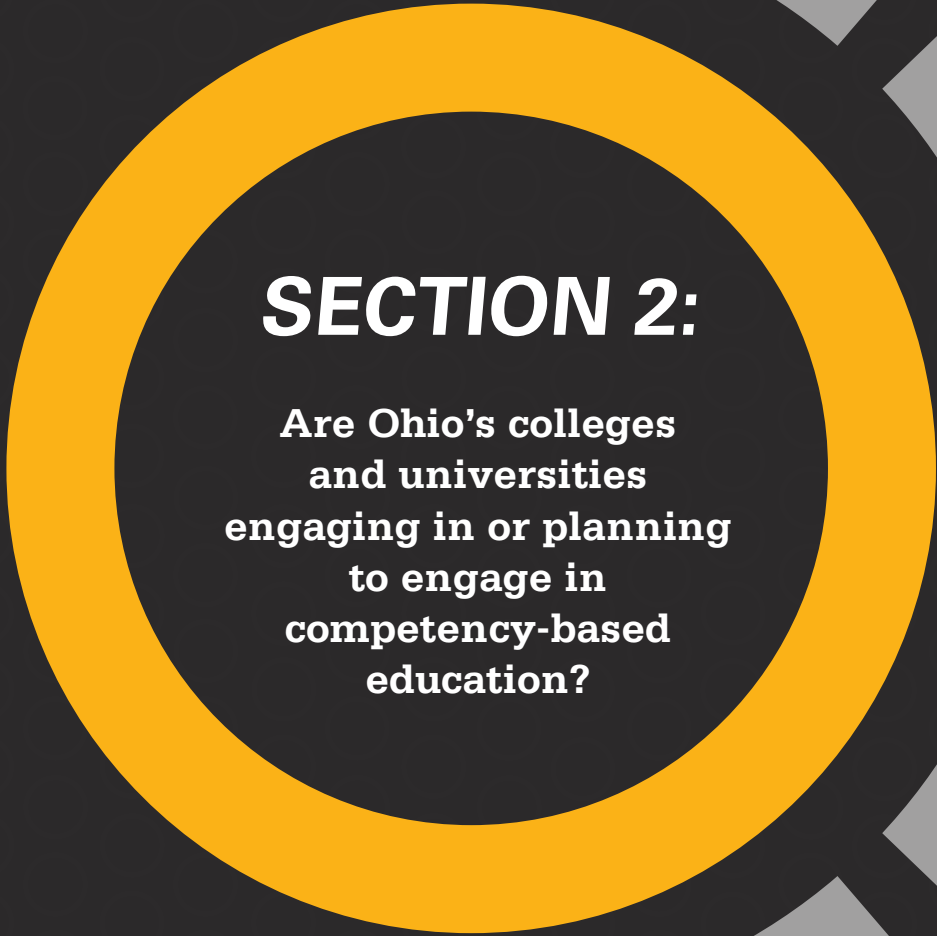
13 Desrochers, D.M., & Staisloff, R.L. (2016). *Competency-Based Education: A Study of Four New Models and Their Implications for Bending the Higher Education Cost Curve*. Rpk Group. Retrieved from [https://www.insidehighered.com/sites/default/server_files/files/rpk%20GROUP CBE BusinessModelReport Final%20for%20Release%2010 18 16.pdf](https://www.insidehighered.com/sites/default/server_files/files/rpk%20GROUP%20CBE%20BusinessModelReport%20Final%20for%20Release%2010%2018%2016.pdf)

14 *ibid.*

The institutions do expect to recoup their costs as time progresses. The authors report that three out of four of the institutions expect their programs to be able to cover annual program operating costs by the fifth year. By year six, the institutions reported that the CBE programs would be operating at half the cost of their traditional programs, allowing the college to begin to recoup the up-front investments in technology and curriculum development. These projections are based on enrolling enough students to reach the economies of scale that can be achieved by serving many more students that can be accommodated in traditional programs.

Summary

CBE programs hold promise for enhancing student learning, reducing time to degree, improving affordability and allowing students the flexibility that they need to combine learning with job and family responsibilities. However, institutional planning for CBE programming is still in its infancy among most colleges and universities in the United States. The next section of this report focuses on CBE planning and implementation in Ohio's public colleges and universities.



SECTION 2:

**Are Ohio's colleges
and universities
engaging in or planning
to engage in
competency-based
education?**

A goal of this Condition Report is to gain an understanding of the extent to which Ohio's public colleges and universities are engaging in or planning to engage in CBE, specifically those models on the more "disruptive" end of the CBE continuum. With the acknowledgment that aspects of CBE are already occurring on campuses across Ohio, this report was purposely limited to an investigation of Ohio programs that involve the delivery of entire certificate or degree programs using a pedagogical approach that allows students to use personalized learning plans and pacing to acquire and demonstrate mastery of competencies that represent the knowledge and skills needed for graduation.

To this end, a survey was designed to collect information on CBE program interest and development across Ohio's public campuses. The survey used a definition of competency-based education developed by the Competency-Based Education Network (C-BEN), a group of colleges and universities working together "to address shared challenges to designing, developing and scaling competency-based degree programs." C-BEN defines CBE as:

*"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."*¹⁵

The survey was designed around the C-BEN program development framework, which describes CBE program development along a continuum from "planning" to "start-up" (labeled "approval" in our survey) to "implementation" and finally "scale-up" (labeled "growth" in our survey). Designing the survey in alignment with the C-BEN definition and program development phases allows a comparison to be made between data gathered from Ohio campuses and other surveys that have been conducted by this national network of CBE providers.

The survey (Appendix A) was sent to all of Ohio's public colleges and universities and one private institution¹⁶ in May of 2016. The survey response rate was 100%, with 14 universities, 23 community colleges and one private university submitting their completed surveys by July of 2016.

ODHE and OH-TECH staff members performed an initial analysis of the survey data and made follow-up calls to clarify and corroborate findings. They also conducted interviews with the schools that indicated they had operational programs or programs that were close to being

15 Competency-Based Education Network. (2016). *What is Competency-Based Education?*

Retrieved from <http://www.cbenetwork.org/competency-based-education>

16 ODHE asked the Association of Independent Colleges and Universities (AICUO) to query its member institutions about their interest in participating in the survey for this Conditions Report. One college (Antioch University) that has been actively involved in CBE volunteered to participate in the survey. Only information from Ohio's public colleges and universities is summarized in the graphs in this report, but qualitative information from Antioch University has been incorporated in the report.

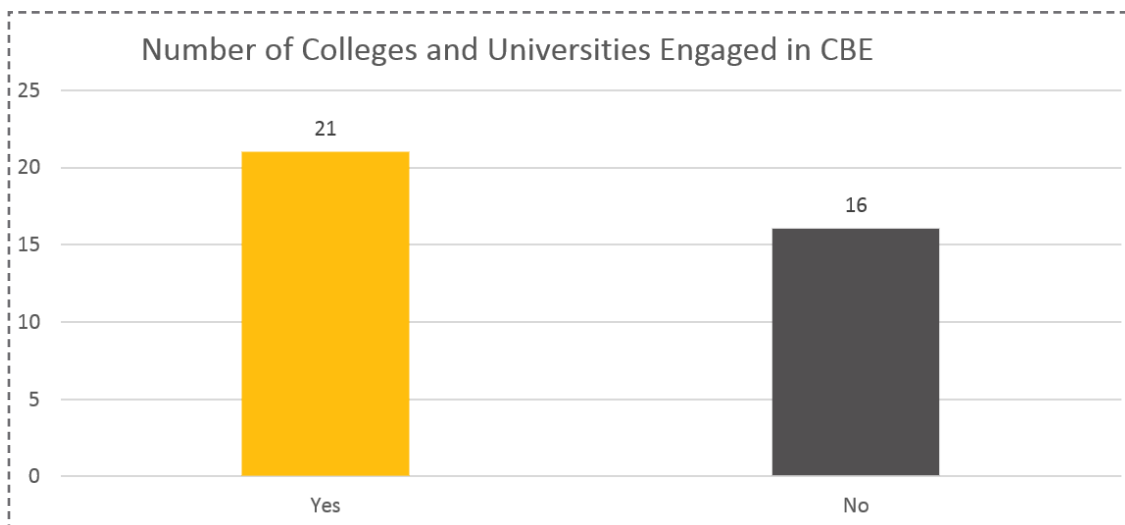
launched to gather details concerning faculty roles, employer engagement, tuition models, student demographics, retention, completion and satisfaction. Additionally, a focus group was held with schools that were in the planning phase to better gauge where the schools were in the planning process and to gather further information on program development and perceived challenges. Finally, ODHE and OH-TECH staff members made additional calls to those indicating that they were not engaged with CBE at this time, but were interested in considering CBE within the next two years.

C-BEN Four Phases of CBE Program Development:

- **Planning Phase.** In the planning phase, there are several decision points to consider and lots of information to collect. One of the earliest and biggest challenges will be getting everyone at your institution to agree on the definition of CBE. During this stage, you will be designing the foundations of your CBE program and planning for the necessary resources, staff and technology to carry out your program plan. Much time is focused on the competency-based curriculum during this phase.
- **Start-Up Phase.** In the start-up phase, your focus will be on seeking the necessary approvals to offer your program. For example, if you are building a direct assessment program, the process will require approval from the institution, regional accreditor and the U.S. Department of Education. In addition, marketing and recruitment for your program will likely begin during this phase.
- **Implementation Phase.** In the implementation phase, you will be enrolling and educating students in your CBE program. With your program in operation, you will be gathering data and evaluating its effectiveness. This is the start of your quality assurance and continuous improvement processes.
- **Scale-Up Phase.** In the scale-up phase, your program will be reaching its maturity. At this point, your focus might be on scaling your enrollment to the desired target number of students. Or, you might begin replicating the CBE program design in other areas of study, thus, expanding your CBE offerings.

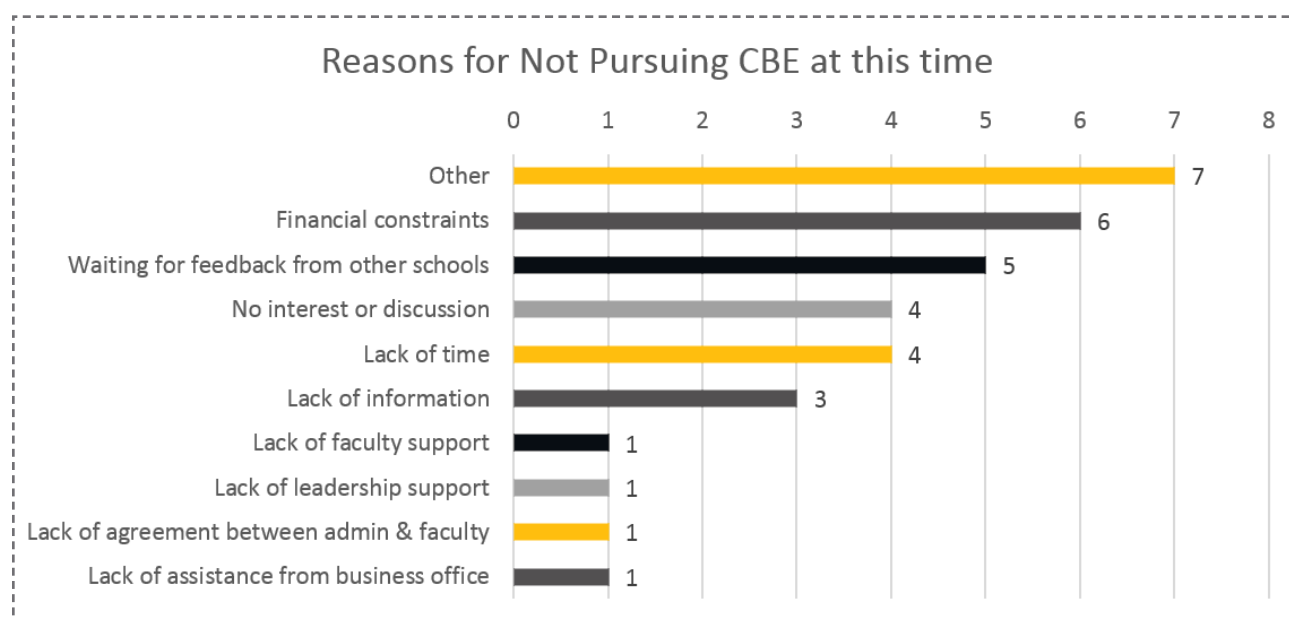
Source: Competency-Based Education Network. (2016). *Four Phases of CBE Program Development*
Retrieved from <http://cbdesignplanner.org/five-phases>

The information presented reflects data obtained from the initial survey as modified by ODHE and OH-TECH staff member discussions with campus contacts. In some cases, survey responses were amended to better align with the definitions used in this report and to ensure consistent use of terminology throughout the report and across campuses.



Twenty-one public colleges and universities across the state indicated that they were engaged in CBE planning, development or implementation. Of the colleges and universities that reported they were not currently planning or implementing a CBE program, the vast majority indicated that they may consider developing a CBE program within the next five years.

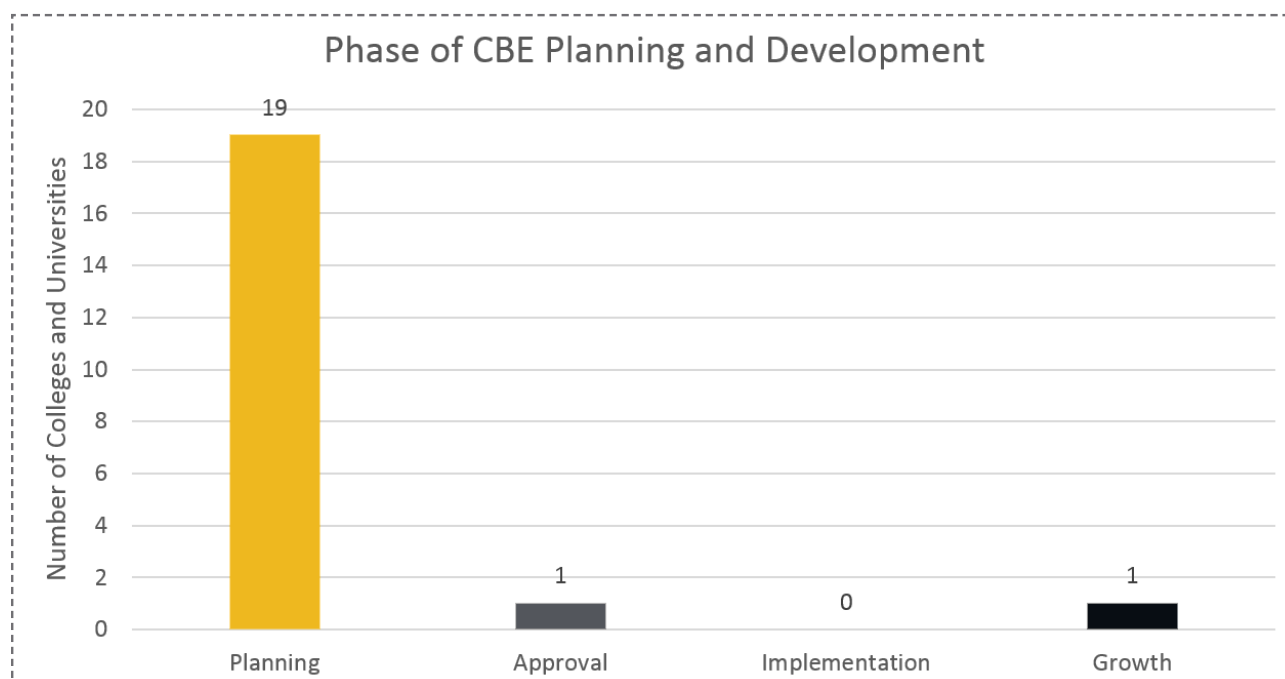
As part of the survey (see Appendix A), campuses that indicated they were not pursuing CBE at this time were directed to an additional question where they were asked to "...select all the reasons why your institution is not currently planning or implementing CBE." "Financial constraints," "Lack of time," "Waiting to see what other schools are doing and how successful they are" and "No interest" were commonly cited reasons for not pursuing CBE at this time. Themes noted in the open-ended responses ("Other") were related to: a) limited resources; b) a lack of understanding of CBE accreditation processes and/or federal financial aid rules; and c) the need to focus resources on other priorities at the college, particularly those related to retention and completion. Several campuses indicated that they were watching the CBE landscape and wanted to stay in the conversation, but they just didn't feel that they could dedicate the time and money at this point in time.



In the survey, one community college indicated that it had implemented a CBE program previously and then later eliminated it. The program had provided an open entry/open exit model where students signed up for multiple classes at the beginning of the semester and worked through multiple classes within one semester. The college eliminated the program because students and advisors had difficulty predicting how many courses students should sign up for and students were not willing to add courses after the financial aid "freeze" date because they could not afford to pay out of pocket. According to the college representative, "There was not a good way to manage the business side of the operation."

Source: ODHE CBE Survey, 2016

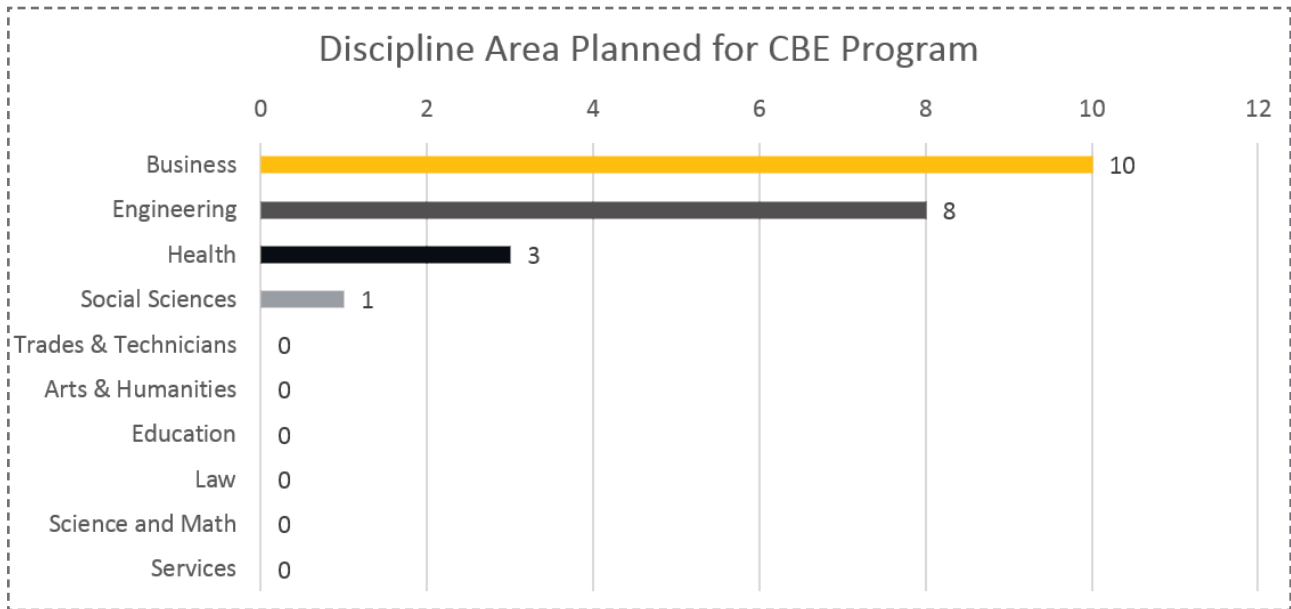
The following results were obtained from the 21 campuses that indicated current engagement with CBE. Of those 21 campuses, 19 campuses are in the planning phase, one is in the start-up (approval) phase and one is in the scale-up (growth) phase. The findings in Ohio are similar to a recent national study by Eduventures¹⁷ of CBE engagement — there is great interest in CBE programming, but most campuses are in the early stages of planning and relatively few have moved to full scale implementation and growth.



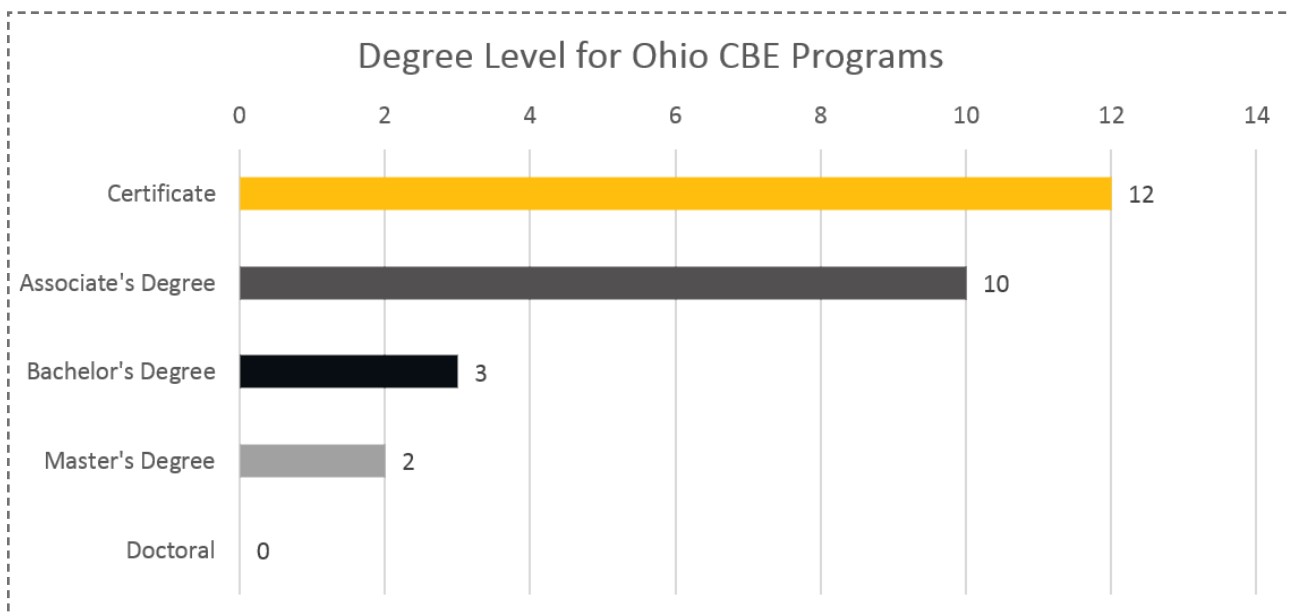
Campuses indicated that they were planning or implementing CBE programming primarily in the business, engineering and health fields. This is not surprising for several reasons. First, these fields of study are popular among students, particularly among adults who are often coming back to school with specific career goals in mind. Second, these programs have specialized accreditation; specialized accreditors typically provide clear guidance regarding expected competencies for graduates, making programs in these areas particularly adaptable to a CBE framework.

¹⁷ Garrett, R., & Lurie, H. (2016). *Deconstructing CBE: An Assessment of Institutional Activity, Goals and Challenges in Higher Education*. Retrieved from <https://www.luminafoundation.org/files/resources/deconstructing-cbe.pdf>

SECTION 2: ARE OHIO'S COLLEGES AND UNIVERSITIES ENGAGING IN
OR PLANNING TO ENGAGE IN COMPETENCY-BASED EDUCATION?



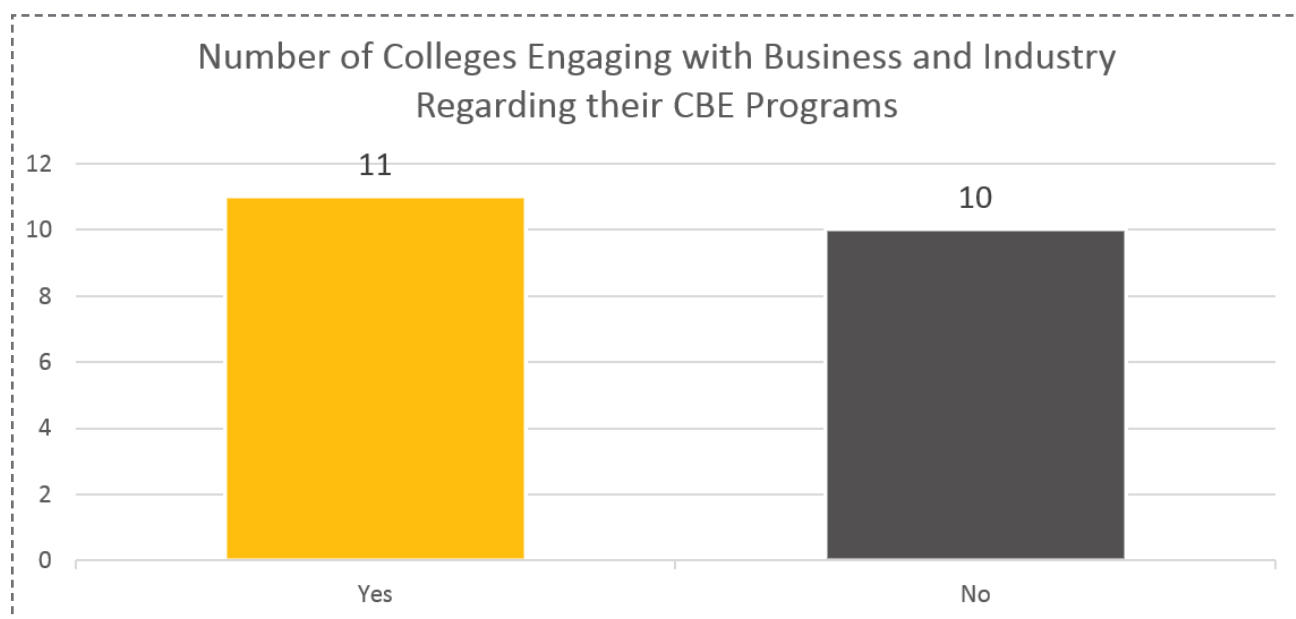
Ohio campuses reported planning and implementing CBE programming across the continuum of certificates, associate degrees, bachelor's degrees and master's degrees, but with the preponderance of programs at the certificate and associate degree level as shown in the graph below.



This is similar to findings from the 2016 national survey conducted by Eduventures.¹⁸ Of the schools in their sample currently providing CBE programs, the credentials mentioned were 17% certificates, 14% associate, 13% bachelor's degrees, 6 % master's degrees and 1% doctoral degrees. An additional 25% of the sampled institutions were planning CBE programs and 40% had no plans for CBE programs in the near future.

¹⁸ Garrett, R., & Lurie, H. (2016). *Deconstructing CBE: An Assessment of Institutional Activity, Goals and Challenges in Higher Education*. Retrieved from <https://www.luminafoundation.org/files/resources/deconstructing-cbe.pdf>

Eleven colleges and universities engaged in CBE development or implementation are currently working with business and industry in their CBE program's field.



The most commonly reported strategy for engaging business and industry was working with an advisory board. The advisory board representatives give counsel on needs analyses and how to develop and assess competencies. Other key partnerships included relationships with local job and career centers as well as faculty members at other colleges with similar programs. Some schools mentioned partnering with business and industry to provide internships for their students that further developed specific skills and application of those skills in a real world setting, and also to develop those “soft skills” necessary for all jobs and careers.

Several schools interviewed also mentioned the need to educate business and industry about CBE. Those employers who know about CBE programs recognize and understand the value, competencies and credentials that graduates of the CBE programs bring to the workplace.

“We have engaged with industry at three levels: 1) the School of Information Technology advisory board is made up of about 40 professionals representing 30+ companies. 2) The CIO Roundtable, which represents the business in the Greater Cincinnati area with revenues greater than \$1 billion. 3) Small and medium-sized businesses represented by an organization called the Circuit. In particular, we have been working with Great American Insurance Company, Kroger, GE, P&G, Western & Southern, Macys, Vantiv, Cincinnati Bell, CBTS, J.R. Jurgensen, among many others.”

Source: University of Cincinnati, ODHE CBE Survey, 2016

SECTION 2: ARE OHIO'S COLLEGES AND UNIVERSITIES ENGAGING IN
OR PLANNING TO ENGAGE IN COMPETENCY-BASED EDUCATION?

Information obtained in the surveys and follow-up interviews was used to populate the following table, which summarizes the status of the CBE programs at the 21 public institutions (eight universities and 13 community colleges) and one private institution that indicated that they are currently planning or implementing CBE programs.

UNIVERSITY or COLLEGE	CBE Phase	Discipline Area/ CBE Program	Degree Levels	Credit-Based Tuition versus Subscription	Credit- Based versus Direct Assessment	Time to Implementation
PUBLIC UNIVERSITIES						
Miami University	Planning	Business/Adobe	Certificate	Credit	Credit	More than 2 years
Wright State University	Planning	Health	Master's	Credit	Undecided	More than 2 years
Youngstown State University	Planning	Health	Bachelor's	Undecided	Undecided	More than 2 years
Ohio University	Planning	Business	Bachelor's	Credit	Undecided	24 months
Bowling Green State University	Planning	Business/ Learning Design & Technology	Bachelor's	Undecided	Credit	18-24 months
University of Toledo	Planning	Business	Associate	Undecided	Undecided	18-24 months
University of Akron	Planning	Social Work	Master's	Credit	Credit	18-24 months
University of Cincinnati	Planning	Engineering/Engineering Related Information Technology	Graduate Certificate	Credit	Credit	6-12 months
PUBLIC COLLEGES						
Eastern Gateway Community College	Planning	Business and Engineering	Certificate, Associate	Credit	Credit	More than 2 years
Hocking College	Planning	Business	Undecided	Undecided	Undecided	More than 2 years
Marion Technical College	Planning	Business or Engineering/ investigating Engineering and/or IT	Certificate, Associate	Undecided	Undecided	More than 2 years
Zane State College	Planning	Business/	Associate	Undecided	Undecided	More than 2 years
Central Ohio Technical College	Planning	Engineering/ Industrial Maintenance Technician	Associate	Undecided	Credit	18-24 months
Columbus State Community College	Planning	Health/Nursing	Certificate, Associate	Credit	Credit	18-24 months
Cuyahoga Community College	Planning	Undecided IT-related fields	Certificate	Credit	Credit	18-24 months
Lakeland Community College	Planning	Business/ IT	Certificate	Undecided	Credit	18-24 months
North Central State College	Planning	Engineering	Certificate	Undecided	Undecided	18-24 months
Stark State College	Planning	Business/IT	Certificate, Associate	Credit	Credit	18-24 months
Rhodes State College	Planning	Engineering/Advanced Manufacturing, Network Security, Food Science Technology	Certificate, Associate	Credit	Credit	6-12 months

SECTION 2: ARE OHIO'S COLLEGES AND UNIVERSITIES ENGAGING IN
OR PLANNING TO ENGAGE IN COMPETENCY-BASED EDUCATION?

UNIVERSITY or COLLEGE	CBE Phase	Discipline Area/ CBE Program	Degree Levels	Credit-Based Tuition versus Subscription	Credit- Based versus Direct Assessment	Time to Implementation
Lorain County Community College	Approval	Engineering/ Computer & Digital Forensics/ Computer Applications Integration/Computer Maintenance & Networking	Certificate, Associate	Credit	Credit	3-6 months
Sinclair Community College	Growth	<i>Currently offered:</i> IT programs; Advanced Manufacturing <i>Planning:</i> Unmanned Aerial Systems; Retail supply chain management; Health Sciences	Certificate, Associate	Credit	Credit	Currently being offered Planning
PRIVATE UNIVERSITY						
Antioch University	Growth	Leadership and Change/ Leadership and Change in Healthcare	Doctoral	Credit	Hybrid	Currently being offered

Planning Phase

As noted previously, seven universities and 13 community colleges indicated that they were in the planning stage. Estimated time to implementation of their programs varied widely among the colleges and universities, with estimates of three to six months for one campus; six to 12 months for two campuses; 18 to 24 months for 9 campuses; and more than two years for seven campuses. Follow-up conversations with campuses indicated that their estimates on time to implementation are fluid and can change abruptly for a variety of reasons. For instance, three campuses reported that they had submitted grant applications to help fund their CBE programs — when the grants did not come through, they had to extend their estimated time to implementation in order to explore other funding options. Another reason cited for revising the CBE implementation estimate is a change in leadership. Two campuses reported that changes in leadership affected their implementation timeline. In one case the leadership caused the CBE implementation to stall; in another case, a campus that had not previously been considering CBE was now moving forward with planning.

Recognizing the fluidity of decisions in the planning phase, emerging trends point to a conservative approach on Ohio's campuses. Eleven of the 19 campuses in the planning phase intend to use a credit-based approach for their CBE programs, while the other eight campuses are still undecided. To date, none has decided to use direct assessment. Ten of the 19 campuses indicated that they will be using their standard credit-based tuition model and the other nine have indicated that they are still undecided as to whether they will use a credit-based or subscription-based tuition. To date, no campus has indicated that it is planning to use a subscription-based model.

A similar conservative finding has emerged with faculty roles. Ten of the 19 campuses are currently planning to use a traditional (combined) faculty model, where faculty members

serve in multiple roles — e.g., as curriculum designers, assessment coordinators, subject matter tutors and graders. Nine campuses have not decided how faculty members will be used, but to date, none has decided to use a differentiated (unbundled) faculty role, such as that used by Western Governors University. This is not surprising in that it is not economically feasible to unbundle faculty roles until programs have the critical mass of students needed to support faculty serving in specialized roles. Anecdotally, some community colleges have indicated that they are exploring using “success coaches” as part of their completion activities and would embed these coaches in their CBE programs. Other campuses indicated that they would be using instructional designers in the development of their CBE programs.

Approval Phase

One community college, Lorain County Community College, is currently in the “Approval” phase — it has received approval from ODHE and is currently working to gain approval from the Higher Learning Commission to offer six engineering technology programs (three certificates and three associate degrees) as CBE programs. Rather than starting from scratch, LCCC decided to modify existing programming so it could be offered in a self-paced, modularized format. With strong upper administration and advisory committee support, a group of senior faculty members mapped 170 competencies to existing courses. LCCC’s proposed programs use a credit-based approach and the tuition is the same as its non-CBE

model, where students pay per course. LCCC is largely using a traditional (bundled) faculty model (faculty members are expected to interact with students about four hours per week),

We formed an ad-hoc group for faculty, business members and administration to review best practices, HLC requirements and what CBE will mean to our institution. We explored several different competency-based models and based upon that research, are currently developing a plan for implementation and appropriate accreditation approval. The programs we are investigating under CBE would include advanced manufacturing, network security and food science technology.

Source: Rhodes State Community College, Personal Communication, 2016

“The course objectives, course content, course learning outcomes, number of credits, faculty requirements have not changed and there is no significant departure from what we’ve currently offered. The only difference is the flexibility offered to students. The courses are intended to be self-paced. We would like to offer flexible start times (weeks 1-11). Instead of progressing on a time-based schedule, students would progress as they master competencies. Instead of weekly lessons, the course work would be modularized into units. The students would advance to the next module by demonstrating competency.”

Source: Lorain County Community College application to ODHE for CBE approval, May, 2016

but students will also be assigned a “success coach.” The success coach will review the weekly performance of each CBE student and will also interact with students to ensure they are engaged and progressing. (*Lorain County Community College ODHE CBE Survey, Interview and Application, 2016*)

Growth Phase

One community college, Sinclair Community College, is in the growth phase and has become a model for other Ohio colleges and universities that are developing CBE programs. In 2012 a consortium, led by Sinclair, was awarded a TAACCCT (U.S. Department of Labor’s Trade Adjustment Assistance Community College and Career Training) grant. Sinclair Community College, Broward College and Austin Community College each received funding for a three-year project, with Western Governors University consulting, to implement information technology (IT) programs adopting or adapting WGU’s model of CBE.¹⁹

Sinclair Community College’s CBE program was adapted from existing IT programs, and faculty and instructional designers were paid to develop the courses. Faculty still design and teach courses and grade student work. Sinclair’s program uses a credit-based approach and tuition is charged using Sinclair’s standard tuition model. This model allows students to receive federal financial aid for the program.

Because Western Governors University was part of the TAACCCT grant and provided support to Sinclair during program development, the college’s programs are modeled upon many of Western Governors’ student support practices. Once admitted to the program, each student is assigned an academic coach and receives holistic academic advising and targeted classroom interventions, shared between faculty and coaches. It is a proactive model and assists in the success of the student.

Sinclair reported that its CBE students need more support and coaching than those in a traditional program. They noted that students who are not self-motivated can have difficulty with a program that moves at a flexible pace and is personalized to the students’ own goals and abilities. This finding has been reported during other discussions with institutions involved in CBE programming (e.g., Western Governors University and Broward College) — unless students are coached, they can lose focus and slow down rather than accelerate.

With coaching, however, students in CBE programs can be extremely successful. Data from the Mathematica Policy Research’s²⁰ final report of Sinclair’s first two-and-a-half years showed

19 Person, A.E., Goble, L., & Bruch, J. (2014). *Developing Competency-Based Program Models in Three Community Colleges: Interim Report*. Mathematica Policy Research. Retrieved from https://www.skillscommons.org/bitstream/handle/taaccct/2546/competency-based_program_models.pdf?sequence=1&isAllowed=y

20 Person, A.E., Thomas, J., Bruch, J. et. al. (2016). *Developing Competency-Based Program Models in Three Community Colleges: Final Report*. Mathematica Policy Research. Retrieved from <https://www.mathematica-mpr.com/our-publications-and-findings/publications/outcomes-of-competencybased-education-in-community-colleges-summative-findings-from-the-evaluation>

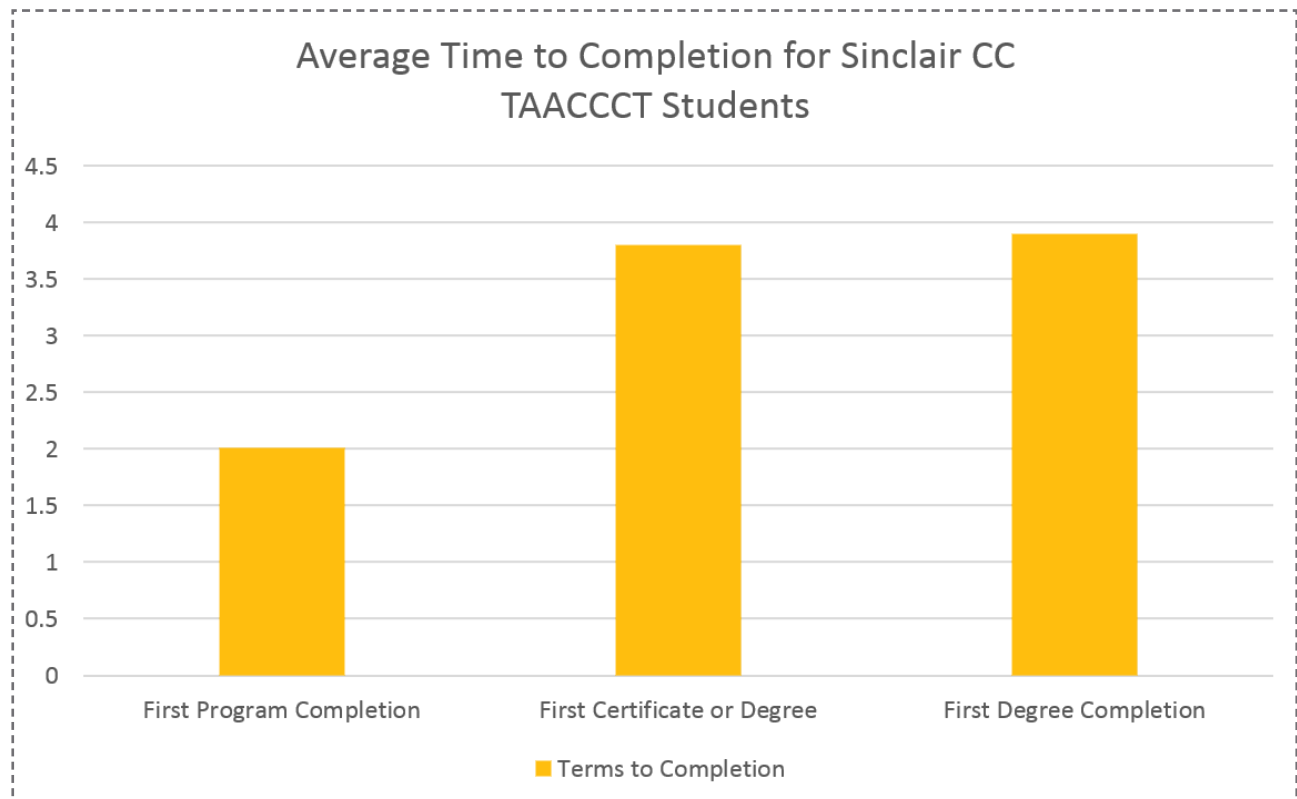
that CBE students are far more likely to complete programs and credentials, as compared to either online students or students in face-to-face programs. Sinclair's research division calculated completions through the end of the 2016 spring term in order to report three full years, as shown in the table below. As Christina Amato, CBE program project manager, points out, "the fascinating part is that all student groups — CBE, traditional online and face-to-face — receive the exact same curriculum across all modalities. The only difference is in the way CBE curriculum is packaged and delivered, and in the way students are supported (case management vs. ad-hoc services)." (*Christina Amato, Sinclair Community College, Interview, 2016*)

Sinclair Community College Completions from Fall 2013 to Summer 2016

Group	Completed Program	Completed Credential
CBE Case Managed	52.7%	29.7%
Traditional Online	26.4%	14.2%
Face-to-Face	38.1%	16.1%

Source: Sinclair Community College Research Division, 2016

Amato also shared that "students in the CBE programs take about two terms to complete their first program of study (industry certifications), and average four terms to completion of a credential (certificates and associate degrees). This is a significantly shorter time to completion than our typical population at Sinclair."



Source: Sinclair Community College Research Division, 2016

In further communication, Amato reported that

“Students in CBE programs also enjoyed high rates of employment, and averaged wage increases of 13% over the two years of the study. This compares positively with national wage data over the same period, which increased an average of 7%. So overall: they complete more, they complete faster and they get jobs.

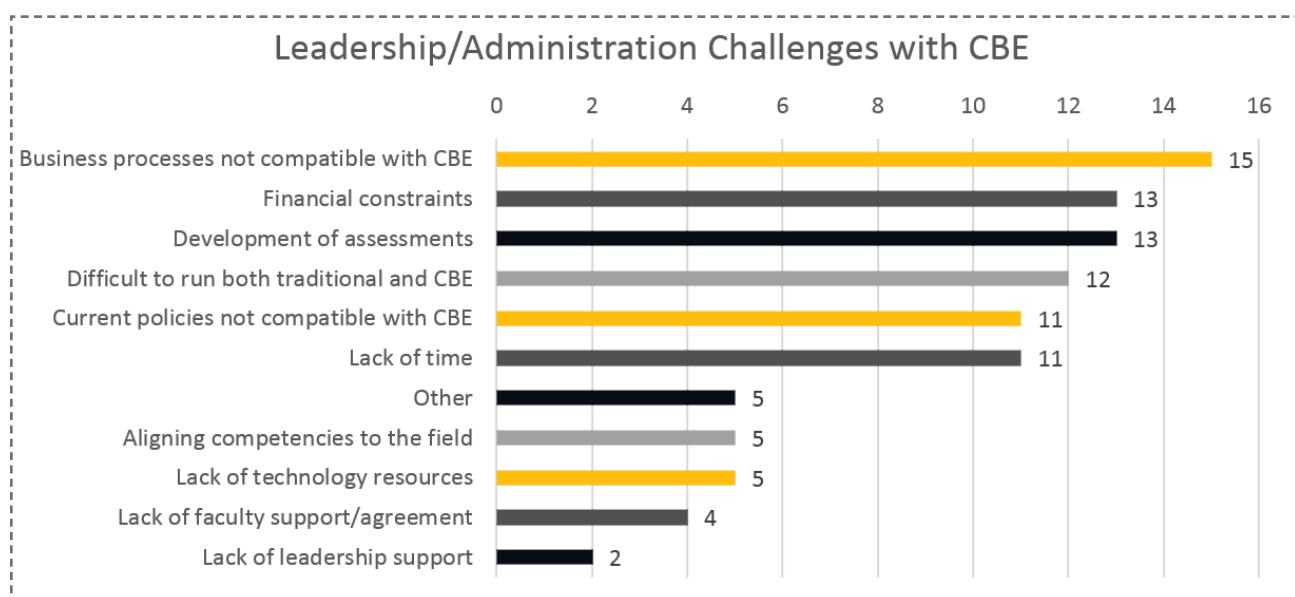
Sinclair has branded its program “Sinclair Accelerate” and programs now include advanced manufacturing, in addition to the original IT programs. Two programs are under development, and not yet offered. One is an aerial sensing data analyst certificate in UAS (part of a NSF grant), in which courses are due to roll out in fall 2017. The other is a retail supply chain management certificate (part of a Walmart Foundation grant), with courses due to begin rolling out in January 2017. We are also in the very early stages of planning with some of our Health Sciences programs, and are very excited about them. They are our first organic CBE programs with no grant stimulus!” (Amato, C., (2016), Sinclair Community College, Email)

Challenges

The early success of Sinclair Community College’s CBE programs and the upcoming launch of other CBE programs across Ohio show that CBE programming may be a viable option for public colleges and universities that are interested in offering CBE certificates and degrees.

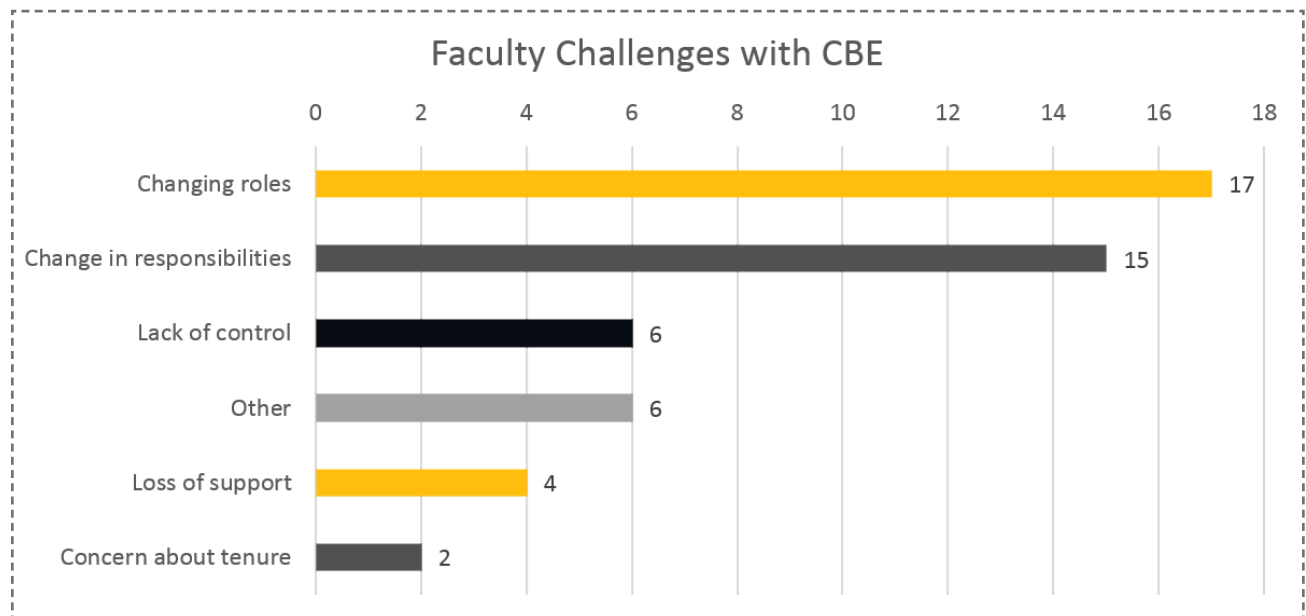
The survey asked each college or university that was in the planning, approval or growth phase to indicate the perceived challenges in establishing a successful CBE program from the perspective of: a) administrative and business operations; b) faculty; and c) students. The results are shown in the three graphs below.

Administration Challenges



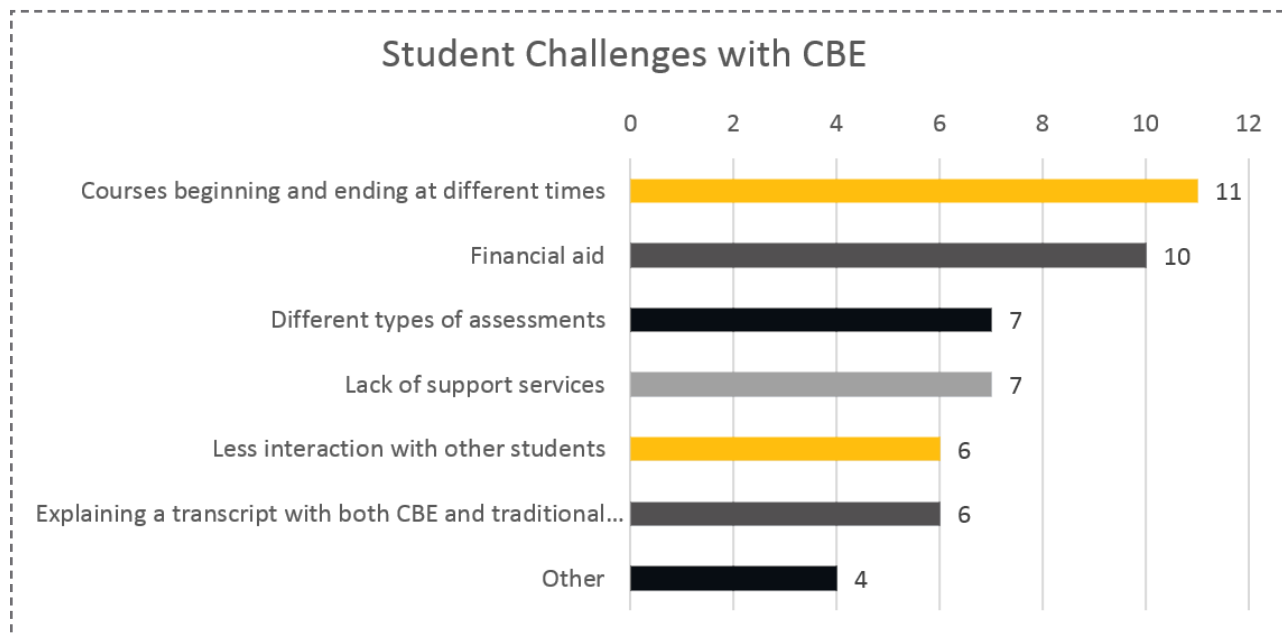
CBE programs bring challenges to the administrative and business offices of colleges and universities. Administrators repeatedly mentioned the lack of sufficient resources as one of the main barriers to developing CBE programs. Institutions that have successfully launched (or are well into the planning process) have generally received funding from federal or private grants to assist with program development. Another main issue mentioned by several institutions was the process of gaining approval and accreditation for the CBE programs. There was confusion about the process itself and how to go about seeking approval from both ODHE and the Higher Learning Commission. Finally, administrators and business offices have to wrestle with how to integrate this new structure into the existing financial aid and tuition models. Many administrators wondered whether it was worth it to put in the time it will take to completely change business models in order to facilitate the development of CBE programs.

Faculty Challenges



CBE programs are seen as leading to additional challenges for faculty. Because this is an entirely new pedagogical model, the interactions between faculty members and their students change. This is true whether faculty roles are traditional (bundled) or differentiated (unbundled), and faculty members will likely need opportunities for professional development in order to be successful in this new model. Aside from the challenges, the model does provide an opportunity for faculty members to specialize (as curriculum developers, coaches, content mentors or assessment experts), which may be viewed as a positive aspect of the approach.

Student Challenges



In the survey and follow up interviews, colleges and universities discussed the importance of assisting students throughout the process of completing a CBE program, beginning with special admissions requirements and unique orientation programs. As noted previously, Sinclair Community College modeled many of Western Governors' student support services, including an academic coach that acts as a point of contact for students addressing personal needs/issues and talks with them at least once a week. Colleges and universities that are in the planning phase were still working out the details of the student support services.

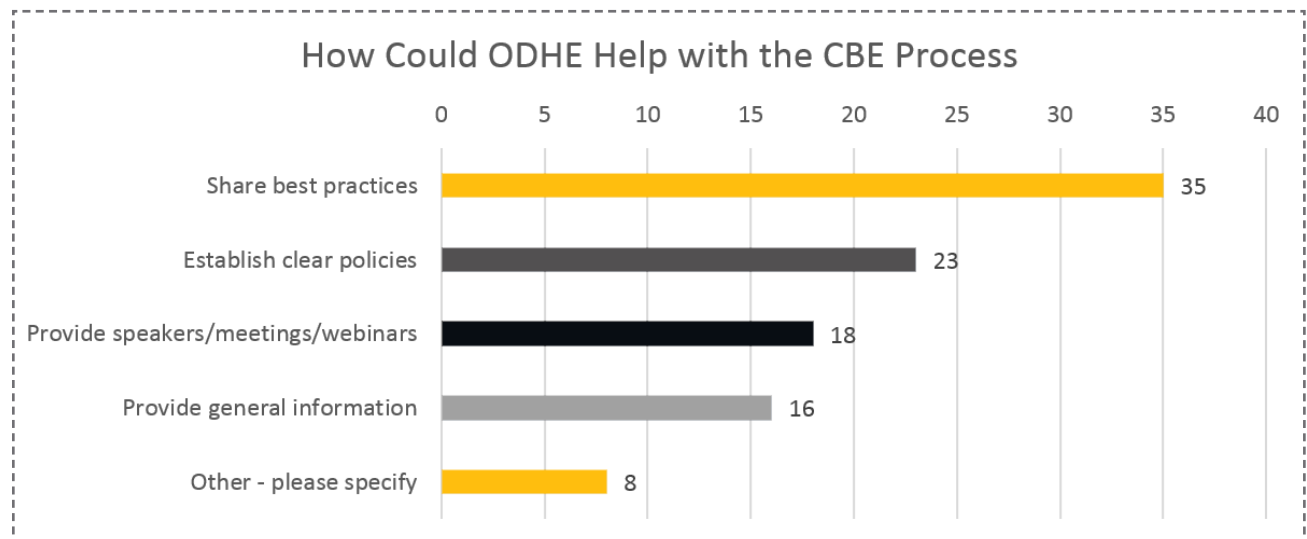
"As CBE begins to evolve on our campus, Academic Affairs will work with Enrollment Management and Student Services to begin to establish unique onboarding and academic support services for CBE learners."

Source: Columbus State Community College, ODHE CBE Survey, 2016

Even given the challenges, the survey found that there is robust interest in CBE among the Ohio colleges and universities, with the majority discussing, exploring and/or planning CBE ... at least on a small scale involving one or two programs. The majority of those that reported they are not currently engaged in any phase of CBE indicate that their college or university may consider the development of a CBE program within the next five years.

A final question on the survey asked campuses to provide suggestions as to how ODHE might be helpful in addressing the challenges associated with CBE development on Ohio's campuses.

Most campuses indicated that ODHE could help by providing information in the form of best practices, establishing clear policies, and providing CBE learning opportunities (e.g., speakers, meetings, webinars or other forms of general information).

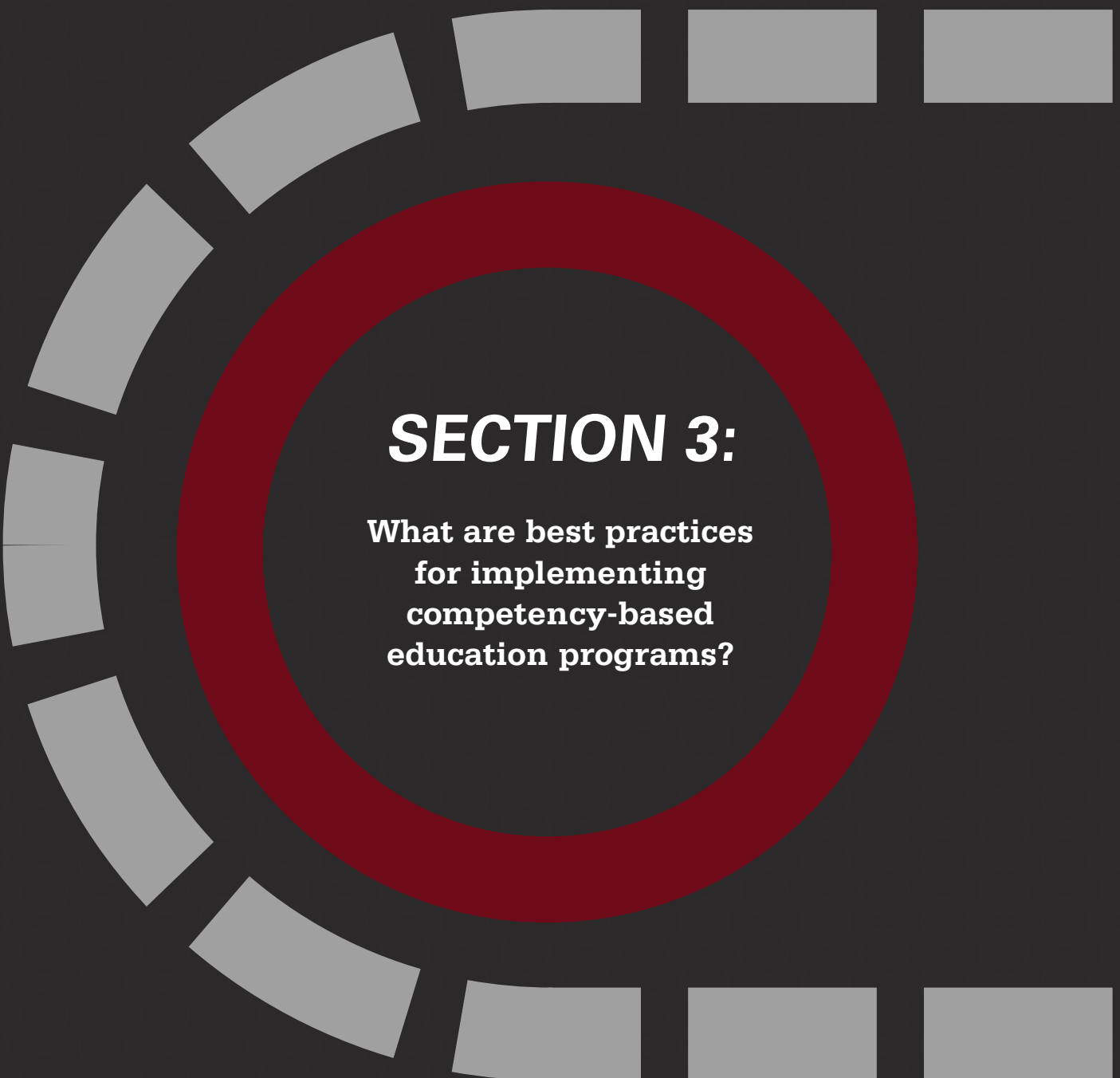


"CBE can be an excellent alternative for our adult learners in Ohio ... Each university and college that wishes to participate should be brought together. Strategies can be developed as a group and funding sources secured in a spirit of cooperation and not competition."

Source: Youngstown State University, ODHE CBE Survey, 2016

"Our institution is one of the smaller in the state. We feel that we will have the best chance of succeeding in successfully implementing a CBE program, if we learn from the experiences of some of the other colleges and then use those lessons learned to inform our own efforts. With that in mind, it would be great to have a webinar or seminar based around the idea of 'Lessons learned in creating and implementing a CBE program at an Ohio community college.' I know that some of this information has been shared already in a statewide forum, but we can all benefit from continuing this practice."

Source: Washington State Community College, ODHE CBE Survey, 2016



SECTION 3:

**What are best practices
for implementing
competency-based
education programs?**

The results from the survey of Ohio colleges and universities indicated a strong interest in CBE. However, the majority of Ohio's public colleges and universities are still in the exploration and planning phase, with only a few schools currently offering CBE programs or planning to do so within the next year. This finding is understandable, as the development and implementation of full CBE programs is time-consuming and requires a substantial commitment of financial and human resources. As noted previously, many colleges and universities do not feel like they have enough information about CBE and its potential costs and benefits in order to take the next steps.

Proponents of CBE, such as those who work at institutions that are part of the Competency-Based Education Network (C-BEN), understand those concerns. In fact, C-BEN was formed with the goal of providing a network for colleges and universities to come together to share information and respond to the common challenges associated with designing and scaling quality CBE programs. C-BEN, with the support of the Lumina Foundation, has as one of its goals sharing its CBE knowledge with the field in order to bring CBE programs to more students. To this end, over the past two years²¹, C-BEN has released a common definition of CBE, held numerous conferences and released resource guides to help institutions as they develop their own CBE programs.

More recently, C-BEN published a tool “by institutions and for institutions” created specifically to help colleges and universities “design, build or scale” CBE programming on their campuses. This tool, the CBE Design Planner, can be found at <http://cbedesignplanner.org>.

Another tool that colleges and universities might find useful, particularly as they explore whether CBE is right for their institution, is the Education Advisory Board's (EAB) *CBE and PLA Playbook*.²² EAB's *Playbook* contains several tools, including a CBE Readiness Diagnostic, a CBE Program Development Roadmap, a CBE Program Selection Guide and a Model

January 2016, C-BEN releases

- Competency-Based Education Ecosystem Framework
- Shared Design Elements and Emerging Practices of CBE Education Programs

March 2016, C-BEN releases

- Revised Definition of CBE
- Questions Every Financial Aid Professional Should Ask About CBE Programs: A Resource Guide
- Understanding the Academic Calendar: A Resource Guide
- Questions Information Technology Professionals Should Ask About CBE Programs: A Resource Guide

Source: Competency-Based Education Network. (2016). *Activities and Impact: C-BEN Year Two Report*. Retrieved from <http://www.cbenetwork.org/sites/457/uploaded/files/CBENYearTwoReport.pdf>

21 Competency-Based Education Network. (2016). *Activities and Impact: C-BEN Year Two Report*. Retrieved from <http://www.cbenetwork.org/sites/457/uploaded/files/CBENYearTwoReport.pdf>

22 Advisory Board Company – Education Advisory Board. (2015). *The CBE and PLA Playbook: Tools for Alternative Credit Programs*.

CBE Business Case, all of which could serve as a useful framework for exploring the implementation of CBE programs at a college or university.

With permission from C-BEN and EAB, this section will describe how administrators, faculty members and staff members might use C-BEN and EAB tools and models to determine whether CBE programs are a good fit for the campus and, if so, what programs might be considered and how they might fit within the existing campus structure.

C-BEN's CBE Design Planner

The CBE Design Planner (Appendix B) is a resource designed to guide colleges and universities as they explore the possibility of developing and implementing CBE programs. The Design Planner consists of a series of questions that administrators, faculty and staff can ask themselves as they move through the CBE planning process in areas including, institutional preparedness, demand analysis and marketing, and program planning.

- **Institutional Preparedness** — The questions are intended to facilitate discussions with key stakeholders around fundamental aspects of CBE, such as a common understanding of CBE, the purpose of adding CBE programs to the institution's curricular offerings, the proposed scope of CBE programming, and institutional capacity for the undertaking.
- **Demand Analysis and Marketing** — The questions help campuses think through the process of determining the program level (e.g. certificate or degree), the disciplinary areas (based on local, regional or state needs) and target student populations (e.g. adults, students with some college but no degree, displaced workers).
- **Program Planning** — Based on Public Agenda's research of shared design elements among successful CBE programs²³, the questions lead campus administrators, faculty and staff as they work through complex decisions regarding the various aspects of CBE programming, from developing competency statements and ensuring substantive interactions between students and faculty to creating measurable and meaningful assessments, identifying the technical systems and processes needed to implement the program, and determining an appropriate tuition structure.

23 Public Agenda (2015). *A Research Brief on the Survey of the Shared Design Elements & Emerging Practices of Competency-Based Education Programs*. Retrieved from http://www.publicagenda.org/files/SurveyOfSharedDesignElementsAndEmergingPracticesOfCBEPrograms_PublicAgenda_2015.pdf

Campuses using the Design Planner can augment their work with C-BEN's draft *Quality Standards for Competency-Based Educational Programs*²⁴ (see sidebar; full draft in Appendix C). The C-BEN Quality Standards Task Force drafted a set of universal principles and standards that could be applied to all types of CBE programs with the goal of assisting institutions in designing high-quality programs. The standards also provide "guideposts and assurances to policymakers and accreditors tasked with regulating this vibrant, and still emerging, field of practice." C-BEN plans to release rubrics to accompany the standards in early 2017.

EAB's CBE Playbook

EAB's *The CBE and PLA Playbook*²⁵ is an excellent resource for EAB member campuses that are considering beginning or expanding CBE programming. The *Playbook* provides information on CBE terminology, federal financial aid policy and technology vendors. The *Playbook* also serves as a guide that can be used to determine if CBE programs are a good "fit" for the institution and, if so, how to go about launching a program and supporting students.

C-BEN Draft Quality Standards for Competency-Based Education Programs

- Demonstrated Institutional Commitment to and Capacity for CBE Innovation
- Clear, Measurable, Meaningful and Complete Competencies
- Coherent, Competency-Driven Program and Curriculum Design
- Intentionally Designed and Engaged Student Experience
- Credential-level Assessment Strategy with Robust Implementation
- Collaborative Engagement with External Partners
- Evidence-Driven Continuous Improvement Process
- Transparency of Student Learning

Source: Competency-Based Education Network. (2016, December). *Quality Standards for Competency-Based Educational Programs [Draft]*.

Playbook tools that can be used to determine whether CBE is right for an institution include:

- A CBE "Readiness Diagnostic," which helps campuses determine if the funding, infrastructure, experience with innovative pedagogy and delivery models, and campus culture are in place to support CBE program success. Scores on the assessment place campuses in categories ranging from "Ready for CBE, but Proceed with Caution" to "Far from Ready, CBE Poses Significant Risks." EAB points out that introducing full CBE programs at any institution requires significant change management and can pose risks for even the most prepared campuses.

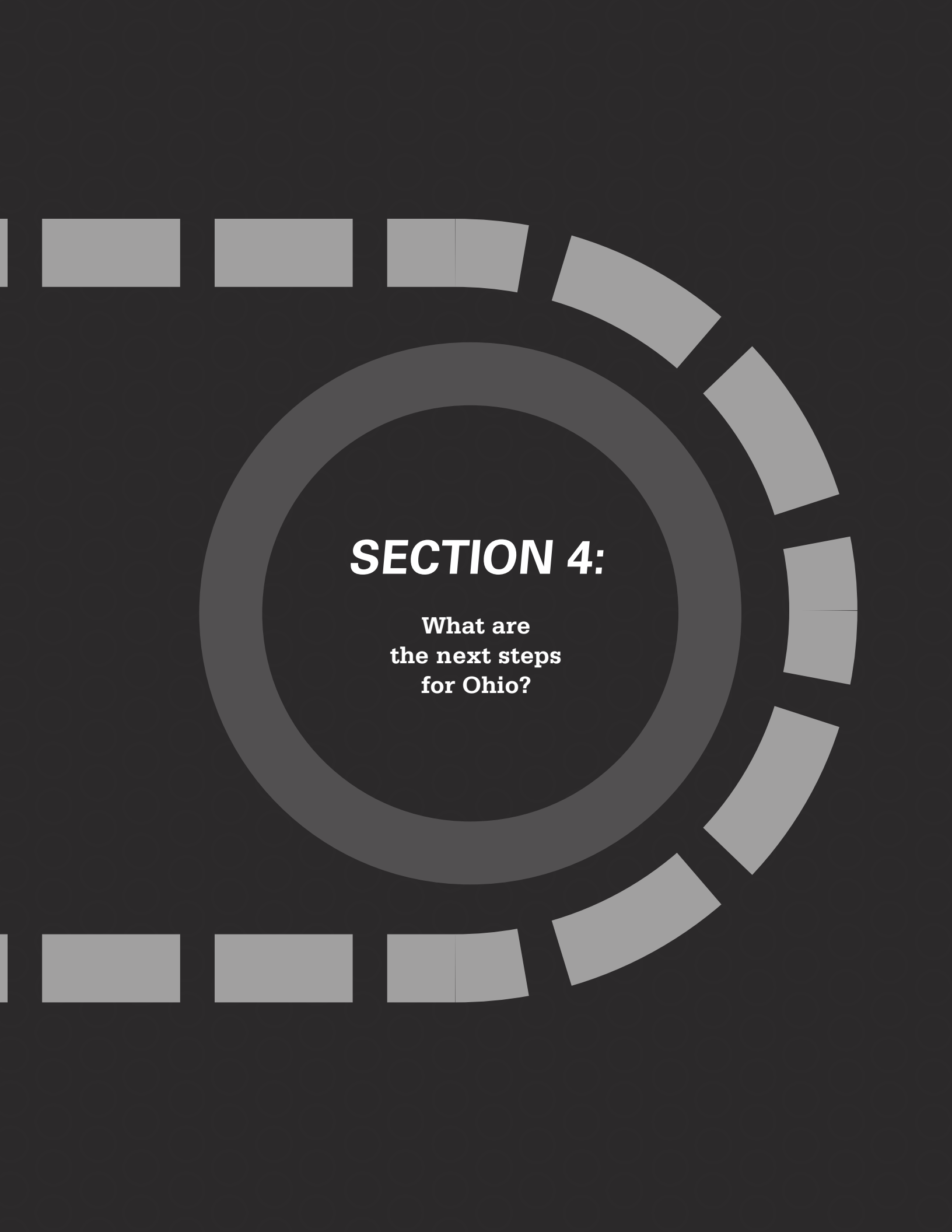
²⁴ Competency-Based Education Network. (2016, December). *Quality Standards for Competency-Based Educational Programs [Draft]*.

²⁵ Advisory Board Company – Education Advisory Board. (2015). *The CBE and PLA Playbook: Tools for Alternative Credit Programs*.

- A CBE “Program Selection Guide,” which helps campuses ask the right questions as they consider the credential type (e.g. non-credit certificate, undergraduate certificate, graduate certificate, associate, bachelor’s, master’s, doctorate) and discipline area of the CBE program. Factors such as student demand, faculty availability, student support needs, up-front and ongoing costs, and available resources must be considered as the program is selected.
- A CBE “Program Development Road Map,” which provides timelines and step-by-step guidance for launching CBE programs. The map includes steps such as “Evaluate Program Options and Select Degree Program;” “Develop Business Case and Secure Funding;” “Solicit Faculty Buy-In;” “Create Student Recruitment and Support Strategy;” “Develop Content;” “Implement Program Logistics;” “Soft Launch of Program;” “Official Program Launch;” and “Evaluate Program Performance.”
- A Model “CBE Business Case,” which lays out the elements to be considered in developing the business case for adding CBE programming, including assumptions to be tested, projected benefits, associated costs and projected risks.

Summary

The results of the survey of Ohio colleges and universities revealed a strong interest in competency-based education. However, only a few Ohio schools have progressed to implementation as the majority of schools remain in the exploration and planning stage. The good news for Ohio schools is that, no matter where the school is along the continuum, this is an opportune time to be considering and/or planning a CBE program. Various organizations, working in conjunction with schools that have already implemented CBE programs, have developed valuable resources and tools that address relevant questions and topics to assist the next wave of schools as they plan CBE programs.

The graphic features a central dark gray circle containing text. This is surrounded by a thick, solid gray ring. The outermost layer is a dashed border composed of light gray rectangular segments of varying lengths, arranged in a circular pattern.

SECTION 4:

**What are
the next steps
for Ohio?**

In the Ohio CBE survey, the Ohio Department of Higher Education (ODHE) asked colleges and universities how it could assist in the CBE development process. Based on survey responses, identified needs and other input, the Ohio Board of Regents recommends that the Ohio Department of Higher Education:

1. Create an Ohio Network of institutions interested in developing and scaling CBE programs, loosely modeled on the national Competency-Based Education Network. The Ohio Network could serve as a forum for quarterly activities designed to bring Ohio faculty, staff and administrators together to learn about and share information related to CBE programming. First-year topics might include:
 - » An EAB symposium on starting CBE programs based on the CBE Playbook.
 - » Selecting technologies to support CBE programming
 - » Gaining ODHE, HLC and USDOE approval for CBE programs
 - » Partnering with business and industry on joint development of program competencies, projects and assessments
2. Review current state law and regulations to determine if there are barriers to CBE in general and direct assessment in particular. If so, recommend needed changes (e.g., credit hour requirements, financial aid requirements).
3. Work with C-BEN, HEI, Ohio institutions and other appropriate parties to identify standard data (e.g., student demographics, cost, retention, completion, employment) to be collected if certificates and degrees are delivered as CBE programs to help inform future policy recommendations.
4. Encourage students to enroll in competency-based programs by recognizing and publicizing CBE programs with a record of success for Ohio's students (e.g., Western Governors University, Sinclair Community College's Accelerate programs).



APPENDIX A:

Ohio CBE Survey



CBE Survey Questions **if you are in the Implementation or Growth Phase of CBE**

Welcome to the Competency-Based Education (CBE) Survey!

In an effort to better understand the status and needs of Ohio's public colleges and universities, the Ohio Department of Higher Education (ODHE) is conducting a CBE survey. The information gained as a result of this survey will be used in the 9th Board of Regents report on the Condition of Higher Education in Ohio (the "Condition Report"), which this year will focus on CBE. We are seeking information from all public colleges and universities in Ohio.

You have been identified as the faculty or staff member on your campus who is overseeing the development or implementation of a CBE program and will complete this survey for that program area. Please refer to the CBE definition within the survey when answering the survey questions. The survey should take no longer than 20-30 minutes. When you have completed the survey, please click the *Submit* button. The deadline for submitting the survey is **June 26, 2016**. After the window closes, information will be sent to your Provost or CAO for verification.

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

Please provide contact information in case we need further details regarding your CBE program.

First Name

Last Name

Title

E-mail Address

Telephone Number

Is your institution:

- Public
- Private

Which classification best describes your institution?

- Ohio Technical Center (Post-Secondary/Adult Programs not K12)
- Community College
- University

Please select from the pulldown list.

For this survey, we are using a definition of CBE supported by the Competency-Based Education Network (C-Ben).

“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.” - *Competency-Based Education Network (C-BEN)*

As a point of clarification, please note that this definition does not consider “distance education” or “prior learning assessment”, in and of themselves, as CBE.

For the purpose of conducting this survey, we are defining competency based-education (CBE) as an educational pedagogy rather than a delivery method. Distance education is recognized as a possible delivery method for CBE, however, not all distance education programs are CBE. Therefore, you do not need to report your distance education programs unless they include the other characteristics of CBE programs.

We are also differentiating Prior Learning Assessment (PLA) from CBE for this survey. PLA is a method of assessing the college-level knowledge and skills that students have *already acquired* outside of their collegiate experience. CBE, on the other hand, is being defined as an educational approach that allows students to gain *additional knowledge and skills* by acquiring and demonstrating mastery of defined competencies at a personalized pace while enrolled in a CBE program. Therefore, you do not need to report on your PLA programs and activities.

As a point of further clarification, we are seeking information on *full CBE programs* only, and not individual CBE courses taught within a traditional program.

Given the definition above for **competency-based education**, and the definitions below for **planning, approval, implementation** and **growth**, are you currently in any of the phases of CBE Program Development listed below?

- **Planning** - designing and discussing a CBE model
 - **Approval** - EITHER internal administrative approval only OR internal administrative approval and in process with Higher Learning Commission (HLC) or other relevant governing agency OR internal administrative approval and HLC or other relevant governing agency approval
 - **Implementation** - marketing, recruiting, enrolling and educating students in a CBE program
 - **Growth** - Year 2 or beyond; replicating another cohort in the same CBE program
- No
 - Yes

Which phase?

- Planning
- Approval
- Implementation OR
- Growth

In order to start this CBE program, how did or how will your institution secure the funds? (Please select all that apply.)

- Internal Funds
- Federal Funds
- Private Partnerships
- Other (Please explain)

If you selected *Other*, please explain which funds your institution used to start this CBE program.

In developing the CBE program, did you work or are you currently working with business and industry?

- Yes
- No

If you selected *Yes*, Please explain how you engaged and/or will engage with business and Industry? Please include the names of your business partner(s).

Explain your process for starting this CBE program at your institution.

Please select the discipline area for this CBE program:

- Arts and Humanities
- Business
- Education
- Engineering
- Health
- Law
- Natural Sciences & Mathematics
- Services
- Social & Behavioral Sciences
- Trades and Repair Technicians

Please enter the program name for this CBE program.

Please provide a brief description or explanation of your CBE program.

(e.g., faculty model; direct instruction vs credit hour based)

How are you doing assessments for this CBE program?

Please select the degree awarded for this CBE program: (Please select all that apply.)

- Certificate
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral (Ed.D, Ph.D., or first professional)

How many students are currently enrolled in this CBE program?

- ☒ not applicable
- ☐ 1-20
- ☐ 21-50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-200
- ☐ 201-250
- ☐ 251-300
- ☐ 301-350
- ☐ 351-400
- ☐ 400 or more

How many students have graduated from this CBE program to date?

- ☐ not applicable
- ☐ 1-20
- ☐ 21-50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-200
- ☐ 201-250
- ☐ 251-300
- ☐ 301-350
- ☐ 351-400

-  400 or more

Is there or will there be a different model for student support services in your CBE program vs. your non-CBE programs?

- Yes
- No

If Yes, Please explain how the student support services at your institution are or will be different for CBE students vs. non-CBE students.

What do you see as challenges in establishing a successful CBE Program from the administrative and business perspective? (Please select all that apply.)

- Aligning competencies to business, industry and professional standards
- Business processes and systems not compatible with CBE model
- Current policies not conducive to new model
- Development of clear and valid authentic assessments for the identified competencies
- Difficulty in simultaneously operating traditional and CBE programs
- Financial constraints
- Lack of faculty support/agreement
- Lack of support from the leadership or administration
- Lack of technology resources
- Lack of time
- Other – please specify

What do you see as challenges for faculty in establishing a successful CBE program? (Please select all that apply.)

- Change in responsibilities
- Changing roles
- Concern about tenure
- Loss of control
- Lack of support
- Other – please specify

What do you see as challenges from the students' perspective? (Please select all that apply.)

- Courses beginning and being completed at different times, (i.e., not at the end of semesters, but based on students' progress)
- Different type of assessments
- Explaining a transcript which has both traditional and CBE grades
- Financial aid
- Lack of appropriate support and resources (e.g., business office, advising, educational coaching)
- Less social interaction with other students

- Other – please specify

Have you tried CBE at your institution, but then eliminated it later?

IF **Yes** then explain. If **No**- no action.

How could ODHE assist in the CBE process at your institution? (Please select all that apply.)

- Provide general Information
- Establish clear policies
- Provide speakers/meetings/webinars
- Share best practices
- Other (Please list)

If you selected Other, please explain what else ODHE could provide to facilitate your consideration of a CBE program.

ODHE is willing to facilitate future conversations. Would you be interested in participating in a follow-up meeting to discuss CBE?

- Yes
- No

Is there anything else that you would like to add about CBE at your institution that we have not asked in the survey?

Please verify that you have the authority to fill out this survey on behalf of your institution and then click submit.

I am able to make this representation on behalf of my institution. If I become aware that information I submit does not accurately represent my institution, I will submit updated information to the Ohio Department of Higher Education.

- Yes
- No

Submit

Thank you for participating in this CBE survey!

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

We appreciate your cooperation and assistance in responding to this statewide survey on CBE so that all voices are heard. Your responses will provide us with an accurate picture of where Ohio institutions are in terms of the CBE discussion and how we can be of assistance.

Our sincere thanks to Public Agenda, its partners, and the CBE Network for permission to use the network's definition of Competency-Based Education and an adaptation of its definition of the *Phases of CBE Implementation* in this survey.

CBE Survey Questions **if you are in the Approval Phase of CBE**

Welcome to the Competency-Based Education (CBE) Survey!

In an effort to better understand the status and needs of Ohio's public colleges and universities, the Ohio Department of Higher Education (ODHE) is conducting a CBE survey. The information gained as a result of this survey will be used in the 9th Board of Regents report on the Condition of Higher Education in Ohio (the "Condition Report"), which this year will focus on CBE. We are seeking information from all public colleges and universities in Ohio.

You have been identified as the faculty or staff member on your campus who is overseeing the development or implementation of a CBE program and will complete this survey for that program area. Please refer to the CBE definition within the survey when answering the survey questions. The survey should take no longer than 20-30 minutes. When you have completed the survey, please click the *Submit* button. The deadline for submitting the survey is **June 26, 2016**. After the window closes, information will be sent to your Provost or CAO for verification.

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

Please provide contact information in case we need further details regarding your CBE program.

First Name

Last Name

Title

E-mail Address

Telephone Number

Is your institution:

- Public
- Private

Which classification best describes your institution?

- Ohio Technical Center (Post-Secondary/Adult Programs not K12)
- Community College
- University

Please select your institution from the pulldown list.

For this survey, we are using a definition of CBE supported by the Competency-Based Education Network (C-Ben).

“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.” - *Competency-Based Education Network (C-BEN)*

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- **Implementation** - marketing, recruiting, enrolling and educating students in a CBE program
- **Growth** - Year 2 or beyond; replicating another cohort in the same CBE program
- No
- Yes

Which phase?

- Planning
- **Approval**
- Implementation
- Growth

You have selected Approval, please identify at which stage of approval your institution is:

- internal administrative approval only
- internal administrative approval and in process with Higher Learning Commission (HLC) or other relevant governing agency
- internal administrative approval and HLC or other relevant governing agency approval

In order to start this CBE program, how did or how will your institution secure the funds? (Please select all that apply.)

- Internal Funds
- Federal Funds
- Private Partnerships
- Other (Please explain)

If you selected *Other*, please explain which funds your institution used to start this CBE program.

In developing the CBE program, did you work or are you currently working with business and industry?

- Yes
- No

If you selected *Yes*, Please explain how you engaged and/or will engage with business and Industry? Please include the names of your business partner(s).

Explain your process for starting this CBE program at your institution.

Please select the discipline area for this CBE program:

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Please enter the program name for this CBE program.

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Please select the degree awarded for this CBE program: (Please select all that apply.)

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Have you tried CBE at your institution, but then eliminated it later?

IF **Yes** then explain. If **No**- no action.

How could ODHE assist in the CBE process at your institution? (Please select all that apply.)

- Provide general Information
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- Share best practices
- Other (Please list)

If you selected Other, please explain what else ODHE could provide to facilitate your consideration of a CBE program.

ODHE is willing to facilitate future conversations. Would you be interested in participating in a follow-up meeting to discuss CBE?

- Yes
- No

Is there anything else that you would like to add about CBE at your institution that we have not asked in the survey?

Please verify that you have the authority to fill out this survey on behalf of your institution and then click submit.

I am able to make this representation on behalf of my institution. If I become aware that information I submit does not accurately represent my institution, I will submit updated information to the Ohio Department of Higher Education.

- Yes
- No

Submit

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Please provide contact information in case we need further details regarding your CBE program.

First Name

Last Name

Title

E-mail Address

Telephone Number

Is your institution:

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- Private

Which classification best describes your institution?

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- University

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For the purpose of conducting this survey, we are defining competency-based education as an educational pedagogy rather than a delivery method. Distance education is recognized as a possible delivery method for CBE; however, not all distance education programs are CBE. Therefore, you do not need to report your distance education programs unless they include the other characteristics of CBE programs.

We are also differentiating Prior Learning Assessment (PLA) from CBE for this survey. PLA is a method of assessing the college-level knowledge and skills that students have *already acquired* outside of their collegiate experience. CBE, on the other hand, is being defined as an educational approach that allows students to gain *additional knowledge and skills* by acquiring and demonstrating mastery of defined competencies at a personalized pace while enrolled in a CBE program. Therefore, you do not need to report on your PLA programs and activities.

As a point of further clarification, we are seeking information on *full CBE programs* only, not individual CBE courses taught within a traditional program.

Given the definition above for **competency-based education**, and the definitions below for **planning, approval, implementation** and **growth**, are you currently in any of the phases of CBE Program Development listed below?

- **Planning** - designing and discussing a CBE model
- **Approval** - EITHER internal administrative approval only OR internal administrative approval and in process with Higher Learning Commission (HLC) or other relevant governing agency OR internal administrative approval and HLC or other relevant governing agency approval
- **Implementation** - marketing, recruiting, enrolling and educating students in a CBE program
- **Growth** - Year 2 or beyond; replicating another cohort in the same CBE program
 - No
 - Yes

Which phase?

- Planning
- Approval
- Implementation
- Growth

In order to start this CBE program, how did or how will your institution secure the funds? (Please select all that apply.)

- Internal Funds
- Federal Funds
- Private Partnerships
- Other (please specify)

If you selected *other*, please explain which funds your institution used to start this CBE program.

In developing the CBE program, did you work or are you currently working with business and industry?

- Yes
- No

If you selected *Yes*, Please explain how you engaged or will engage with business and Industry? Please include the names of your business partner(s).

Explain your process for starting this CBE program at your institution.

Since you are in the Planning Phase, when do you anticipate implementing your CBE program?

- 0-3 months
- 3-6 months
- 6-12 months
- 12-18 months
- 18-24 months
- more than 2 years

Please select the discipline area for this CBE program:

- Arts and Humanities
- Business
- Education
- Engineering
- Health
- Law

- Natural Sciences & Mathematics
- Services
- Social & Behavioral Sciences
- Trades and Repair Technicians

Please enter the program name for this CBE program.

Please provide a brief description or explanation of your CBE program.
(e.g., faculty model; direct instruction vs credit hour based)

Please select the degree awarded for this CBE program: (Please select all that apply.)

- Certificate
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral (Ed.D, Ph.D., or first professional)

How many students are currently enrolled in this CBE program?

- ☐ not applicable
- ☐ 1-20
- ☐ 21-50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-200
- ☐ 201-250
- ☐ 251-300
- ☐ 301-350
- ☐ 351-400
- ☐ 400 or more

How many students have graduated from this CBE program to date?

- ☐ not applicable
- ☐ 1-20
- ☐ 21-50
- ☐ 51-100
- ☐ 101-150

- ☐ 151-200
- ☐ 201-250
- ☐ 251-300
- ☐ 301-350
- ☐ 351-400
- ☐ 400 or more

Is there or will there be a different model for student support services in your CBE program vs. your non-CBE programs?

- Yes
- No

If Yes, Please explain how the student support services at your institution are or will be different for CBE students vs. non-CBE students.

What do you see as challenges in establishing a successful CBE Program from the administrative and business perspective? (Please select all that apply.)

- Aligning competencies to business, industry and professional standards
- Business processes and systems not compatible with CBE model
- Current policies not conducive to new model
- Development of clear and valid authentic assessments for the identified competencies
- Difficulty in simultaneously operating traditional and CBE programs
- Financial constraints
- Lack of faculty support/agreement
- Lack of support from the leadership or administration
- Lack of technology resources
- Lack of time
- Other – please specify

What do you see as challenges for faculty in establishing a successful CBE program? (Please select all that apply.)

- Change in responsibilities
- Changing roles
- Concern about tenure
- Loss of control
- Lack of support
- Other – please specify

What do you see as challenges from the students' perspective? (Please select all that apply.)

- Courses beginning and being completed at different times, (i.e., not at the end of semesters, but based on students' progress)
- Different type of assessments
- Explaining a transcript which has both traditional and CBE grades
- Financial aid
- Lack of appropriate support and resources (e.g., business office, advising, educational coaching)
- Less social interaction with other students
- Other – please specify

Have you tried CBE at your institution, but then eliminated it later?

IF **Yes** then explain. If **No**- no action.

How could ODHE assist in the CBE process at your institution? (Please select all that apply.)

- Provide general Information
- Establish clear policies
- Provide speakers/meetings/webinars
- Share best practices
- Other (Please list)

If you selected Other, please explain what else ODHE could provide to facilitate your consideration of a CBE program.

ODHE is willing to facilitate future conversations. Would you be interested in participating in a follow-up meeting to discuss CBE?

- Yes
- No

Is there anything else that you would like to add about CBE at your institution that we have not asked in the survey?

Please verify that you have the authority to fill out this survey on behalf of your institution and then click submit.

I am able to make this representation on behalf of my institution. If I become aware that information I submit does not accurately represent my institution, I will submit updated information to the Ohio Department of Higher Education.

- Yes
- No

Submit

Thank you for participating in this CBE survey!

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

We appreciate your cooperation and assistance in responding to this statewide survey on CBE so that all voices are heard. Your responses will provide us with an accurate picture of where Ohio institutions are in terms of the CBE discussion and how we can be of assistance.

Our sincere thanks to Public Agenda, its partners, and the CBE Network for permission to use the network's definition of Competency-Based Education and an adaptation of its definition of the *Phases of CBE Implementation* in this survey.

CBE Survey Questions **if you are Not currently in any of the phases of CBE Program Development:** Planning, Approval, Implementation, Growth

Welcome to the Competency-Based Education (CBE) Survey!

In an effort to better understand the status and needs of Ohio's public colleges and universities, the Ohio Department of Higher Education (ODHE) is conducting a CBE survey. The information gained as a result of this survey will be used in the 9th Board of Regents report on the Condition of Higher Education in Ohio (the "Condition Report"), which this year will focus on CBE. We are seeking information from all public colleges and universities in Ohio.

You have been identified as the faculty or staff member on your campus who is overseeing the development or implementation of a CBE program and will complete this survey for that program area. Please refer to the CBE definition within the survey when answering the survey questions. The survey should take no longer than 20-30 minutes. When you have completed the survey, please click the *Submit* button. The deadline for submitting the survey is **June 26, 2016**. After the window closes, information will be sent to your Provost or CAO for verification.

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

Please provide contact information in case we need further details regarding your CBE program.

First Name

Last Name

Title

E-mail Address

Telephone Number

Is your institution:

- Public
- Private

Which classification best describes your institution?

- Ohio Technical Center (Post-Secondary/Adult Programs not K12)
- Community College
- University

Please select your institution from the pulldown list.

For this survey, we are using a definition of CBE supported by the Competency-Based Education Network (C-Ben).

“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.” - *Competency-Based Education Network (C-BEN)*

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We are also differentiating Prior Learning Assessment (PLA) from CBE for this survey. PLA is a method of assessing the college-level knowledge and skills that students have *already acquired* outside of their collegiate experience. CBE, on the other hand, is being defined as an educational approach that allows students to gain *additional knowledge and skills* by acquiring and demonstrating mastery of defined competencies at a personalized pace while enrolled in a CBE program. Therefore, you do not need to report on your PLA programs and activities.

As a point of further clarification, we are seeking information on *full CBE programs* only, not individual CBE courses taught within a traditional program.

Given the definition above for **competency-based education**, and the definitions shown below for **planning, approval, implementation** and **growth**, are you currently in any of the phases of CBE Program Development listed below?

- **Planning** - designing and discussing a CBE model
- **Approval** - EITHER internal administrative approval only OR internal administrative approval and in process with Higher Learning Commission (HLC) or other relevant governing agency OR internal administrative approval and HLC or other relevant governing agency approval
- **Implementation** - marketing, recruiting, enrolling and educating students in a CBE program
- **Growth** - Year 2 or beyond; replicating another cohort in the same CBE program
 - No
 - Yes

If you selected No:**Please select all the reasons why your institution is not currently planning or implementing CBE:**

- No interest or discussion at this time at our institution
- Lack of information about CBE
- Waiting to see what other schools do and how successful they are
- Lack of faculty support
- Lack of support from leadership or administration
- Lack of agreement among administration and faculty
- Lack of interest/assistance from business office (e.g., registrar, bursar)
- Lack of time
- Financial constraints
- Other (If you choose *Other*, please explain)

Are you interested in considering a CBE program in the future?

- Yes
- No

If yes, When do you think you may consider developing a CBE program?

- 1 year
- 2 years
- 5 years
- Not in the foreseeable future

Have you tried CBE at your institution, but eliminated it later?

- Yes
- No

If you eliminated CBE from your institution, please explain.**How could ODHE assist in the CBE process at your institution? (Please select all that apply.)**

- Provide general Information
- Establish clear policies
- Provide speakers/meetings/webinars
- Share best practices
- Other - please specify

If you selected Other, Please explain what else ODHE could provide to facilitate your consideration of a CBE program.

ODHE is willing to facilitate future conversations. Would you be interested in participating in a follow-up meeting to discuss CBE?

- Yes
- No

Is there anything else that you would like to add about CBE at your institution that we have not asked in this survey?

Please verify that you have the authority to fill out this survey on behalf of your institution and then click submit.

I am able to make this representation on behalf of my institution. If I become aware that information I submit does not accurately represent my institution, I will submit updated information to the Ohio Department of Higher Education.

- Yes
- No

Submit

Thank you for participating in the 2016 CBE survey.

Please feel free to contact us at edtech@highered.ohio.gov with any questions you may have regarding this 2016 CBE survey.

We appreciate your cooperation and assistance in responding to this statewide survey on CBE so that all voices are heard. Your responses will provide us with an accurate picture of where Ohio institutions are in terms of the CBE discussion and how we can be of assistance.

Our sincere thanks to Public Agenda, its partners, and the CBE Network for permission to use the network's definition of Competency-Based Education and an adaptation of its definition of the *Phases of CBE Implementation* in this survey.



APPENDIX B:

Competency-Based Education Design Planner

Provided by C-BEN



Competency-Based Education Design Planner

Provided by the Competency-Based Education Network

(An interactive version of this information can be found at www.cbdesignplanner.org)

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 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 Competency-Based Education Network (C-BEN) is a group of colleges and universities working together to share and overcome challenges to designing, developing, and scaling quality competency-based degree programs. Participating institutions are either currently offering degree programs with well-defined learning outcomes and rigorous assessment practices or are in the process of designing them. These institutions participate in research-and-development cycles every four months. Some of the Network's evidence-based findings and discoveries are shared in the CBE Design Planner, while others are posted on the [C-BEN website](http://www.cbdesignplanner.org). C-BEN and institutions using C-BEN's resources benefit from Lumina Foundation funding.

C-BEN member institutions help other institutions innovate responsibly in the creation of high-quality competency-based education programs designed to meet the diverse needs of today's learners.

When institutional leaders begin the CBE design process they often say, “I don’t know where to start” or “I don’t even know the right questions to ask.” This resource is designed to help interested colleges and universities get started. The lists of critical questions contained here were generated through the collaborative effort of C-BEN members, and they, therefore, represent the critical themes that cut across different models and approaches to CBE.

The lists of critical questions are neither intended to be exhaustive of their topics nor viewed as claims about best practices. Given the diversity of application and relative youth of modern forms of CBE, definitive standards of quality practice have

not been firmly established yet. However, those of us deeply involved in the hard work of building modern CBE programs are learning a great deal about the considerations and decisions that must be made in order to ensure quality and rigor.

The critical questions assembled here are not intended to cover every important decision that must be made in building a quality CBE program. Instead, these questions were designed by our network of early innovators as accessible starting points for your own discovery process. Many of the insights contained in this resource were realized through trial and error, and many of the lessons implied in the critical questions have been learned through practice by C-BEN members.

C-BEN member institutions have contributed the content to this tool because we want to help other institutions innovate responsibly, accelerate progress where possible and avoid the barriers that others have experienced. We view it as our responsibility to create resources like this to support institutions seeking to build high-quality, scalable competency-based education models capable of serving more students through meeting the needs of today's diverse learners.

In January 2015, with support from the Bill & Melinda Gates Foundation and under the direction of Public Agenda, C-BEN and a handful of other sponsoring organizations set out to find program design elements shared among thriving CBE programs. Several months of research and conversations with stakeholders surfaced 10 shared design elements. These elements were sourced and vetted in collaboration with project sponsors, partners and CBE leaders. Then, the elements were validated through a comprehensive field survey. This research report was released in January 2016 and can be accessed at www.cbenetwork.org.

The field is young and growing. Amid such rapid change, it is striking to see these 10 shared design elements and their emerging practices show up again and again. These design elements and emerging practices are meant to instruct rather than prescribe. With this research as the guide, the design planner tool is based on the design elements and emerging practices framework. Our hope is that these findings and discoveries guide and support your CBE program design process, leading you and your team to build the most robust, sustainable and quality program possible.

Institutional Preparedness

Before an institution begins developing its CBE program, leaders should ensure the institution is prepared for this type of innovation. The following list of critical questions is designed to help you get relevant stakeholders united around a common vision for their CBE innovation. Note that many of the questions are composites of multiple sub-questions. We urge you to view this list of questions as a deliberation and planning tool and encourage your team to take the time to engage all aspects of the questions.

1. Has a clear purpose for developing a CBE program at your institution or system been widely articulated and generally agreed upon?
2. Has a common understanding of what CBE means at your institution or system been widely articulated and generally agreed upon?
3. Have you determined the scope of your CBE efforts? (e.g., are they limited to a single program or extended throughout an entire institution or system?)
4. Have the relevant stakeholder groups for your institution's or system's CBE program(s) been identified and engaged?
5. Do all of the key stakeholders implicated in the design, build and delivery of your CBE program(s) understand their roles and responsibilities?
6. Have you decided whether your CBE program will be course/credit-based or direct assessment? (In either case, consult the C-RAC Guidelines)
7. Does your institution have an established internal capacity and a strong track record when it comes to implementing and sustaining innovations (e.g., clear communication and internal processes for empowering champions, overcoming resistance, designing and implementing new policies/procedures, planning for continuous improvement and sustainability, etc.)?

Demand Analysis and Marketing

The imperative to develop high-quality, rigorous educational options for those who are not well-served by traditional higher education is core to the enterprise of competency-based education. Because CBE is a learner-centered approach to education, the first step in building a program is to understand more about the learners you seek to serve. There are 32 million Americans with some credits but no credential, and many schools building CBE programs aim to serve one or more segments of that large, amorphous population. Some schools focus solely on adult learners, while others create programs to better serve traditional-aged students including those with complex lives (e.g. single mothers). Additionally, others work directly with companies to help develop talent within an organization. Considering the multitude of reasons institutions build programs, clarity about whom you seek to serve and how you intend to communicate with them is an essential first step in building your program.

The work of demand analysis and marketing in a CBE program should be focused on understanding and engaging both prospective students and other significant external stakeholders implicated in the health and vigor of an academic program. This list is designed to help you think more carefully about the value proposition of your CBE offerings and what is involved in successfully communicating that value proposition.

1. Have you conducted a market study (e.g. forecasting models or focus groups) to determine the interest level of various audiences, including prospective students, employers and community-based organizations?
2. Have you analyzed the learner populations that may be well-suited for your CBE offerings? Have you vetted your analysis with relevant external experts as well as through examination of available national or regional data?
3. If your program is focused specifically on regional workforce development, have you engaged local employers at a deep level including front-line hiring managers and business groups to ensure that the program you are building align clearly with workforce needs?
4. Are you feeding your demand analysis into the planning processes around all core elements of your program design to ensure that key decisions (e.g. term structure, delivery mode, assessment suite, learner supports, faculty roles) are aligned with the needs of the learners you seek to serve?
5. Have you created processes to deepen understanding of and support for your CBE program among those who have a strong tie to or role to play in the institution fulfilling its mission such as trustees, alumni, feeder institutions, legislative bodies and potential donors?
6. Does your marketing plan focus on leveraging the institution's established brand, or is it aimed at distinguishing the CBE offering from the institution's established brand?
7. Has care been taken to identify how the CBE program relates to other offerings at the institution and to ensure that the offerings are compatible and not destructively competitive?
8. Have you conducted research focused specifically on the needs of prospective students and, in turn, created an integrated marketing campaign (e.g., TV ads, billboards, radio, social media, banner ads, etc.)?
9. Does your institution's existing communications team have the capacity to market your CBE program or should that function be carried out through another team?
10. Does your campaign appropriately frame messages and materials to your identified CBE audiences? Have you carefully developed marketing materials, web resources, and a messaging campaign appropriate to the advertising and media channels available to you?

Planning Your Program Through Deliberate Consideration of the Shared Design Elements

The following lists of critical questions are designed to help you get started. Note that many of the questions are composites of multiple sub-questions. We urge you to view these lists of questions as a deliberation and planning tool and encourage your team to take the time to engage all aspects of the questions.

Clear, Cross-Cutting and Specialized Competencies

1. Have you developed a set of claims about what you want graduates of the CBE program(s) to know and be able to do? (If not, work with stakeholders to identify and develop these claims. This is an essential step. These claims will become your competency statements.)
2. Are the claims or competency statements observable and measurable — in other words, can they be meaningfully assessed?
3. Have you expressed these claims in terms that industry and other stakeholders will understand and find meaningful?
4. Have you consulted and (if appropriate) incorporated industry, government or other relevant standards into your competency statements?
5. Do the competency statements reflect "doing" and not just "knowing"?
6. Are your competency statements specific but not overly detailed in order for program expectations to be clear for learners?
7. Is each competency statement roughly equivalent to the others in terms of the level of detail and constructed with parallel tone and phrasing?
8. Have you removed any extraneous competency statements?
9. Are you satisfied that, taken as a whole, your competency statements express what graduates of this program or holders of the relevant job role should know and be able to do?

Coherent, Competency-Driven Program and Curriculum Design

1. Have majors/disciplines/programs interested in initiating a CBE program developed robust and detailed learning outcomes that can serve as groundwork for curriculum design?

2. How will you use curriculum mapping to ensure that there is shared clarity (among program faculty, staff and students) about all of the knowledge, skills, abilities and attitudes that must be demonstrated for successful completion of the program?
3. What are the sources from which you will determine competencies (internal program or general education outcomes, professional organization standards or certifications, accreditation standards, etc.)?
4. Have you discussed the appropriate balance between knowledge and observable skill competencies for your chosen program(s) with the design team?
5. How will you ensure the curriculum will be appropriately sequenced and, if desired, scaffolded to lead to expected program outcomes?
6. How will you ensure substantive interaction with, and appropriate support of, the learner's journey through your organization of faculty and staff roles?
7. In what ways will you offer flexible pathways and a personalized learning experience?
8. How will you use both formative and summative assessments in the design and delivery of your program to support the learner's journey?

Embedded Process for Continuous Improvement

1. Have you defined program success measures and key performance indicators (KPIs) that reflect your program objectives, value proposition and institutional mission?
2. Do your KPIs include indicators related to enrollment goals, student persistence/completion, student learning, employer/partner engagement, diversity of student population, program affordability/sustainability, program cost/return on investment, and effectiveness/efficiency of back-office processes?
3. If your program is designed to prepare graduates for the world of work, are you engaging employers in the design of your KPIs and evaluation of your learners' post-graduation job performance?
4. Are you tracking whether enrollments are reflective of your target population?
5. If your program is adopting an "unbundled" faculty model, do you have processes in place to ensure that faculty and staff who interact with students are given the support and training they need to be successful and gauge their effectiveness over time?
6. Are you developing processes for careful and deliberate monitoring of the overall change process involved in implementation of your program including the health of the culture and stakeholder engagement?
7. Are your data collection and reporting processes designed to ensure credibility and integrity? Is that work coordinated with the broader institutional research function?

8. Do you have a comprehensive understanding of where relevant data for continuous improvement is housed within your existing systems (e.g. LMS, SIS, CRM, financial aid, billing, etc.)?
9. Do you have dashboards and skilled staff in place to help translate data for different audiences and ensure data is used as effectively as possible as a tool for collaborative inquiry and improvement?
10. Do you have a clear and purposeful engagement plan in place to ensure the range of critical program staff are meaningfully included in making sense of the data you're gathering? Are they sufficiently empowered to translate data into improved practice?

Several groups are focusing on improving measurement tools and resources, most notably the C-BEN Technical Operability Pilot (TIP). For a description of the challenges and opportunities, see: <http://er.educause.edu/articles/2015/10/competency-based-education-technology-challenges-and-opportunities>

Enabling and Aligned Business Processes and Systems

1. Have you identified the technical and systems processes implicated in your program design decisions (e.g., direct assessment vs course-based, term vs non-term, dual transcripts, etc.)?
2. Have you identified your current-state processes and defined your future state? Have you evaluated your system and infrastructure gaps?
3. Have you begun researching the technical options available in the market (e.g., LMS, CRM, etc.)?
4. Do you plan to use your current LMS to support CBE?
5. Have you defined LMS business requirements for your CBE solution?
6. Can you support two LMSs if needed?
7. Have you defined criteria for build vs buy decisions?
8. Have you determined your CBE LMS implementation tasks and ERP/SIS/CRM data integration tasks?
9. Have you identified the data/information needed to successfully track, monitor, and manage students?
10. Have you identified how to deliver this information to staff, faculty, and students as appropriate (data reports, dashboards, etc.)?
11. Have you identified your key student service functionalities such as a transfer credit articulation process, CBE grading capabilities and transcripting?
12. Have you assessed the requirements for scalability including which functions must be automated in order to scale and which stakeholders are critical for solving scale challenges?

Engaged Faculty and External Partners

1. If you are building a program tied explicitly to workforce needs, has a clear workforce-related purpose for developing a CBE program at your institution or system been widely articulated and generally agreed upon?
2. Have you determined where the market need lies by conducting a workforce analysis to find jobs for which there are not enough qualified applicants (e.g., [Occupational Information Network \(O*NET\)](#), [Burning Glass](#))?
3. Have you identified employers or other external partners for your selected market(s), prioritized them based on clear criteria (existing relationships, fit, regional considerations, etc.), and begun to initiate relationships?
4. Have you taken the time during initial contact with potential employer partners to clearly define CBE in terms that make sense to them? Have you engaged them in dialogue to ensure shared understanding?
5. Have you tailored your messages to the various audiences you seek to engage as external partners? For example, hiring managers will have different goals than executives and, thus, presentations and language used by CBE program staff should reflect awareness of these different goals.
6. Have you developed structured interview protocols and techniques to gain an appropriately deep understanding of how potential employer partners view talent selection and development?
7. Have you identified a range of proposal options for prospective employer partners (e.g., custom development, existing off-the-shelf courses or programs, degrees, non-degree training, stackable credentials, certifications, etc.)?
8. Have you identified expectations around cost and methods of pay including how the employer or employee will pay for the training such as financial aid, tuition reimbursement, learning and development, department budget or departmental training budgets?
9. Have you defined the measures of success for the project/program (e.g., employer satisfaction, 360 performance evaluation, learner persistence, time to completion, improved performance, total cost, employee retention, learner satisfaction, etc.)?
10. Have you identified a core team of internal champions to vet your measures of success? Have you established a plan for their ongoing engagement in program evaluation and improvement efforts?
11. Have you determined strategies for using employer-collected data to evaluate program effectiveness?

Flexible Staffing Roles and Structures

1. Has a clear purpose for developing a CBE program at your institution or system been widely and consistently articulated to faculty and staff?
2. Are you creating regular opportunities for faculty and staff to think and talk together about how the learner's journey in a CBE program is similar to and different from the learner experience in a traditional program?

3. Have you identified the potential "champions" and likely innovators among faculty and staff and created a process for ongoing collaboration on the key decisions that must be made regarding roles and responsibilities?
4. Have you worked with faculty to unpack the full range of responsibilities entailed in delivering a high-quality and rigorous academic experience for learners?
5. Have you worked with student support services staff to unpack the full range of responsibilities entailed in providing advising, counseling and non-academic support to learners in your program?
6. Have you created venues and processes for faculty and staff to participate in the design of key roles?
7. Are you creating space for authentic deliberation about the professional interests, commitments and identities of faculty and staff implicated in the design and delivery of your program?
8. As you determine roles and responsibilities, are you being clear and transparent about how decisions are being made about work load, student ratio, scheduling, compensation, rank, tenure and promotion decisions?
9. Are you thinking deeply about the range of incentives to inspire greater confidence and commitment among the faculty and staff you will be relying on for design and delivery of your program?
10. Are you considering intellectual property issues as you determine the structure of faculty and staff roles in your CBE program?
11. In determining faculty and staff roles, are you systematically considering the full range of relevant issues related to program approval, accreditation, federal compliance and governance?
12. As you make decisions about specific roles and responsibilities, are you thinking carefully about, and allocating resources for, the professional development of faculty and staff implicated in the design and delivery of a rigorous, high-quality and learner-centered CBE program?

Learner Centered

1. Have you determined what modifications to admissions policies, procedures and processes are necessary to accommodate a CBE program as well as considered how the learner's experience will differ from that of the traditional student?
2. Have you designed a process to help prospective students gauge their own readiness for success in a CBE environment in general and in your program specifically?
3. Have you designed a separate orientation specifically for learners in your CBE program?
4. Have you reviewed your existing transfer processes, policies, systems, communication materials and agreements (e.g. articulation agreements) to determine what must be revised to accommodate learners in your CBE program?
5. Has the transfer credit articulation process been identified and documented including academic catalogs?

6. Has National Student Clearinghouse (NSC) reporting been developed to help you gather important data about your learners' experiences?
7. Have you established a vision for the student success model by identifying roles and responsibilities for all of the individuals who will interact with learners?
8. Have you established systems and tools for tracking learner progress? Are you providing appropriate professional development to support use of these systems and tools by advisors, coaches, counselors, faculty, etc.?
9. Do you have a transparent policy and process for assessing a student's academic level upon entry into your CBE program that includes a range of assessments (e.g., testing, portfolios, credential reviews, training program reviews, and transfer review)?
10. Do you have a transparent policy and process for assessing student's learning as s/he demonstrates mastery of the competencies in the CBE program (e.g. number of times a student can attempt an assessment, preparation for the assessment)?
11. Have you determined how student technical support services may need to be adjusted to meet needs specific to your CBE program including any accessibility and Americans with Disabilities Act (ADA) services?
12. How does the institution teach students to use and access library or other learning resources?
13. If your CBE program is online and available 24/7, will you adjust your tech support operational hours? How will you offer tech support to your CBE students (e.g., email, phone, LMS 'widget')?
14. Have you identified the academic resources the learners in your program need? Have you taken steps to ensure accessibility and provide proactive academic supports?
15. Have you established a clear plan and protocols for communication and collaboration between the different types of program staff that learners will interact with during their educational journey (e.g., faculty, assessors, coaches, advisors) to ensure a seamless learner experience?
16. How will you provide opportunities for learners within your program to connect with each other?
17. Have you determined how the services that are currently being provided by your Career Services Center may need to be adapted or modified to serve learners in the CBE program?
18. What is the process for developing opportunities for practicum, internships or field experiences required or encouraged by your program?
19. Have you determined what co-curricular experiences should be available for CBE students including any wellness services or counseling?
20. How are you working with employers or other external partners to provide contextualized learning opportunities for learners?

Measurable and Meaningful Assessments

1. Have you created and vetted a comprehensive catalogue of the knowledge, skills, abilities and attitudes that successful graduates of your program should possess and be able to demonstrate?
2. Have you taken an inventory of your institution's existing assessment resources and expertise that might be leveraged in the design and delivery of your program (e.g. does your institution participate in Association of Colleges and Universities LEAP and VALUE initiatives, is your team versed in the resources provided by NILOA and the Degree Qualifications Profile)?
3. Do you have an appropriate mix of expertise represented in your assessment design team (e.g., subject matter experts, instructional designer, psychometrician, etc.), and if not, do you have the resources to assemble a strong team?
4. How will faculty or other relevant staff be trained to design, vet and use valid and reliable assessment instruments?
5. Are you developing a range of low-stakes diagnostic and formative assessments to use early and often to help learners understand their strengths/weaknesses and help build their sense of momentum and motivation?
6. Are you developing and administering objective assessments (e.g. multiple choice) only as appropriate (e.g. to measure lower-order levels of learning on Bloom's taxonomy such as recall and recognition or to offer practice for externally required objective exams such as licensing exams)?
7. Are you developing authentic, performance-based assessments to measure higher levels of learning on Bloom's taxonomy such as application and analysis?
8. Have you intentionally designed your summative assessments to allow learners to demonstrate appropriate levels of proficiency in the application of knowledge to new contexts and problems?
9. Do your assessments and assessment processes allow learners to demonstrate "21st century skills" that cut across disciplines such as teamwork, communication and creativity?
10. Will the implementation of your assessment suite require technologies that you do not currently possess, and if so, do you have resources allocated for this purpose?
11. Do all of the relevant program staff and faculty understand how assessment processes are designed to work in your program?
12. Have you developed appropriate, iterative professional development opportunities and requirements for those involved in the design, build and delivery of your program in order to ensure valid and reliable interpretations of student learning?
13. Have you created formal and informal opportunities for faculty and staff involved in assessment to review specific rubrics together and to discuss CBE as a new model (in order to ensure widespread engagement of key stakeholders in the work of continuously improving your program)?

14. Have you implemented a process for the ongoing review of inter-rater reliability, assessment and rubric reliability and validity, as well as procedures for making adjustments to these tools?

New or Adjusted Financial Models

1. If you are building a direct assessment program, are you designing a clear crosswalk to courses and credits to ensure effective record exchange for inter- and intra- institutional needs?
2. How are your assessments mapped to competencies/courses/programs, and is the mapping available electronically in a way it can be shared across your data systems?
3. Have you considered how the data included in an extended transcript could be used to actively support student success and retention (e.g., faculty can access the mapping to help guide curriculum decisions, advisers can use it to guide students' degree program choices)?
4. Are you creating a dashboard that allows students to see their competency map with milestones and progress markers as well as the various paths available through the degree program?
5. Have you considered how your extended transcript will be read and received by key audiences including transfer institutions, graduate schools and employers? Have you engaged those audiences in design discussions?
6. Does the institution have the technological support from systems necessary to facilitate the creation of a new type of transcript (e.g., where is the competency data stored, will the current SIS be utilized or will other software be required to produce an extended transcript)?
7. Have security and validation concerns been considered and addressed in the design of the extended transcript?
8. Will students be able to add evidence of their learning to their transcript, and if so, what types of artifacts should be allowed and how will student-curated and institution-verified artifacts be recorded?
9. Have you considered the ways in which the transparency of an extended transcript might affect the value proposition of the CBE program (e.g., helping those learners most vulnerable to stopping or dropping out see evidence of their own progress at multiple points in their educational journey)?
10. Have you considered how existing frameworks can be leveraged to provide consistency and portability of the extended transcript (e.g. [Degree Qualifications Profile](#), [Liberal Education America's Promise](#), and [Connecting Credentials](#).)
11. Will your extended transcript be issued or provided as an official or unofficial document, and what does this decision mean for accessibility of the transcript (e.g., who has access, at what cost, and how is accessibility provided)?
12. Are you taking the necessary steps to ensure the extended transcript is a digital document that is well designed with respect to both user-interface (web and mobile viewing) and portability (e.g., PDF format option)?

13. Have you determined what data exchange and standards are needed for your extended transcript?

Proficient and Prepared Graduates

1. If you are building a direct assessment program, are you designing a clear crosswalk to courses and credits to ensure effective record exchange for inter- and intra- institutional needs?
2. How are your assessments mapped to competencies/courses/programs, and is the mapping available electronically in a way it can be shared across your data systems?
3. Have you considered how the data included in an extended transcript could be used to actively support student success and retention (e.g., faculty can access the mapping to help guide curriculum decisions, advisers can use it to guide students' degree program choices)?
4. Are you creating a dashboard that allows students to see their competency map with milestones and progress markers as well as the various paths available through the degree program?
5. Have you considered how your extended transcript will be read and received by key audiences including transfer institutions, graduate schools and employers? Have you engaged those audiences in design discussions?
6. Does the institution have the technological support from systems necessary to facilitate the creation of a new type of transcript (e.g., where is the competency data stored, will the current SIS be utilized or will other software be required to produce an extended transcript)?
7. Have security and validation concerns been considered and addressed in the design of the extended transcript?
8. Will students be able to add evidence of their learning to their transcript, and if so, what types of artifacts should be allowed and how will student-curated and institution-verified artifacts be recorded?
9. Have you considered the ways in which the transparency of an extended transcript might affect the value proposition of the CBE program (e.g., helping those learners most vulnerable to stopping or dropping out see evidence of their own progress at multiple points in their educational journey)?
10. Have you considered how existing frameworks can be leveraged to provide consistency and portability of the extended transcript (e.g. [Degree Qualifications Profile](#), [Liberal Education America's Promise](#), and [Connecting Credentials](#).)
11. Will your extended transcript be issued or provided as an official or unofficial document, and what does this decision mean for accessibility of the transcript (e.g., who has access, at what cost, and how is accessibility provided)?
12. Are you taking the necessary steps to ensure the extended transcript is a digital document that is well designed with respect to both user-interface (web and mobile viewing) and portability (e.g., PDF format option)?
13. Have you determined what data exchange and standards are needed for your extended transcript?



APPENDIX C:

**CBE Quality Standards
(DRAFT VERSION)**

by C-BEN



The timing is right to define quality in the design and delivery of CBE programs. Well-designed CBE programs can play a central role in efforts to achieve our national goal of increasing the percentage of our diverse citizenry in the US who hold meaningful postsecondary credentials. However, for CBE to fulfill its potential, the field must be able to articulate the hallmarks of a high quality CBE program. This must be done in a way that protects a healthy diversity of models, is both accessible and sufficiently aspirational, and also supports responsible innovation in the current policy and regulatory environment.

Questions about what constitute a high-quality CBE program are front-and-center for practitioners, accreditors, policy makers and students alike.

In response to these questions, leading program designers and system administrators from five C-BEN institutions representing an array of models worked together to create the Quality Principles and Standards for Competency-Based Programs. The C-BEN Quality Standards task force used an iterative process to draft principles and standards that are universal enough to apply to all CBE programs, regardless of model variations. It should be acknowledged that few of these standards are data-based at this time, since with any emergent innovation it is difficult to create data-based standards, given that data is relatively scarce and standardized definitions which would allow comparisons are non-existent.

Our aim with this work is to provide a first set of standards to the field to support the responsible scaling of CBE. Our hope is that institutions can draw on these standards to inform the design and implementation of high-quality programs, and that policymakers and accreditors can use the standards as guideposts and guardrails to appropriately regulate this vibrant, and still emerging, field of practice. As these standards are applied and more data is available, this initial set of standards will need to be refined.

In the meantime, the goal of the task force was to provide standards that are at once accessible and aspirational. This is achieved by the use of rubrics developed to make the principles and standards multidimensional. The task force sought to create a set of standards that was agnostic as to institutional type, credential type or level, discipline or profession of the program, the program's targeted students or "size" of the program. The unifying principle was a commitment to quality CBE as an essential solution for our nation's higher education students.

Key Definitions to Aid Understanding

Element: *The label or shorthand for the principle being described*

Principle: *A fundamental proposition that serves as the foundation for a system of belief or behavior, or for a chain of reasoning*

Standard: *A level of quality or attainment, and an idea or thing used as a measure, norm or model in comparative evaluations*

The 8 Elements

Demonstrated Institutional Commitment to and Capacity for CBE Innovation
Clear, Measurable, Meaningful and Integrated Competencies
Coherent, Competency-Driven Program and Curriculum Design
Intentionally Designed and Engaged Student Experience
Credential-Level Assessment Strategy with Robust Implementation
Collaborative Engagement with External Partners
Evidence-Driven Continuous Improvement Processes
Transparency of Student Learning

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Demonstrated Institutional Commitment to and Capacity for CBE Innovation

PRINCIPLE

In order to produce a high quality CBE program, the institution must build a foundation in support of competency-based education. This includes the development of a CBE philosophy and commitment as it relates to the institution's mission, the design of the program structure, and the definition of appropriate supports for the program and its learners, including people, policy and process supports. The institution must also make appropriate financial investments in the program, recognizing that such long-term investments are often necessary both to achieve regulatory and accreditor compliance and to provide the learner with an adequate and appropriate support structure.

STANDARDS

1. The institution's senior leadership and board members understand the role that CBE programs play in furthering the Institution's mission, and support the creation, continuous improvement and ongoing growth of CBE programming.
2. The institution has defined its approach to competency-based education, how assessment of learning takes place, and how the student learning journey will be constructed to support these definitions.
3. The institution has developed and adopted a faculty and staff model that would meet the unique needs of CBE program students (including specialized skills such as curriculum design or assessment expertise) while efficiently utilizing institutional resources.
4. The institution has developed policies and procedures for CBE program(s) which support learning and the student experience, while maintaining compliance with regulatory requirements.
5. The institution maintains sufficient administrative capability and commitment to manage and support competency-based education programs.
6. The institution's CBE business model, including the tuition structure, has been analyzed to determine feasibility and sustainability, with the understanding that the returns on investment for CBE programs are generally longer term.

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7. The institution has evaluated technology needs to support the student lifecycle (such as Student Information Systems, financial aid delivery systems and Learning Management Systems) and, where appropriate, made investments.
8. The Institution has a plan for data collection and reporting regarding the student learning experience and the efficacy of the CBE program. This data forms the basis for examination and discovery of needed improvements in areas such as student performance across diverse groups, graduate success and employer satisfaction.

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Clear, Measurable, Meaningful and Integrated Competencies

PRINCIPLE

Each competency is explicitly stated and provides unambiguous descriptions of what a learner must master to complete a program of study. The set of credential-specific competencies represent the complete taxonomy of the knowledge, skills, abilities and attitudes required by academic, workforce and societal needs for a prepared and proficient credential holder. Each competency includes the theory and application of theory required for mastery at the appropriate level for the credential being earned. Each competency is also clearly connected to content and learning activities designed to support learners in developing proficiencies required by the program to award a credential. Each competency is aligned with an appropriate assessment strategy and can be reliably and validly assessed.

STANDARDS

1. The set of competencies are clearly specified and provide an easy-to-understand pathway for what the learner must know and be able to do in order to progress in and complete a credential.
2. Competencies are co-constructed with input from diverse communities such as employers, expert practitioners, subject-matter experts, faculty, learners, advisory committees, and professional/licensing bodies.
3. Individual competencies are indexed to theory and its application to explicit knowledge, skills, abilities and attitudes that are relevant, current, and accurately depict what is needed by the employers and society.
4. Competencies anchor, specify and guide the learner experience, including curricular design, development of instructional content, activities, remediation offerings and the assessment strategy.
5. Individual competencies are aligned to cognitive levels of learning using recognized taxonomies, such as Bloom's, and the set of competencies appropriately and intentionally scaffolds multiple levels of learning.

Coherent, Competency-Driven Program and Curriculum Design

PRINCIPLE

Competency-based education programs use an intentional and transparent approach to curricular design that provides a learner with the full range of competencies to be prepared for post-graduation demands. These programs intentionally seek to reduce racial, cultural, socio-economic, gender and other potential bias in their design, delivery and implementation. This academic model, which provides clear pathways to completion, builds a unified body of knowledge leveraging frameworks, disciplines, standards, national norms, workforce and societal needs. Learners are at the core of the program's design, and the logic of the program and its associated assessment strategy support personalization. The curricular design ensures the level and complexity of the competencies that are congruent with achievement and sufficient to justify the academic level, and award, of the credential.

STANDARDS

1. The program encompasses an integrated curricular sequence that scaffolds learning at appropriate cognitive levels leading to mastery.
2. The program's competencies are clear and coherent. Learners can articulate what they should know and be able to do upon completion of the program.
3. Learners have access to faculty subject matter experts, and faculty subject matter experts play an active, central role in the design and delivery of program, curriculum and assessment.
4. Learning environments, content, communications, activities and assessments are accessible to all, regardless of race, ethnicity, economic status, or ability.
5. Learners are offered varied learning exercises, activities, and experiences to promote student engagement and to provide multiple opportunities for development of competency mastery.
6. The program is designed to support individual learners with personalized learning pathways as they develop and master competencies.

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Intentionally Designed and Engaged Student Experience

PRINCIPLE

CBE programs comprehensively understand the needs of the targeted student population, and are designed with those needs at the core of all decisions, processes, and systems. These programs offer proactive and personalized support for student learning through clearly defined competencies, transparent pathways to credential completion and supportive institutional policies. Faculty and staff are invested in and involved with understanding and improving the entire student lifecycle, for all learners, by designing, guiding and supporting the learning journey, and the assessment processes. Processes to facilitate & encourage peer-to-peer interaction are also designed into the learning journey. Intentional and flexible roles and responsibilities reflect an institutional commitment to continuously improve the student experience with a full array of wraparound student services and social supports appropriate to the students being served.

STANDARDS

1. The institution invests in deeply understanding and in meeting the needs of the students to be served by their CBE program(s), and these academic and non-academic needs are the foremost consideration when structuring the work of CBE professionals (faculty and staff) into specific roles and responsibilities.
2. The program is sufficiently resourced with faculty and staff to meet the needs of the learner. Faculty and staff roles are designed to provide differentiated support to a diverse range of students that leverages the individual talents, strengths and competence of the faculty and staff.
3. Faculty and staff performance metrics are established and monitored, in part, on the ability of the team to support all learners, regardless of race, ethnicity, economic status or ability, throughout the student experience.
4. Clear expectations are effectively communicated with the learner regarding institutional policies, structure and expectations of the program, and tuition and fees.
5. Learners have access to and proactive engagement with subject-matter expertise, resources, tools and supports to be successful in acquiring and demonstrating the knowledge, skills, and abilities, required for successful completion of the program.

6. Opportunities for engagement with peers, faculty, staff, and employers, who reflect the diversity of the student population, are provided throughout the learning journey.
7. Leveraging technology-enabled systems and processes when possible, faculty, staff and learners to proactively monitor data metrics ensuring the student is fully informed, engaged and performing as anticipated throughout the student lifecycle.

Credential-Level Assessment Strategy with Robust Implementation

PRINCIPLE

Authentic assessments and their corresponding rubrics are key components since CBE is anchored by the belief that progress toward a credential should be determined by what learners know and are able to do. The overarching assessment strategy is comprised of assessments designed both to inform the learning journey (often referred to as “assessment for learning” or formative assessment) and to validate mastery (often referred to as “assessment of learning” or summative assessment). In CBE models, assessments are intentionally aligned to competencies and cognitive levels, and use a range of assessment types and modalities to measure the transfer of learning into varied contexts and mastery of competencies. Authentic assessment design and use follows best practice for assessment professionals.

STANDARDS

1. Authentic assessments are built within and aligned to an overarching assessment strategy for the competency being measured and the credential being earned.
2. The assessment strategy clearly articulates how the set of assessments supports the learning journey for students, matches the cognitive level of the competencies being demonstrated and determines mastery at the appropriate academic level.
3. The set of assessments is designed to provide learners with multiple opportunities and ways to demonstrate competency, including measures for both learning and ability to apply or transfer that learning in novel contexts.
4. The assessment strategy and each of the assessments and their corresponding rubrics equitably measure learning outcomes across diverse student groups, while guarding against bias in the structure and accessibility of formative and summative assessment.
5. Faculty can articulate how each assessment plays a critical role in validating mastery of a competency and the overarching assessment strategy.
6. Each authentic assessment is transparently aligned to program competencies and its corresponding rubric is rigorous, has clear and valid measures and is approved by faculty and assessment professionals
7. Each assessment is authentic, able to assess what credential completers know and are able to do, and in what settings and situations.

8. Formative assessments serve as a tool for learning providing feedback for reflection and refinement while also offering a feedback loop that is timely and appropriate to the competency and intent of the assessment.
9. Summative assessments' ability to measure application or the "can do" aspect of a competency is validated by a subject matter expert, ideally one external to the program design team.
10. Flexibility of timing is built into the assessment design to accommodate personalization.
11. The timeliness of feedback from assessments enables learners to proceed with the absolute minimum of delay. Technology is used wherever possible to facilitate and expedite the timeliness of feedback.

Collaborative Engagement with External Partners

PRINCIPLE

Institutions strategically determine and secure the commitment of the right blend of external partners to inform and achieve the program's outcomes and the institution's equity goals. External partners are meaningfully engaged in the design, delivery, and evaluation of the CBE program. These partners work collaboratively with the institution offering the CBE program to inform and validate its competencies, its curriculum and ensure the authenticity of its assessments. The result is a relevant, transparent credential and authentic learning experience that is endorsed and trusted by the external partners as well as by its students.

STANDARDS

1. In collaboration with faculty and staff, external partners offer their own expertise and resources, are invested in and an integral part of the program design, delivery and evaluation processes.
2. Faculty, staff, students and external partners regularly communicate with each other keeping informed of the latest developments and involved in appropriate ways.
3. Faculty, staff, learners and external partners share their experiences and insights actively participating in, and sharing information with, researchers, discipline and career networks, and other professional organizations.
4. External partners keep faculty and staff informed of relevant developments which may necessitate programmatic changes, and the program reflects these developments when needed.
5. External partnerships are cultivated to provide real life learning, training, assessment, internship and employment opportunities.
6. External partners are chosen based on their alignment to program outcomes, the institution's equity goals, and field or workforce needs, and faculty and staff are able to form relationships if there are no pre-existing connections.

Evidence-Driven Continuous Improvement Processes

PRINCIPLE

A data-driven, continuous improvement methodology is an essential dimension of competency-based education. To ensure the most effective student learning journey, data is collected, analyzed, and reported at regular intervals during the program and post-completion. Data are used to inform learners and faculty, identify and prioritize improvements, evaluate and refine assessment strategy and implementation, monitor equitable student achievement across diverse groups, optimize student supports to impact program persistence and completion, and enable external validation of learning. Where performance gaps are identified, institution actively implements and monitors solutions.

STANDARDS

1. The institution has adopted continuous improvement processes for CBE program(s) and is committed to sharing data and discoveries with the CBE community.
2. The CBE program has agreed upon performance goals (including equitable student outcomes), and produces regular reports documenting attainment against those goals, and action plans for improvement.
3. The CBE program has established performance goals and has effective approaches for monitoring, measuring, surveying, analyzing, reporting and acting on performance data (including specific student outcomes).
4. The CBE program has a systematic process for improvement based on feedback from learners, faculty, subject matter experts, and employers, and has allocated appropriate resources to support the work.
5. Other related data such as measurements of post-programmatic outcomes and the enduring value of earned competencies in the knowledge marketplace are monitored to inform larger shifts in the design of the competencies and credential being offered.

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Transparency of Student Learning

PRINCIPLE

One of the central differentiators of CBE programs is the transparency of learning required to earn a credential. This means that the competencies, the pathway to mastering those competencies, the assessment methodologies and the performance requirements for successful demonstration of competency are transparent to students and all other stakeholders. The design of the program, alignment of competencies, competency assessment and learning journey are clearly articulated. Transcribing practices make demonstrated competencies transparent to students, faculty, staff, employers, transfer institutions, accreditors and regulators, and are often in digital form. Transcripts are designed to support portability and transferability to non-CBE environments and include an “extended or comprehensive record” with details about the student’s accomplishments.

STANDARDS

1. The competencies required to earn a credential are transparently articulated to students, faculty, staff and external partners.
2. The alignment of competencies, content, learning activities/experiences, and competency demonstration assessments is visible to all students and stakeholders.
3. Student progression toward competency mastery and credential completion is visible throughout the learning journey to the student, faculty and staff.
4. The alignment of credential’s competencies to any external requirements (licenses, transfer requirements, certifications, employer needs) is accurately and transparently communicated.
5. The institutional transcribing policy and process should be designed to communicate what graduates can do (beyond course listings and grades), expressed in ways understandable and relevant to an expanded community of stakeholders utilizing the input and engagement of transfer institutions, graduate schools and employers.

