

Measuring Student Progress in Competency-Based Education Programs

Key Takeaways

- » As competency-based education (CBE) expands in California, institutions need appropriate measures of student progress, not tied to semesters or quarters, to promote student success, improve programs and policies, and benchmark institution performance.
- » Institutions offering CBE should track student activity extensively, publish expected completion times based on student effort, and work with policymakers to incorporate measures of student progress into California’s emerging Cradle-to-Career Data System.
- » Prior research points to four measures of student progress in CBE programs: persistence over time, pace (units of learning per time period), completion of a specific number of courses or competencies, and continuous enrollment.

Most community college students intend to complete a degree or program, but the majority fail to realize this goal,¹ resulting in millions of missed opportunities to contribute to more prosperous and fulfilling careers for individuals, a more productive workforce for employers, and more vibrant and resilient communities for the state as a whole. At the same time, there is rising demand for a postsecondary education format with greater flexibility for students with work and family responsibilities, particularly adults ages 25 and older. One answer to this demand is *competency-based education* or CBE (see sidebar, “What is competency-based education?”). Understanding student momentum through CBE programs, however, is a work in progress. “CBE programs present an opportunity to revise how we measure student progression,” as one article sums up the situation. “By holding learning (competencies) constant while permitting students to vary their time frames, progression metrics must be reconstructed to show how students move toward completion along different routes.”² The following sections describe why progress measures designed

for traditional seat-time-based programs may not work for CBE, why measuring progress matters, and what institutions can do to better track student progression through CBE programs.

What Is Competency-Based Education?

Students in *competency-based education* (CBE) programs advance in their programs as they learn and demonstrate proficiency in specific competencies instead of accumulating credits by completing courses bounded by semesters, quarters, or other academic terms.³ These students typically set their own pace of learning, completing one competency and moving to the next one, provided that they maintain satisfactory academic progress. For example, at the CBE-based Calbright College, students in the medical coding program take a course in which they complete competencies such as pharmacology, disorders of the human body, and diagnostic tests.⁴

For more information, see “[Side By Side: Comparing Credit for Prior Learning and Competency-Based Education](#).”

CBE demands a new approach to measuring progress

CBE presents a new challenge to measuring progress in postsecondary education that calls for new measures, particularly in the California Community Colleges (CCC), where the imminent expansion of CBE has implications for millions of undergraduates in the state. CBE progress exists in tension with traditional measures of progress applied across terms and years. As one college president puts it, “Competency-based education flips the relationship and says let time be variable, but make learning well-defined, fixed, and non-negotiable.”⁵ While both CBE and traditional programs define specific program-level and course-level learning outcomes that students are expected to achieve, CBE outcomes are not necessarily standardized into quarters and semesters. For example, traditional seat-time-based programs typically measure the number of units completed per academic year. One of the main benefits of CBE programs is that students move at an individualized pace, so programs have freedom from the academic calendar. Because of these features of CBE programs, they demand a new approach to measuring student progress.

Stakeholders must track student progress to improve outcomes

Measuring progress is vital to improving student outcomes in both traditional and CBE programs. Among several key groups within higher education—institution staff, faculty, and leaders, as well as officials tracking institution performance—each has a stake in understanding how students progress.

College counselors, advisers, and other staff can monitor students’ progress and offer support to those who are struggling. Unfortunately, students routinely encounter academic, financial, and other personal difficulties that hamper their academic progress, and many are afraid to ask for help.⁶ But well-timed interventions by college personnel, even small ones, can make a critical difference in keeping students engaged and enrolled.⁷

Faculty and institution leaders can receive rapid feedback to evaluate and update programs and policies even before students are expected to complete. In particular, they can compare intermediate outcomes across specific groups to assess equity and target reforms at specific stages (e.g., a first or early course or competency) and academic programs (or majors) where a disproportionate number of students become stuck.

Higher education leaders, policymakers, and accreditors can benchmark institution performance against peers and track improvement over time. Data-driven state and national initiatives that use measures of progress to spur better student outcomes have proliferated over the last decade, including at least nine efforts specific to the CCC.^{8,9} The metrics can steer college and systemwide progress at the concise but approximate “30,000-foot level.”¹⁰

Learn More About Competency-Based Education

In addition to the sources cited in this brief, the following publications and websites may interest institution staff and others who want to learn more about CBE in general.

- [Californians Deserve Credit: Recognizing All Learning to Help California Achieve Educational and Racial Equity.](#) (2020). The Education Trust–West.
- [Competency-Based Education Network \(C-BEN\).](#)
- [Competency-Based Learning.](#) Lumina Foundation.
- [Direct Assessment CBE: A Blueprint for Community College Leaders.](#) (2020). Jobs for the Future.
- [The Journal of Competency-Based Education.](#)
- [Postsecondary Competency-Based Education Research.](#) American Institutes for Research.
- [The Student Experience: How Competency-Based Education Providers Serve Students.](#) (2015). American Enterprise Institute.
- [Understanding Competency-Based Education, Credit for Prior Learning, and Other Flexible Learning Approaches in California.](#) (2021). California EDGE Coalition.
- [Understanding Competency-Based Education: Toolkit.](#) (2017). Lumina Foundation.

Three practices for better measures of student progress in CBE programs

As institutions continue to introduce and refine CBE programs, they should adopt practices to further improve measurements of student progress. We discuss three specific suggestions: extensively measure student activity, explicitly state expectations for program length based on student effort, and consider how to incorporate measures of progress in CBE into state longitudinal data systems.



Record student activity as extensively as possible to identify breaks in enrollment (and, ideally, to intervene quickly)

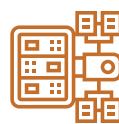
Because students in CBE programs advance at their own speed, it can be difficult for faculty and staff to discern when students have dropped out versus merely progressing at a slower than expected pace. Just as the average person stops working out months before canceling their gym membership,¹¹ the average student in a CBE program can stop engaging well before formally withdrawing or failing to reregister. To accurately and quickly estimate breaks in enrollment, CBE programs should collect a wide range of student data—communicating with instructors or other students, accessing online textbooks and other course materials, turning in assignments, and taking exams—and use the data to establish and refine proxies for stopping out and dropping out. Some institutions already contact students after a predetermined period of no discernible activity, which is one of many academic or personal distress signals.^{12,13} These activity measures may be imperfect at first but, with attention, will improve over time—and even simple techniques can yield similar results to more complex algorithm-driven methods.¹⁴



Establish, refine, and share with students explicit study time expectations for programs

CBE programs that do not already do so should publish expected completion times for programs based on student effort, even if, in actuality, many students will take less or more time to complete. Federal law defines a traditional seat-time-based program's credit hour (or credit for short) as approximately one hour of instruction or its equivalent along with two hours of out-of-class work, which gives students

and instructors a shared expectation about the effort required for each course and program.¹⁵ CBE programs can achieve a similar result by stating completion times in terms of student effort rather than defining student effort in terms of credits. For example, the expectation might be expressed as, "Students in this program who spend 40 hours per month studying will finish an average of two competencies per month and will complete the whole program in eight months. Students who spend 80 hours per month will finish in about half of that time." Or the expectation might be expressed in terms of empirically derived probabilities and ranges, such as "About 90 percent of students who study 40 hours per month complete this program in seven to nine months." (Many learning management systems already calculate how long students spend on each activity, which partly automates such expectations.) Again, these measures may be speculative initially, but the estimates will become more accurate over time as instructors solicit and receive feedback from students about their actual experiences.



Consider how to incorporate CBE programs into California's Cradle-to-Career Data System

Finally, institutions and policymakers should carefully consider how to incorporate data about CBE programs into California's emerging Cradle-to-Career Data System, where most postsecondary education records will be denominated in traditional credits. The final report of the Cradle-to-Career Workgroup to the state legislature explicitly lists supporting CBE as one of the system's value propositions.¹⁶ This integration will likely require experimentation and multiple iterations before arriving at an optimal solution, so leaders should plan to test, assess, and refine measures in a process of continuous improvement.

The following section outlines how student progress can be measured in traditional seat-time programs, how these measures can be adapted to CBE programs, and the strengths and limitations of these measures in the CBE context.

Four student progress measures for CBE programs

In addition to developing processes for tracking students in CBE programs, institutions and policymakers should select appropriate measures of student progress. The four measures proposed here, based on research about student progress in both traditional and CBE contexts, are *persistence over time*, *pace*, *completion of a specific number of courses or competencies*, and *continuous enrollment*.

Persistence over time

Persistence describes student enrollment over time, from matriculation through completion. A common measure of persistence in traditional seat-time programs is the percentage of first-time degree-seeking undergraduates who initially enrolled in the fall term and are still enrolled at the same institution (or have completed their program) the following fall, which institutions report annually to the US Department of Education. Notably, this definition of persistence does not require continuous enrollment. For example, a student who initially enrolls in the fall, withdraws during the spring term, and reenrolls the next fall has persisted according to this definition.

Defining persistence as enrollment from one calendar-based term to another does not directly translate to CBE, but the underlying logic suggests a plausible equivalent. For example, measuring enrollment at a specific point in time after initial enrollment, such as three months or one year later, could be compared with persistence in traditional programs.¹⁷ Measured this way, persistence would be a prime candidate for “30,000-foot level” comparisons of institution performance over time, across peer institutions, or both.

Pace

Pace, which represents the quantity of learning per time period, may also be applied to CBE. Persistence describes *whether* students are still enrolled after a period of time, whereas pace describes *how far* students have progressed in their programs during a period of time. Pace in traditional seat-time-based postsecondary programs is measured by credits earned per term. For example, students who complete an average of 15 credits per semester are on track to complete a typical associate’s degree program in two years and a typical bachelor’s degree program in four years.

When units of learning (courses or competencies) are relatively uniform, pace can be a meaningful measure.¹⁸ Alternatively, institutions could measure pace by the credit hour equivalencies that most CBE programs use to calculate federal financial aid eligibility and facilitate transfer to and from traditional programs. For example, the bachelor’s degree program in business administration—management at CBE-based Western Governors University consists of 40 courses. Each course is assigned a value ranging from one to four *competency units*, with most courses equated to three units.¹⁹ In this example, pace could be roughly measured as either *courses* per time period (since most courses correspond to the same number of units) or *units* per time period.

Completion of a specific number of courses or competencies

Next, CBE programs can also track completion of a specific number of courses or competencies, either as a marker of partial completion or as an alternative measure of pace. In traditional seat-time-based programs, this measure may be expressed in terms of reaching a certain threshold number of credits, such as accumulating 12 or 30 credits or completing the coursework required to receive upper division standing in a bachelor’s degree program.^{20,21} In CBE programs, where progress is not necessarily denominated in credits, this measure can be expressed as a percentage, such as finishing 50 percent of a program or an equivalent number of units used by the institution to represent learning.²²

Continuous enrollment

Continuous enrollment is associated with completion,²³ but the concept of continuous enrollment does not always directly translate readily into the CBE context. In its simplest form, continuous enrollment in traditional programs means attendance across consecutive semesters or quarters with no break in enrollment other than for summer and brief winter terms. This definition is problematic for CBE programs where students complete competencies and courses at their own pace and where lack of advancement is not necessarily an indicator of stopping out. Instead, measuring the continuity of student activity in small, discrete increments would be a reasonable proxy for continuous enrollment regardless of the institution’s academic calendar. These student activities could include contacting instructors or other students, logging in to college and program websites, attempting to demonstrate competencies, completing formative assessments, submitting coursework, and passing key milestones *within* competencies.

CBE is poised to grow as a flexible option for adults who need postsecondary education to fit with their busy lives and schedules. This expansion is taking place not only at Calbright College but also in the state’s other community colleges and at other institutions across the country.²⁴ Faculty, staff, and other stakeholders need to know much more than how many students completed their programs and how many did not. These proposed measures will help give them a more detailed picture of student progress in CBE programs.

Notes

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