



A Guide to Assessment in Competency-based Education

Introduction

The concept of competency-based education (CBE) has been around since the 1960s but is gaining new momentum as institutions look for ways to appeal to the unique needs of an increasing number of non-traditional students. While CBE isn't new, the model does represent a shift for faculty, in everything from designing courses, to delivering content, to assessment. As a result, faculty who are teaching competency-based courses often ask themselves the following questions:

What do my students already know about the subject?

- How diverse are my learners in their abilities and learning styles?
- Is my teaching inclusive? Do I take the diversity of learners into account?
- Am I assessing the right thing at the right level, at the right time?

Many stakeholders are exploring how they could introduce some components of a competency-based approach within their institution. When looking at adopting a CBE approach to learning, it is important to pay particular attention to the assessment process. In this guide, we'll explore that process in higher education, and how assessment differs in CBE programs.

Assessment in Higher Education

ASSESSMENT STRATEGY

When it comes to assessment in higher education, the most foundational piece for an institution to consider is an assessment strategy. This strategy document should support the mission and vision statement of the organization and be a focal point of any existing assessment policies. It is generally recommended that the assessment policies and the assessment strategy be reviewed periodically and updated where necessary. The assessment strategy should provide a mechanism for enforcement of the policies as well as a method for providing evidence that they are being followed.

ASSESSMENT PLAN

A supporting document to the assessment strategy is the assessment plan. The assessment plan guides the selection and creation of student-focused assessment activities across the curriculum. This plan, in coordination with the assessment policies, should provide guidance to faculty for selecting proper assessment activities and alignment with learning outcomes.

Overall, the assessment plan should be centered on:

- outcomes to be achieved
- performance levels to be attained related to those outcomes
- methods for analyzing the performance results

CONTINUOUS IMPROVEMENT

Specific metrics to be evaluated, as well as benchmark levels of performance to be achieved, should be expressly identified within the assessment plan. The performance results should be reviewed, analyzed, and shared with stakeholders. Key points for improvement based on these results should also be identified and improvement actions should be recommended. Those actions can then be reviewed, approved, and implemented. This continuous improvement cycle can then be repeated over time creating a history of continuous improvement. Most of the regional and programmatic accrediting agencies are actively looking for, and expecting, this continuous improvement cycle documentation during their reviews. Most often this type of documentation is generated at the program or institution level.

At a more granular level, the Assessment Learning Cycle is planned out and implemented within the courses of the curriculum. How that cycle is planned and implemented will determine the success of the program.

Assessment and CBE

Before exploring the different steps of the Assessment Learning Cycle, let's take a reflective look at assessment through the lens of CBE.

There are noticeable differences between a CBE approach and traditional models. The basic assumption in a CBE model is that all students will eventually master the desired competency. It is the teacher's role to identify when the student is ready to be assessed. Assessment in

CBE is more of a collaborative endeavour than something students have happen to them. That leads to a paradigm shift from assessment of learning to assessment for learning.

IMPORTANCE OF INSTRUCTIONAL DESIGN

Instructional design is a very important component of an effective CBE program. When developing material for a CBE course, it is best to identify the learning outcomes that the learner needs to achieve, and then align appropriate assessment activities to those outcomes. Assessment is the cornerstone of education, even more so when building a CBE course or program. The type of assessment to be chosen should be directed by the learning outcome to be evaluated, and be in line with the assessment plan for your organization. It is also important to identify material and supporting resources to help the learner demonstrate mastery of the outcome.

AUTHENTIC ASSESSMENT

Another important concept for consideration is "authentic assessment" or evidence-based assessment. CBE prepares students for the workforce because the assessments are as close as possible to real life experiences. How we decide to assess is as important as what we are assessing. There needs to be as much attention given to the type of assessment as to developing a learning outcome. The alignment of both will ensure coherence between the what and the how. It is important to consider the journey students must undertake to be prepared for their authentic assessment.

For the last 40 years, CAEL (Council for Adult and Experiential Learning, a US non-profit organization) has been

striving to lead the evolving national discussion linking adult learners and work. (Council for Adult and Experiential Learning, na) It advocates that learning, especially in higher education, should be recognized even if it occurs outside of the classroom “since they [adults] often have years, or even decades, of learning from their life and work experiences – and much of that learning is college-level and worthy of college credit.” (Council for Adult and Experiential Learning, na) How learning is assessed and fits into the overall assessment plan of your organization is a key element for careful consideration.

PATHWAYS TO SUCCESS IN CBE

With CBE, there are multiple pathways to success. These pathways are paved with formative activities to help students progress as they demonstrate mastery level regardless of time, place, or pace of learning. (Kentucky Department of Education, 2013). Once the student feels confident, they will be able to complete their summative assessment. The proverb “practice makes perfect” applies to the relationship between formative activities and summative assessment. Making mistakes is valued here because it allows learning to take place. As Swedish soccer coach Sven-Goran Eriksson reminds us: “The greatest barrier to success is the fear of failure.” However, in order for students to learn from mistakes, teachers must give pertinent feedback.

FEEDBACK

Feedback is an essential component of the assessment strategy. Teachers can guide students in their learning path with immediate feedback. Technology reduces the risk of inequalities by ensuring that everyone receives the appropriate feedback in due time. Black and Wil-

liam (1998) talks about replacing judgemental feedback with more specific immediate feedback about what the student is doing right, in addition to areas for improvement. Effective feedback will also allow students to take responsibility by understanding what they have learned and plan the next steps of their learning path.

Well thought-out assessment planning empowers students by having them take responsibility for their learning. Assessment is no longer an unavoidable evil, but rather, a road towards feelings of competency and an opportunity for progression. With that background in mind, let’s look in more detail at the Assessment Learning Cycle at a fairly granular level.

CBE and the Assessment Learning Cycle

OUTCOMES

“Learning is easier when learners understand what goal they are trying to achieve, the purpose of achieving the goal, and the specific attributes of success.” Chappuis, S., & Stiggins, R. (2002).

The first step in designing the Assessment Learning Cycle is defining the outcomes the learners are to achieve. Outcomes reflect the knowledge, skills or attitude, and the level of learning required. The outcome is like the foundation of a house. It needs to be strong and well-structured. A well-structured learning outcome is clearly defined with a clear action verb and is discretely measurable. The development of outcomes is directly linked to quality assurance. A report released by CompetencyWorks states that “explicit and measurable learning

objectives empower students: students take responsibility for their learning which in turn, increases engagement and motivation.”

DIAGNOSTIC ACTIVITIES

Diagnostic activities link three important questions:

1. “Where am I trying to go?”
2. “Where am I now?”
3. “How do I close the gap?”

(Stiggins, 2002)

This diagnostic phase of the learning cycle ensures the student concentrates on what they need to learn instead of re-learning, and determines their own pathway of learning. The mastery level for diagnostic activities will be the same for further assessments. This diagnostic activity could take the form of a prior learning assessment, which is a very common concept related to CBE methodology. With a prior learning assessment model, the intention is to evaluate the student’s level of knowledge or experience when they enter the program. This information can then be used in a variety of ways. One common application in a CBE model is to award the student with competency credit (or achievement of the associated defined learning outcomes) for those items that the student already possesses knowledge. In that way the student is not re-learning concepts that they already know.

Learning activities

The learning activities are the stones on the learning pathway toward the successful achievement of competencies. Whether formative or summative, the goal of these activities is to involve students in their learning to ensure they are successful in their assessments. As stated in 2001 by Stiggins, the idea is “to involve students directly and deeply in their own learning, increasing their confidence and motivation to learn by emphasizing progress and achievement rather than failure and defeat.”

The learning activity must be chosen appropriately based on the learning outcome for which it is evaluating. Different types of learning activities support different types or levels of evaluation better than others. For example, automated grading of quizzes works well with lower-level cognitive domain concepts (such as Bloom’s Taxonomy levels of remember and understand) where multiple choice, true/false and fill-in-the-blank question types are appropriate. However, for higher level cognitive skills (such as Bloom’s levels of analysis, synthesis and evaluation), other more direct assessment types could be more appropriate. These could take the form of written essays, case study analyses, and observational grading. These types of assessments require a human evaluation rather than being machine gradable.

With a CBE approach, the assessment informs the student that he or she has the competency to move forward, which is why the alignment between the outcome and the assessment is so important. As mentioned in the 2011 Competency Works report, assessment needs to

be a meaningful and positive learning experience for students. Prior to being assessed, students should feel confident that they would succeed given the preparation that was given. Stiggins (1999) states: "If these students are to come to believe in themselves, then they must first experience some believable form of academic success as reflected in a real classroom assessment. Even a small success can rekindle a small spark of confidence that, in turn encourages more trying. If that new trying brings more success, then students' academic self-concept will begin to change. Our goal is to perpetuate this cycle."

Measurement of success

Success criteria enable students to know exactly what the assessment is all about. It is generally accepted best practice that students should know the performance criteria for which they will be evaluated. This is even more important in a CBE model where the underlying premise for all students is that they will succeed and demonstrate mastery. This practice enables transparency and makes the learning explicit. Specifically, rubrics are an effective way to formulate these criteria.

However, remedial pathways also need to be in place. If the student doesn't succeed in the assessment, there needs to be alternative content and learning activities to help fill in the gaps. This alternative material should provide additional learning opportunities and information related to the outcome being assessed. The supplemental learning activity should also be a separate assessment to which the student has not been exposed.

On a more organizational level, measures should be in place to ensure that the assessments are evaluating the outcome at the appropriate mastery level. The institution needs to know how they are measuring learning. This review is often supported by a Curriculum Map which is used to identify where (in which courses) various concepts are evaluated and also to what level those concepts are being evaluated.

Results/Analysis

Technology can enable this phase of the cycle with learning analytics. The professional judgement of the teacher will also come into play. This is the marriage of the quantitative and qualitative assessment of students. The assessment results should be evaluated to identify student success but also identify areas for student improvement, motivation, and encouragement. The results data can also be used for course improvement. Improvement and optimization decisions would be made based on the learning analytics and outcome achievement data collected from the course.

Redesign

Finally, the Assessment Learning Cycle is meant to be dynamic. Adjustments will need to be made along the way. The performance and achievement data collected in the results analysis phase will help to identify opportunities for redesign or improvement to the course. As part of the continuous improvement cycle for the course, any overall low performance or low achievements on assessment activities or learning outcomes should be reviewed. This review should also happen in context over time to

look at results over multiple academic terms or multiple cohorts of students.

While there are multiple steps in planning out an effective Assessment Learning Cycle, the effort is time well spent and will pay dividends in the form of successful students, successful faculty and achieved learning outcomes. All of the elements work in unison and each plays its own important role. When combined and well implemented, a CBE course will have a solid assessment framework.

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