

What is Competency-based Education?

By

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The term “competency” is being used a great deal these days in policy discussions in Thailand about the reform of K-12 education , but it isn’t always so clear what is meant by it or if those using the term fully understand its implications. The writer recently learned that the Ministry of Education is asking her staff to develop a new national competency-based curriculum which will be based on six general “competencies”. Taken from a slide used by the MOE, these are:

1. Self-management: Self-respect, Life-goal orientation, Temper & Tension management, Problem solving and critical situation management
2. Higher-order Thinking and Learning: Critical thinking, systematic thinking, creative thinking, and problem-solving
3. Communication: Conscious message decoding, respecting diversity, communication process and media development
4. Teamwork and Collaboration: be a team player and a leader, systematically synergize the efforts, build the relationships and manage conflicts
5. Active Citizenship: Respecting rights, responsible, participative, and creating changes
6. Live in harmony with nature and science towards sustainability

These are all admirable aspirations, but they are broad, not well defined, outcomes, and not all of them are easily measurable, let alone teachable. And several of them might be assessable only long after a student leaves school. I assume that the MOE is breaking these down into more specific measurable statements of what students will need to know and be able to do to self-manage, think critically, communicate, collaborate, be an active citizen, and support sustainability. For some of these goals, that might be possible; for others, it might prove to be quite difficult. And once all that work is done, the country will need methods to assess students’ progress toward competency for each goal at each grade level and perhaps in each subject area. And they will need to re-organize schools so that students receive the individualized help that they need and can progress toward graduation at their own pace. How will that be done?

It can’t be left up to the teachers and the schools to develop assessment systems on their own as there would be enormous variability across the nation in the assessments, and therefore in what competency means and local certificates of accomplishment and diplomas would be worthless. Employers and universities will want common standards of competency and measures that are reliable. Will the MOE provide schools with the assessments or guidance about developing assessments? For assessment is at the very heart of CBE. The whole idea of CBE is that student progress should be based on demonstration of competence rather than just spending time in a class. To do that, you need to have reliable means of assessment so that teachers and schools can judge a student’s progress. And you need a continuum of levels of competency that defines the students pathway toward graduation. So you need learning progressions available for each

competency that help educators understand how knowledge and skill develop in each area.
¹Actually you may need multiple pathways as different students with different capacities, interests, and needs may need different pathways to reach the same end goals. So CBE is a complex idea and difficult to implement so let's take a deeper look at the concept.

Competency-based education (CBE) is not a new idea. In fact, the author developed a funding program for CBE for the Fund for the Improvement of Postsecondary Education (FIPSE), a funding agency within the US Department of Education, in the 1970's. Many of the university programs such as Alverno College and Western Governors University which are often mentioned as good examples of CBE got their start with grants from FIPSE. During this period I had the opportunity to work with William Spady and John Block whose research on mastery learning led to some of the early efforts to implement CBE. This experience with FIPSE provides the foundation for this description of CBE, but as that experience was fifty years ago and it was in postsecondary education, it may not be so relevant to the current efforts in Thailand. Fortunately for me, researchers at the National Center for the Improvement of Education Assessment (NCIEA) have recently completed a review of research on CBE in K-12 education which has helped me get up to date on what is known about CBE.² And this essay draws heavily from that review. So we will begin with a brief description of the review.

A systematic review of research is a rigorous examination of a set of research studies that meet specific criteria to determine what we know about a particular subject. The normal procedure in conducting such a review is define the criteria to be used to determine which studies will be included and which will be excluded, search for and retrieve the studies that meet the criteria, extract and code the qualities of the studies and their findings about implementation and outcomes, analyze the findings, explore the variability in the findings, and analyze the outcomes. The NCIEA review followed these steps and eventually selected 25 studies of K-12 CBE programs conducted in the USA between 2000 and 2019 to be included in the review.³

So what is CBE? It is a method of academic instruction and evaluation in which students advance by demonstrating their mastery of the knowledge and skills required to be competent in a field of practice. This method focuses on having students "show what they know" and applying the concepts they've learned in assessments that show they've truly grasped the subject. Student progress toward completion or graduation is based on demonstration of mastery rather than on time spent in class. CBE shares features with personalized instruction, mastery learning, and proficiency-based education and these terms are often used inter-changeably.

Advocates contend that the schools are using outdated and ineffective forms of instruction that allow students to progress grade-to-grade without having to demonstrate mastery of essential learning objectives, and this approach exacerbates inequities and causes many students to drop out, and leaves many graduates ill-prepared for either work or postsecondary education.

¹ Mosher, F. and Heritage, M. (2017). *A Hitchhiker's Guide to Thinking About Literacy, Learning Progressions and Instruction*. New York: CPRE.

² Evans, Landl, and Thompson (2020). *Making sense of K-12 competency-based education: A systematic literature review of implementation and outcomes research from 2000 to 2019*. Dover, NH: NCIEA.

³ *Ibid.*, pp. 4-5.

The CBE approach differs from conventional education in which the standard unit of academic progress used in nearly every secondary school and college around the globe is the credit hour which is not measure of learning, but of time spent in class. The assumption is that if you have put in the required time and met the teacher's standards, then you have learned enough to be given credit. In a traditional credit-hour system, more emphasis is put on the amount of time a student spends "in the class" than the content that is actually learned. Thai universities, like others around the world, award degrees based on the student completing a required number of credit hours.

CBE allows institutions to separate "seat time" or time in class from actual proficiency in a field. And if the student already has acquired relevant knowledge or skill from previous education or life experience, the student has the option of demonstrating that he/she knows how to do something without having to take a course. Put simply, students are able to show what they know, when they are ready to demonstrate it.

A Definition of CBE

While students from all backgrounds and experiences may find the CBE model appealing, it is an especially useful for adults who decide to return to school to earn a diploma or degree. Often adult learners have life experiences and practical knowledge that can help them to quickly advance through a CBE course. For example, imagine a person going back to school for a degree in business after spending years running a small cafe. The odds are strong that you've picked up on some of the basics of management, marketing, accounting, and other fundamental competencies while running your business. In a CBE program, you would be able demonstrate your knowledge in those areas immediately, skipping the related courses, and moving closer to graduating.

Proving your competency sounds great, but how does that work in practice? In CBE programs, the key competencies required for the work of graduates are defined by studying the occupations that they are expected to pursue, and then the courses are organized around the competencies. And assessments are designed to measure whether students can demonstrate the competencies. For example, imagine a Culinary Arts program might include a competency for baking as well as competency modules for kitchen management, food service, nutrition, and other aspects of food preparation and restaurant management. A young man who had experience as a cook might be able to test out of some modules and finish the program more quickly.

In 2017, there was a national summit on CBE in the USA that convened organizations and institutions involved with competency-based education. They refined the definition of CBE and included seven elements in their definition:

1. Students are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning.
2. Assessment is a meaningful, positive, and empowering experience for students that yields timely, relevant, and actionable evidence.
3. Students receive timely, differentiated support based on their individual learning needs.

4. Students advance based on evidence of mastery, not seat time.
5. Students learn actively, using different pathways and varied pacing.
6. Strategies to ensure equity for all students are embedded in the culture, structure, and pedagogy of schools and education systems.
7. Rigorous, common expectations for learning (knowledge, skills, and dispositions) are explicit, transparent, measurable, and transferable.⁴

It will be interesting to see if the MOE’s new curriculum satisfies this definition.

So what has been the impact of CBE on academic outcomes? Proponents of CBE argue that it raises achievement and increases equity in outcomes among different student populations. The NCIEA review found that most of the 25 studies either ignored the question of outcomes or treated it as a secondary matter. They attributed this to the fact that CBE is a new reform and that implementation was complicated and time-consuming. However, mastery learning or CBE has been the focus of reform since the 1960’s. An alternative explanation is that 16 of the 25 studies used qualitative research methods and they neglected quantitative analysis of outcomes. And many of the studies used small samples and did not include control groups so did not have designs that allowed for analysis of outcomes. The reviewers concluded that the impact on student outcomes was modest and mixed.⁵ It should be noted that earlier reviews of mastery learning in K-12 schools have found larger and more consistent improvements in achievement.⁶ Slavin notes in his review that improvements in outcomes were more frequently found in studies using assessments developed by the researchers themselves, and seldom found in studies using standardized achievement measures.⁷

But implementation of CBE is complex because it requires changes in the normative aspects of school culture and challenges deeply held beliefs about learning. The NCIEA review examined the research findings about the factors that facilitated implementation and factors that were barriers to implementation. The review provides a detailed list of the factors that facilitated and those that obstructed implementation. Below in Table I we list some of those that were frequently mentioned in the reviewed studies.

Table I

Factors that Facilitated or Obstructed Implementation of CBE⁸

Facilitators	Barriers
Consistent assessment and grading procedures	Lack of models for schools

⁴ Levine, E. and Patrick, S. (2019). What is competency-based education. An updated definition. Arlington, VA: Aurora Institute.

⁵ Ibid., pp. 17-18.

⁶ Block, J.H. (1979). Mastery Learning: The Current State of the Craft. *Educational Leadership*, 114-117; Cotton, K., and Savard, W.G. (1982). *Mastery Learning: Summary Report*. Portland, OR: Northwest Regional Laboratory; Slavin, R.E. (1987). *Mastery Learning Reconsidered: Review of Educational Research*, 57(2), 175-213.

⁷ Slavin, *ibid.*, pp.

⁸ Evans, Landl, and Thompson (2020). *op. cit.*, pp. 15-16.

Effective learning management systems	Reluctance of teachers to change pedagogy
Provision of student voice and choice over what they learn and how they demonstrate their mastery	Reluctance of teachers to give students control over what they learned and the pace of learning
Online learning options	Beliefs about grading
Clear standards and expectations	Lack of shared definitions of proficiency, mastery, and competency
External support to help guide implementation	Securing buy-in from parents
Time for teachers to plan together	Lack of time for common planning

Based on my experiences in Thai schools, I believe the facilitators and barriers to implementation will be similar in Thailand. It is clear from this review of research on CBE that assessment is not only a central element of the strategy but it also turns out to be a major barrier to its implementation. Assessment will be a problem in Thailand as well as many of the schools have limited capacity in this area. It will be interesting to see what kind of supports the Ministry provides when they pilot the program in 2022. The studies done in the USA showed that most schools needed three to five years to implement a CBE program. The current plan in Thailand calls for much faster implementation which might be a problem.

Let me describe what supports for students might look like in a CBE program. A high school in NY state has a conference room for each academic department, and each period of the day, a teacher in that subject is assigned to be there to meet with students who having trouble with assignments. Students who are struggling to understand a procedure in mathematics or a theorem in physics can make an appointment and come to the conference room at the appointed time to receive help. That's just an example, but project-based learning requires a lot of this kind of personalized help and it cannot all be done after school. So schools have to get creative about how they schedule time.

CBE has become popular in postsecondary institutions around the world, especially those preparing students for specific occupations for which the competencies can be well-defined. The approach works less well in secondary schools in which students are expected to acquire general academic competencies and parents expect the schools to be responsible for the safety and well-being of their children for specific periods of time. That is, parents and community members expect the school to take a *in locus parentis* role and supervise the young people in their care.

So what is being planned in Thailand? There doesn't seem to be any intention of allowing students to demonstrate mastery of competencies and test out of courses, rather the term competency seems to be used loosely to refer to a standard for learning outcomes. But terms have meanings, and when they are used loosely, it is confusing. So while CBE could be a useful

approach in post-secondary education, and in vocational and technical education where the desired outcomes can be clearly specified and easily assessed, the term should be used carefully. Even in technical education, developing CBE programs requires major re-organization of institutions, large investments in assessment, and changes in how educational institutions are funded. Using terms loosely is not only confusing but it means goals are not clear and are unlikely to be achieved.