

COMPETENCY-BASED OR CAPACITY-BASED: WHICH SYSTEM IS BEST FOR PHILIPPINE TVET IN THE FUTURE?

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*How do these two training systems
benefit Philippine TVET?*

Through the Technical Educational and Skills Development Act of 1994, TESDA is mandated to “focus technical education and skills development on meeting the changing demands for quality middle-level manpower”, among other things. The agency achieves this through the implementation of a competency-based training (CBT) system that equips learners with industry-relevant skills, transforming them into a globally-competitive workforce.

With the advent of the Fourth Industrial Revolution (4IR), however, there is now a growing clamor for technical vocational education and training (TVET) institutions around the world to shift from a CBT curriculum to a ‘capability-base’, also known as a ‘capacity-based’, system. Several experts argue that through the latter system, learners will be taught to be self-sufficient and adaptive critical-thinkers, not just highly-skilled workers. Others in the TVET community believe that a capacity-based curriculum can be used to complement existing CBTs, arguing that proficiency in technical skills should be a requirement before a learner can attain ‘full capability’ or ‘full capacity’.

But what is best for Philippine TVET, moving forward?

COMPETENCY AND CAPACITY

a. Competency-Based Training (CBT)

CBT has several definitions in the field of TVET and general education. The Aurora Institute, for instance, describes CBT as a learning system that “utilizes

explicit, measurable, transferable learning objectives that empower students” and “emphasizes competencies that include application and creation of knowledge, along with the development of important skills and dispositions”. CBT is also described as a learning environment where students are consistently supported, tailor-fitted to suit their learning goals.

Consider this example by Keaton (2012): how can it be determined that a person is competent enough to catch a ball with their hands? Though the straightforward way is to conduct multiple ball-catching activities, CBT lays out specific criteria (i.e. eyes are open and on target, hands and fingers are extended, etc.) that an assessor can refer to while the activity is being conducted, using objective reasoning to determine if the person in question is said to be good at catching. This mindset is mirrored in the CBT TVET curricula implemented by countries like the Philippines and Australia.

The primary advantage of CBT is that it quantifies and itemizes the learning process, thereby allowing teachers to objectively gauge a student’s progress in the curriculum using a rubric. CBT also makes the learning process much more observable and reproducible, which teachers can use to improve their lesson plans for other batches of students.

b. Capacity-Based Training

Capacity-based training, also known as capability-based training, takes a different approach to instruction. Simply put, this method focuses more on the learner's capacity (hence the name) to acquire new skills and utilize them meaningfully, rather than simply assuming that they can, before instruction and training actually begins. As illustrated in a 2017 academic paper penned by Buchanan, et.al., capacity-based TVET training first takes each individual learner and examines them according to three domains:

- o *Knowledge base* – This pertains to the learner's theoretical knowledge about their chosen practice. Theory, in this regard, is given importance because learners are gauged not only by their capacity to perform as professionals, but also according to their ability to articulate and debate ideas based on what they know about their chosen field.
- o *Technical base* - This includes practical ability and knowledge of skills related to their chosen field. The domain is essentially CBT as it is known today.
- o *Attributes* – This covers specific traits that a learner should possess for their chosen occupation or field. Traits include what are known today as "soft skills", such as creativity, ethics, communication, and information management. In capacity-based training, attributes are understood according to the context (i.e. "creativity" in visual design may be different to "creativity" in performance arts).

c. Competency-Based Training versus Capacity-Based Training

Simply put, CBT is focused on achieving learning outcomes and equipping learners with skills. Meanwhile,

capacity-based training determines the learner's capabilities before any learning activity can take place.

Competency-based training assesses a person's proficiency in a skill or learning objective using a rubric. Referring again to Keaton's example, this rubric can be a five-point scale ranging from 'poor' to 'excellent', with the inclusion of a sixth scale for 'no attempt' or '0'. Training will persist until a learner has achieved an 'excellent' mark on all criteria indicated in the rubric - only then will they be considered 'competent' for that particular skill.

As said before, CBT is preferred because it is objective and measurable. Not only that, current CBT arrangements around the world emphasize close-coordination with the industry when creating a CBT curriculum, thereby ensuring TVET learners will train for in-demand skills/competencies and will earn a gainful livelihood.

Capacity-based training, on the other hand, is more developmental in the sense that it focuses on the individual, rather than skills, by first assessing their strengths and working from there. Aside from learning a specific group of skills, trainers seek to expand their 'performance capacity', which include attributes that may not be necessarily related to the profession or field they wish to engage into. Capacity-based training also seeks to create a pool of "capacities" that go beyond skills that meet work requirements, by including soft skills such as interpersonal communication, critical thinking, and adaptability.

The dichotomy of emphasizing skill vis-à-vis capacity is thus presented by Nguyen, H., et.al. (2017), in a study about competency-based training for aspiring mathematics teachers in Vietnam (Figure 1):

Skills	Performance Capacity
The ability to perform/complete part of a job or the whole job; Represents the level of competence or proficiency	Demonstration of knowledge, skills and attitudes through the performance/accomplishment of the activities or work of a profession according to the standards set for each activity/task
Results: a part or all of the work	The result: work
There are many levels of completion	There is a criterion, the general criteria of the job

Fig.1 Comparison Between 'Skill' and 'Performance' in Training (Nguyen et.al., 2017)

This paradigm is prescribed by certain academics as a better, more efficient way of teaching TVET as an answer to the 4IR, as capacity-based training will encourage students to continue training/learning even after they've already attained the skills necessary in their occupation. Buchanan et.al. tied this to the dynamic nature of the 4IR; essentially, current skills will have to be replaced by 4IR-skills, but even these skills may also become obsolete if labor demands change yet again.

STUDIES FROM OTHER NATIONS

a. Vietnam

In the aforementioned study by Nguyen et.al. (2017), it is said that aspiring mathematical teachers typically undergo one of two methods of instruction in Vietnam's pedagogical universities. The first is called the "parallel model", which sees the learners undergo both scientific and educational/instructional courses. Through this model, learners are quickly oriented about the profession and given enough time to practice their knowledge in the field. However, the model is said to be inflexible and therefore does not always meet labor demands. The second mode of instruction is called the "continuous training model", which is quite self-explanatory, with the main difference is that learners undergo a longer process but leave the universities with a master's or doctorate degree, plus with whatever skills they needed in order to adapt to the said demands.

Both types of CBT are advantageous, in that they immediately give the aspiring teachers a set of objectives they need to achieve. This streamlines the learning process and provide instructors with rubrics that help them determine areas of difficulty.

That said, Nguyen et. al. noted that the CBT approach in Vietnamese pedagogical universities is inadequate in certain aspects. For instance, while math teachers in Vietnam are competent in instruction, they show varying aptitude when it comes to organizational problem solving and group management, which the aspiring teachers themselves have disclosed that these have been given little attention during their training. In addition, the teachers in general are lacking in terms of

of research, and they encounter trouble translating mathematical knowledge to practical application.

The study proposed a new teaching design that seeks to first determine, and work on, the learners' teaching capacity, then move on to the actual learning process. The learning goals are, in verbatim:

- o Developing criteria for assessing the achievement level of the methodology content of teaching mathematics and elementary mathematics to the performance capacity standard of the curriculum.
- o Designing a program to teach methods of teaching maths and elementary mathematics in the following order.
 - Describing a course content which can meet performance standards;
 - Defining teaching objectives and formulating integrated teaching objectives for performance capacity standards;
 - Developing a teaching syllabus based on the description and goal of integrating performance benchmarks;
 - Adjusting teaching content based on integrated teaching objectives;
 - Identifying required and referenced learning resources;
 - Determining the duration for each lesson and the type of teaching organization;
 - Building a specific schedule for each content;
 - Determining how to evaluate.
- o Designing lesson plans for teaching maths and elementary mathematics.
- o Organizing the process of teaching methods of teaching maths and elementary mathematics.

Part of the proposed solution is a re-evaluation of the aspiring teachers' proficiency in both elementary and advanced mathematics, as Nguyen surmised that individual experiences from learning these two subjects may have resulted in equally varying levels of competence in math/non-math related topics. As opposed to a traditional CBT rubric that seeks to gauge the learners' competence according to a set

of criteria, Nguyen's study also proposed a four-point rubric that evaluates the learner's capacity in a specific objective according to their level of achievement (i.e. Know, Understand, Apply, Analyze). An example of this rubric is shown in Figure 2:

As seen in the figure, such a new curriculum design is expected to have a greater focus on non-teaching skills such as research and evaluation, student-teacher interactions, and conducting extra-curricular activities. These are seen by Nguyen, et. al. as a useful foundation for a new breed of math teachers who can better gauge their students' performance, thereby addressing one of the current challenges encountered in Vietnam's pedagogy universities.

Output standard according to performance approach	Degree of achievement			
	1	2	3	4
	Able to know	Able to understand	Able to apply	Able to analyze
Capacity to conduct teaching process				
Organizing maths learning activities for students			X	
Applying pedagogy when communicating with students			X	
Selecting and applying methods of teaching mathematics			X	
Using math teaching aids			X	
Understanding how students learn math			X	
Exploiting and using information technology to support math teaching				
Capacity to research and design a unit				
Designing specific, detailed, feasible teaching system				X
Making plans for each lesson and each activity				X
Designing evaluation plan			X	
Designing rich, diverse, attractive resources		X		
Capacity to assess students' learning outcomes in the direction of ability development				
Method of assessment for students			X	
Designing content that evaluates the student's math learning results			X	
Using assessment results to adjust teaching and learning			X	
Capacity to organize extra-curricular maths activities				
Organizing maths game activities			X	
Practicing extra-curricular activities			X	
Integrated teaching capacity	X			
Diverse teaching capacity	X			

Fig.2 Excerpt from Sample Table of Learning Objectives for the Course in Methodology of Maths and Elementary Mathematics (Nguyen, et. al., 2017)

b. Australia

According to Hazelwood (2013), CBT has been Australia's go-to training method for vocational skills since the 1980s, which itself is part of the country's economic policy at the time. However, it is acknowledged that Australia's TVET-trained workers currently find it difficult to efficiently perform many jobs in the modern world, partly because Australia's definition of "competency" did not exactly keep up with the times fast enough. Definitions reflect the prevailing perception of whence they were created, and in Australia's case the current definition for "competence" have undergone many changes, yet it remains to be seen if its learners have followed suit.

Compare the two definitions, as quoted directly from Hazelwood's paper:

"Competency: The specialisation of knowledge and skill and the application of that knowledge and skill to the standards of performance required in the workplace."

(Australian National Training Authority, 1998)

And:

"Competency is the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments."

(National Skills Standards Council, 2011)

To put it succinctly, the first definition defined competencies as skills appropriate for a specific job, whereas the second definition proposed that such skills should be part of an overall mindset that could be adapted from one job to another. Buchanan, et. al. prescribes the latter description as the key for Australian TVET to flourish in the face of the 4IR, as it allows for vertical and horizontal movement of TVET-trained workers, thereby curbing the prevailing problem of job mismatch in the country.

This problem is one among many reasons why certain places in the Australian TVET sector have been advocating for a change in curriculum (i.e. from CBT to capability-based training) for years. One report

commissioned by the New South Wales (NSW) government in 2011 said that as much as 30% of Australians (at the time) were working in occupations that did not match their qualifications/educational attainment. For those who underwent TVET, one reason behind this mismatch was the fact that the training they received was mostly task-oriented rather than holistic in nature. As such, when changes in labor demands and industry practices arrive, they find that the task they trained for is now either augmented or phased-out. The report argued that through a holistic approach to curriculum, TVET trainees will be exposed to an "ecosystem of skills" within their chosen field, thereby letting them learn the nuances of their trade and adapt to ever-changing demands in the industry.

One example of this framework was appended to the 2011 NSW report, as a set of competency standards for Australian engineers:

Knowledge Base

- Knowledge of science and engineering fundamentals
- Knowledge and understanding of engineering and technology
- Techniques and resources
- General knowledge

Engineering Ability

- Application of standards and codes of practice
- Specifying and installing systems
- Design procedures
- Assessing technical and policy options
- Observation, analysis and testing
- Operations and maintenance
- Specific training
- Responsibility as technical expert
- Understanding of the business environment

Professional Attributes

- Ability to communicate effectively, with the engineering team and the community at large
- Ability to manage information and documentation
- Capacity for creativity and innovation
- Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member
- Capacity for lifelong learning and professional development

This set of criteria greatly mirrors the capacity-based training framework that Buchanan, et.al. later laid out in their 2017 paper (i.e. three domains consisting of Knowledge Base, Technical Base, and Attributes). Note the emphasis on non-industry-related skills such as creativity, innovation, and documentation, as well as the requirement for having fundamental knowledge about the field. Using this new framework, Buchanan argued that TVET learners will be better equipped to handle a host of different occupations, and be flexible enough to handle new and emerging industry trends.

CURRENT TVET SITUATION

In the Philippines, TVET is administered using CBT-based curricula, with TESDA as the leading agency. TESDA defines “competency” as the ability of an individual to do a job properly. An individual is therefore defined as competent when he or she can demonstrate proper application of knowledge and skills that they’ve learned into their working environment. And to assess whether an individual is competent or not, TESDA uses a set of benchmarks called “competency standards”.

Competency-based training was first introduced to the Philippines via a World Bank project between the Philippines and Australia (PHL-AUS Quality TVET) in 1998. Under competency-based TVET, TESDA works with industries to create competency standards, which are officially promulgated by the TESDA Board as Training Regulations (TRs) that include the minimum training standards by which TVET programs in the Philippines are qualified and registered. Such is the importance of CBT in TESDA, the National Technical Education and Skills Development Plan for 2018-2022 considers competencies as a vital part in the Philippines’s continuous social and economic development. As of December 2019, TESDA has 283 promulgated TRs.

TESDA also incorporates the “10 Principles of CBT”, which are adhered to by TVET trainers and institutions in the Philippines to ensure the highest quality possible in their respective curricula:

1. **“The training is based on curriculum developed from the competency standards”** – all training activities are conducted with the end goal of achieving specific learning goals.

2. **“Learning is competency-based or modular in structure”** – a learner must exhibit complete competency in one module before they can proceed to another competency.
3. **“Training delivery is individualized and self-paced”** – learners are acknowledged to have different learning needs.
4. **“Training is based on work that must be performed”** – training activities are always based on prevailing industry standards.
5. **“Training materials are directly related to the competency standards and the curriculum”**
6. **“Assessment of learners is based in the collection of evidences of work performance based on industry or organizational required standards”**
7. **“Training is based on and off the job components and off the job components”** – training activities are conducted in a simulated work environment.
8. **“The system allows Recognition of Prior Learning (RPL) or current competencies”** – a learner’s prior working experience is considered when they seek to learn another competency.
9. **“The system allows for learner to enter and exit programs at different times and levels and to receive an award for competencies attained at any point”**
10. **“Approved training programs are nationally accredited”** – TESDA ensures that the aforementioned programs adhere to the current guidelines of the Unified TVET Program Registration and Accreditation System (UTPRAS).

TESDA has acknowledged that while CBT adequately meets today’s labor and skills demands, it will soon have to be augmented by capacity-based training, or something similar, thanks to the 4IR. Fortunately,

the NTESDP has enabled TESDA to establish agile, scalable, flexible and sustainable measures.

*"TVET with **Agility**, to prepare the Philippine workforce for global competitiveness and future world of work; TVET with **Scalability**, to deliver high quantity job-ready, quality workforce; and TVET with **Flexibility and Sustainability** for social equity and economic inclusion."*

To explain further, Agility is needed to keep pace with the rapid technological development and future requirements of the 4IR to the growing clamor for 21st Century Skills. Scalability is needed to provide industries with a sufficient number of quality workers to complement economic growth. Flexibility and sustainability are needed to meet the needs and demands of most of the basic sectors' population, and to ultimately lift them from poverty to prosperity.

Competency-based training could address emerging demands of the labor market by incorporating soft skills and other 21st Century skills in TESDA's training programs. Research is already in higher-level TRs to ensure graduates are able to utilize new, advanced and emerging technologies in their workplaces. Diploma-level qualifications, such as those that lead to Level 5 National Certifications, now emphasize training with research and critical thinking in mind.

MOVING FORWARD

To answer the question presented in the first part of this publication will require a deeper analysis of which system will be effectively used in the Philippines, is it Competency-Based Training or the Capacity-Based Training? On the other hand, it is also worth to consider that the combination of these two approaches can make a big difference in the conduct of TVET training in the country. It is suggested that an action research on Competency-Based Training and

Capacity-Based Training will be conducted by the Learning Development Division under the National Institute for TESD. The action research will require a set-up wherein two different groups engaged in different approaches will be studied. Likewise, additional variables will be considered given current TVET developments.

On another note, we should also take a look on the implementation of the Competency-Based Training in the Philippines. Are the 10 principles of CBT being applied by the training institutions? Are the current policies of TESDA, especially the implementation of the scholarship programs considered the application of Competency-Based Training? Likewise, TESDA has to determine if the Learning Facilitators are capacitated on how to implement CBT. The NTTA has to ensure the integration of its concept in the conduct of training in Trainers Methodology.

With the advent of the 4IR and current developments relevant to TVET, TESDA has to take a step ahead in reviewing existing approaches. Likewise, strict monitoring on the implementation of the program should be part of the various audit mechanism in place. Implementation of the approach that Philippine TVET adheres to should be the core component of evaluation/auditing as this has a vital implication on the quality of the training programs.

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