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OPEN SOURCE COMPETENCY CERTIFICATION FOR PROFESSIONAL TRAINING

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Abstract

In this paper, we introduce the concept of open source competency certification for professional training. We compare the requirements of professional degree training to that of general degree training, and also highlight the use of modern technology in the achievement of the requirements for training competent professionals for the industries.

General degree training versus professional degree training

General association of the word "academic" is linked to some of the following definitions.

"Pertaining to areas of study that are not primarily vocational or applied, as the humanities or pure mathematics."

"Theoretical or hypothetical; not practical, realistic, or directly useful."

"Learned or scholarly but lacking in worldliness, common sense, or practicality."

Universities today have gone beyond training in basic arts and science disciplines. Most are now engaged in some form of manpower training targeted for direct deployment in the industries, such as those of engineering, information technology, business and accountancy. There is a big difference in training outcomes compared to those in the basic sciences.

In all professional disciplines, practical application is a key objective. While there are debates on the needs to produce "thinkers" and "philosophers" in the professional disciplines, this cannot be done at the expense of graduates who are not able to perform the day to day work expected of a competent person in the profession. Competence in the job roles will always remain the top priority.

Are current approaches to professional training achieving its objectives?

If we examine the curriculum of many programmes, we will typically see a list of modules that covers the breadth of the discipline, and each module comes with a set of learning outcomes, together with the associated relevant knowledge. It is a good start. However when it comes to teaching and assessment, many list lectures in a classroom and closed pen and paper examinations.

In closed pen and paper examinations, students who achieved (say) 50% are then declared passed. There is typically no feedback after the exams.

It is often wondered, how such an implementation can guarantee that all the learning outcomes as documented in the curriculum are achieved? It turns out, many graduates coming through such training are still not competent in the subject matter they had "passed", in that they are still not able to apply whatever they had learned in a practice environment. Often the link to practice is simply brushed aside with a claim that a stint as an intern in the industry

will assist the student to find the link between knowledge and application. This is far from true.

What is Competency, and Competency training?

Competency focuses on workplace expectations. It refers to skills and knowledge that can be transferred and applied to new situations and environments. One comprehensive definition of "Competency" is: "A cluster of related knowledge, and skills that affects a major part of one's job, correlating with performance on the job, and can be measured against well-accepted standards."

Competency training is one initiatives of the last decade to shift the assessment objective, from the assessment of knowledge to the assessment of practice, or the ability to perform as what a competent person in a particular job role would be able to do. In this case many assessments have taken on a problem based or project based approach in an open environment.

In many implementations, competency standards, with a prescribed set of performance criteria are drawn up in accordance to the needs of the profession in the specific industries. This forms the basis of assessment, and candidates have to demonstrate their skill in accordance to the performance criteria. Candidates are declared competent only if they can show evidence that they are able to achieve the performance criteria as prescribed in the competency standard documents.

Is accreditation an indication of consistent good quality?

Most universities award qualifications with a transcript listing modules and the corresponding grades achieved. The only verification, or hallmark of quality, is a so called accreditation process that the universities had gone through.

Accreditation in the best scenario, means once every few years, an oversight body is hosted by the university to examine selected training records, and interview specially selected students, faculties, alumni, etc., to verify the accuracy of a written accreditation submission.

How reliable do the samples represent the real state of affair, especially when in most cases, they are not randomly selected? What happens in between visits? These are hard questions which are never affirmatively answered.

What is Open-Source Certification?

There are two immediate things that arise out of competency based training. One is that of process skills and the other is that of evidence of the achievement of the competencies. Putting the two side by side points to the need for the candidate to demonstrate to assessors, or if we will take it a step further, the larger community, that he has mastered the process skill in translating knowledge into practice.

The above gives rise to the notion that instead of exhibiting the final result of a piece of work, be it a project or the solution to a problem that was assigned to the candidate to solve, the process by which he/she achieves the final result should be produced as evidence that the process skill is mastered. It seems that modern technology allows us to easily capture this process, such as in a video. Of course given that the process has to occur over time, the archiving will have to be continually captured over the entire life of the project.

Once a video of the entire process of the candidate solving the problem or performing the project is captured, it will then be logical to allow the larger community, beyond the immediate assessor, to have access to the videos. This is what we refer to as open-source certification. That is, while an assessor who is an expert in the disciple certifies the competence of the candidate, the community at large is able to verify the quality of that certification. What we achieve is then not a sampling of the graduating classes, but that each graduate can be scrutinised for quality.

Of course with this open exhibition of quality, graduates can now go to any corner of the world, knowing well than competence will be judged on its own basis, and not relying on the reputation of the institution from which he/she graduated from. It should be noted that many jobseekers are already building up a portfolio so as to present them to prospective employers, although most are doing this in an ad hoc basis, and without the rigours of formal assessment of the portfolio.

What are the ingredients needed for a wholesome competency based education?

The student should gain good knowledge of the subject matter for him/her to apply the knowledge in real life application. Knowledge need not be complete as in the modern world, information is now at the fingertip. However it is expected that the student knows enough for him to perform further searches in order to have enough knowledge to find a good solution to an application.

The process skill is an important aspect. There are performance criteria, and it is generally agreed that these performance criteria underscore the competency expected of a practitioner in the field. Therefore the student must demonstrate complete compliance for him/her to be declared competence.

In our modern environment, where systems are now big, it is expected no one person can single-handedly complete a project. Team work is an integral aspect of modern day working environment.

The solutions to achieving a wholesome competency based education.

Knowledge dissemination, in particular factual type, is recorded in a multimedia format in a virtual classroom. The recordings allow students to revisit the lesson often, especially during the application process. There is also typically little interaction between lecturer and students in such types of lessons. To assist students whose first language is not English, subtitles are added to the lessons. This allows students to study in English, but yet is sufficiently assisted to be able to understand the lesson well.

The introduction to the problems and project are also recorded in a virtual classroom. Live demonstrations are usually good in giving students a good introduction to the ways things are done. However when students eventually get down to actually performing the project, there will be many missing gaps, which the student may not have realised while watching the demonstration for the first time. With the recordings, the student can focus on the details of the parts of the project only when they come to them.

To allow open exchanges of ideas, course forum are created for each module. In these forums, questions from students are available for all students to view. Active discussion can

take place. This allows students to learn from each other. The archive of the forum pages also forms an archive of the issues encountered in solving problems in the subject matter.

Typically to add to the dynamic environment, synchronous conferencing sessions can then be scheduled where students can discuss issues relating to the project.

At each junction in the project, students will record demonstrations of the techniques they employed to get the results of the project. The recordings are performed to allow the student to demonstrate to the assessor his mastery of the process skill. These recordings are uploaded to the e-learning management portal. At the conclusion of the project, an assessor will formally assess the project through the reports and the demonstration recordings.

Feedback is given to the student, and the student iteratively gets the project to a standard that show that he is competent.

At the end of the course, a portfolio DVD containing all the reports and recording are created for the student.