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Assessment of Learning Outcomes in Outcome Based Education

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Abstract

In outcome based learning, learning outcomes (knowledge, skills and competences) to be achieved by learners are in the focal point of the learning process. Outcome based assessment means that the assessment process must be aligned with the learning outcomes. This means that it should support the learners in their progress (Continuous Internal assessment) and validate the achievement of the intended learning outcomes at the end of the process (End Semester assessment). It also means that the assessment process should be adapted depending on the kind of outcomes that it is aimed to appraise.

This paper proposes a conceptual model for outcome based assessment, shaping a theoretical framework for the integration of learning outcomes, assessment and units of learning as key concepts. An application scenario is finally described to illustrate the application of the model.

Introduction

Wikipedia defines Outcome-Based Education (OBE) as"a recurring education reform model. It is a student-centered learning philosophy that focuses on empiricallymeasuring student performance, which are called *outcomes*.OBE contrasts with traditional education, which primarilyfocuses on the resources that are available to the student,which are called *inputs*. But OBE requires the students todemonstrate that they have learned the required skills and content [1]

OBE IMPLEMENTATION STRATEGY

The OBE approach requires better planning, implementation and monitoring of any programme. In general, OBE requires strategies to address four important questions that are [4]:

- What do you want the students to have or able to do?
- How can you best help the students achieve it?
- How will you know that they have achieved it?
- How do you close the loop?

The questions are to be answered by the Head of the Department and individual teachers. The first question calls for the development of program objectives, program outcomes and course outcomes. The second question calls for theappropriate teaching / learning facilities and techniques to be

employed in various programs or courses. The third question calls for appropriate assessment to demonstrate that the students have obtained the required outcomes. The fourth question calls for the evaluation on the effectiveness of all the plans and implementation of the learning outcomes and ascertain rooms for improvement either in learning or teaching.

ASSESSMENT OF LEARNING OUTCOMES

All the learning outcomes are categorized into three main domains that are:

- Cognitive domains
- Psychomotor domains
- Affective domains

Each course within a program needs to address each of the domains with appropriate taxonomy level. Taxonomy levels are referred to different level attainment for each domain. Each of the domains and the taxonomy levels need to be addressed and assessed within the appropriate course. The course outcomes to program outcomes matrix is developed in such a way that the domains are appropriately developed. Using appropriate assessment tools, a course teacher will report to the head of the department on the achievement of the students with respect to the outcomes he / she was supposed to address.

Learning Outcomes can be evaluated using direct and indirect method

A. Direct Methods

1. Continuous Internal Assessments

Rubrics for evaluating CIA are Essays, Quiz, Laboratory work, Pen Paper Test, Projects, Internship Training, Exhibits, Performances / Presentations, Portfolios of student work, Participation in co and extra curricular activities

2. End Semester Assessments

Rubrics for evaluating ESA are Comprehensive exams, Practical exams, Viva Voce examination, Certificate exams,

B. Indirect Methods

Surveys from Student, Alumni and Employer, Exit interviews, Job placement rates, Course evaluation

EVALUATION OF COURSE OUTCOME

For example, to evaluate the outcome of the course titled Object Oriented Programming with C++; the exam would contain both theoretical part (Knowledge and Understanding level) and programming assignment (application, analysis).

CO1: Understand the Object Oriented Programming concepts CO2: Knowledge on C++ Structure and syntax.

CO3: Apply the syntax to solve problems using C++

To evaluate the student attainment level of Course outcomes, the course teacher shall use the following tools for assessment in direct method: a) Quiz b) Paper pen test c) Assignment d) Simple Programs execution. Indirect methods shall include their presentation in Project and interview.

EVALUATION OF PROGRAMME OUTCOME

Figure 1 gives the Programme matrix which indicates theoverall plan for assessment. The implementation plan starts with the assessment for the entry students. The students' preparation with respect to knowledge and affective skills are assessed through their grades and self assessment when they first enter into the program. The assessment of students' attainment for each program outcomes are carried out at the end of every session

so their program outcomes may be monitored and any intervention may be adopted. This continuous assessment throughout the programme is considered as formative assessment. Each faculty member is expected to provide data for this continuous assessment, depending on the outcomes he/she is expected to address within his/her course.

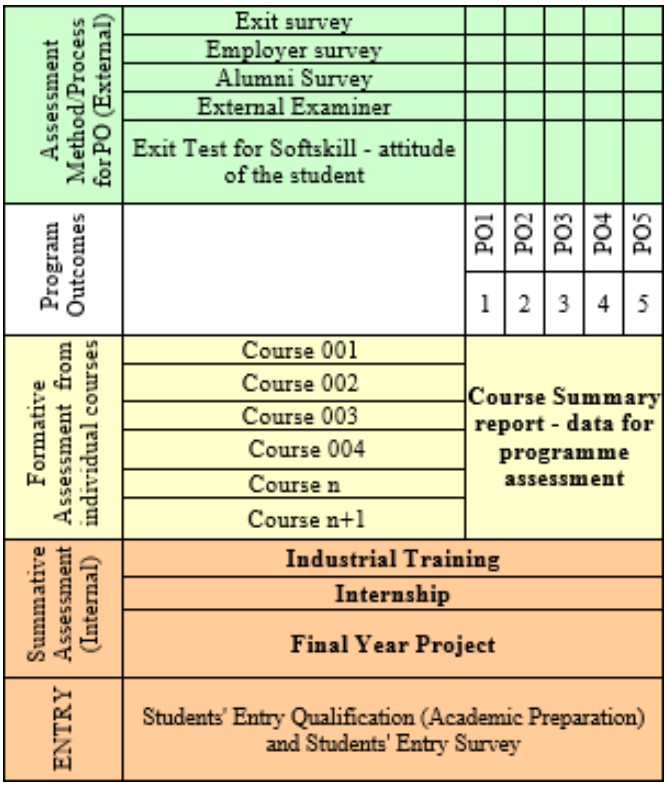

Figure1: Programme Matrix

AUTOMATION SYSTEM

It is obvious that some form of automation system is required to manage information and data, especially forassessment purposes. The main domain of the system shall include

- Class Schedule
- Teaching Plan
- Rubric Assessment
- Survey Assessment

The office automation system starts with the class schedule where teaching assignments are entered by the faculty management. This is done at least one month before the start of each semester. Upon getting the teaching assignment, each course teacher needs to develop teaching plan where teaching and learning strategies are formulated so that appropriate outcomes are addressed. The accumulative results of teaching plan can be assessed by the respective head of the department.

To ascertain the effectiveness of the course/ program delivery, summative assessments are conducted using internal and external resources. The internal summative assessment is done by faculty members through final year project, internship or industrial training. The external summative assessment is done through the external examiner, exit survey, alumni and employer/ industry survey. The outcomes of all these assessment need to be evaluated and the conclusions from the evaluation are used further improve the program.

CONCLUSION

Evaluation of Learning outcomes can be done effectively with Automation system. Course outcome and Programme outcome of every student can be assessed easily and recorded

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