

Faculty Development on Active Learning

Srimathi H, Krishnamoorthy A

Abstract: The paradigm shift towards Outcome Based Education (OBE) in higher education emphasizes learner-centric educational discourse and thus active learning has gained attention. The core element of active learning is engaging learner in higher order thinking skill. Despite the existence of research on learning methodologies, the realization of educational reforms towards active learning and periodic in-service training are rare. It was also assumed that the subject matter experts would naturally be an effective teacher. The new order in learning throws challenges to the faculty members in class room planning, choice of learning activities, usage of technology-blend and utilization of appropriate assessment tools. There is a need of faculty training on continuous basis to attain diverse skill set in implementing active learning. The study examined the need of effective faculty development program on Active learning Methodology (ALM) to achieve learner proficiency.

Index Terms: OBE, Active Learning, Faculty Development, Flipped training, Learning Objectives

I. INTRODUCTION

The traditional class room has concentrated more on prompt lecture delivery, syllabus completion and preparing students for examinations. Wherein, the new choice based curriculum of OBE focus on enhancing learners' abilities, multi-intelligence, lifelong learning and ultimately meet the expectations of the work place (Aziz et al, 2005). The transformation towards learner-centric approach as given in Figure 1 has increased the responsibilities of the faculty members to adopt new teaching learning methodologies. However, the faculty members are having limited knowledge in modern pedagogies (Bexley et al, 2011). This paper demonstrates the components of ALM and how it plays a vital role in achieving quality standards of higher education. The paper organization is as follows: section 2 describes OBE; section 3 describes active learning, section 4 brief the role of faculty, section 5 emphasis the faculty development on active learning and continuous assessment.

II. OUTCOME BASED EDUCATION

OBE is a model of education that focuses on what the learners can do and the qualities they develop (Noor et al, 2009). The main focus is on desired results rather than educational inputs, and contents:

- Prepare the learners for the world of their future

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- Ensure students learning through
 - What and how my students learning ?
 - Are the learning conditions conducive?
 - Are my learners applying knowledge in real time ?

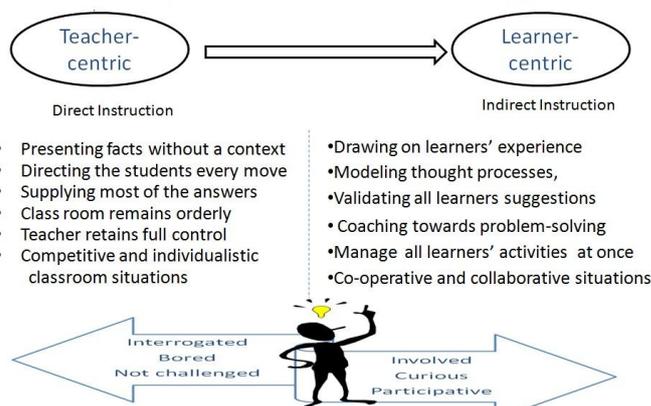


Figure 1. Learner centric approach in OBE

OBE is sometimes called as performance-based education, which emphasizes the defined standards for observable, measurable outcomes through which learner performance can be measured (Tshai et al 2014). The expectation of OBE is to transform the simple institution learning towards enterprise expectations as shown in Figure 2.

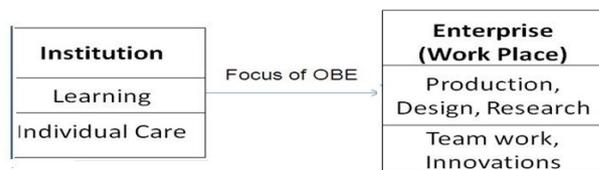


Figure 2. OBE Transformation

OBE insists the enhancement of learners' abilities on the following: critical thinking, executing challenging tasks, analyzing case studies, decision making, organizing capability, project development, innovation, creative and work as a team (Marie et al 2017). The whole system is centered through TLP as shown in Figure 3. OBE is bottom-up, goal-driven, outcome measurable approach, wherein the entire curriculum and Teaching learning process (TLP) should be designed at micro level (Castillo 2014). According to OBE, the curriculum should have well-defined Program Educational Objectives (PEO) and Program Outcomes (PO).



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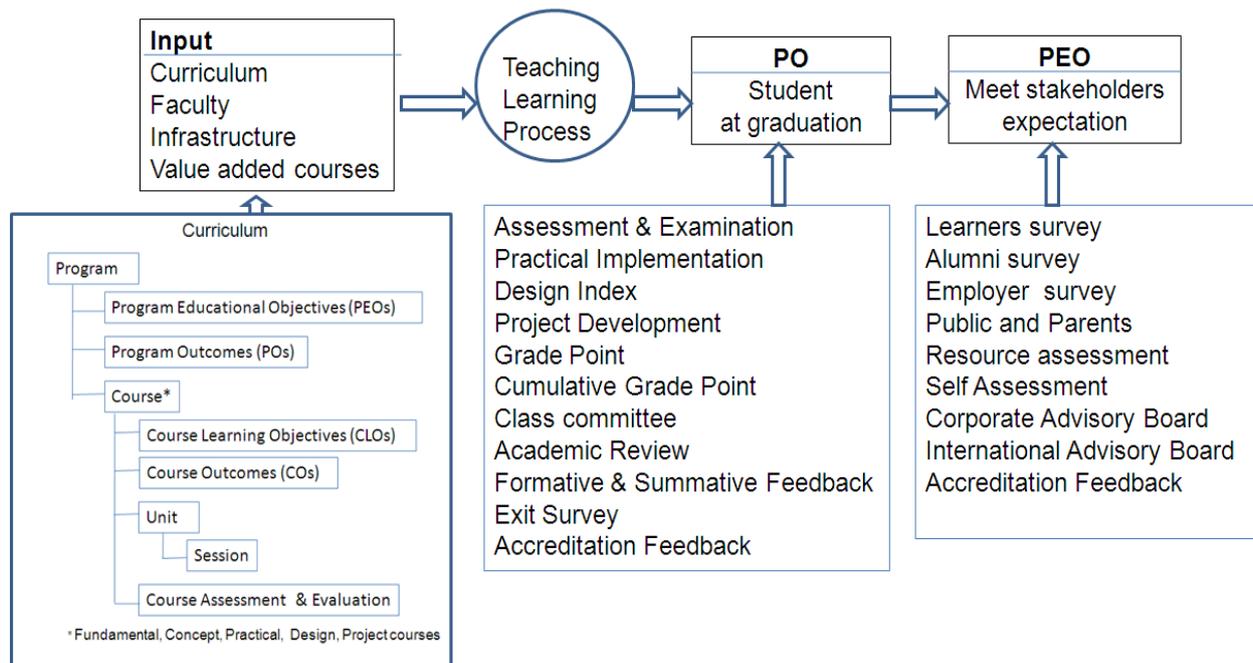


Figure 3. Outcome Based Education Model

PEO describe the career and professional accomplishment and the achievement of PEO is analyzed by various components such as employer, alumni, advisory boards etc. PO directly focuses on the learners' abilities at the end of graduation. The PO can be developed and achieved by learners only through comprehensive curriculum design and proper teaching learning process and institutional strategies.

The Course Learning Objectives (CLO) and Course Outcomes (CO) are domain specific development on particular course, further mapped with learning activities and learning theories. OBE helps in mapping institution mission, objectives, outcomes of program and course and identify effectiveness of course outcome as shown in Figure 4. In a nutshell, it suggests the revision and shift in

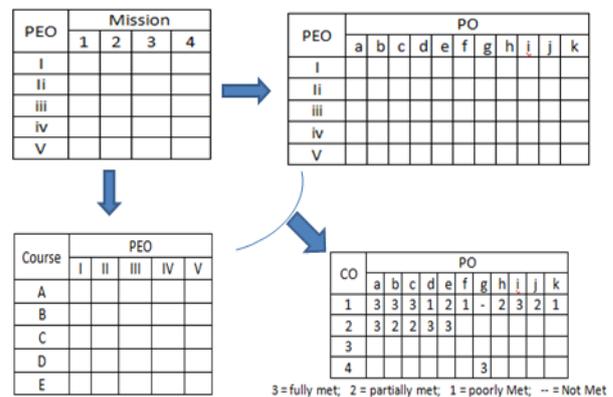


Figure 4. Mapping of objectives and outcomes

- Curriculum design & Course content (learners ability, motivation, resources, assessment through a well defined instructional planning)
- Enhanced Teaching Learning Process (approach insists Activity based learning, conduct of seminars, interaction with industries, design projects and good infrastructure etc.)
- Assessment tools for PEO and PO (Survey from stakeholders, Faculty performance index, Accreditation report, Grade points, review reports etc)
- Continuous quality improvement (CQI) to attain better quality

III. ACTIVE LEARNING

The choice based curriculum and OBE focus on excellence in higher education through innovation. The paradigm shift in learning approach expects innovative pedagogic design to radically transform and nurture the cultures of learning (Lizzie 2017). The active participation of learners in learning task is the process of discovery learning as shown in Figure 5. There are number of learning strategies like co-operative learning, problem faced learning and experiential learning to encourage learners to actively construct and use their own experiences for learning. To achieve higher order thinking skill, each active learning method is mapped with pedagogic techniques, blooms intelligence level with required learning outcome (Maher, 2004). The detailed session plan is further mapped with course and program requirements as shown in Figure 6.

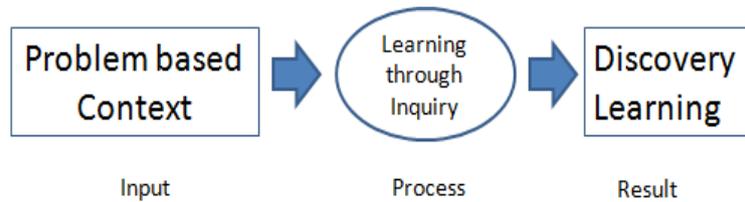


Figure 5. Focus of Active Learning

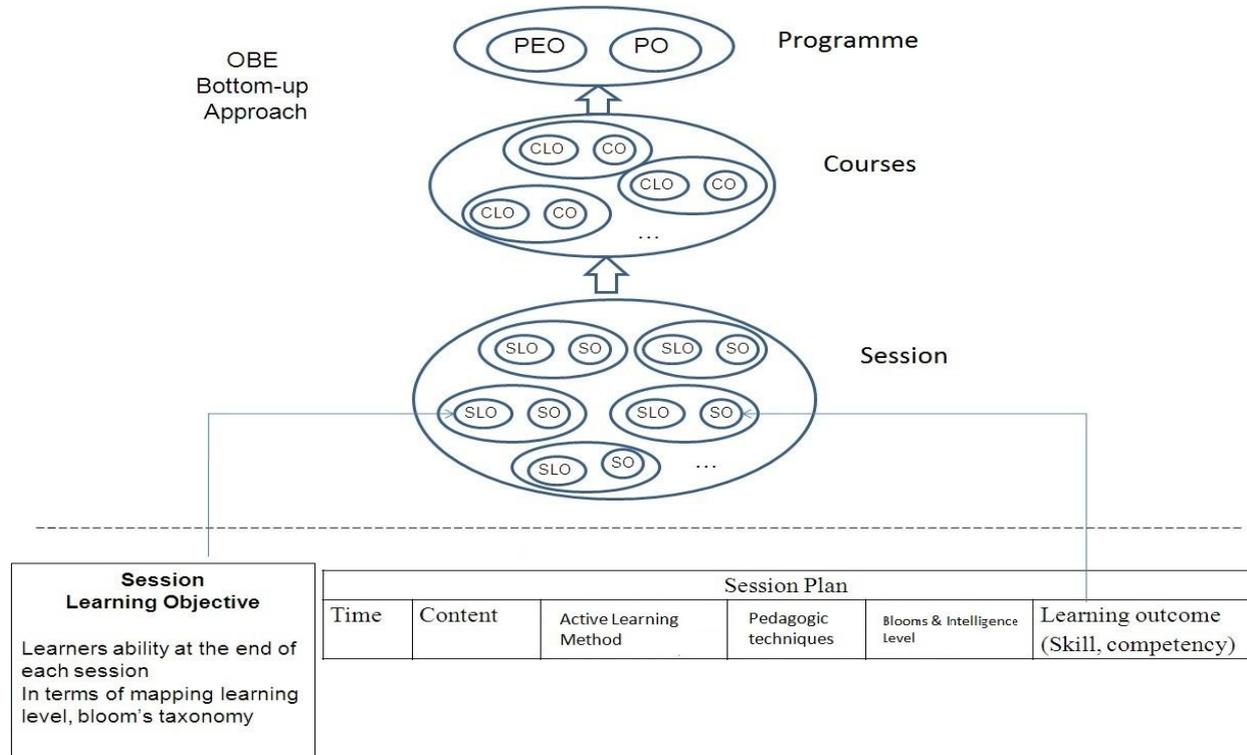


Figure 6. Mapping OBE and Active Learning

IV. ROLE OF FACULTY MEMBERS

The core TLP is executed by faculty members and they are preparing the learners for the world of future (Brawner et al 2002). They act as multi-faceted personality and assume enormous responsibility as shown in Figure 7. Therefore, it is necessary to empower the faculty members with ALM and OBE requirements, (Bagiati et al 2013). This will help them to meticulously prepare and execute the detailed course plan to achieve the desired outcome.

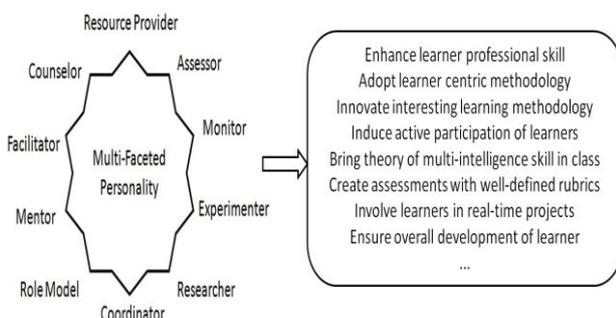


Figure 7. Responsibilities of Teaching Faculty

V. FACULTY DEVELOPMENT ON ALM

The institutions offer many faculty developments on latest technology, advancements in courses and instructional

development in specific duration (Steinert et al 2006). However, the feedback on innovations and instructional strategies applied in classroom are not assessed. The proposed ALM is unique; a semester long training, provides more opportunities on comprehensive development of essential competencies and assesses the effectiveness of classroom implementation as shown in Figure 8. The training modules provide self-paced learning through a flipped learning approach (Kehoe et al, 2018), which enable the faculty members to come up with their own learning plan. The training module comprises articulation of instructional design principles such as learning objectives, learning style, learning taxonomy, learning techniques, respond to difficult classroom situations, implementation of appropriate evaluation strategies, formative and summative assessment, achieve higher order learning, and measuring the learning outcomes (Perkan et al, 2014).

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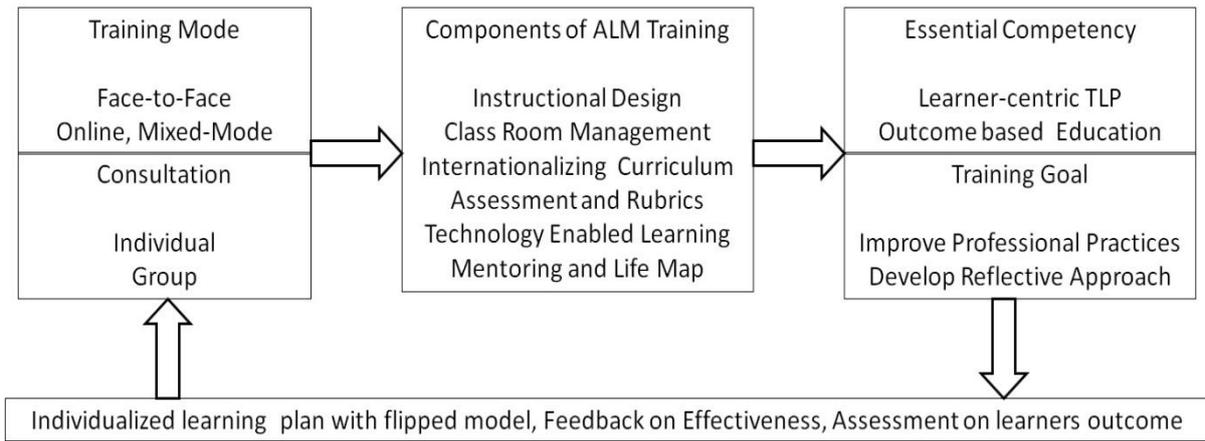


Figure 8. ALM Training Model

The training covers how to apply constructivism and indirect instruction to achieve higher order learning skill (Pitsoe et al 2012). Some of the learning methodologies to apply constructivism and practiced during training session are: brainstorming, case study discussion, demonstration, game and role-play.

The training component is modularized and aligned with assessment of post-training classroom implementation. ALM suggests that each session conducted by faculty should be planned methodically and delivered using a structured and uniform. The faculty members are encouraged to participate in face-to-face and online forums to discuss pros and cons of implementing learning activities (Sorcinelli et al 2006). The outcomes are measured to know how best the faculty acquires, practice the active pedagogy in class room through continuous assessment as shown in Figure 9 (Sekhar et al, 2008). The critical thinking and innovation of the individual participants is kindled during the programme. The flipped training helps the faculty members to practice on outcome based ALM and implement learner centric approach on the fly.

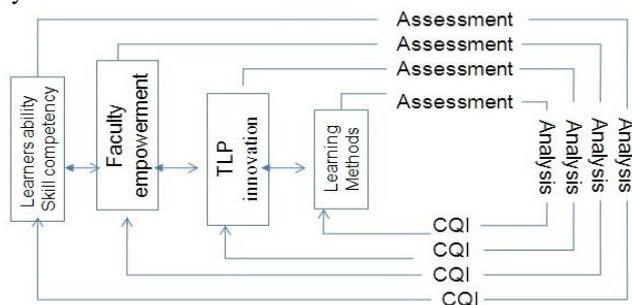


Figure 9. Measuring the effectiveness of ALM training

The ALM training helped the faculty to create effective learning environments that involves intellectual maturity and autonomous learning. Some of the sample innovations are shown in Figure 10 & 11. The sessions are approached with specific learning objectives, implemented using interactive learning techniques and the outcomes are evaluated using competency based assessment.

The efficiency of ALM training is recorded in Figure 12 for set of faculty members (size = 40) with one full semester and the final outcome is mapped with likert scale. The faculty members were able to integrate appropriate learning tool to

simplify the course complexity and ensure learning at each session.

Forum	Last Post	Threads
FAQ - Frequently Asked Questions Your question has probably already been answered. Look here for some great answers!	Re: Custom Pages... by Hawk301 03-10-2009, 5:08 AM	95
Getting Started The perfect forum for ASP.NET novices. No question too simple! Email List	Multiple databases... by Synthesis242 3 minutes ago	87,885
Installation and Setup All about installing and getting ASP.NET running on your system.	Unable to deploy... by alanksha24 35 minutes ago	5,245
ASP.NET Features Use this forum to discuss ASP.NET AJAX Extensions, Dynamic Data Controls, Silverlight Controls for ASP.NET, ASP.NET Dynamic Language Support, and Search and Diagnostics Application Services.	extending DynamicData... by faccobram 4 hours, 48 minutes ago	323

Figure 10. Web 2.0 in TLP

CROSSWORD

Object Oriented Concepts:

From Top to bottom 1. Data items that are part of objects 2. It separates the implementation and defines only the structure 3. Ability to request the same operation name for a wide variety of data type 4. The value of data which does not vary 5. Mechanism for defining a new object in terms of existing object	From Left to Right a. Data and functions combined together b. This represents instance at a period of time c. The value of data which varies d. Object instance cannot be created e. Procedure or function f. The general structure of object g. An instruction to invoke some action
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Figure 11. Crossword for quick recap

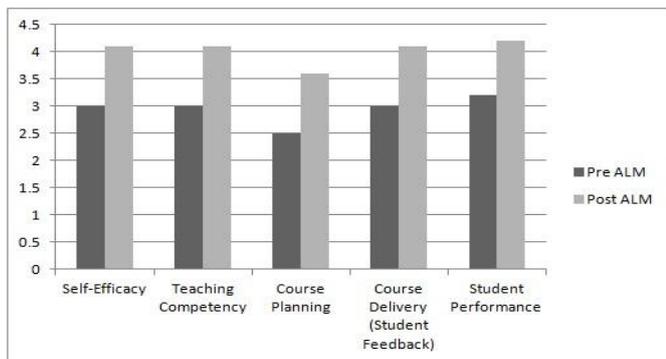


Figure 12. The impact of ALM in TLP

VI. CONCLUSION

The key focus of faculty development on ALM is enhancing learners' ability and proficiency. The faculty members are transformed from simple knowledge disseminator to overall personality. The barriers on applying active learning is removed through the extensive training on instructional design principles, innovations in TLP through flipped platform. The periodical follow-up and assessment of learners' outcome are the key success factors. The Ministry of Human Resource Development (MHRD), India recently launched the Annual Refresher Programme in Teaching (ARPIT) in OBE and domain specific courses. The institutions are recommended to encourage their faculty members to undergo such programs periodically to improve quality of TLP.

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