Pedagogies for Blended TLP

Rajanikanth Aluvalu[1], Uma Maheswari V[2]

[1,2]Department of CSE, Vardhaman College of Engineering, Hyderabad, India
Email: Rajanikanth.aluvalu@gmail.com

Abstract: The higher education system is experiencing quick changes in the curriculum to be taught in line with industry demands to make the graduates' industry ready. Therefore, changing curriculum demands quick adoption by the faculty and newer pedagogies to improve student learning. Various technologies are developed to support Teaching and Learning. Technology started playing a key role in improvising student learning by helping the students to collaborate, share and stay in connect with the facilitator anytime for many where. This introduced the concept of ubiquitous learning. The Blended Learning approach gained a lot of attention in higher education across the world, optimizing the use of face-to-face and online sessions. In this approach, the student plays an active role in TLP and the teacher has to fulfill the role, of course, session designer, facilitator, panelist, etc. This article will present how blended learning pedagogy can be implemented effectively.

Keywords: Active learning, Ubiquitous Learning, Online learning, e-activities, Higher education

1. Introduction:

Higher education system plays important role in preparing skilled man power for the society. Industries, governments, communities are dependent on high education institutions in getting the manpower with required skills.
However the skills required will keep changing with respect to the adoption of newer technologies by industries and global challenges experienced by the community. Higher education institutions will change their curriculum and pedagogies to prepare the graduates for the industry and community. Technological revolution has brought technology into teaching and learning process [1].
Various technologies are developed and are available on cloud for teaching, assessments, discussions and sharing content and projects etc broadly named as e-learning. This has erased the bounds of learning with in the classroom; teaching and learning can happen from anywhere and anytime [2].

Corresponding Author
* Rajanikanth Aluvalu
Department of CSE, Vardhaman College of Engineering, Hyderabad, India
Email: Rajanikanth.aluvalu@gmail.com

This approach is named as ubiquitous learning. Internet, technology and pedagogies that support virtual learning through technology are important for ubiquitous learning. Graduates are able to easily adopt the technology in their learning and their understanding levels improved due to visualization, simulation of concepts. 21st Century Students are technology native, where as faculty are technology migrants.
Making the pedagogies ready with use of technology for the changing curriculum has become challenging for faculty members. Current covid pandemic has brought paradigm shift in teaching and Learning and forced the instructors to teach online [13]. Online teaching and learning has become norm for both graduates and instructors.

1.1 21st Century Learner characteristics:

Learner is technology native and handles multiple multimedia sources and is capable of parallel processing & Multi tasking. He learns from picture, video, sound and text. Networked with other learners around the globe and communicates with social media networks. Comfortable at learning in virtual and real spaces. Shows interest to learn when found learning is relevant, instantly useful and fun. Graduates are looking for flexible learning options [1].

1.2 Types of Digital learning:

Digital learning is done typically using electronic devices. It is further classified. Figure-1 depicts various types of digital learning models.

a) E-learning:
It is learning approach by using desktop computers typically connect through network in LAN. Desktop machines will be loaded with materials, courses and pre installed with few types of software. Learner has to reach to the computer laboratory for learning.

b) Mobile learning(M-learning):
It is a learning approach by using electronic gadgets such as laptop, mobile phone, tablet connected through internet or network. This approach will help students to stay connect with each other as well with the faculty. This approach will help the students' access to education anywhere and anytime, provided they have mobile device connected to network,

Preferably internet.

c) Context aware Ubiquitous learning:

This is newer learning approach by using electronic gadgets such as laptop, mobile phone, tablet connected through internet and takes assistance of sensing technologies. Infact mobile learning approach that uses sensing technology to make learning more meaningful is called as context aware Ubiquitous learning.

Fig -1 Types of E-learning

1.2 Outcome Based Education(OBE):

OBE introduced by William Spady in the year 1990. OBE focuses majorly on what graduate learned in contrary to traditional approach focus on what is taught. Pedagogy, both delivery and assessment planning is driven by learning outcomes. Program or course Learning outcomes defined should be measurable. Attainment of the learning outcomes is measured through conducting assessments [10]. To attain learning Outcomes pedagogy should be student centric with active learning strategies. Figure-2 depicts the OBE approach in higher education institution. OBE majorly focuses on continuous improvement in graduate learning through Learning activities and assessing the learning through various formal in class or continuous assessment. Based on the feedback from the assessments, the learning activities are required to be fine tuned to improve the graduate learning and attain the outcomes at the end of the course[12]. Various technologies are developed to support learning activities and assessments to support OBE. Most technologies support in Technology support to OBE has become an advantage to the facilitator to exchange content delivery and assessment as per the demand. This made blended approach as a useful approach for enhanced student learning with effective time management. With technology support OBE can be offered to graduates in blended mode.

1.2.1 Blooms Taxonomy:

Benjamin Bloom introduced Blooms Taxonomy in the year 1956 as a classification to measure the learning. It is revised in the later years. OBE demands defining learning outcomes for course and program. Learning outcomes should be defined clearly with the level of learning of the concept. The learning levels are defined using blooms taxonomy verbs. As mentioned Learning outcomes are defined to be measurable using blooms taxonomy verbs. Assessment questions are also defined using blooms verbs to assess the learning outcome defined. Blooms taxonomy plays key role in implementing OBE.

1.3 Active Learning:

It is an instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think. Collaborative Learning is part of active learning in which students work together in small groups toward a common goal [4].

Planning learning activities that replace the text content is the key in the success of active learning strategy. Having an idea of technology available and comfortabitlity of graduates in using the technology also to be considered. Active learning will help graduates in learning higher order learning levels.

Facilitator should direct the graduate attention to the problem or issue by making them understand and think why the topic is important. Now facilitator has to conduct learning activities and engage the students in learning [1]. Learning activities can be done both online and offline with the support of technology. An effective activity should include reading, reflecting, writing and Talking or listening to the peer. Figure -3 shows the elements of active learning.

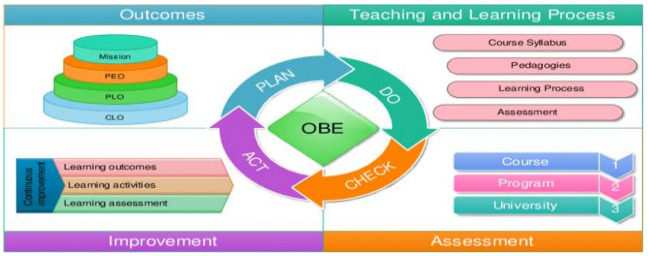

Fig 2 Outcome Based education

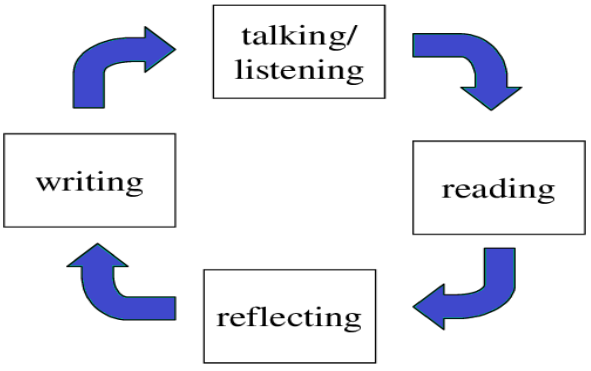

Fig-3: Elements of Active Learning.

2. Blended Learning:

Graham Introduced Blended learning (BL) in the year 2013. It is fusion of offline (face to face) and online Teaching and learning. Taking the advantage of Internet and education technology applications BL is widely adopted in higher education institutions across the globe. This approach will give self phase time to graduates to think, understand and learn the concepts [3][6]. Few refer BL as "new traditional model". Digital technology, Information and Communication technology features will become crucial in planning e-learning activities in BL model.faciitators require sufficient amount of time in designing their sessions for blended learning environment. As it is relatively new approach definite framework is not available for blended learning approach [7][8].

2.1 Pedagogy for Blended Learning:

Session planning is the key for adopting BL. Facilitator should thoroughly evaluate and classify the learnings for online and offline mode based on session outcomes, pre-requisite knowledge and technology support. Graduates should be well informed about the learning approach. Once session planning is done facilitator has to spend time in planning learning activities for BL.Feedback should be collected from the graduates on learning activities and their comfort.

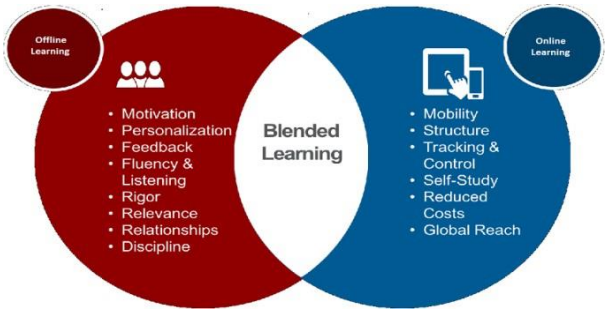

Figure -3: Blended Learning Model.

This feedback can be used for refining future activities [9].

2.1.1 Digital Blooms taxonomy:

Blooms taxonomy plays an important role in OBE. However in blended learning model facilitator has to ensure OBE through Active learning. Care should be taken by the facilitator for both offline and online session on learning activities about their feasibility and effectiveness in online and offline mode. Figure- 4 depicts digital blooms taxonomy. Use of technology is mandatory in digital blooms. Technology tools are mapped to learning levels. Digital blooms taxonomy helps the facilitators in choosing the right technology as per the learning outcomes in blended learning model. Table-1 Shows representation of learning activities with technology tools mapped to blooms learning levels.

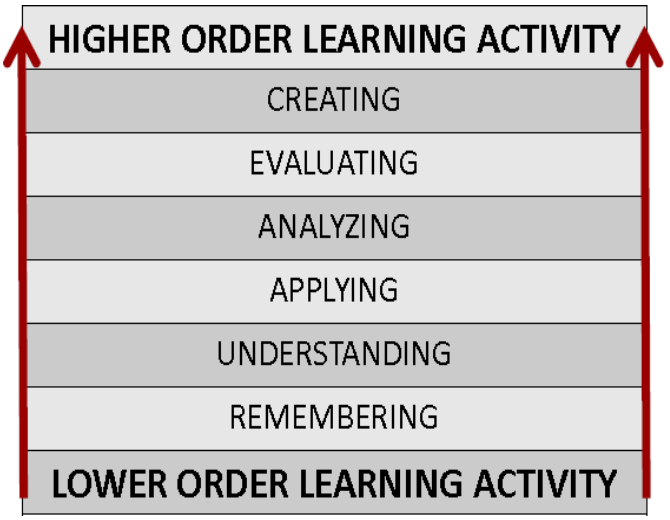

Figure-4: Digital Blooms taxonomy

Learning Level	Activity
Remembering	Technology tool: Labeled Image Learning Activity: Listening and Identifying parts
Understanding	Technology Tool- Video Learning Activity- Explaining Content, summarizing
Applying	Technology Tool- Excel Learning Activity- calculation and representation
Analyzing	Technology Tool- PhET Simulation games Learning Activity- Finding and integrating
Evaluating	Technology Tool- Ms-word Learning Activity- Reviewing
Creating	Technology Tool- Wiki Learning Activity- Portfolio Creation

Table -1 Learning Activities in Digital Blooms Taxonomy

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Conclusion

This article explored the need and benefits of blended learning from both graduate and facilitator perspective. Various aspects to be taken into consideration for blended learning approach are discussed. Facilitators require training on technology tools, planning learning activities and difference in engaging graduates in offline mode and online to conduct their course in blended learning approach. Graduates are able to learn in their own time in blended approach. Technology support is tremendous to conduct blended learning. Effective implementation of blended learning will give impressive results in achieving the
learning outcomes. learning approach. Graduates are able to learn in their own time in blended approach. Technology support is tremendous to conduct blended learning. Effective implementation of blended learning will give impressive results in achieving the learning outcomes.

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