ORIGINAL ARTICLE

TECHNOLOGY ENHANCED LEARNING IN HIGHER EDUCATION-STATUS AND STRATEGIES

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ABSTRACT

Over past decades, higher education Institutions in India has been engaged in reforms that focus on quality education to accomplish high standards among learners. The essential skills needed for 21st century learners for long-term success are the experiences that enhance them to collaborate, communicate and be open to various perspectives. There is a visible change in the learning methodologies adopted by the students. Technology enhanced learning has come in a big way in building the knowledge and its availability to the learners. The need for change in the role of teacher in higher education is assuming significance. This paper presents the status and strategies related to the teaching and learning in higher education with the large scale intrusion of technology enhanced learning tools.

INTRODUCTION

Going by the well known quote '*Change is the law of life. And those who look only to the past or present are certain to miss the future-John F Kennedy*' (Address in the Assembly Hall at the Paulskirche in Frankfurt, June 26 1963), it is very much necessary to adopt the new methods / practices in any system and more so in 'Teaching and Learning (TL)' commonly termed as 'Education', that is relevant to the current and future generations requirements. The teaching and learning are the two in-separable processes i.e. '*Teaching supports the internal process of learning*' (or) '*Teaching is the cause and Learning is the effect*'.   The deep passion in imparting knowledge and the self motivation of the learner are the pre-requisites of the

teaching and learning respectively. The ancient education system was composed of several schools of thought with a common aim of realizing the existence of supreme and the learners of such concept came out as citizen of 'God fearing' which helped in bringing an order in the society. Also the people have adopted traditional works in leading their lives. Over the years the level of education became the prerequisite for getting in to the various professions/jobs. However in the present era of industrialization / digitalization environment the demonstrable learning skills are playing a key role for getting in to the jobs. Now-a-days the teaching and learning has become more of dynamic process.

The Higher Education (HE) contributes in the well-being of the people by contributing in host of manner, e.g., self-sufficiency in manpower requirements, economic growth; poverty and inequality reduction; political development, social harmony, etc. The demand for higher education is increasing day by day. Further the introduction of technology as a new tool in the process of learning, the teachers face new changes in teaching methodologies. Through this paper an attempt is made to explore and gather the basic and related information from the point of technologies and strategies required about 'Teaching and Learning' particularly in 'Higher Education (HE)'.

CURRENT STATUS OF HIGHER EDUCATION

Over the years the higher education is being experimented with technological advances from the use of blackboard to the personal computer. Some technologies have become the integral parts of the higher education and some have been replaced by more sophisticated or more cost-effective technologies (Clark and Mayer, 2007). The demand for HE can be expected to enhance in light of the fact that present value of gross enrolment ratio in higher education is 25% which is required to increase to 40% to ensure sustainable economic growth. The massification of education and increased unemployment has challenged the idea of research-university or knowledge generation by universities. However, the large number of stakeholders involved in HE, also is accompanied by rural-urban and rich-poor inequalities. Similarly, diversity vis a vis discrimination too need be kept in mind while framing policies on delivering HE. At the same time the fact that, wide variety of students belonging to various social, economic, linguistic, gender and physical ability backgrounds be considered. Further, the problem of imparting quality education overcoming prevailing inequalities is

accompanied by less number of high quality institutions and low employability of the passing out graduates who undergone present TL process. Further, shortage of experienced and competent teachers makes the issue complex. Additionally, declining public budgets, increasing HE costs, are also troubling issues.

The learner's expectations have evolved during the last decade about different ways of learning (Hwang, 2014). Traditional teaching methodologies based on static presentations in the class room are being considered as obsolete or not being effective (Lai, 2008).

Information and Communication Technologies (ICT) have been introduced to enhance the way the method of teaching. Utilizing ICT in education, or in other words Technology Enhanced Learning (TEL), can facilitate the learners in building the knowledge. Online / interactive learning is constantly promoting new methodologies for learning by using the technology as a main tool for this type of development. Onsite teaching helps in maintaining the interest of the learner by applying active learning or by moving to blended learning and using the technology.

The introduction of technology enhanced learning calls for change in traditional teaching methodologies adopted by the teachers or practitioners. Technology is evolving incredibly fast, new trends are appearing and, also, the expectations of all concerned. Technology is helping to develop new teaching methodologies but technology is not the only resource to foster students' knowledge. There is a need to focuses on disseminating learning experiences and critical studies enhanced by technology and not compelled by the use of technology.

At the dawn of the twenty-first century, newly evolving technologies are in the process of transforming higher education (Hwang, 2014). There was an increased use in college classrooms of technology-dependent resources such as e-mail, the Internet, course web pages, and computer simulations. Technology has the potential to improvise the traditional teaching and learning process. It can eliminate the barriers to education imposed by space and time and rapidly expand access to lifelong learning. The learners no longer have to meet in the same place at the same time to learn together from an instructor. Fundamentally, modern technologies have the ability to change the conception of a higher education institution. No longer is a higher education institution necessarily a physical place with classrooms and residence halls where students come to pursue an advanced education. More than 70% of the stakeholders believe that there is a positive impact of Digital Technologies in Education. An

equal percentage of stakeholders are of the perception that the use of Digital Technologies in Education has made job easier.

The info-graphic by Open Colleges covers some of the key advancements in the 21st century classroom (Lai, 2008). It has covered the topics such as project based learning, online courses, games, data analytics, social networks, and technology use in the classroom. The top three reasons that were indicated for teachers to use the technology in the class room are: 1) Help in adapting to the diverse learning styles 2) Boost the student motivation and 3) Enhance the material being taught. The project based learning (PBL) is assuming significance in real world education because it not only teaches the concepts but also help in organisation, articulation, project management and collaboration. The PBL integrating the life skills in to education can improve student engagement and retention and prepare them for 21st century careers (https://www.infographicsarchive.com/). Following are some of the facts revealed in the info-graphic by Open Colleges.

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(i) Almost a third of all college students take at least one online course.

(ii) Online enrollments saw 21% growth while overall higher education student population only saw 2% growth.

(iii) Over 65% of educational institutes count online learning as critical for long term educational success.

(iv) In the next decade open source textbooks are expected to grow to 25% of the textbook market.

(v) 6 in 10 students have used digital textbooks and E-textbooks comprise 11% of textbook revenue.

(vi) Gamification i.e use of games raised average test scores.

(vii) More than 60% of colleges cited wireless upgrades as their tech priority in the next five years.

(viii)   Engaging students with a free tool they already use can help them learn in new ways, gain focus and increase participation.

(ix) 4 in 10 students believe integrating social networks in to the classroom would benefit their education.

(x) 65% of students would like to use their own mobile devices to enhance learning.

Outcome based blended learning is the effective strategy in teaching and learning process in reorganization of Institution teaching process. The basic tools that support outcome based learning for any higher education institute include getting accreditation, role of program during accreditation, practicing through cooperative learning, think-pair-share methodology, group based and theme-based learning (Major, 2015, Moore, Dickson-Deane & Galyen, 2011). The outcome based blended teaching and learning will provide make graduates in India globally competent. Considering the aspects narrated above, there should be no doubt that one must seek the solution from the available technologies and those that will be at our disposal in future. Already, indigenous platforms such as NPTEL, SWAYAM have started proving their usefulness and importance. International platforms, e.g., EDX, MITOCW etc. can be useful if one is looking for more specific courses. The advantage of such platforms is that the student not only learns the subjects but also formally register for certification. Only, the universities now need to accept the credits earned from these e-classes towards awarding degrees. Such e-classes make TL anytime and anywhere freeing students from confining classes. It also enables both student and teacher to interact with ease and convenience without needing to meet personally.

Realization of educational objectives of the 'information age' requires integrating modern forms of Information and Communication Technologies (ICT) into education (Garrison and Anderson, 2003). For an effective achievement of this, education planners, principals, teachers, and technology specialists must make many decisions in the areas of technical, training, financial, pedagogical and infrastructure requirements (Shurville, Browne & Whitaker, 2009; Trigwell, 2013). For many, this is a complex task similar to not just learning a new language, but learning how to teach in a new language. ICT-supported learning provides learners the opportunity to work with people from different cultures, thereby helping to enhance learners' teaming and communicative skills as well as their overall awareness. It helps in the lifelong learning by expanding the learning space to include not just peers but also mentors and experts from various fields.

PROPOSED STRATEGIES

The review of status of the 'Teaching and Learning' has indicated the following contextual changes in education in general and in higher education in particular.

CONTEXUTUAL CHANGES

    (i) Technology has matured and is becoming more easy to use. Further the internet is widespread and computers are in everyone's hands.

    (ii) There is a widespread acceptance from the society about the use of technology for everything/anything'.

    (iii) It's possible to do higher education online, with the availability of MOOCs and facility of obtaining online degrees.

    (iv) The open universities across the world have trained countless academic and support staff

    (v) Internationalisation of higher education

These contextual changes reinforces the need to have 'Student - centered learning' in HE. The proposed strategies shall include the following.

The programs of HE shall be 1) According to the demand globally 2) based on learners response i.e self-paced 3) flexibility in place of learning 4) Relevant to life and career now & in future global and local 5) Personalized to learning place, style, speed affordable 6) High added quality 7) Made available in a wide range of subjects 8) Suitable for teaching multi-age class and 9) Designed based on the overall recommendations and broad understanding arrived at by a Core Committee set up by MHRD, to identify the broad parameters for ranking various universities and institutions (The National Institutional Ranking Framework (NIRF)).

IMPLEMENTATION PLAN

The following aspects may be taken in to consideration while framing the implementation plan.

1. Openness in learning through flexible, inclusive structures and methods that take higher education to students when and where they need it.

2. Networking and bringing mobility in education that helps students learn across national, sectoral and institutional boundaries.

3. Enhancing faculty and supporting staff quality in the framework of systemic change.

To strengthen the support provided for learners to develop their career-readiness, the institution should consider the following 'Implementation plan'.

1. Improve program-level coherence with integration of global quality curriculum. Program-curriculum design can be strengthened by enhancing learner's cohort identity and structured skills development.

2. An integrated approach can be adopted for learner's job enhancement in all programs by connecting curricular, co-curricular and extra-curricular activities.

3. Credit bearing subjects such as embed work experience, study abroad or experience can be introduced in all programs to graduate learners.

4. The training of faculties in futuristic requirements of the society should be introduced to enhance teaching skills. Within all programs and co-curriculum, more opportunities for multi/interdisciplinary research and support with scholarship can be established.

5. Engaging students in research addressing to real life local and global challenges could motivate leaner's about .research passion and career-readiness.

6. Blended online learning could be ensured in all the courses by increasing the use digital technologies that support active and research-oriented learning.

7. Digital learning tools and web services should be made available to all leaner's to enhance learning and respond to emerging job opportunities.

8. Clear institutional framework about teaching quality, excellence standards, career pathways, reward and recognition should be developed and implemented in higher educational Institutions.

9. Staff development grants and professional development opportunities can be established to increase the confidence and expertise of faculty in blended and online teaching approaches.

10. Enhanced reward/recognition can be provided for the staff to strengthen their career path and recognition for teaching.

11. With the help of digital technologies the learner's identity in belonging to learning communities can be strengthened.

12. The learners can also be engaged as peer support in teaching, learning and research governance/enhancement and in curriculum review.

13. At National and regional levels, the policies and processes (including legislation, regulation, funding, quality assurance, IT infrastructures, pedagogical support for

teachers) should be re-oriented to support and promote innovation in pedagogies and a greater use of technology.

14. A change of vision in higher education should be expressed through national strategies.

15. Encourage massive use of MOOC.

16. Implementation of Flipped class room

17. Encourage Learning by doing.

18. Teaching-Learning process shall be made more 'student- centeredness'.

19. Teachers shall be equipped with emerging technology and trained to teach the futuristic requirements.

20. Empower the student learning ability so that he/she can adapt to any changing situation.

CONCLUSION

The rapid developments in the technologies excite the imagination of practitioners and decision makers and assist them in planning for the future, not only on the basis of what is available but also what is coming. In the consumerization of education the Teacher role is changing from '**Teacher to Mentor**' in HEI. Furthermore, the need of defining, gaining more visibility, propagating equality, motivating new target groups, setting accreditation and ranking (viz. QS, NIRF), appealing study programs linked with better marketing must be shed to initiate the link between employability and academic quality, visibility of multifunctional skills and to impart high quality education to non-traditional students. Shaping the knowledge society, living internationality, integrating sustainability, quality, research, competitiveness and generating employability should be the characteristic trends in higher education.

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