E-LEARNING IN HIGHER EDUCATION : ISSUES, CHALLENGES, BENEFITS, FUTURE

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ABSTRACT

This article attempts to present the recent trends in the pedagogy, that the managements of higher education have begun to adapt. Of late, more and more Institutions have started making their courseware and resources available online. The next step in this direction for the institutions would be to provide evaluation structure to all its students, and provide this facility early in their educational period. This article will look into Higher Education Institutions, with emphasis on Indian Institutions, especially at the Under Graduate and Post Graduate levels adopting the use of e-learning in their institutions.

INTRODUCTION

In April 2001, MIT (Massachusetts Institute of Technology) posted the content of some 2,000 classes on the Web, it hoped the program - called *OpenCourseWare* - would spur a worldwide movement among educators to share knowledge and improve teaching methods. No institution of higher learning had ever proposed anything as revolutionary, or challenging. MIT made everything, from video lectures and class notes to tests and course outlines, available to anybody with Internet Access.

VTU (Visvesvaraya Technological University), formally launched its e-learning website in India on 8th January 2005. It had already dry run its sessions in 2004 before this. In the initiative, VTU Centre made video-based lecture and e-learning courseware of 120 sessions available free on the website. The courseware included materials such as lecture notes, course outlines, reading lists and assignments/quizzes including industry-related courseware[1].

On the other hand, as early as 1998, NIIT National Institute for Information Technology (India) adopted the NetVarsity model, where it provided the student Learning Units to understand the concepts of the lessons, in their curricula. But this initiative was based on a revenue model and not offered for free[2].

At a time, when most enterprises are racing to profit from the Internet and the "knowledge-economy"; and universities are advertising every possible variant of (distance) learning, the institutions of technology and science education make it away free? This article aims not to evaluate the pros and cons of free e-learning initiatives, but it takes the reader through the Issues, Challenges, Benefits and the Future of e-learning.

The first section of this article, looks into e-learning as the new alternative for the higher education sector and also as a 'teacher-less' delivery mode. The education front, with its global markets, is fast changing its scenario to provide training and higher education to the executive-student community in particular.

The second section highlights the e-learning initiatives taken in India, in those areas where infrastructure is poor to almost nil. In certain areas despite the opportunities, champions are needed to take the cause further to attain fruitful conclusions. It also highlights how Institutions of

higher education around the world, and especially some in India have gradually taken to the path of e-learning. This seems to be more pronounced in distance learning.

The third section examines the challenges that e-learning could pose while implementing. It attempts to evaluate the significant assumptions that are made while adopting and advancing e-learning agenda. A promising point in the agenda is the borderless delivery of education and training services between developed-developing and developing-developing countries.

The fourth and final section addresses the future of e-learning and e-training. To a certain extent this section tries to make some recommendations that might become essential for developing nations to adopt for potential benefits.

Section I

1.1 Issues

In any society, the imparters of education have a higher moral responsibility to positively influence the student generation. Such being the case, the educators must willingly embrace new teaching and learning opportunities. Educators are beginning to realize that to teach future leaders and citizens they need to be technologically better equipped themselves.

In India alone[3] there are about 88,800 educational institutions with an enrolment of about 179 millions. Elementary Education System in India is the second largest in the World, enrolled with 149.4 million children of 6-14 years and 2.9 million teachers. This is about 82% of the children in that age group. This increased enrollment leads one to comprehend the extent of students opting for higher education[4].

The demand for higher education is growing annually, globally. It is not uncommon in India, where institutions of higher education receive applications more than three times against the number of seats it offers. According to the paper, *New Developments in Technology Enabled Education* presented by Professor Singaperumal[5] these points were put forth,

- A clear and documented need for 4,50,000 seats; the demand is increasing exponentially
- To maintain the current levels of admissions a new major university is needed every week in India alone to meet the demand
- Thus online education is emerging on a massive scale and as an important market to offer business opportunity to some institutions, which are opting for an education business model out of it.

Complementing to this would be what President of Stanford University in 1994 stressed, that the following factors would be requirements for the 21st century higher education:

- technology must be used to attract, retain and engage the brightest and most diverse student community;
- technology must be used to assure that these students have the finest possible learning experience; and
- technology must be used to forge new world wide partnerships with industry, government and educational institutions;

With these thoughts in mind, and the immense opportunity in terms of potential students in the higher education, the scene has to change rapidly to shift the paradigm.

1.2 The Need

Putting it simply, e-learning is the learning experience that is delivered or enabled by electronic technology. The delivery of learning or content can be through the intranets, extranets or over the Internet, via CD-ROM, interactive TV, or satellite broadcast.

In terms of structure, student numbers have been exploding on university campuses. The universities have been reluctant to change their programs, both in content and delivery. They are facing challenges from alternative providers of education and training, with more focus on employability; the university professors represent a breed of career academics who are quite isolated and insulated from the changes in the real world around them; distance learning is considered as a second best mode of education, even though universities are pressed to explain the superiority of the traditional classroom processes in effecting knowledge transfer. The universities are hardly concerned about their customers or stakeholders and are what they want. The employers - the users of university's products continue to complain that the graduates even from professional colleges require considerable training before they become ready to be productive to the company[3].

Although not a legally binding contract, on 19th July 2005, the AICTE (All India Council for Technical Education) and NASSCOM (NATIONAL ASSOCIATION OF SOFTWARE AND SERVICES COMPANIES) inked a MOU[6]. According to the MOU, AICTE will serve as a link between Industry and Education for ensuring relevant and quality learning. This was to strengthen the Indian Technical Education through curricula, faculty, infrastructure, pedagogical improvements in line with the industry's (especially IT) requirements of relevant skill-sets in various disciplines at different levels (graduate, post-graduate, doctoral). To accomplish this how will the means justify the end?

Once touted as the most innovative application of the Internet, e-learning, has made strides globally, and is now slowly catching up in India also[7].

Section II

2.1 Indian initiatives

Below, the author puts together some initiatives taken by the Indian Institutions towards e-learning. Some of them follow a business model, while some are offering it for free, while still some others have their e-learning initiatives on an experimental basis.

- In an ambitious agreement signed in July, 2005, between the US and India, six leading American Universities representing the US, ISRO (Indian Space Research Organization) and DST (Department of Science and Technology) along with Amrita Vishwa Vidyapeetham representing India, would participate in a project designed to enhance higher education and research in India through a satellite e-learning network. The beneficiary institutions are IITs, NITs, IIIT, BIT Ranchi, and a few other prestigious Institutions across the country.
- Birla Institute of Technology and Science (BITS) offers i2L - internet based interactive Learning for students to learn at their own pace. It offers a hybrid (blended) model of e-learning[8]. This is complemented by a facility that is meant for *IP-based Live Interactive Lecture Sessions, Meetings and On-demand facilities* provided by *BITS-Pilani* to its students registered in various Distance Learning Programmes.
- On August 17, 2005 the NASSCOM President Mr. Kiran Karnik formally launched a new e-learning initiative, IC3 (Internet and Computing Core Certification) course on Reliance WebWorld platform. WebWorld, in association with India Cyber Learning, will offer the globally acclaimed course across its 240 stores in 104 Indian cities. IC3 is the first globally validated, standards-based training and certification programme for measuring computing and Internet skills. The students of this course have the knowledge and the skills required for basic use of computer, hardware, software, networks and the Internet. More than 47,000 IC3 exams are administered each month through more than 9000

certified testing centres worldwide in 114 countries and 18 languages[9]. Like the NetVarsity, this is based on a business model.

? INFLIBNET (Information & Library Network) Centre is an autonomous Inter-University Centre of the University Grants Commission. It is the co-ordinating and monitoring agency in the UGC-Infonet Project. It liaises between UGC (University Grants Commission), ERNET (Education and Research network) and universities. INFLIBNET is also responsible for providing training to university library professionals on the use of this network for providing variety of services to the users. INFLIBNET facilitates linkage between ERNET and the Universities. In the long run, each University would ideally become a hub for the colleges affiliated to it.[10]

? WebIIT (Web Based Intelligent Interactive Tutor) is a website-based curriculum that offers online engineering courses, sponsored by DIT (Department of Information Technology), Ministry of Communications and Information Technology, Government of India. The courses are designed to be interactive and user friendly. The web - based courses are aimed to supplement class room teaching where the users will be able to learn at their own pace and level of understanding. Four engineering courses are currently under development: Data Structure, Engineering Mechanics, Bridge Engineering and Structural Analysis[11].

? In the case of Narsee Monjee Institute of Management Sciences (NMIMS), students of the programs offered by their DAML (Department of Alternate Modes of Learning) will be required to go to a convenient DirecWay classroom (a third party service provider - Hughes Escorts Communications Ltd , which at present has 35 classroomsites) and sit for lectures there. NMIMS faculty will go to a DWGE (DiRECWAY Global Education) studio in Mumbai and deliver lectures in front of cameras and other high tech audio-video equipment. These lectures will get beamed via satellites instantaneously to all the classrooms. Participants will be able to see the faculty, hear the faculty and interact with the faculty just as they do in class. [12]

? SCDL (Symbiosis Center for Distance Learning), Pune, is one among the first to adapt to this new paradigm of e-learning[13]. Manipal Academy of Higher Education - MAHE (www.manipal.edu) and XLRI (Xavier Labour Relations Institutes), Jamshedpur (www.xlri.edu) have also made huge strides in offering entire courses online.

Though e-learning can't exactly replace actual classroom learning, it places certain effective tools on the teacher's hands. Multi-media rich contents and interactivity make presentations more effective.

Enabling contents online also allows students to log on at a time conducive for them and they need not worry about missing important sections of a lecture.

Another important benefit of e-learning is sharing teaching expertise among institutions.

At a time when educational institutions are exploding with no corresponding increase in the number of experts available, e-learning tools can play an effective role in bridging the knowledge gap.

Enabling a teacher to deliver his lecture either from a studio or from a classroom and broadcasting the content through satellite link or online would benefit institutions located in remote areas.

Section III

3.1 Challenges

To evolve straight from the traditional classroom learning and teaching into a transplanted virtual e-learning model would be a blunder to make. Students learning from the virtual environments may dropout due to the easy learning

pace. Unless a proper motivation is provided, e-learning course interspersed with interactive sessions would greatly sustain the student commitment. The IDL initiative of IIM (Indian Institute of Management) Kozhikode, India, is a step towards this.

Some of the challenges that e-learning initiatives from the Institutions of Higher Education Management could be facing are,

- For those Institutions offering a pure online e-learning course, awarding a recognized degree for students might become imperative. Most students and their prospective employers are happy only when a certifying endorsement is given.
- A fall out of the above could be mushrooming of a number of Online Institutions offering courses with spurious certificates, which may not have any value.
- Since the e-learning method is self-paced and self-learnt, the attention span of the student may not be enough for her to learn a concept. A lot of self-motivation and self-discipline is the key to successfully complete an e-learning course. This is where the hybrid / blended learning strategy might keep student on his/her toes.
- Generally the duration of the course also matters in this mode of lesson delivery. The longer the course, the more number of drop outs the Online Institution might have. Considering that borderless education model is one of the prime tenets of e-learning, bringing the drop outs back to the course might prove to be a difficult task.
- Measuring the level of success and the Return on Investment would be difficult. But many corporate houses show promising preliminary results where e-training has offered the flexibility, convenience and cost-effectiveness.
- Last but not the least is the Legal implications of e-learning. Making the course content, lecture sessions and the lecture notes available for free, - will it give rise to plagiarism? How could the Intellectual Property Rights of the teachers and facilitators be protected?[14] What are the guidelines within the legal framework available for dealing with such aspects of e-learning ?. It should not be forgotten that e-learning over internet is across geographical borders. This makes it all the more, tougher for the enforcing authorities to have a global legal framework to the net , the offender.

On the other hand, if India has to take off successfully into the knowledge era, it cannot ignore the 70% of its population that is in rural areas, in this e-learning revolution. One must remember that rural India does not have adequate electricity, water supply, or even a sustainable means of income, so how does one get exposure to technology? The first step here is , not through the traditional means of "brick-mortar" school mode, but via e-Learning. And this need not be an impossible dream to scale. The Indian e-Learning industry is estimated to grow upto $182-billion space by 2009 [15].

One of the assumptions made by such initiatives is assuming that, by giving rural areas, the access to ICT networks, would translate into a sustainable 'literacy drive. To presume so would be short-sightedness. A long-term sustainable policy and establishing Communities of Learning (COLs) with learning focused on communities, facilitated by a person in authority would amply sustain the verve.[16]

The Government of India, Corporate Houses and a number of NGOs (Non-governmental Organizations) have started many social development projects like *Akshaya*, *Aqua Choupal*, *Gramin Gnan Kendra* (village knowledge) for profit realization, cut transaction costs, supply of high

quality farm inputs and outputs etc. This forms part of e-learning for the farming sector.

The 'digital divide' as it relates to education, is not so much about hardware or money but about 'attitude' to learn that will ultimately bring about relevant and global 'cultural changes' in both education and society associated with the ICT revolution. An Anonymous said *'If a society cannot help the many who are poor, it cannot save the few who are rich.'*

Section IV

4.1 Future

However, there is still a lot more to be done. The above projects might make a fascinating read, but the rural reality speaks a different language. There is a considerable disparity between rural and urban literacy percentage. Compared to an almost 80% literacy rate of urban India, in rural areas it only 56%. Bringing them into the fold of e-Learning will be a huge task. Further, the average teacher:student ratio at primary level is 1:58 in rural regions. The current e-Learning initiatives are at a very, very slow pace narrowing this gap, yet a lot has to be done. Improvement of connectivity is another area of concern. With a PC density of 4.94 per 1,000 people and a tele-density of 32 fixed lines per 1,000 people, India needs to increase penetration in terms of PCs and communication lines for any e-Learning project to be successful. The high cost of ownership, which proves to be a barrier, needs to be lowered [17].

Even though the cost of hardware in India is coming down, it is significantly higher as compared to the rest of the world. Which are other areas of concern[17].

For instance, a PC in India costs around 24 months of average per-capita income as compared to China's 4 months and USA's 12 days. Local contents, adequate funds for better rolling out of the projects, and affordable software technology are other areas of concern[17].

Following steps could help in arresting the above problems:

- Connectivity options to the rural areas can be improved by using wireless access. In addition, cyber-cafes and village information kiosks would enhance the reach of IT [18].
- The Service Providers, including the Government of India needs to reduce the tariff levels. As the field becomes more and more competitive, this is bound to happen.
- Inventions such as the Simputer can reduce costs by providing affordable computing. At Rs.10,000 a piece, the Simputer offers computing facilities at a drastically lower cost compared to Rs.30,000 for a PC. Further, it has a local language interface.
- Use of open source software will not only be cost effective but can also meet the localized demands of the enormous linguistic diversity of India. Further, open source software can also be used on old hardware [19].
- Generating 'new' course material that can be incorporated electronically into the programme.However the challenge here is for programme re-designers. Decisions have to be made as to which 'new' material will be incorporated into, and which will be edited out from the module/ programme. But there is always the danger of putting too much 'new' information into the materials, and thereby over-burdening the participants.

4.2. Up-and-coming challenges

- The rapidly changing job content and employment profiles require perpetual learning opportunities.
- Professors do not mind lecturing to large classes with audio-visual supplements, evaluating exams for these large numbers would be an exhilarating activity for

them.

- The requirements for employed learners such as-the work schedules are varied and hectic that the courses need to be delivered to them at their work-places at their convenient time.
- The audience for such courses is varied; this wide spectrum of preparation and competence profiles of learners demand customization of learning packages for individual and self-paced instruction.[20]

For few more years, it would be most appropriate to have the blended e-learning model that would be satisfying at the both ends: the teacher and the student. Preserving the instructor-led learning added with an online component would be ideal. A pure online delivery would be something to look forward to in the future. The teacher would be satisfied that she has imparted the needed lessons using the interactive sessions; while the student would be satisfied with the clarifications that he/she sought from the teachers. ICT and the Internet will continue to influence the ways in which higher education has traditionally been delivered. New technologies will continue to play an important role in evolving new modes of delivery for the masses.

Call it Web-based Training or Border-less Education, e-learning is here to stay.

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