



Virtual University - University in Cyberspace

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During a lecture tour in 1896, J C Bose was in London where he met Marconi who suggested Bose about commercial telegraphy. Bose declined saying that he was not interested and others can use his research work. For him Knowledge is not to be kept as personal assets. Marconi went ahead and received Nobel Prize in 1909. World believed Marconi as the inventor of radio and wireless telegraphy and it took almost hundred years¹ for the public to realize that the credit really goes to J C Bose. J C Bose was against any type of patenting. Roentgen, Pierre Curie and others also chose the path of no patenting on moral grounds. J C Bose was an acharya who believed and practiced Indian way of knowledge propagation. In Indian way of thinking, Guru is the trinity (Brahma, Vishnu and Maheswara) and is the manifestation of the ultimate reality called Parabrahma. Knowledge is the only form of wealth which grows on spending and sharing. Human body is just a hardware with the brain as CPU which has an added function of creativity. It can create knowledge.

Richard Stallman is an Acharya in its full context and meaning of the word in the world of computer knowledge.

Laws of Free Software

In 1950s, to 70s it was normal for computer users to share software by individuals and computer manufacturers. Hardware manufacturers encouraged people in developing software so that their hardware will be useful to the society. Later on in early 80s the software industry began using technical measures to prevent computer users being able to study and modify software. In 1980 copyright law was extended to computer program. Frustrated by the change in culture of the computer industry Stallman announced his GNU project and the Free Software Foundation (FSF) was founded in October 1985. He developed a free software definition and the concept of 'copyleft' ensuring software freedom for all. FSF recommends using the term 'free software' rather than 'open source software'. Stallman put forward following laws of Free Software describing the dynamics of related software dynamics:

Freedom 0: The freedom to run the programme for any purpose.

Freedom 1: The freedom to study and modify the programme.

Freedom 2: The freedom to copy the programme so you can help your neighbour.

Freedom 3: The freedom to improve the programme and release your improvements to the public so that the whole community benefits.

Stallman's laws of Free Software has the same status as that of Newton's laws of Motion or Einstein's axioms in Relativistic Mechanics or Ranganathan's laws of Library Science. Freedom 1 to 3 require source code. Computer users have freedom to cooperate with whom they choose and to control the software they use. Stallman distinguishes libre (freedom) software from gratis (zero price) software by saying "Free software is a matter of liberty, not price. To understand the concept, you should think of 'free' as in free speech, not as in 'free beer'". In late 90s new definitions of free software came like Debian Free Software Guidelines (1997) and Open Source Definition (1998). There are BSD-based operating systems without any formal definition of free software. Free Software Directory maintains a large database of free software packages like X Window System, GNOME, KDE, Open Office, Mozilla web browsers, Thunderbird email client, TeX and LaTeX document preparation systems, Graphics tools like GIMP, Text editors like emacs, multimedia container like Ogg, GCC compilers, GDB debugger and GNU C Library.

Cyber Space University

The explosive growth of Internet and related technology have resulted into the creation of information explosion which has created a paradigm shift in knowledge creation and teaching and learning environments. At present we have information at our finger tips which forms the raw materials for knowledge generation. Library of a University, for example, is now not limited to the four walls of a building but



expanded to the whole campus and beyond reaching the tables of students and teachers. Centres of learning are now not related to multistoried concrete buildings but are invisible assemblage of human creativity filling whole universe due to the availability of satellite technology. Centres of learning are not fixed in time and space, they surpass time, space and pace. New concept of University system and class rooms are emerged. They are not virtual, they are real. They are like dense consciousness without a body in flesh and blood. We have Centers of learning with class rooms in Cyberspace.

In this age of internets we have Learning Communities in Cyberspace. The availability of Cyberspace have completely changed the scenario of distance learning and adult continuing education. For example when 76 percent of institutions of USA offered distance learning in 1995 at present more than 95 percent of higher education institutions enroll ten thousand or more in some mode of distance education. In the computer mediated distance learning, the teacher takes the role of a facilitator delivering courses by communicating with students through computer network or internet. A new genus of institutions of higher learning are in the horizon called internet university. For example New Promise Internet University is a collaboration of about 90 institutions including Harvard, Indiana University, Michigan State and University of Minnesota offering degrees through online education at various levels in subjects like Aeronautics, Arts, Business, Computer Science, Economics, Education, Health, History, Humanities, languages, law, Literature, Management, mathematics, Science and Sociology.

The Virtual University is a concept which is employed effectively to enhance the access to higher education irrespective of the remoteness of the places where students live. Sharing of expertise and facilities of world class universities are now open up to the whole world through the Cyberspace Universities. The mere concept of learning as the life long learning has now become an effective reality through Cyber University and Cyber Class rooms. One of the main reasons why lifelong education has become so important is the acceleration of scientific and technological progress. Despite the increased duration of school and university education spanning about two decades knowledge and skills acquired are not sufficient for a professional career spanning three or four decades. The European

Union adopted a Communication in October 2006 entitled 'It's never too late to learn'. This document suggests lifelong learning as the important ambition, in which the EU should become a learning area. In Africa the concept of Virtual University is well received and the African Virtual University Experiments have encouraged other countries to adopt similar modifications in the area of higher education. Pakistan has launched Virtual University to widen the accessibility range of higher education.

E-Learning and Cyberspace Universities

The experiment of Cyberspace Universities is successful in Australia, USA and UK. India has recently entered in the arena with IGNOU going Virtual. The Cyber Space University or better known as Virtual University has become a reality due to the development and popularization of e-learning or electronic learning. Developments in internet and multimedia technologies are the basic enabler of e-learning with content, technologies and services being identified as the three key sectors of the e-learning industry. The story of e-learning starts in 1993 when Graziadei described an online computer-delivered lecture, tutorial and assessment project using electronics mail together with several software programmes that allowed students and instructor to create a Virtual Instruction Classroom Environment in Sciences (VICES) in Research, Education, Service and Teaching (REST). By 1997 Graziadei perfected the building up of asynchronous and synchronous Teaching-Learning Environments. E-learning is best suited for distance learning even though it can be used in conjunction with face-to-face teaching creating Blended learning method. According to Bernard Ruskin E in elearning is related to exciting, energetic, enthusiastic, emotional, extended, excellent and educational in addition to the traditional interpretation 'electronics'.

Learning Management System (LMS)

Cyber Space University is built on a strong base of appropriate learning Management System (LMS) which is software for delivering, tracking and managing the training. Most LMSs are web based to facilitate 'any time, any place, any pace' access to learning.

While most of the LMSs are commercially developed non-free software licences open source LMSs are increasingly available in the market. LMSs and virtual learning environments have following characteristics:



- Manage users roles, courses, instructors and facilities
- Course calendar
- Student messaging and notifications
- Assessment / testing
- Display scores and transcripts
- Grading of course works
- Web-based course delivery

A technology related to LMS is Learning Content Management System or LCMS which focuses on the development, management and publishing of the content that will be typically be delivered via an LMS. An LCMS is a multi user environment where learning developers may create, store, reuse, manage and deliver digital learning content from central object repository. While LMS cannot create and manipulate courses, it cannot reuse the content of one course when building another. The LCMS, on the other hand, can create manage and deliver not only training modules but also manage and edit all the individual pieces that make up a catalogue of training. LCMS applications allow users to create, import, manage, search for and reuse small units of digital learning contents/assets commonly referred to as learning objects. These assets may include media files developed in other authoring tools, assessment items, simulations, text, graphics etcetera. An LCMS manages the process of creating, editing, storing and delivering e-learning content. Some of the LMS platforms available as open Source are ATutor (Open Source web based LMS), Caroline, Dokeos, eFront, Fle3, ILIAS, Moodle (Open Source Course Management System). In the closed system Blackboard is one of the popular LMS.

One of the most successful story of the Cyber space University is that of the African Virtual University launched in 1997 as a world Bank project. With its mission ' facilitate the use of effective Open Distance

and elearning Methodologies in African Education Institution . Freely available open course ware such as of MIT can be used to design course materials.

Learning Networks

Learning networks are transforming teaching and learning relationships , opportunities and outcomes. Emergence of new communication and information technologies ater the traditional educational structures dramatically. Computer networks and related technologies enable new forms of teaching and learning thereby creating the basis for changes in how education will be conceptualized and practiced. Network technologies provide the means whereby learners can interact with peers, resources and experts to build knowledge and develop skills. Network enable the teacher to become a facilitator, providing educational structures and guiding learner in accessing the data and organizing the information into knowledge. Networks also enable education become inter-institutional, tremendously extending the access of the student and teacher to information resources and expertise around the world at the best facilities available.

The attributes of networking thus enhance the opportunities and resources available to learners and teachers. Outside experts(scientists, professors, social groups or poets) can be easily accessed regardless of where they are geographically located. Students can tap into the best libraries and databases in the world electronically. Today's learners and teachers can form linkages with counterparts in other parts of the world with relative ease. The asynchronous nature of networking further expands access; facilitates international interactions, with teachers and learners controlling over the time and pace of their participation.

In an age of rapidly expanding knowledge and when 'Knowledge is Power' the Cyberspace University concept offers the possibility of bringing equal learning opportunity to learners whenever they need them wherever they may be.

