Central Interactive Higher Education System (CIHES)

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ABSTRACT   *Even after many years of independence some States in India are still struggling to achieve Universal enrolment, retention and quality Higher Education. Therefore the only option left for us is to offer uniform or standardize teaching learning resources or methods. Through ICT (Information Communication Technology) we can provide E-Learning solution to aspiring students.   In this paper, I have proposed a model 'Central Interactive Higher Education System (CIHES)' to spread the Web Based Student Oriented E-Learning (WSOL) concept in to the minds of young India along with various approaches taken or to be taken.*

Keywords: *CIHES, E-Learning, Higher Education, ICT, WSOL.*

1 -   Introduction

Nowadays, ICT play an increasingly central role in students' lives and have the potential to enable changes in formal Higher Education settings in order to effectively meet the needs of 21st century. Innovative forms of pedagogical practice with ICT encourage learner-centered approaches and group work, as well as promote inquiry based learning, learning-by-doing, problem solving and creativity. Existing technologies like mobiles, wikis, 3D virtual worlds and emerging technologies like gesture based, augmented reality, immersive worlds increasingly empower teachers to create pedagogically effective learning activities that support experimental learning, promoting and improving motivation and learner engagement. Attention is thus focused on a new culture of learning afforded by technologies, where students are at the center of the learning process, participating in ways that were not possible before; where flexibility, personalization and different learning styles are combined; and where learning is authentic, motivational and conceived as a social process, enabling peer-to-peer informal interactions that lead them to learn from each other. Interaction with ICT offers students and teachers with novel ways of dealing with a task, such as enabling to inquire and to gather data in the field, thus changing the nature of the activity itself and fostering creative thinking and meaning-making.

2 -   The Web Based Student Oriented E-Learning

This time is important for India to get prepare for the future hence requiring Higher Education in full fledge (Chia-Wen &Pei-Di, 2009, [3]). Though, we have many Colleges, enough teachers and facilities for students and teachers. But the great variation in the quality of Higher Education is found due to some factors like social background of students, parents, different standards of teacher training programs, all teachers cannot deliver the same message to all students. This fetches the need of WSOL—Web Based Student Oriented E-Learning. The term Web Based Student Oriented E-Learning (WSOL) is proposed in this paper because it means its inner meaning, W for Web or World Wide Web—which is an easy media to convey data world-wide very smoothly, Based upon W media, S for Student, O for oriented, L for electronic E-Learning some data or facts available in the W media Based electronic systems. This can be done by introducing or using Information Technology (IT) and related tools in College Higher Education or by using World Wide Web (WWW) as Higher Education delivery medium. The WWW is used not only to disseminate information but it also offers a great opportunity to extend learning outside space and time boundaries.

The Web Based Learning has the potential to meet the perceived need for flexible pace, place and face. The web allows Higher Education to go to the learner rather than the learner to their Higher Education. E-Learning is a cost-effective solution and comprises Voice-conferencing, Video-conferencing, Video-streaming, Virtual classroom, Virtual laboratories. It is the good option to bridge the digital gap. Goodbye classes, goodbye books and goodbye teachers are all possible with the WSOL. WSOL is an interactive experience with access to on line tutors and can be done from any computer once you have your password. WSOL has become popular amongst Higher Educationists because of its inherent strengths and advantages it offers to the instructional process such as, the ability to have multimedia documents, the hypertext/hypermedia capability, WWW network basis, allowing for distance learning. Access is through web browsers such as Internet explorer and Netscape Navigator. With Web Based Learning, training is organized in the form of modules. The modules are approximately one hour session that focuses on specific

subject of training. Using WSOL the training can be brought right to your desktop. This makes technical training more convenient. During the live WSOL module, participants will have the ability to ask the instructor questions, get answers and interact with other students — all on line. In this paper, we have discussed various innovative methods and challenges according to WSOL in India.

3   -   Some Running Projects and New Concepts

India has a strong Higher Educational infrastructure, particularly in the Higher Education sector with more than 13,500colleges and above 250 universities (Naidu, & Oliver, 1996, [7]). To cope up with this huge increasing number of Higher Education systems we require a strong WSOL system indeed. The International known projects like National Programme on Technology Enhanced Learning (NPTEL), National Mission on Higher Education through ICT, National Knowledge Network, Sakshat Portal, e-Gyankosh, Pan Africa e-network project etc. has done credible work for the promotion and Improvement of E-Learning. In this chapter we present some approaches already taken in account of establishment of WSOL in India so far.

- **Sakshat Portal** is the initiative of Ministry of Human Resource and Improvement(HRD), developed and designed by IGNOU and a repository of
  e-books, e-journals and digital repository.
- **e-Gyankosh** is the digital repository of E-Learning material, developed by IGNOU.
- **Amrita VishwaVidyapeetham** using satellite technology to connect its 4 campuses
  in 4 different towns of South India.
- BITS Pilani has converted into a virtual university.
- Jadavpur University has started Masters in Multimedia Improvement course.
- Aligarh Muslim University has started a work on Online Higher Education system.
- Central Institute of English and Foreign Language, Hyderabad had a project for online learning software.
- Initiatives have been also taken by many universities like Hyderabad University, Kerala University, Terna College Mumbai, MDI Gurgaon, etc.
- Most recently Indian Institute of Technology (IIT) Bombay has launched its first three Massive Open Online Course (MOOC) courses.

Some of the major players in E-Learning markets in India are NIIT Technologies, IBM , Tata Interactive Systems, Sify E-Learning, Lion bridge India, Educomp Solutions, Tutorvista, and Gurukul Online. Indian Government has taken a number of initiatives, and awarded a no. of e-content improvement projects under NME-ICT for the growth and improvement of E-Learning environment. The targeted users are not fully availing the E-Learning opportunity of such initiatives. The bigger challenge is to get the attention of target users or in the other word to spread the awareness amongst its target users so that the e-students not only get the maximum benefits from the projects but also participate in its creation and evolution through interactive Learning Management System (LMS) platforms. With increases use of ICT in Higher Education and setting up of National Mission in Higher Education through ICT (NMEICT) in 2009, E-Learning has become the most popular learning method that helps a learner to learn at his own place. In this article we have defined the E-Learning and studied about the major initiatives taken by Government of India for E-Learning& self-Higher Education. The article also develop upon the categories of the learner and their respective E-Learning choices among the e- GyanKosh, Sakshat, FlexiLearn, NPTEL, CEC, Institute of Lifelong Learning (ILLL), and e-PG Pathshala.

- EDUSAT: - From the use of satellite in the early 1970s to the present interest in a dedicated SATellite for Higher Education (EDUSAT) India has considered Higher Education as a primary force for improvement of the nation. This project hasgot tremendous success in India during last few years to motivate Indian conventional Higher Education to a new era of Hi-Tech Higher Education.
- *Netvarsity*:-The country's first online Higher Educational enterprise also came with the private initiative, when the National Institute of Information Technology (NIIT Limited) started Netvarsity in 1996.
- Teaching shoppe:-After what NIIT started in 90s some other private farms came in to the market with a new concept to open up Teaching shoppe (TShopee) for the benefit in the field of College level Higher Education and for preparing students for competitive examinations like the medical and engineering entrance tests.

➢ NTFITSD: - After what NIIT started in 90s some other private farms came in to the market with a new concept to open up the real impetus for E-Learning came from the National Task Force on Information Technology and Software Improvement (NTFITSD) constituted by the Prime Minister of India in 1998. The Task Force report presents the master plan that India has in place as a long term policy for capacity building of institutions, human resource improvement in IT related areas, and use of ICTs in Higher Education.

➢ VCI: - The Indira Gandhi National Open University (IGNOU) responded to the recommendations of the Task Force with its Virtual Campus Initiatives (VCI) in 1999. Since then a number of such initiatives are in operation in the country.

➢ EEDP:-At the Yashwantrao Chavan Maharastra Open University (YCMOU) E-Learning is used as a learner support mechanism especially for its Electronics Engineering Diploma Programme (EEDP). Students use a discussion forum to discuss concepts and clarify doubts.

➢ PDF:-In 2001, the College of Social Sciences at the Indira Gandhi National Open University (IGNOU) started a Post Graduate Certificate in Participatory Management of Displacement, Resettlement and Rehabilitation with the support of the World Bank as a fully online programme that included both synchronous and asynchronous learning opportunities. It is a first of its kind programme, where Participation in Discussion Forum (PDF) issued as a peer evaluation mechanism.

➢ eC-eL:-Some Other programme features include web course units with interactive exercises, on line Computer Marked Assignments (OCMA), online diary submissions (ODS), e-counseling (Chat) (eC) and e-library (eL) have been introduced in India.

➢ OCPFS:-Other online initiatives of IGNOU includes online certificate programmes on Food Safety (OCPFS) in collaboration with the Ministry of Health and Family Welfare, Government of India (Bhusan, 2004, [1]), a web-enhanced training package on the Windows version of the UNESCOs popular database management package CDS/ISIS (Khan, 1997, [4]) and the Web-based Training Programme for the min career diplomat of the Government of India (Bhusan, 2004, [1]).

➢ NPTEL:-Other Arguably, the most talked about Indian E-Learning project is the NPTEL project. NPTEL (National Programme on Technology Enhanced Learning) was conceived in 1999 and funded by MHRD (Ministry of Human Resource and Improvement). Under the project, 7 IITs (Indian Institutes of Technology) and IISc(Indian Institute of Science) Bangalore, worked on the Rs 20.5 crore project from 2003 to 2006, to create 112video courses and 116 web courses. All these courses are on undergraduate engineering topics, and made to meet most of the requirements of an engineering undergraduate program at any Indian university. These courses are available to students, working professionals and colleges (both government-aided and private) at virtually no cost or very low cost (Qi, Roychoudhury, Liang, &Vaswani, 2009, [9]).

➢ *Amrita VishwaVidyapeetham:* - This initiative launched in 2004 uses satellite technology to connect 4campuses of Amrita University located in 4 cities of South India. There is collaboration with US universities also, and the project was expected to expand to 200 universities. It was based on technological support from ISRO.

➢ *BITS Pilani:* - It has established a virtual university, with DIT sponsorship. BITS has been one of the pioneers in distance Higher Education. BITS has been providing courses for working professionals in distance Higher Education mode leveraging technology.

➢ *Jadavpur University:* - It started a new inter-disciplinary Masters in Multimedia Improvement course in2000-01, as a distance Higher Education course using print material, CD ROM, and web-based learning environment. Technology was offered by CDAC Kolkata and CMC.

➢ *Aligarh Muslim University*-- It worked on a project in 2006-07 to take its distance Higher Education program online, starting with a few courses which are industry-relevant.

➢ *Central Institute of English and Foreign Language*, Hyderabad It had a project for online learning software set-up and usage in 2006.

➢ Many other universities and colleges had had small projects/ initiatives where they bought software/hardware and other technology products, got content improvement done for E-Learning launch. It included the likes of Hyderabad University, Kerala University, Terna College Mumbai, MDI Gurgaon, etc.

➢ The Virtual University system has led to the commencement of 10 joint degrees, post graduate and Ph.D. programs.

3.1   -   Some New Concepts
➢ *ICOL:*-Establishment of Indian Council for on line Learning in recent year as a statutory body to.

- Develop a national distributed repository of Reusable Learning Objects (RLO).
- Maintain standard for on line Learning.
- Coordinate and promote on line Learning.
- Accredited On line Learning courses and programs.
- Develop and maintain on line learning portals for life-long learning.

➢ *eLC:-*Establishment of E-Learning Consortium (eLC) including member Higher Educational institutions to offer E-Learning programs without duplicating efforts to spread the ideas of E-Learning among Indians.

➢ *OTT:-*On line Training Teachers (OTT) is a programme that will help Indian teachers, diverse by geography, polity, culture and brilliance to unify one in all respect.

➢ *DSLOT:-*DSLOT is an approach to facilitate Improvement of Small re-usable Learning Objects by Teachers, to share the ideas and perceptions behind the learning objects through a sharable web portal.

➢ *WBCMS:-*The urgency to create courses in response to the growing demand for online learning has resulted in a hurried push to drop PowerPoint notes into Web based course management systems (WBCMSs) (Wijekumar, 2005, [11]), devise an electronic quiz, put together a few discussion questions, and call it a course. Web-based learning environments can serve as motivational, instructional, modeling, feedback, and assessment tools.

➢ *KMWBLE:-* Knowledge is a valuable asset to most organizations as a substantial source to enhance organizational competency (Kakabadse, Kouzmin, &Kakabadse, 2001, [6]). A top-level of knowledge management model in web-based learning environment is shown in.

➢ *SCROM:-*Shareable Content Object Reference Model (George &Labas, 2008, [10]) is currently adopted by a lot of industrial and Higher Educational organizations as a set of standards to specify course structure and content delivery process. Reusability in SCORM model can be achieved through the concept of learning objects.

➢ *KMWBLE:-*One popular application has been for Higher Educational use, such as Web-based Distance Distributed or online Learning (WD2L). The use of the Web as an Higher Educational tool has offered students and educators with a wider range of new and interesting learning experiences and teaching environments, not possible in traditional in class Higher Education(Mishra, 2007, [5]).

➢ We should open up new universities like British Open University, with its headquarters in Milton Keynes, UK was started in 1971.With an initial enrollment of 25,00 students it immediately became the second largest in UK, next only to University of London. Today, British Open University has more than 178,000 students and is the largest in UK. More importantly, for the third year in a row, it had the highest satisfaction scores from students (95%, as measured in September 2007). Further 50,000 organizations have sponsored staff for Open University courses.

4   -   New Models for WSOL

Till now various types of systems including electronic and theoretical have been proposed and implemented, but each has its own pros n cons. I have tried to give some innovative ideas that we can apply on India to make it WSOL-India.

4.1   -   CIHES

Central Interactive Higher Education System (CIHES) is a new idea that we are going to elaborate and employ in this paper. I have divided the CIHES in four segments as given below.

➢ *Central Server:-*
   The top most part of CIHES is crowned by N number of *Central Servers* or CS, through whole India based on different mega cities and capitals of states. Each CS will be interconnected such type of more N-1 number of servers, which will be governed by central Higher Education ministry of government of India. The Central Servers will be connected to N number of State Servers through Intranet, named CIHES-Intra-I.

➢ *Local Server:-*
   Each *Local Server* (LS) will be connected internally to each other. Their access privilege will be given to different state ministry of Higher Education respectively. Each LS will have four sub-divisions having different grade of Higher Education connected by Intranet named CIHES-Intra-II.
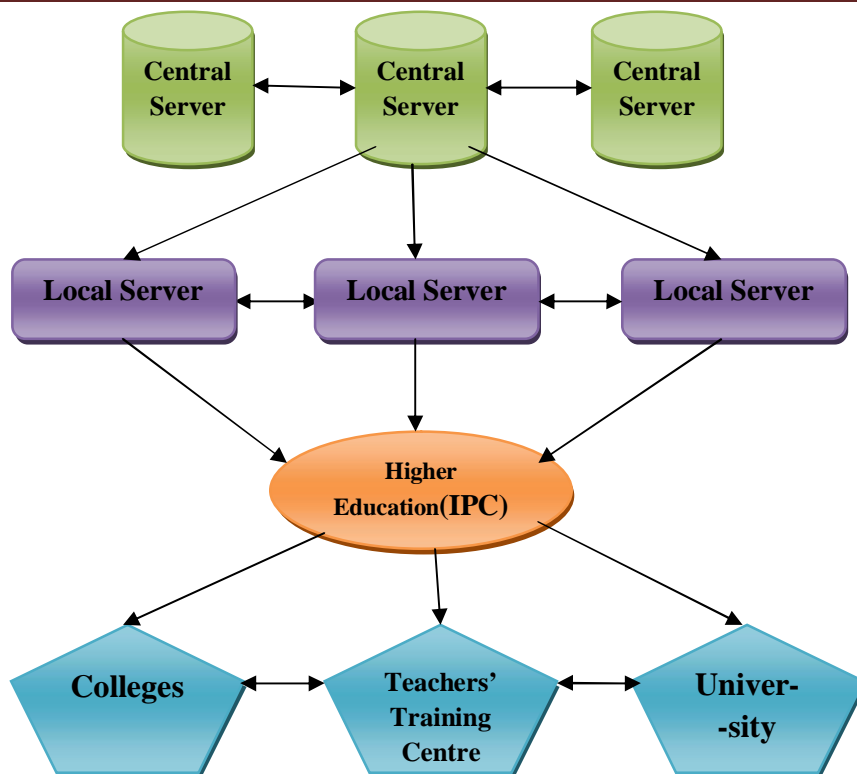
Figure 3.2   Central Interactive Higher Education System (CIHES)

➢ *Information Provider Center:-*
Information Provider Center (IPC) will be the key among all hierarchy of CIHES in India. IPC will get divided into four units namely, primary, high, graduation, post-graduation. Each of these will get connected to IPC by means of Internet, firewall and CIHES-Intra-III.

➢ *End User Access:-*
The lower most stair of CIHES hierarchy is conserved by End User Access (EUA), basically a group of servers, which will be of three types as below.

• Colleges: - This server offers all information such as course, syllabus, examinations schedule, results, interactive learning and all other Higher Education related real facts to the students as a College, college, or university.

• Teachers Training Centre:- This server offers all information regarding training of teachers Higher Education and workshop that will help Indian teachers to bring under one umbrella synchronization and motivation.

• University: - This kind of server will be directly connected to the government stuffs so that they can look after the whole CIHES and Higher Education system.

4.2   -   On line learning course improvement models
The choice of a particular approach to the improvement of an online E-Learning course is based on several factors including the academic tradition and resources available to the organization. Institutions that are dedicated to online and distance Higher Education have tended to adopt a more collaborative course team approach. Conventional campus-based Higher Educational providers, on the other hand have tended to adopt a lesser collaborative approach. In any event, the improvement of an online E-Learning course comprises a new experience for many. Old habits die hard, and when faced with circumstances that render some of one's previous experience irrelevant there is quite a lot of uneasiness, loss of confidence, disillusionment, hostility, and at times withdrawal from the activity altogether.

4.2.1   -   Resource Based Model
This model of online E-Learning relies on study materials, which may comprise online study guides, activities and discussion wrapped around existing previously published resources such as textbooks or CD-ROMs etc. This model represents a resource-based approach to learning, as it seeks to use existing material that is relatively unchanging and is already available online of offline. Collaborative learning activities in the

form of group work, discussion among peers, and online assessments may be supported by computer conferencing, or mailing lists(Naidu, & Oliver, 1996, [7]; Naidu, & Oliver, 1999, [8]).Unfortunately quite often, these online learning elements tend to be added to the course and do not form an integral part of the assessment requirements of the course.

4.2.2   -   The Collaborative Model

This model is closest to a full online E-Learning course. Such courses are often offered via a comprehensive learning management system. For the moment though, some of the subject matter content will be best accessed offline in already published textbooks and other sources. The learning and teaching in these courses takes place in the computer conferences, in which the prescribed readings and the assigned tasks are discussed. Much of this learning and teaching activity is fairly fluid and dynamic as it is largely determined by individual and group activities in the course (Bielaczyc, & Collins, 1999, [2]).

5   -   Advantages and disadvantages of WSOL
5.1   -   *Advantages*

E-Learning is beneficial to Higher Education, corporations and to all types of students. It is affordable, saves time, and produces measurable results. E-Learning is more cost effective than traditional learning because less time and money is spent traveling. Flexibility is a major benefit of E-Learning. E-Learning has the advantage of taking class anytime anywhere. E-Learning can be done at the office, at home, on the road, 24hours a day, and seven days a week.

Students like E-Learning because it accommodates different types of learning styles. Students have the advantage of learning at their own paces. Students can also learn through a variety of activities that apply to many different learning styles students have. Students can fit E-Learning into their busy schedule. If they hold a job, they can still be working with E-Learning. If the learner needs to do the learning at night, then this option is available. Students can sit in their home in their pajamas and do the learning if they desire. E-Learning encourages students to peruse through information by using hyperlinks and sites on the World Wide Web. Students are able to find information relevant to their personal situations and interest. E-Learning is more focused on the learner and it is more interesting for the learner because it is information that they want to learn. E-Learning is flexible and can be customized to meet the individual needs of the students. E-Learning helps students develop knowledge of the Internet. This knowledge will help students throughout their careers. E-Learning encourages students to take personal responsibility for their own learning. When students succeed, it builds self-knowledge and self-confidence in them. Educators and corporations really benefit from E-Learning. Students enjoy having the opportunity to learn at their own pace, on their own time, and have it less costly.

5.2   -   *Disadvantages*

Next we look at the disadvantages of E-Learning. One disadvantage of E-Learning is that students need to have access to a computer as well as the Internet. They also need to have computer skills with programs such as word processing, Internet browsers, and e-mail. Without these skills and software it is not possible for the student to succeed in e- learning. E-students need to be very comfortable using a computer. Slow Internet connections or older computers may make accessing course materials difficult. This may cause the students to get frustrated and give up. Another disadvantage of E-Learning is managing computer files and online learning software. For students with beginner-level computer skills it can sometimes seem complex to keep their computer files organized. Without good computer organizational skills students may lose or misplace reports causing them to be late in submitting assignments.

E-Learning also requires just as much time for attending class and completing assignments as any traditional classroom course. This means that students have to be highly motivated and responsible because the entire work they do is on their own. Students with low motivation or bad study habits may fall behind. E-students also need to have good writing and communication skills. When instructors and other students aren't meeting face to face it is possible to misinterpret what was meant.

6   -   Conclusion

The model 'Central Interactive Higher Education System (CIHES)'is proposed to spread the Web Based Student Oriented E-Learning (WSOL) concept. Some other models are Resource Based model and Collaborative model. I have also discussed the various initiatives and running projects have been started by Indian government and different renowned Universities.

In this paper, I have given information about different approaches towards WSOL in India and new model CIHES to be implied on Indian Higher Education system to make it more web based hence advanced. I have

also discussed other topics such as online learning course improvement, and various merits and demerits of WSOL.

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